

INSTRUCTIONS FOR PREPARATION

A report, in single copy, for each method of trapping is to be prepared for each month of activity and mailed to the regional office, along with copies of banding schedules showing the birds banded. When no birds are captured (as in the case of prebaiting, trap construction activity or unsuccessful efforts) cost record should be forwarded at the end of the month without copies of banding schedules.

When two or more trapping methods are used simultaneously costs should be recorded as accurately as possible for each.

Several species of waterfowl captured by any one method during the month may be shown on one report. Doves should always be shown on one report. Doves should always be shown on a separate report even though they may have been banded as part of a combined trapping effort.

Labor costs are to be calculated on the basis of hourly rates applicable to the personnel doing the trapping and banding. Be sure that labor charges accurately reflect the actual time spent on banding. Do *not* lump the entire day's time as banding simply because that was the activity calling for the major effort of that time period.

Vehicle operation costs per mile may be obtained from operation reports in your files.

Trap and cannon net costs are to be figured on a depreciation basis using costs of materials and labor to build. For example, a dove trap costing \$5.00 (\$1.50 for materials and \$3.50 for labor to construct) will operate an estimated five years. Thus, the yearly depreciation is \$1.00 and, if operated 2 months each year the monthly depreciation is 50¢. Since conditions and equipment vary, you are to use your own judgment in this matter.

Refuges, in figuring costs on bait produced on the refuge, may show estimated production costs; or if obtained as part of a share cropper rental payment, the costs of harvesting (if by refuge personnel) and moving to the trapping area are to be considered.

A SURVEY OF PRIVATE AND COMMERCIAL SHOOTING PRESERVES IN TENNESSEE

By CHESTER A. MCCONNELL, *Research Biologist*
Tennessee Game and Fish Commission

INTRODUCTION

Future recreational needs will be tremendous and administrators in the recreation field, including game and fish commissions, are planning for these needs. Experts predict a United States population of 230 million persons by 1975 and 350 million by the year two thousand. Seventy-three percent of the people are expected to live in metropolitan areas. The population of Tennessee is expected to increase from 3.5 million in 1960 to about 4.3 million in 1975 (Anonymous, 1961). Based on recent trends, these people will be making more money and have more leisure time.

Planning for future hunting needs will require consideration of questions like the following. How much wildlife habitat will be diverted to intensively managed agricultural areas to produce food for our increasing population? How can we use the available land to provide more quality hunting and fishing? How much can commercial and private shooting preserves reduce hunting pressure on game species produced by nature?

The search has begun for answers to these and other questions. One step taken by the Tennessee Game and Fish Commission was a

more detailed study of shooting preserves. A shooting preserve is a privately owned or leased area, licensed by the Game and Fish Commission, on which some form of liberalized hunting of stocked, artificially propagated, game birds or mammals is permitted. All shooting preserves have one thing in common; most of their legal game is pen-reared and released on the preserve for hunting. Methods of rearing, release, and time of release vary with individual operators and type of preserve.

HISTORY OF SHOOTING PRESERVES

The first shooting preserves in the United States were organized in the early 1900's through the efforts of hunting clubs located in the eastern and southern states. These were usually composed of large tracts of land which supported an abundance of wild game. In 1910, New York State enacted the first laws to license shooting preserves (Burger 1962). By 1963, forty-one states licensed preserve operations.

The number of shooting preserves has been increasing rapidly in the United States. There were 1,207 shooting preserves in 1957-58 (Kozicky, *et al.*, 1961) and 2,121 in 1963-64 (Kozicky, 1964). This represents a 67 per cent increase in seven years. During this same period, shooting preserves in Tennessee increased 600 per cent (Figure 1). Twenty commercial and 32 private preserves were established in Tennessee by 1965 (Figure 2). Seventy-five preserves have been in operation during the past eight seasons, but 31 per cent went out of business during this period.

In northern states, around large metropolitan areas, there is con-

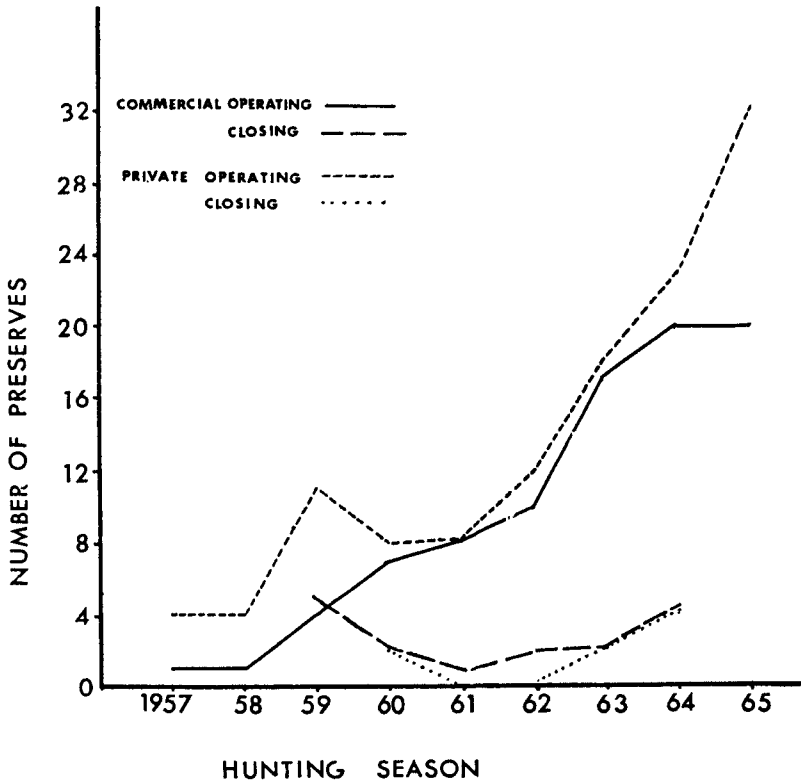


Figure 1. Changes in numbers of private and commercial shooting preserves from 1957 to 1965.

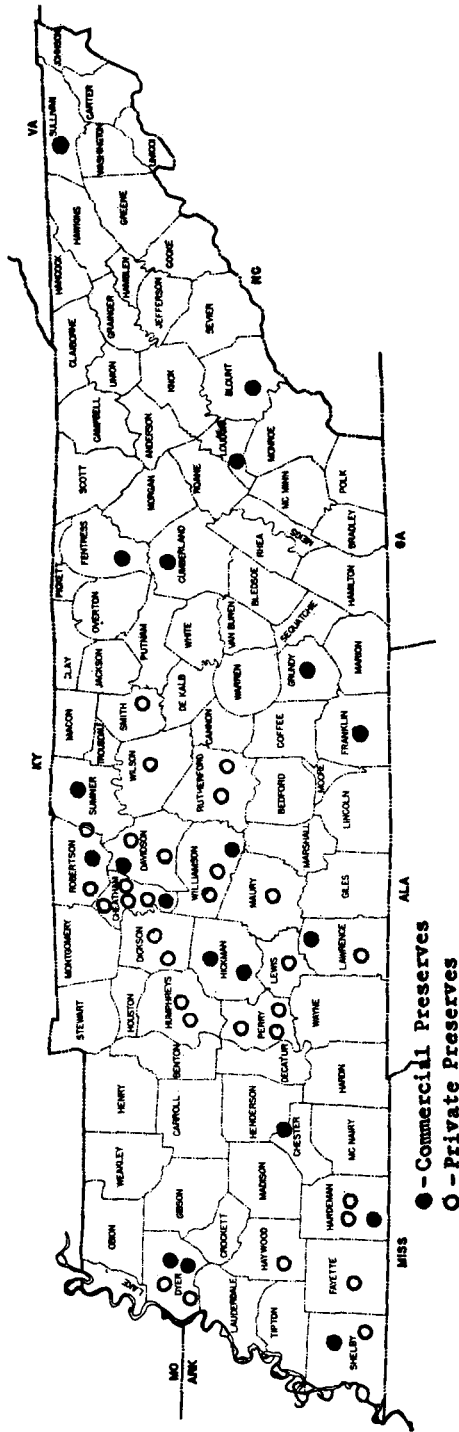


Figure 2. Location of commercial and private shooting preserves during 1965-66.

siderable use of shooting preserves. Demand is not as substantial in the south but may be in the near future. We should be prepared to help preserve operators cope with the demand if it arises.

The Bobwhite quail (*Colinus virginianus*) has been the most popular species hunted on Tennessee shooting preserves. Ring-necked pheasant (*Phasianus colchicus*), Chuckar partridge (*Alectoris graeca*), and Mallard ducks (*Anas platyrhynchos*) have also been hunted but failed to gain much popularity.

Prior to 1959, preserves in Tennessee could only release game birds to be hunted during the regular season. In 1959 the Game and Fish Commission established rules and regulations which govern the operation of shooting preserves. Regulations have remained basically the same except for those relating to preserve size and hunting dates. Hunting was allowed from October 1 to April 1 until 1962, when the big game shooting preserve season was extended from September 1 to May 31. Preserve size was not regulated until 1962 when big game preserves were limited to a maximum of 640 acres. In 1964, all newly established shooting preserves were restricted to a maximum of 640 acres.

Preserves provide more hunting opportunities each year and thereby remove hunting pressure from wild game. They also provide opportunities for physically handicapped persons, who otherwise would not hunt, and for business and professional men who haven't time to scout for wildlife habitat where hunting is permitted. Preserves cause an increase in the number of out-of-state hunting licenses sold. In the past three years, the three big game shooting preserves in Tennessee sold non-resident hunting licenses worth \$29,360.

Beginning in 1960, preserve operators were required to submit an annual report to the Game Division. These reports include dates of hunts, names of hunters, quantity and species of game killed, and game recovery records. A few operators failed to submit their reports because they ceased operations. Consequently, use records are available from only 83 per cent of the preserves. During the past six seasons a minimum of 10,200 persons hunted on upland game bird preserves for an annual average of 1,700 hunts (Table 1).

Commercial preserves have released a minimum of 99,636 quail, 30,100 pheasants, 4,783 chuckars, and 1,950 ducks, during the past six seasons. Of these, 48,823 quail, 15,514 pheasants, 2,613 chuckars, and 634 ducks were killed by hunters. Private preserves have released 48,893 quail, 2,533 pheasants, and 61 chuckars. Of these 29,302 quail, 1,778 pheasants, and 55 chuckar were killed by hunters (Figure 3). Approximately 52 per cent of all game birds released on preserves has been killed by hunters (Table 2).

Shooting preserves serve hunters and bring additional revenue to Tennessee, therefore, the Game and Fish Commission feels it is our duty to assist preserve owners with some of their problems. This requires a knowledge of preserve operations. Consequently, a survey was designed to learn more about Tennessee shooting preserves.

THE SURVEY

Visits were made to Tennessee shooting preserves to study methods of operation, operation cost, and problems. Seventeen commercial and 13 private preserve owners or operators were interviewed. A questionnaire concerning the operation of the preserves was completed and observations were made of the various facilities and shooting areas.

A variety of preserves have been developed in Tennessee depending on the type of hunting provided and the methods of finance.

- I. Private Shooting Preserves: These preserves are not operated for a profit and are not open to the public. They are stocked with game birds and may be operated by an individual or a group of hunters.
- II. Commercial Shooting Preserves: These are operated for a financial

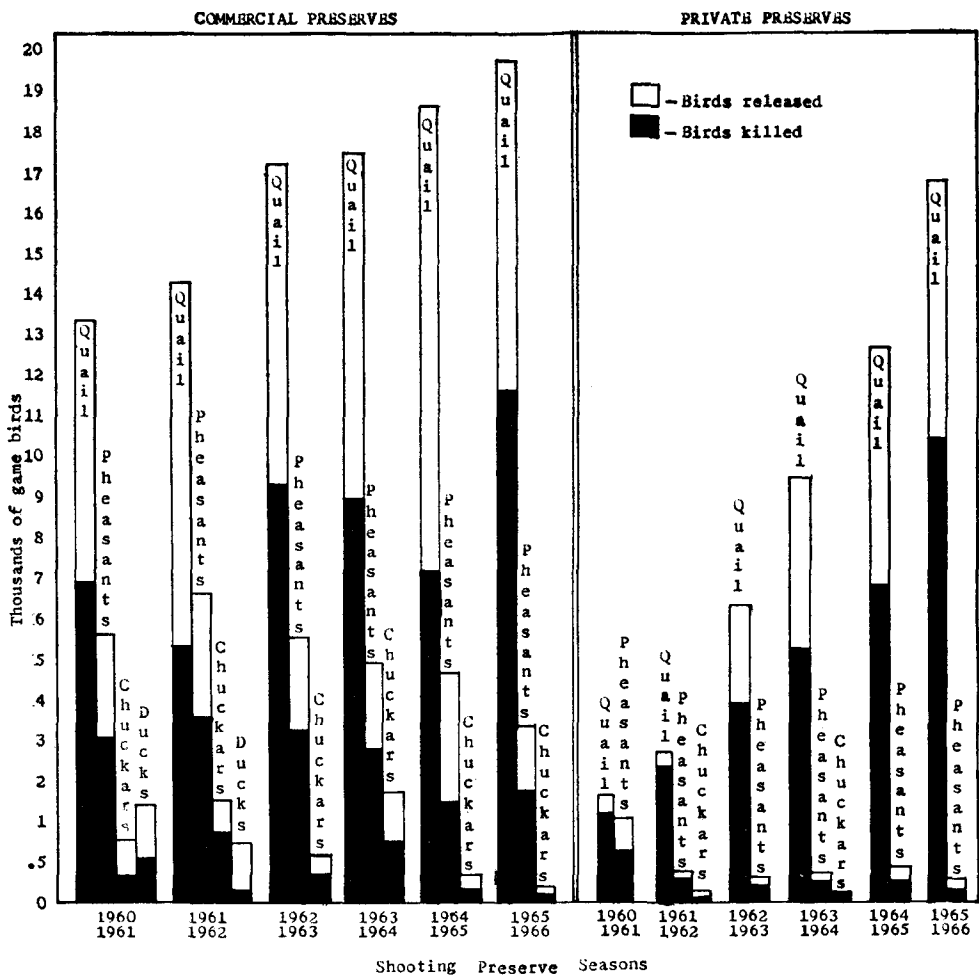


Figure 3. Number birds released and killed on shooting preserves from 1960 to 1966.

TABLE 1. Minimum number of persons hunting on upland game bird preserves in Tennessee 1960-1966

Season	Commercial Preserves				Private Preserves			
	Reports Included	Percent Reporting	Total Hunters	Avg. Hunts Per Preserve	Reports Included	Percent Reporting	Total Hunters	Avg. Hunts Per Preserve
1960-61	4	80	868	217	5	62	231	46
1961-62	6	85	1,088	181	8	100	288	36
1962-63	7	87	1,169	167	12	100	496	41
1963-64	13	86	1,308	101	14	78	871	62
1964-65	11	65	938	85	23	100	1,103	46
1965-66	13	76	1,122	86	26	81	718	28
TOTAL	54	80	6,493	139	88	87	3,707	43

TABLE 2. Game birds reported, released and killed on licensed preserves in Tennessee, 1960-1966

Season	QUAIL			PHEASANTS			CHUCKAR			DUCKS		
	Released	Killed	Percent Killed	Released	Killed	Percent Killed	Released	Killed	Percent Killed	Released	Killed	Percent Killed
1960-61	14,700	8,046	51%	6,515	3,645	56%	703	338	48%	1,200	517	43%
1961-62	16,901	7,319	43%	6,946	3,328	55%	1,450	888	61%	750	117	16%
1962-63	23,082	13,114	56%	5,653	3,265	58%	539	382	70%	0	0	—
1963-64	26,321	14,060	53%	5,144	3,051	59%	1,708	776	45%	0	0	—
1964-65	31,109	13,827	44%	4,986	1,513	30%	269	150	56%	0	0	—
1965-66	36,416	21,759	59%	3,389	1,990	58%	175	134	76%	0	0	—
TOTALS	148,629	78,125	52%	32,633	17,292	53%	4,844	2,668	55%	1,950	634	33%

profit and are open to the general public.

- A. **Big Game Preserves:** These provide hunting for boar (*Sus scrofa*), bear (*Ursus spp.*), exotic deer, sheep or goats. Hunters pay fees according to the species, trophy characteristics, and number of animals killed.
- B. **Upland Game Bird Preserves:** These provide hunting for quail, pheasants or chuckar partridge. Methods of charging fees vary.
 1. **Daily fee basis:** Some preserves, which charge primarily on a daily fee basis, offer "package deals." This permits a hunter to pay in advance, at reduced rates, for a certain number of hunts. Daily fees may be based on any of the following:
 - a. **Number shot:** Hunter pays only for birds which he shoots.
 - b. **Number released:** Hunter pays for birds specifically released for him.
 - c. **Guaranteed limit:** Hunter pays a minimum fee to kill a guaranteed limit of birds. Hunters not killing the limit are given birds from a supply source.
 - d. **Sporting opportunity:** Hunter is guaranteed only a sporting opportunity to shoot a limit of birds.
 2. **Membership basis:** These preserves are operated for a specific group of hunters who pay a prescribed membership fee. Fees are normally paid in advance for a guaranteed number of hunts.

BASIC METHODS OF OPERATION

The methods of operation described are not necessarily all practiced by any particular shooting preserve. Some methods were learned from preserve operators in states other than Tennessee. The description of the basic operation is to familiarize persons with preserve methods.

Upland game bird shooting preserves are established on areas which resemble natural quail habitat. They are normally divided into shooting areas, separated by ridges, streams or rows of trees, which give several persons opportunity to hunt simultaneously. A shooting area is planned so two or three hours are required to complete a hunt on it. Vegetation is managed in a way which causes persons to hunt along certain routes. The area is cleared of most obstructions to allow better hunting and prevent accidents. Hunters are usually assigned to these areas and accompanied by guides who direct the hunt and control dogs.

Release and stopping vegetation (cover) is planted in thick stands along hunting routes. Pen-reared birds tend to run from the bird dog, therefore, they are released in dense cover which prevents them from running and staying ahead of the dogs. Cover plants are chosen which have dense vegetative growth and which last late in the preserve season. In this situation the plants' ability to produce food is of less importance because most birds are released and killed the same day.

Game birds used on preserves are hatched in incubators, reared in brooders for several weeks, and then moved to flight (holding) pens where they can exercise and become better fliers. Incubators, brooders, and flight pens have been substituted for the habitat necessary for production of game birds in the wild. Consequently, there is no need for nesting or rearing cover. Only protective cover for releasing and holding birds is essential. By using these facilities, preserves can release thousands of birds for hunting. These same preserves could produce only a few hundred birds under ideal natural conditions.

Most operators release small groups of birds 30 minutes to two hours prior to hunts. Other operators, mostly private, release birds several weeks or months prior to hunts. These birds may wander or become

scattered off the preserve and are vulnerable to predators which tend to concentrate near preserves. Birds released days or weeks in advance of hunting suffer heavy mortality and only a small percent may be recovered. Birds that survive become adjusted to the wild situation and provide "wilder" targets. Commercial operators need to recover a high percentage of their released birds if they expect to make a profit. However, a few operators still release some birds months before the hunting season and restock all during the season.

Big game preserves in Tennessee are divided into a section for rearing game and one for hunting. These preserves are located in forestland in rugged, hilly terrain. Most animals are reared on the preserve but some are purchased from various sources. Species of sheep, goats, and boar are reared in isolated enclosures containing several hundred acres. The animals feed on the natural foods within the enclosure but where large numbers are reared it is necessary to supplement with commercial foods. Caves and rock ledges may be available for shelter or shelters may be built. Bear and exotic deer are normally purchased but some are reared in small wire pens.

The hunting area is divided into compartments separated by streams or ridges. Boar, goats, and sheep are released on the hunting area weeks or months prior to hunting. Consequently, they behave similar to wild animals. Bear and exotic deer are released just before the hunt and do not act as wild. Dogs are released to bring the animals to bay and the hunter makes the kill.

STATUS OF UPLAND GAME BIRD PRESERVES IN TENNESSEE

During our survey, 13 private preserves were visited. They varied more than commercial preserves in facilities, size and number of birds released. They contained from 15 to 6,280 acres. The number of birds released ranged from 25 to 9,500. The primary reason for the variation is the financial status and hunting desire of owners. Operational problems encountered on private preserves are similar to those of commercial preserves and they will be discussed together.

Detailed information was obtained from all upland game bird commercial preserves and data analyzed from 11 preserves which have been in operation for two or more years. Five of these preserves made a profit during the 1964-65 season. Appendix A lists the number of preserves involved in determining the average and range for each item listed. The estimated annual investment for physical facilities was determined by dividing the cost of equipment by the number of years each item is expected to be of use. The major differences between profitable and nonprofitable preserves will be discussed. However, these differences do not always determine profit. During the first two or three years a preserve may be successful and fail to realize a profit due to the initial high investment. In the following discussion preserves which made a profit will be termed "successful" and those failing to realize a profit "unsuccessful."

Successful preserves had operated for an average of 5 years and unsuccessful ones 3.3 years. Most successful preserves began making a profit the third year. They had more time to become established and therefore attracted more hunters. They contained an average of 823 acres divided into 4.8 shooting areas. Unsuccessful preserves averaged 465 acres with 2.6 shooting areas.

The general appearance of successful preserves was more similar to good natural quail habitat. Their shooting courses were planned better and located on gently rolling topography. Both groups of preserves are fortunate in usually having an abundance of natural cover which requires a minimum of management.

Hunters traveled an average of 15 miles further to hunt on successful preserves. However, persons operating preserves long distances from their customers felt this adversely effected their business.

Successful preserves had a higher average annual investment in physical facilities and provided better service for their hunters. The

average annual investment in land was higher for successful preserves but the cost per acre was less. Two successful preserves had club houses and the other three invited hunters into their homes for refreshments. Successful operators had an average of eight dogs while unsuccessful operators had an average of three and felt they needed more and better dogs. The investments in rearing equipment and holding pens were greater for successful preserves and this enabled them to handle a larger volume of game birds.

Rearing and holding costs were extremely variable. Operators purchased birds at 1 day, 3 weeks, 10 weeks, and 16 weeks of age. Some also purchased birds, as they were needed, from nearby game breeders, thereby saving on feed bills. Costs of labor, number of employees, and upkeep of facilities also varied. Very poor bookkeeping, by most operators, prevented accurate comparison of cost estimates.

Successful preserves received an average of \$4.21 for each quail, pheasant or chuckar sold, compared to \$3.26 for unsuccessful preserves. Successful preserves sold approximately 3,500 birds each compared with about 1,500 for unsuccessful preserves. "The key to a successful shooting preserve operation appears to be a minimum volume of about 5,000 birds released per hunting season" (Kozicky, *et al.*, 1961). Operators claimed to break even on meals, refreshments, lodging, processing game, and guide fees. Most successful preserves charged for birds harvested whereas one-half of the unsuccessful preserves charged for birds released. Successful preserves harvested 70 percent of the released birds as compared to 64 percent on unsuccessful preserves. This six percent difference is not of much concern to preserves charging for birds released but it could constitute the difference between profit and loss for preserves charging for birds harvested.

Most operators are not satisfied with their current management techniques and many plan to modify shooting courses and vegetative cover, purchase additional dogs, hire guides, or attempt to obtain better quality game birds. Only one upland game bird preserve operator received his primary income from his preserve. All other preserves are operated for supplemental income.

PROBLEMS ON UPLAND GAME BIRD PRESERVE

Upland game bird shooting preserves in Tennessee are generally poor in quality. However, a few are accomplishing a good job and have many satisfied hunters. Some operators readily admit bad operations and desire to improve. Their problems were many and varied, but some can easily be solved.

One major problem is finance. Most operators began without adequate knowledge concerning cost of operations. They began a small operation and eventually tried to expand without adequate personal finances. They receive only an average income and are reluctant to borrow money for costly improvements when there is no guarantee their business will increase. The average investment in physical facilities was \$50,132 for successful preserves and \$27,969 for unsuccessful preserves. The average annual investment was \$1,942 and \$974, respectively. Successful preserves had an average annual outlay of \$19,863 and unsuccessful preserves \$8,059.

Another major problem is the lack of knowledge of overall preserve management. Only a few operators have ever read or heard of literature concerning shooting preserve management. Still fewer have ever visited another preserve or talked with other operators. Most operators have devised their own techniques, with varying results, including costly mistakes. Each operator appears to carry out one or more phases of management very well and practically ignore others.

The most commonly noted mistake was the location of holding or flight pens. Most pens were situated in the operators' back yard without vegetative cover in or around them. Hunters could see the penned birds and this probably made their hunt more artificial and a little less enjoyable. Birds could see all persons and dogs in the vicinity. In some cases, dog kennels were located immediately adjacent

to the bird pens. As a result, the birds became somewhat domesticated and performed poorly when released. After release they preferred areas without vegetative cover, like the pen area they were accustomed to. Many operators purchased large birds at the cheapest price. They failed to consider how the birds were reared or how well they could fly.

Most preserves have an abundance of good natural cover but in some cases it is not properly used. Lanes were mowed through some of the better release cover and quail were released there. When the hunting party approached, the birds moved into the mowed strips and could be seen as they ran. Much of this running could be prevented if the vegetation were not cut below approximately 12 inches. Vegetative cover this height is sufficient to stop the bird but low enough to see the dog work (Dickey, 1960).

Operators owning only 2 or 3 dogs depend mostly on customers using their own dogs and have difficulties unless the customer's dogs are well trained.

Because many operate their preserves part-time, and may not have guides, customers can only hunt when it is convenient for the operator. Some preserves lose customers because of this.

Most operators do not advertise enough. The best preserve in the country could not be successful without adequate advertising. Successful commercial preserves in 10 eastern states spent an average of \$500 annually for advertising (Kozicky, *et al.*, 1961). Many areas are without directional or other signs which indicate the preserve location and they were difficult to locate even with the aid of written directions.

Locations of some preserves prevent them from becoming successful. They are many miles from large population centers and have not been able to attract hunters. One study (Kozicky, *et al.*, 1961) indicated a preserve should be within 30 miles of a population center of no less than 25,000 people.

Most preserves lack extra services such as meals, refreshments, game processing, and transportation for hunters. Some hunters are unable to or do not desire to walk while hunting. In some instances, these services mean the difference between satisfied and unsatisfied customers.

A few operators permit their clubhouse and adjacent areas to become cluttered with discarded cages and other trash, creating an untidy situation. Some allow their dog kennels and bird holding pens to become filthy. These situations may not only cause disease in their animals, but also disgust many persons causing them to seek other hunting areas.

A few operators feel that some of the state regulations handicap their operations. Three operators, with preserves near the state border, stated that present regulations hurt their business because out-of-state hunters are required to purchase a non-resident license. Four operators dislike the regulation which requires banding bobwhite quail before they are released. They feel that birds should only require identification when transported, from the preserve, by customers.

BIG GAME PRESERVES

Each big game preserve operator receives his primary income from his preserve and all made a profit during the 1964-65 season. Two preserves made a profit the first year and one the fifth year of operation. Two preserves contained 640 acres and one 3,500 acres. The majority of hunters come from the northeastern states traveling an average of 500 miles. Each preserve has a nice lodge with facilities to room and board an average of 16 persons. Meals, lodging, guide fees, and dogs cost approximately \$25.00 per day per hunter.

All preserves furnish dogs but two allow customers to use their own dogs. They have an average of 15 dogs costing approximately \$100 each. Game rearing and holding cost varied considerably because of

sizes of rearing areas and quantity of available natural food. Much game was purchased and cost varied with species, size, and sex of animals.

An average of three persons are hired to work as guides and laborers on each preserve. The operators organize hunts and often act as guides. The operator's wife acts as secretary, cleans the lodge, and cooks for the customers.

Hunting fees are based on the species and size of the animal killed. Each operator guarantees a kill. Approximately 85 percent of the game released on these preserves is harvested. The remaining 15 percent dies or is crippled. Operators attempt to remove crippled animals from the hunting area.

Operators were satisfied with their current management techniques and did not anticipate major changes. Two operators want to add to the variety of animals on their preserves. One operator disliked the state regulation which prevents him from increasing his preserve to more than 640 acres. Another felt he should not be required to fence his preserve. He stated that wild boar, deer, goats, or turkey could not be found in the vicinity of his preserve and also the required fences would not keep animals from wandering on or off his area. One operator felt the season should be open all year. He claimed that all animals killed on his preserve were either reared or released there. He felt his business is handicapped because many northern visitors, who come south during the summer months, would like to hunt.

SOLUTIONS TO SHOOTING PRESERVE PROBLEMS

The success of preserves depends largely on the quality of management. Preserve operators should strive to offer quality hunts. They should improve their facilities and integrate related activities (camping, fishing, archery) into their operation.

Solutions to most problems lie with individual operators. In many instances they know how and what is required to improve their preserves; the knowledge has not been applied. A statement most commonly voiced by operators during the interviews was, "If I could just get more persons to hunt on my preserve, then I could afford to improve my area." It is doubtful if many hunters are interested in paying for poor quality hunting while preserve operators are saving money to improve their preserves. Improvements to the preserves will have to come first.

Operators should become better acquainted with literature concerning methods of operation in other states. The Game and Fish Commission plans to assist by advising operators of new management information and adapting their regulations to fit changing preserve needs.

Many problems could be solved if operators would form a shooting preserve association. By meeting as a group, information learned on one preserve could be passed on to other operators. An association could also establish minimum standards of operation and thereby improve hunter acceptance of preserves. Of the 30 operators interviewed, 29 indicated a desire to form an association.

Better quality quail could be reared on preserves by locating pens in an isolated area. Pens should also have vegetative cover in and around them. Only the persons feeding the birds should be allowed near the pens. New techniques of rearing bobwhite quail, to perform more like wild quail, should be investigated by all operators.

LITERATURE CITED

- Burger, G. V., 1962. Licensed shooting preserves in Wisconsin. Wisconsin Conservation Department, Tech. Bulletin No. 24, 40 pp.
- Dickey, C., 1960. Shooting preserve management. New York, N. Y. Sportsmen's Service Bureau. 94 pp.

- Kozicky, E. L., G. Burger, J. Davidson, C. Dickey. 1961. Shooting preserve survey. Survey conducted by Conservation Dept., Olin Mathieson Chem. Corp. and Sportsmen's Service Bureau. 10 pp.
- Kozicky, E. L., 1964. Shooting preserves in 1964. Paper presented at 1964 meeting, Great Rivers Outdoor Writers, Kan. State Univ., Kan. 7 pp. (Mimeo.)
- Anonymous, 1961. Tennessee water resources. Dept. of Conservation, Div. of Water Resources. 128 pp.

APPENDIX FOLLOWS

APPENDIX A

UPLAND GAME BIRD COMMERCIAL SHOOTING PRESERVE SURVEY INFORMATION

PRESERVES MAKING A PROFIT PRESERVES NOT MAKING A PROFIT

PRESERVE INFORMATION	No.	Average	Range	No.	Average	Range
Number of years in operation	5	5	3- 7	6	3.3	2- 7
Acres:						
Non-timberland	5	507	100-1,500	6	229	100- 400
Timberland	5	316	100- 516	6	236	25- 900
Total	5	823	200-2,000	6	465	240-1,300
Number of shooting areas	5	4.8	2- 11	6	2.6	1- 4
Average acreage per area	5	94	45- 200	6	101	33- 200
Type of cover on shooting areas						
Natural cover	5	79%	0- 100%	6	86%	40- 100%
Planted cover	5	21%	0- 100%	6	14%	0- 60%
Flat	5	28%	10- 70%	6	13%	0- 13%
Rolling	5	40%	20- 60%	6	29%	15- 50%
Hilly	5	32%	0- 70%	6	58%	30- 85%
Miles from population center of 25 thousand or more	5	39	26- 58	6	34	8- 75
Average miles most hunters travel to hunt	5	55	35- 75	6	40	12- 75

PRESERVES MAKING A PROFIT PRESERVES NOT MAKING A PROFIT

PHYSICAL FACILITIES AND INVESTMENT		No. Investment	Average Investment	Range of Investment	Est. Annual Investment	No. Investment	Average Investment	Range of Investment	Est. Annual Investment
Land:	Privately owned	5	\$28,420	\$2,500-100,000	\$	947	\$17,858	\$4,000-35,000	\$507
	Leased	2	22	10- 34		22	50	50- 50	50
	Clubhouse (30 years estimated life)	2	\$ 9,500	\$4,000- 14,000	\$	317	\$ 6,000	\$2,000-10,000	\$200
	Kennels and Equipment (10 years)	5	\$ 185	\$ 50- 600	\$	19	\$ 71	\$ 0- 250	\$ 7
	Dogs	5	\$ 1,530	\$ 300- 4,000	\$	255	\$ 300	\$ 0- 800	\$ 50
	Ponds (50 years)	3	\$ 6,977	\$ 600- 15,000	\$	139	\$ 506	\$ 150- 900	\$ 10
	Game Rearing Equipment								
	Incubator (30 years)	1	\$ 400		\$	13	\$ 450	\$ 400- 500	\$ 15
	Brooders (10 years)	2	\$ 350	\$ 200- 500	\$	35	\$ 263	\$ 40- 250	\$ 26
	Housing (30 years)	3	\$ 1,200	\$ 300- 3,000	\$	40	\$ 2,066	\$ 200- 4,000	\$ 69
	Holding Pens—all species (10 years)	5	\$ 1,395	\$ 75- 5,000	\$	140	\$ 345	\$ 100- 1,000	\$ 34
	Miscellaneous Equipment: feeders, watering devices (10 years)	5	\$ 153	\$ 15- 500	\$	15	\$ 60	\$ 10- 200	\$ 6
Total Investment in Physical Facilities			\$50,132			\$1,942	\$27,969		\$974

GAME REARING AND HOLDING COST

PRESERVES MAKING A PROFIT

PRESERVES NOT MAKING A PROFIT

	No.	Average	Range	No.	Average	Range
Game feed cost	5	\$2,549	\$ 45-10,000	5	\$ 385	\$100- 900
Game Medication	5	\$ 99	\$ 0- 300	5	\$ 28	\$ 3- 100
Cost of Holding Breeders						
Quail (cost of holding breeders included)	2	\$ 325	\$ 50- 600	—		
Pheasants	2	\$ 150	\$ 50- 250	—		
Chukars in feed and labor costs)	1	\$ 80		—		
Cost of Eggs	—			—		
Utilities	3	\$ 150	\$ 50- 300	2	\$ 127	\$ 15- 240
Labor:						
Full Time Number	2	1	1- 1	1	1	
Cost	2	\$1,040	\$400- 1,680	3	\$ 150	
Labor: Part Time						
Number	3	1	1- 1	3	1	1- 1
Cost	3	\$ 133	\$100- 200	3	\$ 80	\$ 50- 100
Unpaid Family Labor						
operator	5	227	40- 560	6	147	10- 400
wife	5	66	10- 224	2	300	100- 500
children	1	300		1	50	
Number of Game Species Reared in 1965						
Quail	2	2,850	700- 5,000	1	3,000	
Pheasants	2	2,625	250- 5,000	—		
Chukars	2	600	200- 1,000	—		
Average number of birds reared:		4,050			3,000	
Average Cost per Bird (16 Weeks)	2	\$4,697				
Cost of Production		6,075				
Number of Birds						
Average cost per bird:		\$.77				

GAME REARING AND HOLDING COST — PRESERVES MAKING A PROFIT PRESERVES NOT MAKING A PROFIT
Continued

	No.	Average	Range	No.	Average	Range
Purchase of Game						
Quail	5	\$2,590	\$500-10,000	5	\$ 880	\$190-2,300
Pheasants	2	\$3,100	\$200- 6,000	2	\$1,628	\$185-2,700
Chukars	—			1	\$1,400	
PRESERVE MANAGEMENT COSTS						
Cover Management: Release plots	2	\$ 450	\$400- 500	2	\$ 200	\$150- 250
Natural Cover	2	\$ 225	\$ 50- 400	4	\$ 53	\$ 20- 180
Clubhouse, Office, Taxes and Insurance	5	\$ 439	\$ 5- 1,300	5	\$ 297	\$ 25- 900
Transportation	5	\$ 784	\$ 20- 2,500	3	\$ 166	\$100- 200
Paid Employees: Full Time	2	5	2-	1	1	
Number	2	\$5,700	\$600-10,800	1	\$1,000	
Costs						
Paid Employees: Part Time	3	2	2-	3	1	1- 1
Number	3	\$ 200	\$100- 300	3	\$ 208	\$100- 350
Costs						
Unpaid Family Labor	5	878	200- 2,642	6	320	250- 400
Hours worked: operator	4	305	50- 1,020	2	42	25-
wife						60
children	2	33	20- 50	—		
Advertising Expense						
Brochures	3	\$ 188	\$ 25- 500	4	\$ 42	\$ 10- 80
Letters	3	\$ 44	\$ 12- 100	2	\$ 102	\$ 5- 200
Newspapers and Magazines	2	\$ 75	\$ 50- 100	4	\$ 115	\$ 25- 300
Signs	2	\$ 33	\$ 30- 35	4	\$ 49	\$ 20- 75
Other Printed Material and						
Free Guest Hunts	4	\$ 122	\$ 40- 200	2	\$ 150	\$ 0- 150

SOURCES OF INCOME		No.	Average	Range	Avg. / bird	No.	Average	Range	Avg. / bird
Sales of Birds									
Quail:	Hunting—number	5	2,297	585-7,000	\$3.39	6	584	288-1700	\$2.01
	value	5	\$ 9,029	\$1,500-30,590		6	\$1,373	\$450-5270	
	Market —number	1	\$ 20)	\$1.00	—			
	value	1	\$ 20)		—			
Pheasants:	Hunting—number	4	916	75-2,100	\$7.50	3	302	70-700	\$5.83
	value	4	\$ 5,226	\$ 656-18,375		3	1,876	\$350-4361	
	Market —number	2	635	150-1,120	\$2.33	—			
	value	2	\$ 1,485	\$ 170-2,800		—			
Chukars:	Hunting—number	2	378	171-585	\$4.16	1	660)	\$4.16
	value	2	\$ 1,572	\$ 711-2,434		1	\$2,496		
Total average value of birds sold:									
			\$17,332				\$5,730		
Meals and Refreshments		1	\$ 1,400						
Lodging		1	\$ 2,966						
Processing Game		1	\$ 100			1	\$ 100		
Guide fees		—				1	\$ 300		
Dogs		—							
COMPARISON OF OUTLAY AND INCOME									
				Avg. Annl. Outlay		Avg. Annl. Income		Avg. Annl. Balance	
Successful Preserves				\$19,863		\$21,798		\$1,935	
Unsuccessful Preserves				\$ 8,059		\$ 6,130		—\$1,929	

METHOD OF CHARGING PRESERVES MAKING A PROFIT PRESERVES NOT MAKING A PROFIT

Quail :	Number reporting Released or harvested Minimum No. of birds/fee Fee for extra birds	5	1-released; 4-harvested No minimum—8 for \$2-\$35 \$0-\$ 3	6	3-released; 3-harvested No minimum—8 for \$1-\$25 \$2-\$ 3
Pheasants :	Number reporting Released or harvested Minimum No. of birds/fee Fee for extra birds	4	4-harvested 4 for \$25-\$35 \$ 0-\$ 5	3	1-released; 2-harvested No minimum—4 for \$5-\$25 \$5-\$ 6
Chukars :	Number reporting Released or harvested Minimum No. of birds/fee Fee for extra birds	2	2-harvested 6 for \$25 \$ 0-\$ 3	1	harvested 6 birds for \$25 \$ 4

CUSTOMER MANAGEMENT

	No.	Average	Range	No.	Average	Range
Customer Arrangement: Daily fee	5	(2-both)		6		
Club basis	2	(2-both)				
Maximum number of hunters per day	5	15	4-24	6	11	3-18
Estimated number of minutes to harvest each						
Quail	5	25	19-35	6	24	15-30
Pheasants	4	51	38-60	3	53	40-60
Chukar	2	40	40-40	1	35	

GAME HARVEST

	PRESERVES MAKING A PROFIT			PRESERVES NOT MAKING A PROFIT		
	No.	Average	Range	No.	Average	Range
Quail : Number released	5	3,280	650-10,000	6	790	300-2,000
Number harvested	5	2,297	685- 7,000	6	529	255-1,700
% harvested		70%			64%	
Pheasants : Number released	4	1,325	100- 3,000	3	529	70-1,200
Number harvested	4	916	75- 2,100	3	282	12- 700
% harvested		69%			53%	
Chukars : Number released	2	490	180- 800	1	800	
Number harvested	2	378	171- 585	1	600	
% harvested		77%			75%	
Total number released		22,680			7,130	
Total number harvested		15,879			4,621	
% harvested		70%			64%	

NATIVE GAME

Quail : Abundant 1
Scarce to none 4

PERCENTAGE OF REPEAT CUSTOMERS

1963/64 vs. 1964/65 5 67% 40%-85% 5 67% 10%-90%

FINANCIAL HISTORY OF PRESERVE

1964/65 Season
CHANGES CONTEMPLATED IN 1966/67 SEASON

Number wanting to improve:

- | | |
|------------------------------------|-----------------------|
| 1 — shooting courses; | 4 — shooting courses; |
| 3 — cover; | 2 — cover; |
| 1 — dogs; | 2 — dogs; |
| 2 — guides; | 3 — game birds |
| 2 — game birds | |
| 2 — add cabins, fishing and horses | |

SHOOTING PRESERVE LAW
SECTIONS WHICH HANDICAP
PRESERVE OPERATIONS

Maximum acreage of 640 acres
Out of state hunters license

Bobwhite quail leg banding

PRESERVES MAKING A PROFIT PRESERVES NOT MAKING A PROFIT

No.	Reasons	No.	Handicapping Regulations
1	Desires to enlarge area.	1	Hurts business because preserve is located near state boundary.
2	Hurts business because preserve is located near state boundary.	2	Too much time required to band birds prior to release and check them on birds killed.
2	Bands are expensive and too much time is required to band birds prior to release and then check them on birds killed.		

4 yes
1 yes

5 yes
1

No.	Primary Income	Supplemental Income	No.	Primary Income	Supplemental Income
4	2	2	2	2	
1		1			
1		1			
-					
2	2		4	4	

5
0

Number desiring association
Number not interested

ASSISTANCE RECEIVED FROM
STATE GAME DIVISION

Satisfactory
Unsatisfactory
None

OTHER INCOME

Type: Farming
Fishing
Dove Hunting (renting space)
Allied Recreation
Outside Employment

SHOOTING PRESERVE ASSOCIATION