

THE SOUTHEASTERN TURKEY RESTORATION PROGRAM

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The wild turkey once ranged over all of the eleven Southeastern States. During the colonial and early settlement periods the turkey provided an important source of food for the inhabitants. Until about 1900, the turkey was plentiful in all, or most of the Southeastern States. By that time, factors connected with human population increases and industrial and agricultural growth, especially the destruction of the forests by lumbering and the clearing of land for agricultural purposes, had begun to make inroads upon the turkey population — a population which had once seemed inexhaustible. By the end of the first World War most of the states of the region realized that drastic measures were needed to save the turkey from extinction.

The first efforts toward turkey management were laws designed to prohibit open sale of wild turkeys in public markets and to regulate the hunting of them. Most states enacted such laws between 1900 and the first World War. By 1930, it was apparent that such measures were not sufficient to cope with the problem of a constantly diminishing turkey population. Some states closed the hunting season on turkey entirely, but such a closed season was very difficult to enforce.

During this period of dwindled wildlife resources, the Southeastern States lacked both money and technical knowledge necessary to inaugurate a vigorous turkey restoration program. The passage of the Pittman-Robertson Act by Congress in 1937 partially solved the problem. As a result of this Act, money for research and development programs was forthcoming. Also, most of the regions technicians received their basic training as Pittman-Robertson personnel.

The war years of 1942 - 45 seriously interrupted the turkey restoration program in most of the states. However, immediately after the war the states began restaffing with returning veterans and graduating students from the colleges and universities. By 1948, every state in the region was spending a good portion of its Federal-Aid allotment on turkey restoration.

Present day turkey population figures, as shown in Table 1, reflect the critical condition of the species in most of the Southeastern States. Estimates of turkey populations range from a high of 50,000 in Florida to a low of 800 in Kentucky. Turkey populations are increasing in Florida, Kentucky and Mississippi and definitely decreasing in North Carolina. Reports from Arkansas indicate that habitat conditions there cannot be considered favorable. In other states the trend at the moment is not definitely known, as it is too early to determine the success of the present restoration program.

TYPES OF RESTORATION PROGRAMS

The turkey restoration program in the Southeast is based upon two fundamental management techniques; these are (1) habitat improvement and (2) restocking. Every state within the region employs at least one of these fundamental

Table 1. Present day turkey populations and trends in the Southeast.

State	Present Population	Population Trend
Alabama	13,000 ^a	Undetermined
Arkansas	6,000 - 7,000	Undetermined
Florida	50,000	Increasing
Georgia		Undetermined
Kentucky	800 - 1,000	Increasing
Mississippi	9,700	Increasing
Louisiana	3,500 - 4,000 ^b	Too early to determine
North Carolina	10,000	Decreasing
South Carolina	10,000	Undetermined
Virginia	10,000	Undetermined

^a 1941 estimate.

^b 1948 census showed 1,500 native birds. Since 1948, 2,200 birds have been released.

techniques, and most states use both to a varying degree. Other forms of management employed by the several states are protection, predator control and livestock removal. These will not be discussed separately.

Habitat Improvement

Every state in the Southeast employs the technique of habitat improvement as a tool of turkey management to some extent. In simplest terms, habitat improvement consists of utilizing clearings or openings in the forest to grow turkey food and to provide nesting sites. If openings are not present, they are created by clearing the desired sites of trees and undergrowth. Most technicians agree that 5 - 10% of a management area should be open. However, the actual amount of openings depends greatly upon the cooperation of the landowners. Many timber companies upon whose lands turkey management is centered in the several states do not feel that they can spare the timber lands necessary to provide 10% in clearings. Much of the land used in turkey restoration is the property of such timber companies (Table 2).

Forest clearings are planted to either annual food plants or perennial grasses and legumes. As a rule, the food plots are planted the first year or two in annual plants, both spring and fall. This is done in order to quickly concentrate birds on a management area. As time goes by, most of these food plots are eventually turned into sod by either natural or artificial means. Some typical annuals commonly seeded in the fall are wheat, Austrian winter peas, oats and reseeding crimson clover. Annuals suited for the spring seeding are chufas, millet, buckwheat, soybeans and field peas. Perennials most commonly used are grasses and legumes, which may either be seeded or which come in naturally. A popular combination for seeding is Kentucky fescue and ladino clover. Native lespedeza and paspalums are encouraged to come in naturally.

Habitat improvement may be used alone as a management practice, or it may be combined with restocking. In areas which have no wild birds, it is always used in conjunction with restocking, as there is no benefit to be derived from habitat improvement alone if a breeding potential is lacking. In areas which have enough

Table 2. Amount and source of lands under turkey management in the various states.

State	No. Areas	Size	Land Ownership
Alabama	5	8,000 to 90,000 acres ea.	State — U. S. Forest Service — Private Individuals
Arkansas	3	240,000	U. S. Government (Naval Base)
Florida	8	300,000	State — U. S. Government — (Forest service; U. S. Air Force; (S. C. S.); Individual
Georgia		20,000 ea.	Private Individuals and U. S. Forest Service
Kentucky	8	10,000 to 60,000 acres ea.	State & its agencies; U. S. Forest Service; Individuals; Corporations
Louisiana	12	225,000	U. S. Forest Service; Private Individuals; Corporations
Mississippi	10	140,000	Forest Products Manufacturer; U. S. Forest Service
North Carolina			State owned; Federal owned; Private owned.
South Carolina			U. S. Forest Service Lands
Tennessee	13	436,000	State; U. S. Forest Service; Tennessee Valley Authority; Atomic Energy Commission; Private Lands
Virginia	20	200,000	U. S. Forest Service

native turkeys for a breeding potential it may be used alone. All of the states at present are using habitat improvement in conjunction with restocking.

Other methods of habitat improvement, but which will not be discussed here, are burning to control undergrowth and thinning to promote growth of desirable timber types and control undesirable timber types.

Restocking

Most of the Southeastern States use *restocking* as a *primary management tool*. Few, if any, of the states depend altogether upon restocking but use it in conjunction with habitat improvement. Restocking of an area may be done by using either pen-reared birds or native wild-trapped birds. Both methods of restocking will be discussed separately.

Pen-reared birds which are used for restocking purposes in the Southeast are obtained either by purchasing them from game farms or raising them from native wild stock. Although several states have used pen-reared birds in the past for restocking purposes, only Virginia and Louisiana use them now exclusively. Mississippi, Tennessee, Kentucky and Florida have used pen-reared in the past, but all have now discontinued it or plan to begin using wild-trapped birds.

Virginia produces her own pen-reared stock. These birds are produced by mating hens from native wild stock in confinement to wild gobblers. When the

poults are old enough to fend for themselves, they are released on areas selected for restoration purposes. Virginia has used this method to restock 20 areas to date.

Louisiana is attempting to build up her turkey resources by restocking with pen-reared birds purchased from game farms. Restocking is carried out on all Federal Aid Game Management Areas in connection with habitat improvement and predator control. Restocking without habitat improvement has been done on two state wildlife refuges. In addition, unsupervised areas in eleven parishes have been restocked.

On the Federal Aid game management areas in Louisiana, approximately 50 turkeys are released each year, usually in the fall. These birds are transported into the area by truck and placed in conditioning pens located within food plots where food is abundant. The birds are confined to the pens for about two weeks at which time a partial release is made. Afterwards, two or three other releases are made at intervals of about a week until all birds have been released in the food plot. Table 3 shows the states which use, or have used pen-reared birds for restocking.

Table 3. A summary of number, cost, and source of pen-reared turkeys used for restocking in the Southeast.

State	Year Begun	Total No. Obtained	Cost per Bird	Source of Birds
Louisiana	1949	2,200	\$20.00	Game Farm (W. Virginia, Pa., Ala.)
Mississippi	1934	728	25.00	Private Refuge (mainly)
Tennessee	1941			Evidently raise own birds
Virginia	1939			Raise own birds from native stock.
Kentucky	1946			Raise own birds from native stock.
Florida ^a				Semi-wild birds from local sources.

^a Florida has discontinued this program.

States in the Southeast which restock with native wild turkeys must trap their own birds. At the present time the states of Alabama, Arkansas, Florida, Georgia, Kentucky, North Carolina and South Carolina have trapping programs. Mississippi plans to trap some birds this year in connection with her deer trapping project.

The states which have a trapping program use fairly standardized methods of trapping and handling birds, although each state has adopted modifications to suit its own conditions.

The most popular type of trap used is the drop net trap, or some variation of it. Florida and Alabama use this type trap, and other states are planning to use it this year. Georgia and South Carolina use woven wire traps with manually operated drop doors. Although Arkansas has used traps constructed of poles and lumber in the past, she plans to use drop net traps this year. Mississippi plans to trap a few birds in conjunction with her deer trapping project, using Wisconsin type deer traps. The most commonly used bait to lure turkeys into the traps is yellow corn, either whole or cracked. Other baits used are wheat and scratch grain.

All of the states which trap wild birds band them before releasing them. Leg bands of aluminum or other metal are used. These bands are numbered and inscribed with a request to notify the proper authorities, usually the Game Commission, when the band is recovered.

Mortality rates due to trapping and handling range from 0% in Georgia and South Carolina to 17% in Kentucky. The best record has been established by Florida which has trapped the most birds, 333, with less than 3% mortality.

As soon as birds are captured they are placed in carrying crates and transported by truck quickly to the point of release. Birds are placed in individual crates or compartments, usually on a pick-up truck. Kentucky is the only state which transports birds in undivided compartments. Releases are made as soon as possible after capture and during daylight hours (Tables 4, 5).

Table 4. A summary of wild trapping techniques in the Southeast.

State	Type of Trap	Bait Used	Mortality Rates	Handling procedure
Alabama	Drop net trap	Whole corn; wheat;	1.8%	Birds banded with leg bands; transported in individual crates by truck
Florida	Drop net trap; Combination pole & drop net	Whole corn; cracked corn	less than 3%	Birds banded with leg Bands; transported in individual crates.
Arkansas	Pole traps & portable traps of lumber	Whole corn	3 - 12%	Birds banded; hauled in pick-up truck with 8 compartments, 1 bird per compartment
Georgia	Wire trap with manually operated drop door	Crack corn & scratch grain	0%	Birds banded; transport in individual crates
Kentucky	"Modified Baldwin"	Wheat	17%	Birds banded; transported by truck in undivided compartment
South Carolina	Wire trap with double drop doors	Scratch feed and grain	0%	Birds transported in individual crates

Table 5. Success and estimated cost of trapping native wild turkey in the Southeast.

State	Year Trapping Started	Total No. of Birds Trapped	Cost per Bird
Alabama	1950	58	\$15.00
Arkansas	1949	97	
Florida	1949	333	17.00
Georgia	1947		
Kentucky	1946	109	
North Carolina	1951		
South Carolina	1951	13	

METHODS OF SECURING LANDS FOR TURKEY RESTORATION

Lands on which the states of the Southeast have centered their turkey restoration work is owned primarily by the United States Government and its

agencies. These agencies include the Forest Service, Navy, Air Force, Soil Conservation Service, Tennessee Valley Authority, and The Atomic Energy Commission. These lands are leased by cooperative agreements between the states and the respective agencies.

Private individuals, companies and corporations own large acreages in many of the states on which turkey restoration is carried out. These lands are leased for long periods of time, usually from 10 to 25 years, with no charge to the states. Landowners benefit under this agreement by obtaining fire protection, road maintenance and other benefits. Lumber companies and forest products manufacturers have been among the most cooperative of the private owners.

Several of the states — Alabama, Florida, Kentucky, North Carolina and Tennessee — are fortunate enough to own some of the lands on which they do turkey management. However, none of them own all of the lands necessary to carry out a large turkey restoration program. Until recently money was not available for the purchase of land. At the present time the inflated value of land precludes state purchases of large tracts.

Areas on which turkey management is practiced vary in size from 8,000 to over 100,000. Some states, specifically Alabama, Virginia, Kentucky and Louisiana use areas as small as 10,000 acres. Other states, particularly Arkansas believe that any area should be at least 20,000 acres in size (Table 2).

Many states are using unsupervised private lands in conjunction with their management areas and refuges in their restoration programs. Florida has restocked several counties which have a closed turkey season. Much of the work which has been done previously in Mississippi has been on unsupervised areas. Louisiana, during the past three years, has stocked unsupervised areas in 11 parishes with 750 birds (Louisiana has a year-round closed season on turkey). These efforts are being expended to build up the turkey population in areas which have good potential range but where a refuge or management area is not feasible.

RESULTS OF PRESENT RESTORATION PROGRAM

As the present restoration program is new in most of the Southeastern States, it is too early to definitely determine results (Table 6). However, the present movement with resulting good publicity and protections has seemed to stop the downward trend of the turkey population in most of the states. Three states, Florida, Kentucky, and Mississippi report that turkeys are increasing, while only one state, North Carolina, reports a continued decrease. In the other states it is not definitely known whether the trend is up or down, but all are hopeful that it is for the better.

A COMPARISON OF THE SUCCESS OF VARIOUS METHODS USED

At the present time it is difficult, if not impossible, to measure the degrees of success or failure of the two types of programs. Both methods have proven successful on some areas and failures on others. It is still too early to determine the success or failure in most cases. However, most states at the present time favor habitat improvement in conjunction with restocking with wild-trapped birds.

Six states at present use wild-trapped birds in connection with habitat improvement. These states are Georgia, South Carolina, Alabama, Arkansas, Florida, and

Table 6. A general summary of results of turkey restoration programs in the Southeast.

State	No. Areas in Program	Acreage	Type of Stock Used		No. of		No. with		Other management Techniques Used
			Wild	Pen-reared	Successes	Failures	Results Undetermined		
Alabama	5	8,000 to 90,000 ea.	Wild		5	0	0	0	Habitat improvement; protection
Arkansas	3	40,000 to 100,000 ea.	Wild		0	0	3	3	Habitat improvement; livestock removal; predator control.
Florida	8	300,000	Wild		1	0	7	7	Self-feeders and protection
Georgia		20,000 ea.	Wild		2				Habitat improvement; predator control.
Kentucky	8	10,000 to 60,000 ea.	Wild 4	Pen-reared 4	Wild 3	0	1	1	Habitat improvement; predator control.
Louisiana	12	225,000	Pen-reared	Pen-reared	Pen 1	1	2	12	Habitat improvement.
Mississippi		12,000 to 15,000 ea.	Wild and Pen-reared		30				Habitat improvement; predator control; protection.
North Carolina									Protection; habitat improvement.
South Carolina			Wild		0	0			Habitat improvement; protection.
Tennessee	13	436,142	Pen-reared		0	0	13	13	Protection; predator control; habitat improvement.
Virginia	20	10,000 ea.	Pen-reared		15	4	1	1	Habitat improvement; protection.

North Carolina. Kentucky and Tennessee also used wild-trapped birds for restocking, but they also use some pen-reared birds. Two states, Louisiana and Virginia use only pen-reared birds for restocking purposes. Florida and Mississippi both have tried using pen-reared birds for restocking purposes, but have abandoned this method in favor of restocking with wild-trapped birds.

Restocking with wild birds has consistently been more successful than restocking with pen-reared birds. The states of Alabama, Florida, Georgia and Kentucky have reported 11 successes as against no failures on more than 20 areas. Other attempts at restocking within these states with wild-trapped birds is as yet undetermined. On the other hand, Kentucky and Virginia have had 16 successes and only 5 failures out of 24 attempts at restocking with pen-reared birds. However, it is still too early to determine if this method will prove equally successful in other states. Louisiana, which is using pen-reared birds for restocking, is awaiting results, although it looks as if she will have some successes and some failures.

Certainly all of the states are in agreement on the value of habitat improvement in connection with restocking. Every state in the region is using habitat improvement as a principal management tool. See Table 6 for a general summary of results of turkey restoration in the Southeast.

COST OF TURKEY RESTORATION IN THE SOUTHEAST

Although most states did not give definite figures on the cost of the present restoration program, it is evident that the cost is great. In most states, turkey restoration is carried out as part of a larger restoration program which may include deer, squirrel, dove and quail.

There is not a great deal of difference in the cost of trapping birds and buying them from game farms. For instance, the birds purchased cost \$20.00 to \$25.00 each, while the average cost of trapping wild birds in the two states which reported these figures was \$16.00 per bird (Tables 3, 5).

A major item of expense in turkey management is habitat improvement. While no figures are given for this phase of management, it is assumed that it is the greatest expense. Clearing land, fencing, and planting are all very expensive undertakings.

Table 7 shows a summary of the cost of turkey restoration by states in the southeast. While this table is not complete, it is readily seen that many of the states are spending large amounts of money for turkey restoration. It is assumed that most of this expenditure goes for habitat improvement.

CONCLUSION

An evaluation of the present program is very difficult at this time. Turkey populations in many states have reached such a critical point that quick and drastic measures are needed to reverse this trend. Present methods of management seem to have done this, although these methods are very expensive. Whether or not the states of the Southeast will be able to produce shootable surpluses of birds at reasonable cost remains to be seen.

Table 7. Cost of turkey restoration program in Southeast by states from 1940 to 1951.

State	1940 - 1942	1943 - 1946	1947	1948	1949	1959	1951
Alabama	\$41,414	\$ 1,818	\$4,055	\$28,146	\$18,774	\$29,330	
Arkansas	12,000		1,000	2,000	6,000	12,000	\$12,000
Florida ^a							
Georgia ^a							
Kentucky ^a							
Louisiana	3,445		2,842		10,000	40,000	40,000
Mississippi ^a							
North Carolina			4,520	15,196	28,355	16,646	
South Carolina				25,116	33,928	8451	
Tennessee ^b	18,000	27,000	9,000	9,000	9,000	9,000	9,000
Virginia ^c				15,000	15,000	15,000	

^aNo year by year costs given, as turkey restoration has been handled as part of larger restoration project.

^bReport states that approximately \$9,000 is spent per year for turkey restoration.

^cNo cost figures available, although restocking for past three years has been approximately \$15,000 per year.