# VIRGINIA'S FOREIGN GAME PROGRAM— A PROGRESS REPORT

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For many years pheasants have been a coveted species in Virginia. Many attempts have been made by sportsmen's groups, individuals, and by the state game commission to establish the ringneck, but with no success. Thousands upon thousands of birds have been liberated over a period of years, only to disappear soon after liberation. Not a single successful release has ever been known in the state. In a small number of isolated cases where a few birds have been known to survive for perhaps a normal lifespan, even these were unable to successfully reproduce and establish a resident population. The chances of ever having pheasant stooting other than pen-reared birds on shooting preserves looked doubtful, and the only ringnecks liberated in recent years have been on licensed shooting preserves.

The Foreign Game Introduction Program, however, brought new hope, for from reports of Dr. Gardiner Bump, Bureau of Sport Fisheries and Wildlife biologist, it appeared that there were untried foreign species and subspecies that might well be suited to Virginia and the Southeast in general. The Virginia Commission of Game and Inland Fisheries welcomed the opportunity to enter into the Foreign Game Introduction Program, and signed a Memorandum of Understanding with the Bureau in 1957. In December of that year, 26 Iranian blackneck pheasants were received at the State Game Farm near Cumberland, Virginia. Eight of this number—four hens and four cocks—were of the eastern variety, *P. c. persicus,* and the remaining 18—seven hens and eleven cocks—were of the western strain, *P. c. talischensis.* All of the birds were from eggs taken from the nests of wild birds in Iran by Dr. Bump. They were hatched in Iran and shipped to the United States at 14 weeks of age.

In the spring of 1958, game farm operations were planned to produce a maximum number of these birds for experimental stocking. In order to utilize every bird, 50 Imperial Valley ringneck hens were obtained from Missouri and Tennessee for mating with the surplus cocks of the two groups, with the hope that the crosses might be suited to Virginia conditions. The following tabulations show the breeding arrangements and the results of each group:

Group 1 (1 pen): 4 hens—1 cock, all *P. c. persicus* (eastern Iranian)
Eggs produced, 70
Average per hen, 17.5
Chicks started, 49
To maturity, 45

Group 2 (2 pens): 7 hens—2 cocks, *P. c. talischensis* (western Iranian)
Eggs produced, 141
Average per hen, 20.1
Chicks started, 101
To maturity, 84

Group 3 (3 pens): 12 Imp. Valley ringneck hens—3 eastern Iranian cocks
Eggs produced, 798
Average per hen, 66.5
Chicks started, 487
To maturity, 480

Group 4 (9 pens): 29 Imp. Valley ringneck hens—9 western Iranian cocks
Eggs produced, 1,992
Average per hen, 68.8
Chicks started, 1,289
To maturity, 1,176

As these figures indicate, not enough birds were produced in the pure stock for a release, and all of these were held for brood stock, with some birds going to Missouri, Ohio, and Tennessee on previous commitments. With the low egg production in these groups, two or three years will be needed to build

up the broods to allow sizable releases. However, most of the birds produced in the F-1 crosses of the eastern and western groups were released in the fall of 1958 and spring of 1959.

In order that the birds released might have the best possible chance of survival and success, careful consideration was given to the selection of the release areas. One area was chosen for each of the two groups, widely separated from each other, where range and weather conditions are slightly different.

The area for the western group (the talischensis cross) is located in Charles City County, 45 miles east of Richmond. It is an area of long established large plantations with approximately 6,000 acres in cultivation, mostly in large fields of corn, soybeans, wheat, oats, barley and lespedeza. Some fields are moderately pastured and there are several large units in hay. Cultivation is intensive but most of the fields are separated by hedgerows of multiflora rose and native shrubs. Small wet areas growing to grasses and shrubs appear at frequent intervals throughout the area. Small woodlots are also numerous. Johnson's grass is common, and in some cases is a detriment to agriculture, but along field edges and in odd corners it provides excellent food and cover for wildlife. The eastern and southern boundaries are marked by the Chickahominy and the James Rivers, the north and west boundaries by heavy timberland that should retard the quick dispersion of the pheasants following release.

The "persicus area" (F-1 crosses) is located 150 miles west of the "talischensis area" in Halifax County which is in the southern piedmont section of the state. It is somewhat smaller than the Charles City area and is made up of good farmland carrying out a good system of crop rotation using such crops as wheat, rye, lespedeza, corn, soybeans, milo and tobacco. The fields are separated by hedgerows, small woodlots and ditch banks with native shrubs and grasses. A number of small fields and odd corners are planted annually to game bird mixture and left during the winter months for wildlife food and cover. No grazing is done in this area.

Prior to the time of the first release, a predator control program was conducted on each of the areas by the use of steel traps. A number of foxes, skunks, raccoons and opossums were taken, as well as a small number of stray house cats. However, since the trap sets created a very good dusting site for the birds it was necessary to discontinue trapping after releases were made.

On September 26, 1958, three hundred banded birds of the talischensis cross were moved to the Charles City County area and placed in a holding pen 6' x 6' x 45' and held overnight to allow recovery from shock of capture and handling. Small pine trees were placed in the pen in sufficient numbers to prevent flying and possible injury to the birds. On the following morning the gate was opened and the birds were allowed to move out without force. Their movement was orderly and without fright as they moved into nearby fields and covert areas. The Halifax County release (persicus cross) was made one week later with 250 birds. The plan of release was the same, except that 100 birds were released directly from the crates. The time of release was around mid-morning and at this time of day it is believed that this method may be best, since there is a danger of losses in the pens during the night that they are held. Losses in these releases were light, but serious losses might occur if the holding pens are disturbed by stray dogs or other enemies during the night.

A constant check was kept on the birds for several weeks following release, and the only evidence of losses was a small number apparently taken by hawks during the first few days after releases were made. Carcasses of 10 birds were observed under trees along field edges during the first two weeks, but after that the birds seemed to develop a better sense of danger and protection and the losses apparently stopped.

At the time of release an abundance of food was available in the immediate area and movements were somewhat slow, but after one month small numbers were observed for distances up to one and one-half miles. By mid-November, some birds were observed up to five miles away from the release area.

The first snowfall of the season came on December 11; a total depth of approximately ten inches accumulated in the Charles City County area. A second fell on December 14, with a total of approximately five inches, building up a depth of approximately 14 inches. On the morning of December 15, some

effort was made to do some feeding, and a number of clearings were made along the hedgerows and covert areas and whole and cracked corn was distributed. A close check was kept on the birds and some evidence of feeding on the corn was observed, but evidence indicated that the birds favored the native foods that were present and were feeding on honeysuckle, smilax, Johnson's grass and soybeans along the edges where snowfall was lighter.

On December 18, the snow had begun to melt considerably. A tour was made over a small part of the area near the point of release, and a total of 33 birds were flushed. All appeared in very good condition and their flight was excellent.

Track studies were made and verified previous observations of the dispersal of the birds. Practically every hedgerow and covert area was lined with tracks, with evidence of feeding on whatever food was present in the particular area. Johnson's grass and honeysuckle were more prominent and appeared to be taken in greater quantity. Not a single sign of loss by predation, starvation or otherwise was observed.

The snowfall in the Halifax County area was somewhat lighter—approximately eight inches—and observations made there were very much the same as in the Charles City area.

Releases were resumed on both areas in late March 1959 with 400 talischensis crosses going to the original area in Charles City County and 350 to a new area approximately eight miles away. Two hundred and fifty persicus crosses were released on the Halifax County area. There was a difference in the method of release, however. All of the birds were released from the crates and in the several areas where concentration of fall-released birds was greatest. The dispersal of these birds, particularly the cocks, was much greater and more rapid than the fall-released birds. Most of the hens appeared to have stayed in close proximity to the release area, but cocks were observed for distances up to 15 miles. This was perhaps due to the mating habits and the unattached cocks' movements in search of hens.

Around mid-May, self-addressed postal cards designed for reporting nests and broods observed were distributed to people living in the areas. No special effort was made to locate the nests for fear of destroying them and a very small number were reported. However, as harvest operations got underway, good response was received on the brood reports, especially in the Charles City County area. The first brood was seen on May 27 with a total of five young, and through the month of June a total of 21 broods were reported, with an average of 7.6 birds per brood. One farmer reported, "There are too many broods to report by cards." Reports from the Halifax County areas were much less but there are fewer people living in the area. From contacts made almost every one reports having seen some young birds, but on the card reports only five broods were reported with an average of 5.6 per brood.

On four days, July 6-9, sunrise road counts were made in the Charles City County area with the following results:

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| Broods seen | 23 |
| Number of young | 114 |
| Average per brood | 5 |
| Adult cocks seen | 126 |
| Adult hens seen | 53 |

These counts were made during the two hours after sunrise. All observations were made from a car. In some areas the vegetation was getting rather dense, and birds could only be seen as they crossed farm roads or in barren fields. The number of young ranged from a single bird in one case to nine. Most broods ranged from four to seven.

Plans for the 1959-1960 season are to liberate 400 to 600 birds on the same release areas as last season, with remaining birds to be released on the fringes of the range to extend the coverage as fast as possible if the releases are a success.

A new area has been selected for the 1959-1960 season, and a back cross of 500 to 600 birds will be released there this season. This cross was developed by mating F-1 hens of the talischensis group to pure talischensis cocks. The purpose of this group is to enable us to study all possible benefits from hybridiza-

tion and to evaluate each brood line through to pure stock. A back cross of the persicus group is planned for the 1960-1961 season, at which time, with everything favorable, a release of pure birds may be made.

A shipment of 27 Japanese green pheasants, *P. versicolor,* were flown to Virginia from Tokyo, Japan, on April 23, 1959. This shipment was made up of nine cocks and 18 hens, and despite the late arrival reasonably good success was obtained in game farm breeding; a total of 69 young birds were produced. All of these will be held for brood stock for the coming season.

The purpose of this report is not to evaluate to any degree the success of this experiment, since the period covered is for only one breeding season. It is much too early to arrive at any conclusions as to its success. Results to date have been favorable, however, and there is a strong feeling that one of the groups might successfully be established in Virginia and perhaps in other sections of the Southeast.

# AN EVALUATION OF FARM GAME MANAGEMENT PRACTICES IN KENTUCKY

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## INTRODUCTION

In the course of the farm game habitat improvement program in Kentucky, it became increasingly evident that anticipated results were not being attained (Durell, 1952). The ratio of established plantings to plants distributed was low and there was little indication the planting program was benefiting game populations or hunting success. With this skepticism in mind, an evaluation project was conceived with the major objective to determine the influence of food and cover patches upon game populations—particularly quail.

This paper presents a summary of the findings during the first eight years (1951 to 1959) of this intensive study of quail and rabbit population trends, prior to and following establishment of food and cover plantings on study areas located in Christian County in southwest Kentucky. Investigations of perennial exotic plantings were originally conducted on four areas, but as interest in annual mixture food plots increased, a fifth area, labeled M-3, was added in 1956, raising the total land area under study to 7,080 acres. Three of the areas, designated M-1, M-2 and M-3 were managed areas and two, labeled C-1 and C-2, were reserved as controls for their respective numbered managed areas. In addition, managed areas M-1 and M-2 were surrounded by ¼ mile wide buffer zones, called B-1 and B-2.

The areas are located in one of the best farming regions of the state. General farming is practiced, but the gradual trend in recent years has been from grain crops to beef cattle production. Topography is essentially flat to gently rolling semi-karst and surface streams are rare. Soils are of limestone derivation, deep and of good quality, with Pembroke (formerly Hagerstown) silt loam being a predominant type. This description generally fits all of the areas, except M-1 and B-1, where surface streams are common, portions are poorly drained, soils are inferior, erosion more severe and wasteland more abundant.

The major crops grown are corn, wheat and restricted acreages of tobacco. Korean lespedeza is the major hay crop, and much is also combined for seed. Korean-fescue mixtures predominate in the pastures. Little permanency exists in land use, due to the short rotational program.

Upland types—black oak, post oak and flowering dogwood predominate in the woodlots. Common field border species, some also occurring as woodland understory, are sassafras, hackberry, dwarf sumac, coralberry, blackberry, poison ivy and honeysuckle.