

The Introduction of the Japanese Quail (*Coturnix coturnix japonica*) in Indiana

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The Japanese Quail (*Coturnix coturnix japonica*) was introduced into Indiana during the period 1956 through 1959. The Indiana Department of Conservation initiated the propagation and release of this exotic game bird after interest was aroused by the Missouri Department of Conservation. It was hoped that this bird would utilize habitat not suitable for native species.

The Missouri Department of Conservation arranged for interested states and individuals to purchase breeding stock produced by their study birds on a privately owned Missouri game farm. A cooperative study of the Japanese Quail was begun with the mutual agreement of 12 states to exchange reports concerning the progress of their investigations. Cooperating states were Florida, Illinois, Indiana, Kentucky, Missouri, Nebraska, New Hampshire, North Carolina, Ohio, Oklahoma, Tennessee and Texas.

The Indiana Department of Conservation purchased 50 pairs of Japanese Quail from the game farm in Missouri in April 1956. A total of \$600.00 was paid for the breeding stock. Breeders were held at the Muscatatuck State Game Farm near North Vernon, Indiana. Bobwhite Quail (*Colinus virginianus*) were being raised at this facility at the same time, and the same equipment and feed were used for both species. Propagation methods differed for the two species in certain respects,

TABLE 1

Spring and summer releases of Japanese Quail made by the Indiana Department of Conservation.

Release County	Year of Release	Total Released
Grant	1957	4,084
	1958	1,999
Montgomery	1957	4,063
	1958	1,000
Newton	1957	1,949
	1958	999
Kosciusko	1956	253
	1957	3,549
	1958	1,000
Total		18,896

1. Data were collected while author was a Game Research Biologist, Indiana Department of Conservation. The author gratefully acknowledges the assistance of Dr. Russell E. Mumford, Purdue University, and the following Indiana Department of Conservation biologists: Clayton Bushong, Wm. E. Madden, James D. McCall, Tom Weddle, and John M. Allen.

however. All released birds were individually marked by means of numbered metal leg bands.

Spring and summer releases of Japanese Quail (Table 1) were made. Release sites were selected in four of Barnes' (1) zoogeographic regions in northern and central Indiana. Releases in the Central Tipton Till Plain Zoogeographic Region were made three miles northeast of Fairmount in Grant County. The Prairie Fringe Zoogeographic Region releases were made five miles north of Darlington in Montgomery County. Releases were made on the Willow Slough State Fish and Game Area in Newton County in the Kankakee Sands Zoogeographic Region. Tri-County State Fish and Game Area in Kosciusko County was used for releases in the Northeastern Lake Zoogeographic Region.

Japanese Quail were released on public hunting areas for controlled shooting purposes (Table 2) during the hunting seasons of 1956, 1957,

TABLE 2

Japanese Quail released by the Indiana Department of Conservation for controlled shooting.

Release Site	Year of Release	Total Released
Crosley State Fish and Game Area	1958	400
Willow Slough State Fish and Game Area	1957	3,980
	1958	1,143
Tri-County State Fish and Game Area	1956	329
	1957	2,612
	1958	700
Total		9,164

and 1958. Liberations were made on the Crosley State Fish and Game Area in the Southeastern Lowland and Flats Zoogeographic Region, and on the Willow Slough and Tri-County State Fish and Game Areas.

Indiana sportsmen released at least 1,288 Japanese Quail in 14 counties during the period of 1956 through 1959 (Table 3). Birds for these releases were purchased from private game farms or, in some instances, were obtained from the Muscatatuck State Game Farm. An undetermined number of birds was released in various counties without being reported. The Indiana Department of Conservation did not officially provide birds for sportsmen to liberate.

Quail released during the spring and summer (Table 1) disappeared from the study areas within weeks or months after liberation. Birds released in 1956 were not found on the study area after the first week of December of that year. None are known to have returned in 1957.

Quail released in 1957 had disappeared from the Grant County study area by the second week in November, from the Montgomery County study area by the middle of December, from Willow Slough by December 1, and from Tri-County by the end of November. A Grant County farmer observed two Japanese Quail during the first week of April 1958 prior to that year's releases. Birds also returned to Montgomery County

TABLE 3
Japanese Quail released by Indiana sportsmen.

County of Release	Year of Release	Total Released
Fayette	1956	30
La Grange	1956	100
Steuben	1956	100
Decatur	1957	32
Dubois	1957	20
Elkhart	1957	250
Franklin	1957	8
Johnson	1957	8
Porter	1957	37
Elkhart	1958	200
Hamilton	1958	50
Kosciusko	1958	78
Porter	1958	37
Clark	1959	50
Davies	1959	288
Total		1,288

early in 1958. A farmer observed an adult on April 10. Clayton Bushong collected an unbanded, adult male and observed another adult on April 11. Farmers observed three additional birds on the study area during April. A pair of adults was observed on June 15.

Conservation department biologists on Willow Slough heard and observed Japanese Quail many times from early spring to August 8, 1958.

A biologist at Tri-County flushed five to seven Japanese Quail on April 16, 1958.

Birds released in 1958 disappeared from Grant County by the last week in December, from Montgomery County by December 16, from Willow Slough by December 3, and from Tri-County by October 20.

A male was heard calling in Grant County on June 20, 1959. Two birds were observed in Montgomery County during the spring of 1959. These constitute the last reports of wild Japanese Quail in Indiana.

The return of birds to release sites during the spring following their liberation in the preceding year has not previously been reported (3).

Mortality among released birds occurred as the result of inclement weather, accidents (as getting in the way of moving farm equipment and flying into trees and woven-wire fences), and predation. Known predators include domestic cats (*Felis catus*), dogs (*Canis familiaris*), red foxes (*Vulpes fulva*), Crows (*Corvus brachyrhynchos*), Sparrow Hawks (*Falco sparverius*), Cooper's Hawks (*Accipiter cooperii*), and Red-tailed Hawks (*Buteo jamaicensis*).

A limited amount of reproduction occurred on the study areas during each year of this investigation. Young birds were observed in grain and hay fields and in pastures.

Although 18,896 birds were liberated during the spring and summer (Table 2), a total of but 27 were recovered more than ten miles from the points of release (2). The recoveries indicated that the birds had moved in various directions, but usually had moved in a southerly direction from the release sites. Only two of the recovered birds had been in the wild as long as six months. Birds were recovered in the states of Indiana (9 birds), Kentucky (6 birds), Mississippi (3 birds), Tennessee (2 birds), Virginia (2 birds), Alabama (2 birds), Ohio (1 bird), Maryland (1 bird), and Georgia (1 bird).

Collected data indicate that quail released for controlled shooting exhibited even poorer survival than the birds released during the spring and summer. Within days following release, birds had disappeared, even though hunters killed only 34.9 to 60.5 per cent of the total birds released (Table 2). Birds released during hunting seasons were not recovered, at any time, outside the public hunting areas.

The Japanese Quail is not established in Indiana. Due to the apparent lack of success of the introduction, I recommended that the Indiana Department of Conservation cease the propagation of this game bird. I also recommended that its release by sportsmen should be discouraged, for economic reasons.

Literature Cited

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