Banding Studies of the Blue Jay

Louis A. Test, Purdue University, and Frederick H. Test,
University of California

In central Indiana the Northern Blue Jay *(Cyanocita cristata criatata)* is a conspicuous and common bird of town and country. It frequents the vicinity of habitations, nesting during April, May, and June, and appears to remain in the immediate neighborhood the year round, for it is about equally abundant both winter and summer. Whether it really migrates more or less and how much it wanders in a given locality can be determined definitely only by banding studies. These problems as they relate to the birds of this immediate region, together with certain remarks on longevity, form the basis of this paper.

In the 14 years, from December, 1924, to October, 1938, 253 blue jays have been banded at the two stations we have maintained at West Lafayette, Indiana. Most of these were banded in our yard on the western outskirts of the town. From nests in the immediate vicinity 18 young birds were banded and 27 adults were caught and banded at a substation[1] a quarter of a mile away. Traps were maintained at the substation only during the years 1931, '32, and '33, and then for only four months of each year, from the middle of March to the middle of May and the middle of September to the middle of November.

Of the 253 blue jays banded, 45 show a total of 68 returns (captures three months or more since previous captures). These 45 birds returning are 17.8%, and the 68 returns 27% of the 253 banded. Total recaptures were much higher. As the U. S. Biological Survey reports only 6.2% returns on birds of all species banded since 1920, it would seem that our blue jays have given a relatively high percentage of returns on which to base conclusions.

An examination of Table I shows that the number of birds banded in any one year varies greatly. It was highest in 1928 when 38 were banded, even though in this year there were five months, February, March, August, October, and November, in which no new birds were banded. The smallest total is for 1933 when six only were banded in five months. There is no year in which jays have been banded every month, but in 1932 only January and September were skipped. Of returns, 1929 shows the fewest with one only, and 1931 and 1932 the most with eleven and nine, respectively, while 1928 yielded five.

The distribution of total captures and returns throughout the year is interesting. Jays have been banded every month of the year, the spring and summer months predominating, with April showing the largest number, a total of 52, and February the fewest with four. Bandings for January and December each exceed those for March, October,

[1] For description of this substation see Proc. Indiana Acad. Sci. 40:369-370.

and November. Recaptures are distributed over every month of the year but are least, one each, for August and September, which were high in bandings. May and June have the most returns with April only slightly behind. February recaptures are five, one more than bandings for that month. The number of traps in operation varied through the years, but no definite relation is seen between the traps in operation and birds caught. If the year is divided into winter and summer calling April, May, June, July, August, and September summer months and January, February, November, and December winter months and not including March and October, as birds taken in these months might be hangovers from winter or summer, there are 21 birds which show returns for summer only, six for winter only, and 19 for both winter and summer. Further analysis of the returns shows that 16 birds were recaptured two or more times, ten of these both winter and summer.

A possible explanation of the large numbers banded in April and May and the many returns for April, May, and June may be that during this season, while the birds are busy with nesting duties and feeding time is limited, they find it easier to take the convenient supply of food at the traps than to forage.

Of the total returns, 13 were of birds found dead, and the rest were recaptured at one of our stations, except in a single instance when one individual, banded May 14, 1931, was caught April 7, 1932, by D. R. Burtsfield at his station on North Main St., about a mile from ours.

TABLE I.

Year	Jan.			Feb.			Mar.			April			May			June			July			Aug.			Sept.			Oct.			Nov.			Dec.			Totals		
	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.	Bnd.	Ret.	Rep.
1924																																		2			2		
1925	3				1		1	1		5		2				X			X			X						5			1						15	2	0
1926	2	1		1	1		2						2	1		X			X			X			1									3			11	3	0
1927	1	2														1			X			9		1	8		8										19	2	8
1928	1	1								2			14	1	3	9	3	1	1			X			10		1							1			38	3	5
1929	2						1			8			3				1	2	7	1	5	6		2	4												31	2	9
1930										2	1	1	4	3		X		1	X			X			2						1			1			10	4	2
1931	1				1		3			12	4	46	7	3	13	1			1	1								1	1				2	1	1		27	11	61
1932				1			1			2	3		10	2	2	3	1	1	3	1	1	4					1	1	1		2	1		1			28	9	5
1933										2			2			1	3		X			X						1				1				1		6	5	0
1934					1					2			3			3	1		6		2	1										1		1	1		16	4	2
1935		1					1			3	1					2	2		2																		9	4	0
1936	4		1	1	1	3				3			2						1			2	2	1			1					1			2		14	6	6
1937							1	2			1		2	1		2			6	1	2										3	2		1		1	15	7	3
1938	5	2	1	1		1				1			3	2								1			1				2								12	6	2
Totals	19	7	2	4	5	4	10	3	0	42	10	49	52	13	18	22	11	5	27	4	10	23	2	4	26	0	11	8	4	0	7	6	2	11	5	1	253	68	103

* Station not in operation.

This station and another maintained for a time nearby were the only other stations in or near West Lafayette. None of the dead birds were found more than a mile from our banding station. Among the data on range are records of nine birds captured at both the home station and the substation a quarter of a mile away. Of 18 young birds banded from nests, only one gave a return in a later year. This bird, B-327931, was banded in the yard of a neighbor, 50 yards from our traps, May 21, 1932, recaptured in both June and July of that year and returned to our traps December 29, 1933, and again December 14, 1934.

Referring to Table II, it is seen that of the 19 birds caught both winter and summer, 12 were caught more than twice, and eight re-

TABLE II.

Bird	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
338355	15/27		18/25									11/24†
306020	18/25†	14/25										
284364	11/26				21/26					29/25†		
284362		3/26								7/25†		
284365		3/28									10/25†	
284357	8/27	19/26†										
520654						23/28		26/27†				
520655						6/28		27/27†				
520658						4/28		29/27†				
520667					17/28				6/27†			
526944					6/28†	9/29						
					30/30	5/32						
					11/31							
652113							9/29		17/28†			
A-401907				21/29†	27/31							
A-401916				30/29†								
				30/30								
A-401923					12/29†							
					29/30							
A-401954				24/31			9/29†					
A-401920					7/29†	10/30						
					8/31							
A-401958				23/31	27/30	1/33	21/29†			20/31		
				3/32								
A-401959				16/31			24/29†					
A-309436		1/31		7/30†								
A-345403				24/30†								
				9/31								
A-413644	4/31†			14/32								
374904				18/31†		9/33						
374906	27/35			20/31†	17/32							
374913				24/31†								2/31
374920					1/31†							
					25/32							
374928				7/32	14/31†							
A-379185						26/35	26/31†					
A-379200							9/32					29/31†
A-379183				1/32						23/31†	20/33	
										7/32		
B-327915		21/34	30/37	1/35	5/32†							
B-327931					21/32†							29/33
												14/34
B-362856						15/33		17/32†				
B-362872					21/37						3/32†	
B-386453										15/33†	2/34	
34-340132						19/35	25/34†					
34-340136		15/36					30/34†					
34-340158			31/35†								22/36	
34-372931	20/36†		30/37		1/38						26/36	
	1/38											
34-372933	24/36†			13/37			9/37			24/38		23/36
34-372943				4/36†				10/36				
34-372954					3/36†			11/36			20/37	
36-327228	7/38				31/37†							
36-327286	19/38	28/38					22/37†				17/37	
28-300302					4/38					9/38	10/37†	19/37

†Date of banding.

turned in four different months, one having six captures. This latter bird, A-401958, was banded July 21, 1929, at the home station, and recorded as immature. On May 27, 1930, it was taken at the substation and was recaptured at this station several times in April, 1931, beginning on the 23rd. That fall two more records were made at the same place, October 22 and November 4. The following spring it was there again on April 3 and 17, but on June 12 it was taken at the home station. It was found dead about half way between the two stations June 1, 1933. It had been caught in our traps 17 times before it died at the age of at least four years.

Other interesting returns, as shown in the table, include the following:

34-372931, banded January 20, 1936, returned December 26, 1936, March 30, 1937, January 1, 1938, and May 1, 1938.

34-372933, banded January 24, 1936, returned December 23, 1936, and April 13, 1937, and repeated July 9, 1937.

36-327286, banded July 22, 1937, returned November 17, 1937, and repeated January 19, 1938, and February 28, 1938.

B-327915, banded May 5, 1932, returned February 21, 1934, April 1, 1935, and March 30, 1937.

384362, banded October 29, 1925, repeated January 11, 1926, and returned May 21, 1926.

From the fact that several individuals have been taken in both winter and summer months, as shown in Table II, it is evident that at least a portion of the blue jay population of this region is resident throughout the year. The relatively few bandings for fall would seem to indicate that there is no great influx of migrants from the north. While the high bandings for April might be interpreted as a northern spring migration, the few captures for March and the first half of April, together with the fact that the jays frequently begin nesting by, or before, the middle of April, would indicate little such migration. Just three of our jays show records of captures both early spring and late fall only. Some of the published banding records[2] give a few instances of jays banded in north central states during late spring, summer, or early fall and recovered during the winter in states farther south. These are all from localities about 1.5 degrees north of our region. There are also a few records from central Indiana and northern Ohio of autumn wanderings of 15 to 40 miles. Only by the analysis of many additional banding data can the question of migration be definitely answered.

Some idea of the natural length of life of blue jays may be obtained from these records. The longest period between banding and last capture is for bird B-327915 banded May 5, 1932, as an adult. It returned three times, the last capture being March 30, 1937. This, at the very least would show the bird to be six years old. When last captured it seemed to be in perfect condition and weighed 85.3 grams against 81.3 grams at banding. Another bird, B-362875, banded November 3, 1932, was found sick and died May 21, 1937; so it must have been five years

[2] Lincoln, Returns from banded birds, 1923 to 1926, U. S. Dept. Agr. Tech. Bull. No. 32, 1927; Bird banding notes, Vol. 2, No. 16, 1938. (Mimeog. by U. S. Bur. Biol. Surv.)

old or more. As there is no telling how old it was at banding, the death may have been a result of old age. Three other returns demonstrate ages of at least five years.

Results of these banding studies so far seem to justify the following conclusions for the region under discussion:

1. The blue jays seem in large part to be permanent residents. For our birds there is no positive evidence of any migration and some evidence that there is little or none.

2. Blue jays as a rule probably do not range far either for feeding or nesting, though there may be wandering during the year over an area up to a mile in diameter.

3. Individual blue jays are known to have lived at least six years and be in good condition at that age, and four are known to have lived five years or longer.