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# Movements of Steller's Jays in Western North America

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## Introduction

Migratory movements of the Blue Jay (*Cyanocitta cristata*) in eastern North America are well known, and have been documented by band returns (see review by Stewart 1982). Only anecdotal, and often contradictory, information is available on seasonal movements of the Blue Jay's western congener, the Steller's Jay (*C. stelleri*). While most observers agree that Steller's Jays either are resident in an area or at most exhibit altitudinal movements in severe winters (e.g., Willett 1912, Tyler 1913, Grinnell and Miller 1944; summaries by Bent 1946, Goodwin 1976), Swarth (1922) suggested that southerly migrations occur in at least some areas. Our purpose here was to analyze movements of the Steller's Jay based on banding and recovery records from North America.

## Methods

We obtained a computer print-out of the 6,646 banding (job number BBL82-10-11-0149, 21 September 1983), and 316 recovery (job number BBL82-10-21-0078, 9 March 1983) records of Steller's Jays banded in North America from the Bird Banding Laboratory, U.S. Fish and Wildlife Service. Band recoveries were available from Colorado (61 recoveries), Montana (1), New Mexico (5), Arizona (3), California (112), Idaho (1), Oregon (30), Washington (31), Alaska (13), and British Columbia (59). Because of the low number of banded Steller's Jays, recoveries were lumped by geographic regions for most analyses.

Recovery locations were compared with banding locations to determine if movements had occurred and the length and timing of such movements. A seasonal movement was defined as: a bird captured in one season (breeding or wintering) and recaptured in the other season in a different location. We included cases where there were intervening years between initial and subsequent capture. Therefore, our data do not indicate ex-

actly when the movement occurred. Recoveries of banded birds are recorded to the nearest 10-minute latitude-longitude block. Therefore, movements of birds within a block are not evident in recovery data. We stress that this analysis seeks only to summarize available banding information on this species, with the hope of stimulating additional research into movements of this jay.

## Results and Discussion

Forty-six birds (27 adults, 10 immatures, and 9 birds of unknown age) showed no movement between breeding and wintering seasons. Although an additional 89 individuals may have shown no movement between seasons, information was not available to delineate seasons adequately in all geographic regions. Again, samples were inadequate to identify geographic differences in movements. However, year-round residency was shown by birds in all regions analyzed. A comparison of birds exhibiting interseasonal movement with those showing no movement gives a biased indication of the frequency of movement, as birds are more likely to be recaptured at the place of original capture than on a distant winter or summer area (see also Stewart 1982). Therefore, that our data show six birds moving over 50 km (Table 1) and 46 birds definitely not moving is not necessarily indicative of the true frequency of movement. It does show, however, that Steller's Jay populations have both sedentary and mobile segments. For the birds that did move, no pattern in the direction of seasonal movements was noted—birds moved south and north when going from wintering to breeding grounds (Table 1). It is difficult to determine the exact initiation of movement from the banding data, especially when recoveries are few. Southerly movements in November may, for example, indicate the beginning of seasonal movement or simply reflect a temporary relocation; the bird(s) might return north for the duration of winter.

We summarized records of birds initially banded in late fall or early winter (September through December) and recovered several months later (Table 2). These recoveries indicate that some Steller's Jays initiate a post-breeding movement in September or October; these movements may be delayed until December. If we ignore short (< 15 km) movements, five birds moved south and three moved north during this period; both immature and adult birds are represented in this sample. The largest sample was from British Columbia—note that two adults banded in October 1935 in the same location moved about 130 km north. One of these birds was recovered 16 days after banding, while the other was recovered in February. Another individual (34315065),

**Table 1. Steller's Jays showing movement between breeding (or birth) and wintering areas.**

Band No.	Where Banded <sup>a</sup>	Date Banded	Age When Banded <sup>b</sup>	Where Recovered <sup>a</sup>	Date Recovered	Distance Moved (km) <sup>c</sup>
41340996	40.0–105.1	21 February 1948	AHY	34.3–106.1	? July 1948	640
50379917	40.5–123.3	11 December 1955	AHY	41.1–123.1	13 May 1956	70
2391554	49.1–123.0	5 November 1936	AHY	48.1–121.3	27 August 1937	165
39302046	50.4–127.3	9 December 1940	AHY	49.1–123.0	12 May 1941	340
62301227	37.5–122.1	20 August 1950	HY	38.1–121.3	? December 1958	95
56304702	38.5–120.0	1 August 1970	U	38.0–122.0	15 December 1975	180

<sup>a</sup>Latitude—longitude.<sup>b</sup>AHY = after hatching year; HY = hatching year; U = unknown.<sup>c</sup>Approximate straight-line distance between banding and recovery locations.

also banded in the same location in October 1935, was recovered a short distance away from the banding site 14 days after banding. These recoveries indicate either that the timing of movements varies among individuals, or that not all individuals in a locality move. Another bird (108853) from British Columbia did not move until early December (Table 2). Many of the movements summarized herein may reflect shifts in locality in response to environmental conditions or may be based on nomadic tendencies based on food supplies. With both northward and southward movements of varying distances and timing involved, it does not appear that Steller's Jays use set migration patterns, times, or routes. We can thus conclude that Steller's Jays initiate wanderings for reasons not yet known, and do not migrate latitudinally.

Records of birds banded in the late fall or early winter and recovered in this same period but in different years were also available (Table 3). Since the timing of movements varies widely among individuals within the same season (Table 2), it would be tenuous at best to draw conclusions from birds recovered several years or more after banding. Data in Table 3 nevertheless may further support the conclusion (based on data in Table 2) that the timing of wanderings varies and could also indicate use of different wintering areas in later years. We must caution, however, that until more information is accumulated on the timing of movements, our present data (Table 3) must be interpreted with caution. Our tentative conclusion is that the apparent use of different wintering areas suggests nomadic movement by the jays.

**Table 2. Steller's Jays initially banded in late fall or early winter and recovered several months later.**

Band No.	Where Banded <sup>a</sup>	Date Banded	Age When Banded <sup>b</sup>	Where Recovered <sup>a</sup>	Date Recovered	Distance Moved (km) <sup>c</sup>
83205006	40.0–105.1	15 September 1976	U	37.0–105.0	28 November 1976	330
427813	37.1–118.5	5 September 1926	U	38.1–120.3	25 November 1926	190
58359298	33.4–116.4	17 September 1961	HY	33.2–117.1	16 December 1961	70
96329512	58.2–134.3	18 October 1967	AHY	58.1–134.2	9 January 1968	13
108853	49.2–123.2	9 December 1924	U	48.8–123.8	28 January 1925	60
589172	49.3–119.4	26 December 1932	AHY	49.3–119.3	18 February 1933	7
589177	49.3–119.3	5 October 1933	AHY	49.2–120.0	? November 1933	50
3340507	54.3–128.3	31 October 1934	AHY	54.3–128.4	2 November 1934	6
34315065	54.3–128.3	6 October 1935	U	54.2–128.4	20 October 1935	13
34336506	54.3–128.3	13 October 1935	AHY	55.3–129.3	29 October 1935	130
34336513	54.3–128.3	29 October 1935	AHY	55.3–129.3	13 February 1936	130
52369645	49.5–116.5	7 October 1960	HY	49.2–117.1	19 November 1960	55

<sup>a</sup>Latitude—longitude.<sup>b</sup>AHY = after hatching year; HY = hatching year; U = unknown.<sup>c</sup>Approximate straight-line distance between banding and recovery locations.

**Table 3. Steller's Jays banded and recovered in fall or winter but in different locations and years.**

Band No.	Where Banded <sup>a</sup>	Date Banded	Age When Banded <sup>b</sup>	Where Recovered <sup>a</sup>	Date Recovered	Distance Moved (km) <sup>c</sup>
443279	38.2–105.5	13 November 1926	AHY	40.3–106.5	7 October 1930	250
41339458	40.0–105.1	11 November 1946	AHY	39.2–105.2	22 October 1950	90
82350911	39.4–105.1	22 November 1966	AHY	40.0–105.1	17 September 1969	65
76305033	39.2–104.4	3 October 1968	U	40.0–105.1	21 October 1970	110
76305073	39.2–104.4	23 October 1968	U	40.0–105.1	12 February 1971	110
61348015	37.5–122.1	29 December 1958	AHY	37.5–122.0	2 September 1960	8
62333304	44.0–123.0	1 December 1958	AHY	45.5–122.2	30 September 1962	175
81342623	42.5–122.0	12 September 1967	HY	42.2–122.4	? January 1969	45
39346351	46.3–122.5	12 October 1939	HY	47.0–122.5	4 October 1940	75
102319543	58.2–134.3	9 November 1973	U	58.1–134.2	? January 1981	13
3333115	50.1–119.1	20 January 1936	AHY	50.0–119.2	? October 1937	13

<sup>a</sup>Latitude—longitude.

<sup>b</sup>AHY = after hatching year; HY = hatching year; U = unknown.

<sup>c</sup>Approximate straight-line distance between banding and recovery locations.

If we assume that jays do not move from breeding grounds until September, then birds captured and recovered during the breeding period but in different locations indicate shifts in breeding areas. Only three jays (all adults) met the above criteria and moved over 10 km (Table 4). Even those records must be viewed with caution, however, as all were banded to August. It is possible that some movement occurred prior to September; this is likely the case for birds moving under 10 km (Table 4). Given that most (61 of 68; 89.7%) individuals showed no shifts in breeding location, such shifts, should they occur, are rare. Until data to the contrary are found, we can conclude that Steller's Jays breed close to (within 10–15 km of) their birthplace.

### Summary and Conclusion

Banding records indicate that most Steller's Jays are sedentary. While a limited few individuals were found to make movements up to a few hundred kilometers between seasons, no support for a truly migratory population of Steller's Jays was found. Movements of Steller's Jays can thus be characterized as wanderings (possibly dispersal by individuals) caused by some yet unknown stimulus. Most Steller's Jays remain near their place of birth to breed.

Our results largely parallel those found for Blue Jays in eastern (Stewart 1982) and western (Smith 1979) North America. Like Blue Jays, Steller's Jays have both sedentary and mobile individuals. Unlike Steller's Jays, however, Blue Jays exhibit both migratory and dispersal (wandering) behavior. Although some Steller's Jays disperse away from their birthplace to breed, they do not appear to be truly migratory.

**Table 4. Steller's Jays captured and recovered during the breeding period but in different locations and years.**

Band No.	Where Banded <sup>a</sup>	Date Banded	Age When Banded <sup>b</sup>	Where Recovered <sup>a</sup>	Date Recovered	Distance Moved (km) <sup>c</sup>
592688	34.1–116.5	14 August 1928	AHY	34.0–117.1	10 August 1929	55
3337466	37.0–122.1	6 August 1932	AHY	37.0–122.0	18 July 1933	9
3324251	37.0–122.1	23 August 1933	U	37.0–122.0	5 July 1939	9
2322004	34.0–117.1	24 August 1940	AHY	34.0–118.1	31 May 1941	90
49304701	39.0–122.0	29 August 1950	AHY	38.8–120.8	20 June 1952	105
55306204	34.1–117.1	6 August 1953	AHY	34.0–117.1	31 July 1955	10
61348044	37.5–122.1	28 July 1959	HY	37.5–122.2	23 July 1961	9

<sup>a</sup>Latitude—longitude.

<sup>b</sup>AHY = after hatching year; HY = hatching year; U = unknown.

<sup>c</sup>Approximate straight-line distance between banding and recovery locations.

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Stewart (1982) offered several explanations for the movements he noted in Blue Jays. Stewart felt that movement, especially migration, of Blue Jays was influenced by the orientation of mountains and streams. He also concluded that dispersal by jays was a vestigial behavior pattern no longer serving the needs once served. Because individuals in the same area were both sedentary and migratory, he discounted environmental influences as the cause of jay movement.

Until further research is conducted, we will refrain from adding to or commenting on Stewart's (1982) speculations. It is interesting, however, that both species of *Cyanocitta* at least superficially exhibit similar patterns of movement.

### Acknowledgments

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### An Usual American Kestrel With "Growth" On Toenail

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While trapping Kestrel's at an active garbage dump, south-east of Chicago, Illinois, on 29, January 1983, I captured an unusual AHY male American Kestrel (*Falco sparverius*). The bird had an apparent growth on its center toe of the right leg. The growth? was one inch in diameter. It was all black and was almost round.

Upon close examination I could see it was not attached to the flesh, but to the center toe nail only. I assumed it could not be nail growth, so I tried to break it with my finger nails, which was fruitless, because it was too hard. I then got out a large pliers and started to crush it. It took a great amount of pressure, but I finally crushed it. The inside was white so I (assumed?) it must have been plaster of paris, or something of that consistency.

How a thing like that could become attached to a toe nail is uncertain. If the bird picked it up at the dump, it must have been soft enough for the toe nail to embed in it, and promptly the bird could have removed it.

The solution as I see it, the bird was trapped by someone, who then attached this object to the birds toe as a lark, and held it on until it becomes hard? The bird was then released.

Have other hawk banders run into hawks that had an object like this on their toes? There was no hair or feathers within the object, thus it was not a build-up of what the Kestrel had been eating.

Anyway the bird should be happy now with that weight off it's right foot, and the left leg sporting a F & W band #1333-56303.

I planned to record the bird as status (615), but changed that to (300) status, since the bird is now normal.