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Paul A. Stewart

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Annual Survival Rate of Yellow-Rumped Warblers

Paul A Stewart
203 Mooreland Drive
Oxford, North Carolina 27565

A listing of 603 encounters of banded Yellow-rumped Warblers (*Dendroica coronata*) made before 11 July 1986 was obtained from the Bird Banding Laboratory. This listing was examined for information on annual survival rate of the birds. With the goal of using only records of birds of known age when banded, only records of birds identified as being in their hatching year when banded were used. Also, to assure that the full life spans of the birds were included, only birds dead when encountered were used. The oldest bird was in its sixth year of life, and to assure that birds still have prospect of being encountered were not used, encounters of birds banded after 1980 were not used.

A total of 61 encounters was available for construction of a survival table (Table 1). Survival during the first year after banding was 27.9%, with 47.1% the second year. The average survival was 44.5%, and two birds lived into their sixth years.

All of the 61 encounters were of hatching-year birds banded after July, with possible higher mortality in the nests or soon after departure from the nests thus eliminated. Of the 61 encounters, 44 (72.1%) were of birds banded in October, definitely during autumn migration. Ten were banded during August and September when in possible migration, and seven were banded during November and December when in migration or on the winter grounds.

The average annual survival of 44.5% is substantially lower than the 64.0% estimated by Roberts (1971) for six species of wood warblers. Roberts' estimates for the different species ranged from 52.6% to 84.5%. Roberts "concluded that average annual survival of 60% or more is normal among North American wood warblers." However, he also noted that "This is a remarkably high figure for a passerine group."

In calculating his estimates, Roberts excluded data from the birds' first year of life, partly accounting for differences between his estimates and mine. Roberts (personal correspondence) pointed out that survival tables such as I used do not give a statistically valid estimate of survival and that data from the first year of life must be excluded. To me, saying that data from the first year of life

must be excluded for statistical tests is another way of saying that data on survival of banded birds cannot be statistically analyzed. Otherwise, one is left wondering how birds can get to be more than one year old without first being one year old. Moreover, with 60% annual survival, birds would live into their ninth year; whereas, the oldest banded Yellow-rumped Warblers lived only into their sixth year.

Roberts' study was based on returns of birds to breeding localities and thus involved local breeding populations. Local breeding populations may find migration routes and wintering localities with hazards below average in severity. Data I have used from birds banded when making their autumn migrations may better represent the continental population of these birds. Of course, a larger sample and one still better representative of all parts of the range of Yellow-rumped Warblers is needed.

Literature Cited

Roberts, J.O.L. 1971. Survival among some North American wood warblers. *Bird-Banding* 42:165-184.

Table 1.
Annual survival rate of 61 Yellow-rumped Warblers.

| Age in Years | Alive at start of year | Alive at end of year | % survival |
|--------------|------------------------|----------------------|------------|
| 0-1 | 61 | 17 | 27.9 |
| 1-2 | 17 | 8 | 47.1 |
| 2-3 | 8 | 6 | 75.0 |
| 3-4 | 6 | 3 | 50.0 |
| 4-5 | 3 | 2 | 66.7 |
| 5-6 | 2 | 0 | 0.0 |
| Average | | | 44.5 |