

WHAT IF WE HAD NOT REMOVED COWBIRDS?

Even with cowbird control, the Kirtland's Warbler has shown a decline rather than an increase from 1972 to 1974. An immediate question is this: What if we had not protected the warblers from cowbirds in 1972 and 1973?

1. Actual experience (with cowbird control)

Adults on nesting ground in 1972 -	200 pairs, 400 individuals	(Source: 1972 census).
Fledglings produced in 1972	800	(Walkinshaw found about 4.0 fledglings per pair.)
Total population in July, 1972	<u>1,200</u>	
Survival rate from July, 1972, to June, 1973	18 %	
Adults on nesting ground in 1973	216 pairs, 432 individuals	(1973 census).
Fledglings produced in 1973	864	(Walkinshaw's 4.0 fledglings per pair.)
Total population in July, 1973	<u>1,296</u>	
Survival rate from July, 1973, to June, 1974	13 %	
Adults on nesting ground in 1974	167 pairs, 334 individuals	(1974 census.)

2. What would have been expected from pre-1960 survival rates (without cowbird control)

Survival rate of adults from June to June	60 %	(Source: my 1960 calculations confirmed by Berger & Radabaugh in 1968.)
Survival rate of young from fledging to next June	40 %	(A guess based on assumption survival of first-year birds is lower than adults.)
Fledglings per pair needed to sustain population	2.0	(Calculated from the survival rates above.)
Fledglings per pair without cowbird control	1.0	(My 1960 calculations were 1.4 per pair with about 50 % of nests parasitized, but modern 70 % parasitism gives lower yield)
Predicted decrement per year	20 %	(Calculated from above survival and production rates.)
Predicted count of males in 1974	128	(200 reduced by 20 % twice.)

Conclusion: If 1972-74 had been a normal period for Kirtland survival but there had been no cowbird control, the 1974 count would have been about 128 males.

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3. What would have been expected from 1972-74 survival rates (without control)?

Total population of adults and young, July, 1972	1,200	(Actual experience.)
Predicted count for June, 1973 -	108 pairs, 216	(Calculated from 18 % observed survival rate.)
Predicted fledglings without control of cowbirds	108	(1.0 per pair as in previous section.)
Total population of adults & young, July, 1973	<u>324</u>	(Predicted without control)
Predicted count for June 1974 -	21 pairs, 42	(Calculated from 13 % survival rate from 1973 to 1974.)

Conclusion: Without cowbird control in 1972 and 1973 and with the same survival - mortality rates experienced in that period, we would have had about 21 pairs of Kirtland's Warblers in 1974!

This astonishing figure is vulnerable to challenge. It is based on the debatable assumption that the birds have the same rate of survival if the population were even smaller than at present. This is true only if the hazards of life are independent of the numbers of birds at these very low population levels, which is imaginable for some of the supposed hazards for this species (for example, competition with vastly greater numbers of other birds dispersed over a wide wintering range, and mortality from storms in winter or migration, and poisoning from insecticides encountered in migration). But this would not be true if the pressures are intraspecific (for example, if competition on the wintering ground comes mostly from other Kirtland's Warblers, or if the nesting function is suppressed in many birds because there is not enough ideal habitat on the summer range).