

Winter Population Trends in the Marsh, Cooper's and Sharp-shinned Hawks

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The inclusion of these three species in the "Blue List" (*Amer. Birds* 25:948-9) warrants an investigation of the changes in their numbers in recent years. The lack of information regarding breeding populations makes it necessary to rely upon the reports of winter numbers carried in *Audubon Field Notes* and *American Birds*.

METHODS

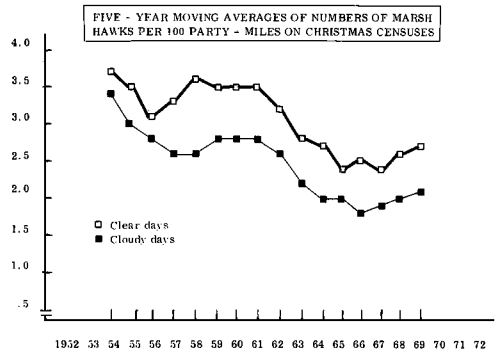
Christmas Bird Count reports from 45 states and the District of Columbia for the years 1952-1971 were analyzed to learn what population changes have occurred in the Marsh Hawk (*Circus cyaneus*), Cooper's Hawk (*Accipiter cooperi*), and the Sharp-shinned Hawk (*Accipiter striatus*). The numbers of hawks seen and miles traveled in each state were tabulated year by year, and ratios of numbers of hawks per 100 miles were computed. The curves for these results show an upturn in the later years for all three species.

It was shown in the winter population study of the Red-shouldered Hawk (*Amer. Birds* 25 813-7) that more hawks are seen on clear days than on cloudy, and the results were separated according to the weather on count days. As the curves for both types of weather are similar, the increases are not due to more favorable weather in these years. Since any increase in populations among the *Accipitridae* is unusual, an attempt has been made to learn where the increases have occurred.

MARSH HAWK

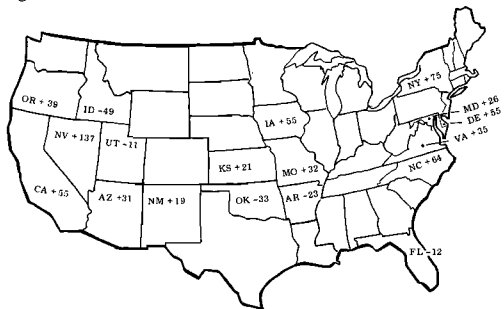
Fig. 1 shows the 5-year moving averages of the numbers seen per 100 miles traveled. The results in each state for the two 5-year periods 1963-6 and 1967-71 were compared and increases were found to have taken place in 13 states and decreases in 5. These 18 states recorded 62% of all hawks seen in the last 5 years, and accounted for 45% of all miles traveled in that

Figure 1



time. Fig. 2 shows the states in which there were increases or decreases of 5% or more with significant numbers of hawks seen.

Figure 2



California played an important part in bringing about the sharp upturn shown in Fig. 1. Fig 2 shows that this state, which recorded more than 10% of all the Marsh Hawks seen during the 5-year period just ended, had a 55% increase over the earlier period. Analysis of their reports shows that 15 stations out of the 54 reporting

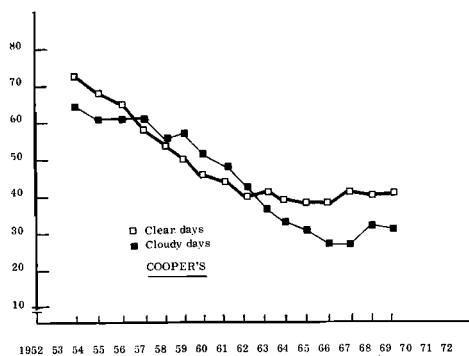
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in 1971 accounted for 75% of the state's total. The rate for these was 9.0 per 100 miles. In 1962 there were reports from only 7 of these 15 stations. The rate for the 7 in 1962 was 1.1 per 100 miles with 1600 miles traveled. The same group in 1971 had a combined rate of 6.4 with 2700 miles traveled. At the same time, the 8 "new" stations had a rate of 11.8. While the 7 stations reporting in both 1962 and 1971 did contribute to the overall increase, the "new" areas had even better records.

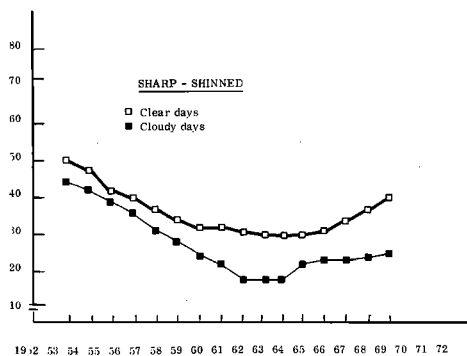
COOPER'S HAWK

The record of the Cooper's Hawk is similar to that of the Marsh Hawk. Fig. 3 shows the 5-year moving averages of the number seen per 100 miles, and Fig. 4 the geographical distribution of the increases and decreases occurring in the same two 5-year periods. Here again, California, where 41% of all Cooper's Hawks seen in the 1967-71 period were recorded, had a 32% increase over the preceding period. The Cooper's were much more widely distributed in the state than was the Marsh Hawk.

Figures 3/5



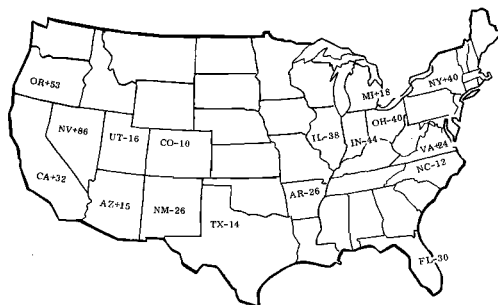
FIVE - YEAR MOVING AVERAGES OF NUMBERS OF COOPER'S AND SHARP - SHINNED HAWKS PER 100 PARTY - MILES ON CHRISTMAS CENSUSES



SHARP-SHINNED HAWK

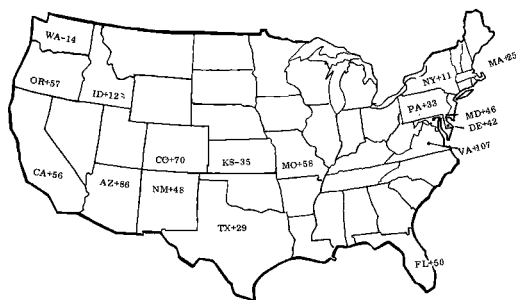
The curves for the 5-year moving averages of numbers of Sharp-shinned Hawks seen are shown in Fig. 5, and the leveling off of the decrease prior to the start of the upturn again

Figure 4



occurs in the early 1960's. Fig. 6, showing the important population changes between the two 5-year periods, again shows California largely to be responsible for the results. This state recorded 40% of all Sharp-shinned seen with a 56% increase in the frequency rate.

Figure 6



SUMMARY

Analysis of 20 years' Christmas Bird Count reports shows a downward trend in the winter populations of the three species continuing until the early 1960s when there was a leveling off and finally an upturn. California, where there was greatly increased coverage in the later years, in addition to a higher frequency rate, played a large part in bringing about the recent increases

ACKNOWLEDGMENT

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