

produced later in the season may not attain foraging skills before the onset of winter (Ingold 1994).

The effect of competition for nesting cavities may be most pronounced in areas where cavities and suitable trees for potential excavation of cavities are limited (Conner and Adkisson 1977). Habitat loss may be the cause for this limitation. Thus the loss of habitat containing possible nest cavity sites, coupled with interference competition with the starling may be primary factors in Red-headed Woodpecker population decline.

Links to Losses of American Elms and Road Mortality

Loss of American elms (*Ulmus americana*) following the effects of Dutch elm disease, another possible contributing factor, has been investigated in Illinois (Kendeigh 1982). Red-headed Woodpecker numbers actually increased in Illinois and Wisconsin (Kendeigh 1982, Mueller 2002) during the period of loss of diseased and dying elms, but subsequently declined after elms were removed or lost to windthrow.

Vehicle-caused mortality may also have reduced numbers of the Red-headed Woodpecker significantly during the last century (Bent 1992, Mueller 2001, Robbins 1991, Smith et al 2000) In Wisconsin, Schorger noted losses due to road mortality declined markedly during the 1930s and 1940s (Schorger 1954).

Recent Status of the Red-headed Woodpecker in Illinois

Reasons for the decline of the Red-headed Woodpecker noted in Illinois may be similar to those of Wisconsin, but population losses may be less severe, as shown by BBS trends estimates (see introduction). Vernon Kleen's and other observer comments in the 1995, 1996, and 1997 Breeding Season Reports in Meadowlark (Kleen 1996, 1997, 1998) mention the low numbers of young produced statewide during recent years. Some factors driving decline across the species' North American range (such as competition, see above) may be less pronounced at lower latitudes, but research studies to investigate the extent of this factor have yet to be done.

Summary and Conclusions

Populations of the Red-headed Woodpecker have declined across much of this species' North American range. Likely factors implicated in this decline include habitat loss, effects of land use changes, ecological succession, fire suppression, loss of elms, and vehicle-caused mortality. Determining the possible causes for the decline of the Red-headed Woodpecker could lead to recommendations for management of this species and its habitat in the Midwest and elsewhere.

Acknowledgments

This research was supported by grants from the Zoological Society of Milwaukee County and the Wisconsin Society for Ornithology.

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Assistance needed for new Red-headed Woodpecker research project

One factor implicated in the population declines of cavity-nesting Red-headed Woodpeckers is "interference competition" with the European Starling. William P. Mueller is asking for assistance with a new multi-year research project. The objective is to determine the effect of starlings as competitors for nest cavities. This research would require observation of existing nest cavities or nest boxes.

Mueller will provide participants with forms on which to record observations at natural cavities or nestboxes (bluebird, Tree Swallow, or martin houses included) of interspecific interactions between starlings and any other cavity-nesting species. He wants to assess whether and how often starlings disrupt the nesting cycle and/or take over cavities or boxes, and this can include interfering with any native-species pair, such that they do not successfully nest, whether or not the starling pair does so successfully. He will ask participants to gather data for (initially) at least two nesting seasons, beginning with spring 2003.

Please contact William Mueller (see address and e-mail in accompanying article) for more information on this exciting project, which could help populations of Red-headed Woodpeckers rebound.