

FEATURE ARTICLES

AN ASSESSMENT OF BIRD HABITAT QUALITY USING POPULATION GROWTH RATES

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Abstract. Survival and reproduction directly affect population growth rate (λ), making λ a fundamental parameter for assessing habitat quality. We used field data, literature review, and a computer simulation to predict annual productivity and λ for several species of landbirds breeding in floodplain and upland forests in the Midwestern United States. We monitored 1735 nests of 27 species; 760 nests were in the uplands and 975 were in the floodplain. Each type of forest habitat (upland and floodplain) was a source habitat for some species. Despite a relatively low proportion of regional forest cover, the majority of species had stable or increasing populations in all or some habitats, including six species of conservation concern. In our search for a simple analog for λ , we found that only adult apparent survival, juvenile survival, and annual productivity were correlated with λ ; daily nest survival and relative abundance estimated from point counts were not. Survival and annual productivity are among the most costly demographic parameters to measure and there does not seem to be a low-cost alternative. In addition, our literature search revealed that the demographic parameters needed to model annual productivity and λ were unavailable for several species. More collective effort across North America is needed to fill the gaps in our knowledge of demographic parameters necessary to model both annual productivity and λ . Managers can use habitat-specific predictions of annual productivity to compare habitat quality among species and habitats for purposes of evaluating management plans.

Key words: Driftless Area, floodplain forest, habitat quality, population growth rate, population model, upland forest.