

**A COMPARATIVE STUDY OF THE MATING SYSTEM AND RECRUITMENT OF THE
KIRTLAND'S WARBLER IN VARIOUS HABITATS:
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by

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INTRODUCTION

The Kirtland's warbler (Dendroica kirtlandii) is an endangered species that breeds in the jack pine (Pinus banksiana)/ Grayling sand communities in the North Central part of the Lower peninsula of Michigan. The warbler winters in the Bahama Island Archipelago. The specific breeding habitat requirements of this species may contribute to its endangered status. It breeds only in large tracts (>32.4 Ha) of young jack pine, 6-20 years old, which are 1.5-6.0 m in height. The loss of this habitat and the invasion of the brown-headed cowbird (Molothrus ater) caused the decline of this species by 1971. The cowbirds are now trapped and removed, and the warbler population has stabilized. Since 1971 the population has fluxuated closely around 200 singing males (Wienrich 1989), until 1990 when the population increased in response to increased availability of suitable habitat (Weinrich pers. comm.). The most recent census of the Kirtland's warbler counted 393 singing males during the 1992 breeding season (Weinrich pers. comm.).

The Kirtland's Warbler Recovery Plan recommends the management of jack pine plantations to provide suitable habitat for the endangered species (Byelich et al. 1976). Evaluation of

the plantations as suitable habitat is critical to the success of the Recovery Plan. Plantations must serve as habitat sources and not habitat sinks.

The purpose of this project is to compare mating success and reproductive success of Kirtland's warblers in plantations and naturally regenerated areas that result from wildfires. The wildfire sites have historically provided habitat for the species and will serve as the guideline for evaluating the plantations. The project is timely because the Mack Lake burn of 1980 is providing much wildfire habitat for warblers, and many plantations are now reaching occupiable age.

As the plantations reach the age of possible occupation, the areas are included in the annual census. The census only provides approximate occupation information (Weinrich 1989), and does not address the mating status of the males counted. Birds may be present but not mated. Probst and Hayes (1987) studied mated status, but only compared the number of mated males to unmated males. Their methods likely did not allow them to discover the proportion of males that were polygynous. At the time it was thought that the species was almost exclusively monogamous (Mayfield 1960, Walkinshaw 1983), with only very rare instances of polygyny (Radabaugh 1972, Walkinshaw 1983). Since then, many polygynous matings have been described (Bocetti unpub.). Since polygynous males have more than one female, occupancy of a site is unclear unless the frequency of polygyny is known. Data on the mated status of males in different

