

TOWARD A BETTER UNDERSTANDING OF THE NORTHERN GOSHAWK

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WHY THIS ASSESSMENT?

The Northern Goshawk (*Accipiter gentilis*) is the largest member of the genus *Accipiter*, a group of hawks that contains 47 species worldwide. The Northern Goshawk occurs throughout the Holarctic region in wooded environments. Most species in this genus feed primarily on birds and mammals and frequent wooded environments.

Much controversy has arisen during the past several decades regarding the conservation status of the goshawk in North America. In the 1970s, concerns about the effects of forest management on nesting habitat of goshawks were raised in the western US (Reynolds 1971, Bartelt 1977). In the 1980s, further concerns were raised about the large foraging area beyond nest areas (Reynolds 1989, Crocker-Bedford 1990). Petitions to list the Northern Goshawk as threatened have been filed with the USDI Fish and Wildlife Service on several occasions. Although these petitions have been denied, they indicate the level of concern held by many regarding the status and trend of the population.

In response to concerns about the status of goshawk populations in the southwestern US, the Southwestern Region of the USDA Forest Service (USFS) assembled a goshawk scientific committee (GSC) in the fall of 1990. Composed of research and management scientists, the GSC was charged with developing forest management recommendations to protect and enhance goshawk habitat in order to conserve goshawk populations. The GSC produced a habitat conservation strategy entitled *Management recommendations for the Northern Goshawk in the southwestern United States* (Reynolds et al. 1992). This conservation strategy has now been applied on national forests in the Southwest. The management recommendations of Reynolds et al. (1992), however, were designed specifically for southwestern forests. Because important members of the suite of goshawk prey and the ecology of forests differ from one forest type to another, the management recommendations have limited applicability outside of the Southwest. Therefore, additional conservation strategies are needed for other regions and forest types within the range of the goshawk. Although the conceptual approach of Reynolds et al. (1992)

is applicable to any system, ecological differences among forest types require that the approach be modified for each situation.

To help expand on the knowledge and recommendations contained in Reynolds et al. (1992), a symposium was held in 1993 to assess the status of the goshawk across North America. The resulting publication (Block et al. 1994) synthesized existing information through a series of contributions and made recommendations on management and additional research.

During the 10 yr since publication of Block et al. (1994) many studies have been conducted on the status, ecology, and conservation of the Northern Goshawk. Nevertheless, controversy continues regarding the status of the species, appropriate management and conservation strategies, and the proper legal status that should be applied. Reflecting the uncertainty surrounding the status of the goshawk, the Raptor Research Foundation, Inc., and The Wildlife Society formed a joint committee to review information regarding the status of the population in the contiguous US west of the 100th meridian. This committee published its findings in 2004, finding that existing data related to the goshawk population trend are inadequate to assess population trend west of the 100th meridian. They concluded that small samples, nests located through ad hoc sampling generally associated with management activities, and an inability to extrapolate results from local studies to the scale of the review area, limited the committee's ability to draw conclusions on population trend, genetic structure, and habitat relationships (Andersen et al. 2004).

As such, individuals with the USDA Forest Service, Rocky Mountain Research Station felt that scientists and managers alike would benefit from a compilation of papers that updated previous works and synthesized the current status of knowledge on the species. All contributions were solicited by Richard Reynolds, William Block, and me to ensure that much of North America, including Canada, was included. In addition, I solicited several contributions from Europe so contrasts between the status and management of the species could be compared with North America. A few additional, relatively site-and-time specific studies were added after I was

contacted by several researchers that learned of this project.

Thus, this document was prepared to expand beyond Reynolds et al. (1992), Block et al. (1994), and Anderson et al. (2004), and to assess the existing body of knowledge, and present a substantial amount of previously unpublished data on the biology and ecology of goshawks. Although this assessment does not provide comprehensive management recommendations for specific forest types, it does provide the background needed for identifying and synthesizing information on the use of habitats and prey by goshawks in different forests so that locally specific conservation strategies can be developed.

APPROACH AND SCOPE OF ASSESSMENT

The goal of this assessment is twofold—to amass existing knowledge on the distribution, abundance, biology, ecology, and habitat needs of the goshawk in North America, and to provide a framework for synthesizing this information in a manner that conservation strategies specific to regional and local forest types can be developed.

We were especially fortunate to have Robert Kenward prepare a detailed foreword that reviewed and synthesized all of the contributions in the volume. Given Kenward's extensive experience with the goshawk, his contribution substantially enhances the value of this volume.

This volume begins with a very detailed assessment of the current state of knowledge regarding goshawk ecology by Squires and Kennedy. They review and synthesize existing data, identify gaps in our knowledge, and provide suggestions on research and management directions. Squires and Kennedy expended considerable effort to bring this contribution together, and it sets an excellent framework for the papers that follow.

I divided the body of the volume into three major parts, entitled *Regional*, *Ecology*, and *Management*. As the name implies, the regional section presents papers dealing with the status and trends of goshawks across North America and Europe. Included in these papers are many large data sets that quantify demography and nesting ecology, dispersal, and other life history traits. The ecology section presents contributions that more narrowly focus on one or a few aspects of goshawk ecology, including prey consumption and foraging ecology and movements. As shown in these papers, the use of satellite telemetry is greatly enhancing our understanding of goshawk movements and habitat use. The management section provides guidance on how we can use the

existing data to manage and conserve the species. In particular, Hargis and Woodbridge present a comprehensive design for monitoring goshawk populations at the bioregional scale, and Reynolds et al. develop an ecosystem-based strategy for conserving the species. The final chapter by Boyce et al. summarizes the state of knowledge on science and management of the Northern Goshawk.

Because of the controversy surrounding the status and management of the goshawk, I think it is valuable to briefly outline the review process used in this volume. I served as the review editor and obtained two peer reviews for all contributions; most reviews were obtained from scientists not involved with this volume. I then synthesized the review comments, provided additional comments, and returned the manuscripts to the author(s) for revision. Manuscripts were also sent through a thorough review of study design and statistical methods, conducted by qualified statisticians. The revised manuscripts, along with all review comments, were then forwarded to *Studies in Avian Biology* editor Carl Marti. Marti reviewed all of the materials, provided additional comments as he deemed necessary, and made the final decision on acceptance of all manuscripts. Thus, each paper has undergone a review process that exceeds that applied by most scientific journals.

This volume adds substantially to the existing knowledge of the Northern Goshawk and provides useful guidance for management and conservation of the species. Additionally, weaknesses in our understanding of the species are identified, and recommendations are made for closing the gap between what we know and what we need to know to ensure that the species is perpetuated.

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