

STATUS AND CONSERVATION OF NORTHERN GOSHAWKS IN THE CENTRAL APPALACHIAN MOUNTAINS: HAS THE POPULATION TREND REVERSED SINCE 2001?

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Prior to European settlement, northern goshawks (*Accipiter gentilis*) were a regular component of the high-elevation Appalachian breeding bird fauna, possibly as far south as the Great Smoky Mountains in North Carolina. As a result of extensive 19th century logging in the Appalachians, goshawks were extirpated from Maryland south by the beginning of the 20th century and greatly reduced in Pennsylvania and the northeastern United States. During the late 20th century, the higher elevations of the central Appalachians were gradually reoccupied by breeding northern goshawks as the population increased throughout the northeast in response to improving habitat conditions. Satellite telemetry studies demonstrate that central Appalachian adult goshawks are permanent residents. Reproductive output from central Appalachian goshawks is correlated with autumn counts of dispersing juvenile and nonbreeding sub-adult goshawks at Hawk Mountain and Waggoner's Gap. Counts of goshawks from 1991 through 2001 show a nonsignificant increase ($P=0.32$), but are consistent with observations of late 20th century breeding expansion southward. During 2001-2008, counts of dispersing goshawks show a nearly significant decline ($P=0.07$). This coincides with loss of recent breeding pairs in Maryland and West Virginia and declines in Pennsylvania and New York (BBA data). This recent trend reversal may be the result of increased adult mortality from West Nile virus and lower adult female survival rates (during the incubation and brooding periods) coupled with reduced nesting success rates from depredation by an expanding fisher (*Martes pennanti*) population. South of Pennsylvania, conifers appear to be an important component of northern goshawk nesting habitat. Loss of eastern hemlock (*Tsuga canadensis*) to hemlock woolly adelgid (*Adelges tsugae*) would seriously impact goshawk nesting habitat in the central and southern Appalachians, especially in the absence of any significant recovery of red spruce (*Picea rubens*) and white pine (*Pinus strobus*) dominated forest communities which were decimated by past logging. Restoration of native conifers in high elevation Appalachian forests is critical to the long-term recovery of northern goshawks in the central and southern Appalachians.

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