

Every Hawk Counts



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Each autumn since 1934, counters have recorded migrating raptors at Hawk Mountain. Over the years, these counts have been used to assess the health of populations of birds of prey in northeastern North America.

Perhaps the most famous use of our counts for this purpose was in 1962, when Rachel Carson pointed out the declining number of young bald eagles seen at Hawk Mountain in her conservation classic, *Silent Spring*. Carson believed this indicated reproductive failure. She suspected DDT was the cause, though she had no direct evidence.

Later, in 1969, Cornell ornithologist Walter Spofford analyzed Hawk Mountain counts to point out population declines of five raptor species in eastern North America.

In 1990, Hawk Mountain Research Director James Bednarz and others used migration counts from Hawk Mountain in an influential paper published in the scientific journal, *The Auk*. Using 49 years of data, Bednarz confirmed that conducting systematic migration counts was useful in monitoring population trends.

Today, we recognize that analyzing count data from multiple sites is necessary to understand the conservation status of birds of prey on regional or continental scales.

Hawk Mountain's new North American Monitoring Program is working toward accomplishing this goal. In collaboration with the Hawk Migration Association of North

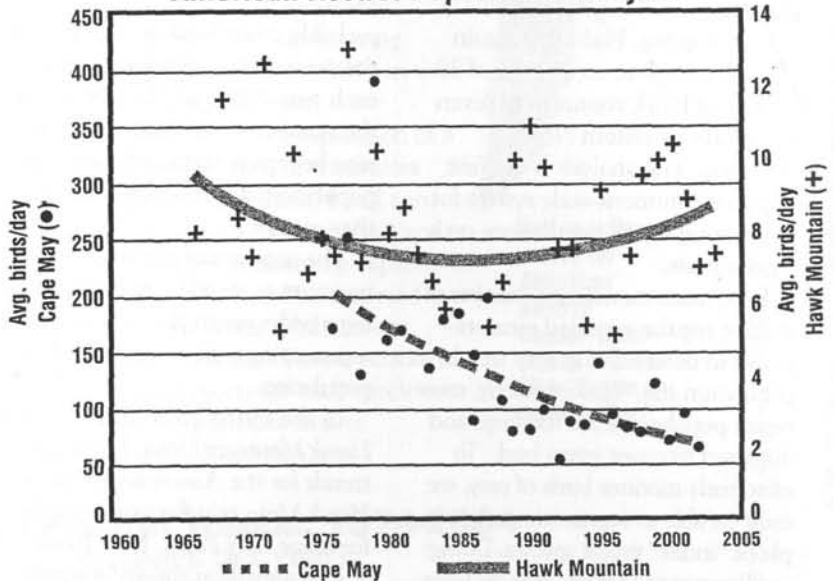
America, Hawk Watch International, Cape May Bird Observatory, and others, we are developing new methods to monitor migratory populations of raptors. This new program compares migration counts from multiple watchsites to enhance understanding of regional and continental population trends, and applies a systematic approach to hawk counts across North America. Preliminary analyses using counts from Cape May Bird Observatory, Montclair Hawkwatch, NJ; Hawk Mountain Sanctuary, Waggoner's Gap Hawkwatch, PA; Hawk Ridge, MN; Holiday Beach, Ontario; and Lighthouse Point, CT are underway. Linking counts from multiple watchsites allows Hawk Mountain to make every counted hawk "count" for conservation.

An example of the power of this multi-site approach involves North America's smallest falcon, the American kestrel. A recently completed analysis for hourly counts conducted from 1976 to 2002 at Hawk Mountain Sanctuary and Cape May Bird Observatory indicates that kestrels are declining at Cape May at an alarming rate of 4.1 percent annually. Continuous decline at this rate will cut the population in half in just 17 years. A similar decline is not apparent at Hawk Mountain.

The differing results indicate that these two eastern watchsites monitor either different regional populations or different age or sex groups within the same population.

One possibility is that the decline

American Kestrel Population Analysis



Lines indicate the long-term trends for each watchsite.

at Cape May reflects a decrease in numbers of juveniles. Prevailing northwesterly winds in the northeastern United States during autumn push birds towards the Atlantic coast and juvenile raptors are more likely to be drifted off course by wind than adults.

The lack of any significant decline in migration counts at Hawk Mountain may indicate that most kestrels migrating over Hawk Mountain each season are adults. If this is true, then we predict that Hawk Mountain counts will begin to decline in the future as older birds die.

Nesting effort in Hawk Mountain's local kestrel nest box program decreased 40 percent between 2000 and 2004, suggesting overall reproduction is declining, at least in some places in northeastern North America.

Breeding Bird Surveys in the Northeast indicate significant declines in kestrel populations of 2 percent per year since 1976 along the Atlantic flyway, which includes Cape May and Hawk Mountain.

In addition, an analysis of Christmas Bird Counts for the

northeastern United States and eastern Canada from 1976 to 2002 indicates an annual decline of 4.6 percent. Overall this suggests substantial decreases in kestrel populations across much of northeastern North America.

As the kestrel example illustrates, monitoring populations of North American raptors can be challenging as data from different sources sometimes conflict. Using many sources of data improves our ability to detect large-scale population trends.

Thanks to the many volunteers who operate migration watchsites across the continent, information needed to achieve the goal of meaningful regional monitoring is now available. As our North American Monitoring Program continues to grow, migration counts are likely to become even more important in hawk conservation.