

Conservation Status Report

Cooper's Hawk

Scientific Name:	<i>Accipiter cooperii</i>	
French Name:	<i>Épervier de Cooper</i>	
Spanish Name:	<i>Gavilán Pollero, Esmerejón de Cooper</i>	
Body length ^a :	Female: 42-47 cm	Male: 37-41 cm
Wingspan:	Female: 79-87 cm	Male: 70-77 cm
Mass:	Female: 479-678 g	Male: 302-402 g

Breeding Range (words in italics are defined in the glossary):

Contiguous 48 United States, southern Canada, and northern and northwestern Mexico

Winter Range: Overlaps much of breeding range except in the far north. Winters primarily within United States and most of Mexico. Also occurs in Costa Rica, Panama, Guatemala, Belize, and Colombia.

Type of Migrant: Partial

Nest Type: Broad, flat or conical nest composed of twigs; sometimes lined with bark or green branch material.

Food Habits: Preys mainly upon medium-sized birds and mammals, and occasionally on reptiles, amphibians, and large insects.

Primary Flight Mode: A series of 3 to 6 quick, shallow wingbeats, separated by brief periods of gliding; regularly soars on migration and occasionally at other times.

ECOLOGY

The Cooper's Hawk is a medium-sized *Accipiter* with a broad geographic distribution within the United States. Its breeding range extends into southern Canada and northern Mexico. Like other *Accipiters*, Cooper's Hawks have relatively short, rounded wings and long, narrow tails. Other notable physical characteristics include large eyes, elongated middle toes, and dark plumage on the crown of adults.

Cooper's Hawks nest in a wide variety of wooded and non-forested habitats including large forests, small woodlots, and sometimes solitary trees. They also breed in suburban and urban settings and in prairie habitats at some of the highest densities known for the species. Nests are typically 64-76 cm in diameter, constructed of small twigs, lined with bark or greenery, and placed in a fork or on horizontal branches near the main trunk of a tree. Cooper's Hawks can be difficult to detect and survey on breeding grounds, and thus migration counts provide important indexes to populations over broad regions of North America.

Prey of the Cooper's Hawk includes medium to large passerines (typically sub-adults), including the American Robin (*Turdus migratorius*) and Blue Jay (*Cyanocitta cristata*), as well as small mammals including chipmunks, squirrels, mice and bats. They also prey upon larger birds including pheasants, grouse, crows, and doves (Bielefeldt et al. 1992). They have been observed to prey on American Kestrels, as well. Cooper's Hawks typically hunt by alternately perching and flying to find prey. Hunts are sometimes conducted from higher flight, with individuals diving to capture prey. The species uses natural and manmade structures to conceal its approach from potential prey. In human-dominated landscapes, they frequently hunt near bird feeders (Dunn and Tessaglia 1994). Cooper's Hawks usually pluck their prey prior to feeding at "plucking

posts” which can be found on tree trunks, stumps, and fence posts, often within 50 m of the nest.

The Cooper’s Hawk is a *partial migrant* with some populations migrating whereas others remain on the breeding range year-round. In general, northern populations are more migratory than populations breeding to the south.

POPULATION STATUS

Most (97%) of the global population breeds in North America, with an estimated 553, 000 birds in North America (Appendix B, Table 1). Data from *raptor migration counts*, *Breeding Bird Surveys (BBSs)*, and *Christmas Bird Counts (CBCs)* indicate that populations of Cooper’s Hawks have (1) increased in northeastern North America since 1974; (2) increased in western North America since the early 1980s, but declined in the northern Rocky Mountains and intermountain regions after the onset of drought in the late 1990s; and (3) increased around the Gulf of Mexico since 1995.

Eastern North America

Historic analyses. Bednarz et al. (1990) reported a non-significant, long-term decrease in counts of Cooper’s Hawks at Hawk Mountain Sanctuary from 1934 to 1986 and a *statistically significant* increase for the period 1971 to 1986, but no estimates were made of the rates of change. In a study of six raptor migration counts in eastern North America, Titus and Fuller (1990) reported a statistically significant regional increasing trend of 7.8% per year from 1972 to 1987. Hussell and Brown (1992) reported that counts of Cooper’s Hawks at Hawk Ridge Bird Observatory decreased non-significantly from 1974 to 1989, while those at Grimsby, Ontario (a spring count) increased a statistically significant 4.6% per year from 1975 to 1990. At Cedar Grove, Wisconsin, Mueller et al.

(2001) reported a statistically significant decrease in counts of Cooper's Hawks from 1936 to 1999, and a statistically significant increase from 1951 to 1999.

Recent analyses. Raptor migration counts, BBSs, and CBCs provide evidence of long-term increases in populations of the Cooper's Hawk in northeastern North America since 1974. From 1974 to 2004, statistically significant increases occurred in migration counts at Lighthouse Point, Connecticut (7.5% per year, $P \leq 0.01$), Montclair Hawkwatch Lookout, New Jersey (10.2% per year, $P \leq 0.01$), Cape May Bird Observatory, New Jersey (4.6% per year, $P \leq 0.01$), Hawk Mountain Sanctuary, Pennsylvania (4.1% per year, $P \leq 0.01$), Waggoner's Gap, Pennsylvania, (5.1% per year, $P \leq 0.01$), Holiday Beach, Ontario, (2.6% per year, $P \leq 0.01$), and Hawk Ridge Bird Observatory, Minnesota (4.0% per year, $P \leq 0.01$).

From 1994 to 2004, statistically significant increases continued at Montclair Hawkwatch (10.2% per year, $P \leq 0.01$), Hawk Mountain Sanctuary (4.1% per year, $P \leq 0.01$), and Waggoner's Gap (5.0% per year, $P \leq 0.01$). A non-significant increase was recorded at Cape May Point (0.3% per year), and non-significant decreases were recorded at Lighthouse Point (-1.6% per year) and Hawk Ridge Bird Observatory (-3.0% per year). A statistically significant decrease in counts of Cooper's Hawks occurred during this period at Holiday Beach (-3.7% per year, $P \leq 0.05$) (Fig. 1). Cooper's Hawks did not occur regularly at l'Observatoire d'oiseaux de Tadoussac, Quebec. Continued population change at the 1994–2004 rates would lead to a 50% increase of Cooper's Hawk source populations in approximately 231 years at Cape May, 7 years at Montclair, 17 years at Hawk Mountain, and 14 years at Waggoner's Gap, and 50% decreases in 12 years at Lighthouse Point, 19 years at Holiday Beach, and 23 years at Hawk Ridge.

BBSs show a non-significant increase of 3.6% per year in Cooper's Hawk populations in northeastern North America (1976–2003) and a *statistically significant* increase of 8.4% per year in the Mississippi flyway (1974–2004; Sauer et al. 2004). These broad geographic regions include the areas from which the seven raptor migration counts receive migrants.

CBC data for 1974-2004 (National Audubon Society 2002) indicate a statistically significant increase of 5.2% per year in the southeastern United States (Delaware, Florida, Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, Virginia, West Virginia), and 6.8% per year in the northeastern United States and Canadian provinces (Massachusetts, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, New Brunswick, Nova Scotia, Ontario, and Quebec).

Western North America

Historic analyses. Hoffman and Smith (2003) reported a *statistically significant* increase in migrating Cooper's Hawks from 1983 to 2001 at the Goshute Mountains, Nevada, but no significant trends at the Wellsville Mountains, Utah (1987 to 2001), Lipan Point, Arizona (1991-2001), Bridger Mountains, Montana (1992-2001), and the Manzano and Sandia (spring) mountains, New Mexico (1985-2001). As alluded to above, most of these raptor migration counts increased through the mid-1990s and then decreased beginning in 1999, coincident with the onset of widespread drought (Hoffman and Smith 2003).

Recent analyses. The updated analyses presented in this volume revealed that recent declines largely erased the previous significant increase in the Goshutes, that

significant declines have occurred since 1998 at Lipan Point and in the Bridger and Wellsville mountains, but that a significant and continuing long-term increase is now apparent in the Manzano Mountains.

Data from raptor migration counts, CBCs, and BBSs indicate mostly increasing trends for Cooper's Hawks in the western United States between the mid-1980s and late 1990s, but mostly strong declines since then in the interior West coincident with the occurrence of widespread drought. In the Goshute Mountains, Nevada, a marginally significant ($0.05 < P \leq 0.10$) long-term increase was recorded from 1983 to 2005 (1.6% per year, $P = 0.06$). Between 1983 and 1997, prior to the drought and coincident with a wet El Niño cycle, a statistically significant 7.4% per year increase occurred in the Goshutes, however, after that a significant 9.3% per year decline occurred ($P \leq 0.01$ in both cases). Similarly, a non-significant long-term decrease was recorded in the Wellsville Mountains, Utah from 1987 to 2004 (-1.7% per year). A closer look reveals a significant 4.1% per year increase occurred through 1997 ($P \leq 0.05$), after which a significant and continuing 14.3% per year decline occurred ($P \leq 0.01$). At Lipan Point, Arizona, counts remained comparatively high and stable between 1991 and 1997 (non-significant 2.2% per year increase), but then decreased (-8.7% per year decline since 1991; -18.2% decline per year since 1998, $P \leq 0.01$ in both cases). In the Bridger Mountains, Montana, a non-significant 9.0% per year increase occurred between 1992 and 1998, after which a non-significant 5.6% decline occurred, in the end yielding a marginally significant ($P = 0.08$) overall decline of 4.4% per year from 1992 to 2005. The one prominent exception to this pattern was a statistically significant and continuing

long-term increase from 1985 to 2005 in the Manzano Mountains, New Mexico (4.5% per year, $P \leq 0.01$).

Over the most recent decade (1995-2005), a statistically significant increase (4.5% per year, $P \leq 0.01$) was recorded at the Manzano Mountains. Statistically significant decreases were recorded at the Bridger Mountains (-6.2% per year, $P \leq 0.05$), the Goshute Mountains (-7.0% per year, $P \leq 0.01$), the Wellsville Mountains (1995-2004; -10.9% per year, $P \leq 0.01$), and Lipan Point, Arizona (-14.2% per year, $P \leq 0.01$). A marginally significant decrease was recorded at Chelan Ridge, Washington (1998-2005; -6.3% per year), and non-significant declines occurred at Bonney Butte, Oregon (-0.9% per year), and Yaki Point, Arizona (1998-2005; -6.6% per year) (Fig. 1).

BBSs indicate a non-significant, long-term decrease of 0.4% per year from 1983 to 2004, and a statistically significant increase of 7.7% per year from 1995 to 2004 ($P \leq 0.05$) in the BBS western region (Arizona, California, Idaho, Nevada, Oregon, Utah, Washington, western Montana, western Wyoming, western Colorado, western New Mexico, British Columbia; Sauer et al. 2004). Western *BBS* estimates for this species, however, are based on a low number of routes (e.g. 65 for 1995-2005), and their reliability is questionable.

CBC data (National Audubon Society 2002) for the western United States and Canada (Alaska, Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, Alberta, British Columbia, Northwest Territories, Yukon Territory) indicate that wintering Cooper's Hawk populations increased significantly (0.5% per year, $P \leq 0.05$) from 1983 to 2005, and remained relatively stable (0.5% per year increase, non-significant) from 1995 to 2005.

In sum, similar to many other species, it appears that Cooper's Hawks fared well between the 1980s and mid-1990s in the interior West, increasing gradually across most monitored sites. Signs of probable stress then began to appear in most datasets as widespread drought set in, the major exception being a long-term and continuing significant increase in the Manzano Mountains. This suggests that populations in the southern Rocky Mountains remained healthy while northern Rocky Mountain and Intermountain populations suffered from extensive drought. Continuing recent declines in the heart of the Great Basin at the Goshute Mountains and farther south in the Grand Canyon may reflect the lingering effects of hypothesized, drought-related route shifts; i.e., that the drought may have driven migrants to avoid the xeric Great Basin in favor of diverting west to follow the comparatively mesic Sierra–Cascade range.

Gulf of Mexico

From 1995 to 2005, raptor migration counts increased non-significantly in the Florida Keys (1999-2005, 7.3% per year), at Corpus Christi, Texas (1997-2005, 3.3% per year), and in Veracruz, Mexico (1997-2005, 3.3% per year). In contrast, a non-significant decrease was recorded at Smith Point, Texas (-1.0% per year). Confidence intervals for trends at these watchsites were quite broad due to relatively high annual variability and the short duration of these projects. This renders the precision of indicated trends marginal and warrants caution in interpreting the data. The overall indication for Cooper's Hawks in this region is that slight increases are likely, but longer-term monitoring is needed to produce accurate trend estimates.

HISTORIC CONSERVATION CONCERN

The Cooper's Hawk was heavily persecuted in the early 20th Century, primarily because it was perceived as a vicious enemy of songbirds and domestic chickens. Hundreds of Cooper's Hawks were shot annually while migrating past concentration points such as Hawk Mountain, Pennsylvania and Cape May Point, New Jersey (Stone 1937, Broun 1949). With the passage of protective legislation, most notably when the Migratory Bird Treaty Act was amended to include raptors in 1972, shooting ceased to be a significant source of mortality in North America. The species' reputation for taking songbirds is not undeserved, however, and Cooper's Hawks are common visitors to bird feeders, where they prey on feeder birds (Dunn and Tessaglia 1994).

The misuse of pesticides (particularly *DDT*) is believed to have contributed to Cooper's Hawk population declines in eastern North America from the 1940s to early 1970s (Bednarz et al. 1990).

CURRENT STATUS AND CONCERNS

The Cooper's Hawk is considered secure in the United States, Canada, and globally (Appendix B, Table 1). In the breeding range monitored by raptor migration counts in northeastern North America, the Cooper's Hawk is considered apparently secure in four of the states and provinces, vulnerable in three, imperiled in three, and critically imperiled in two (Rhode Island, Delaware) (NatureServe 2006; Appendix B, Table 2). In the breeding range monitored by raptor migration counts in western North America, the Cooper's Hawk is considered secure in one of the states and provinces, apparently secure in 10, and vulnerable in two (NatureServe 2006; Appendix B, Table 2). Kirk and Hyslop (1998) rated the Cooper's Hawk stable in most of Canada, but noted that demographic data were lacking for the species.

Recovery of populations from *DDT era* lows was well underway by the late 1970s to early 1980s (Bednarz et al. 1990, Titus and Fuller 1990). Our analyses reveal a consistent geographic pattern of population increase for Cooper's Hawks in northeastern North America since 1974. These increases continued through the last decade at watchsites in the Atlantic Coastal Plain and Appalachian Mountains, but weakened or reversed in coastal New England and New Jersey and in the southern Great Lakes. Western populations showed stable or increasing trends since the early to mid-1980s in the Intermountain and Rocky Mountain regions, but counts at most watchsites have decreased in the last decade coincident with the occurrence of widespread drought. Conversely, breeding populations of Cooper's Hawks appear to be increasing in at least some areas in the Midwest (e.g., North Dakota, Nenneman et al. 2002). Whether or not other causal factors are involved in the recent declines is unknown. Several factors, including release from persecution and pesticide misuse, reforestation and forest maturation throughout the region, and increased use of suburban and urban habitats, may be responsible for long-term increases in migration counts. Recent stable and decreasing trends in the northeast may be the result of habitat saturation.

The differences in trend estimates from the seven watchsite locations within the northeastern United States, ranging from 2.6% per year at Holiday Beach, Ontario to 10.2% per year at Montclair Hawkwatch, New Jersey, highlight the importance of using several raptor migration counts within a geographic region when attempting to identify population trends. Such variation most likely reflects variation in the rates of increase of regional subpopulations from which the watchsites draw migrants.

SUMMARY

Overall, monitoring data suggest that Cooper's Hawks have increased throughout North America over the last 20-30 years. Shorter-term migration monitoring data suggest that, in the last decade, these increases have moderated in the East and have largely been reversed in synchrony with widespread drought in the West (but BBS and CBC data do not show declines). Increases also appear likely in the southeastern United States and Mexico. These increases contrast with declines prior to the 1970s, and are probably the result of recovery from the effects of *DDT* and the ability of the species to exploit new habitats associated with urban and suburban development.

ADDITIONAL READING:

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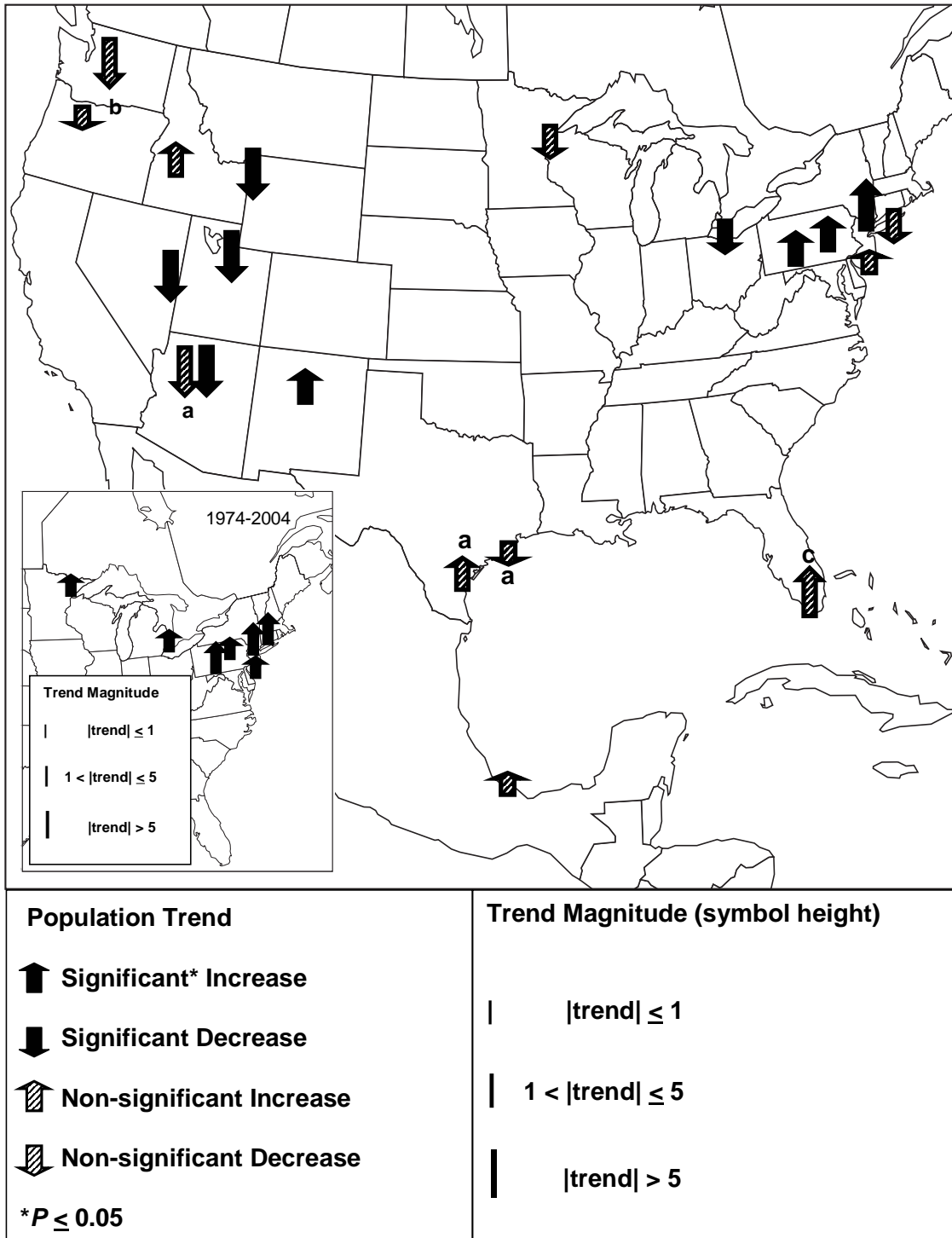


Figure 1. Population trends for Cooper's Hawks at 7 eastern and midwestern (1994-2004), 9 western (1995-2005), and 4 Gulf of Mexico (1995-2005) raptor migration counts in North and Central America, and long-term trends (1974-2004) at 7 eastern raptor migration counts (inset). Trend magnitudes are expressed in percent change per year.