

Conservation Status Report

Turkey Vulture

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| Scientific Name: | <i>Cathartes aura</i> |
| French Name: | <i>Urubu à Tête Rouge</i> |
| Spanish Name: | <i>Zopilote Aura</i> |
| Body length ^a : | 64-81 cm |
| Wingspan: | 160-181 cm |
| Mass: | 1.6-2.4 kg |

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

Breeds north to southern British Columbia, northern Idaho, northwestern Montana, east-central and southeastern Alberta, west-central through southeastern Saskatchewan, southern Manitoba, western and southeastern Ontario, southern Quebec, western and central Vermont, southern New Hampshire, and south-coastal Maine. Range extends southward through the continental U.S., Central and South America, and many of the larger islands, but is discontinuous in the western U.S., with breeding local or absent in portions of the Great Plains, Montana, Saskatchewan, Idaho, Oregon, and Washington.

Winter Range: Winters from northern California south to the Mexican border, southern Arizona, northern Mexico, eastern Texas, southeastern Oklahoma, southern Missouri, southern Illinois, southern Indiana, southern Ohio, northern West Virginia, southeastern Pennsylvania,

southern New York, southern Connecticut, and south through the remainder of the breeding range to Central and South America.

Type of Migrant: Partial

Nest Type: Does not build a nest. Lays eggs directly on the ground in a location under cover of some sort (e.g., caves, hollow logs), and sometimes makes a scrape or rearranges the substrate.

Food Habits: Carrion and some plant material

Primary Flight Mode: Primarily soaring with wings in a deep dihedral, rocking side-to-side, interspersed with occasional, deep flaps.

ECOLOGY

The Turkey Vulture is the most widely distributed vulture species in the New World. It derives its common name from its passing resemblance to a Wild Turkey as a result of its featherless, red head. Turkey Vultures are opportunistic feeders that feed on all types of animal carcasses and human garbage, rarely kill small mammals, and eat vegetable material and animal dung. The species has a highly sensitive sense of smell, an unusual trait for a bird, which it uses in addition to vision to locate carcasses.

Unlike other large raptors in North America, Turkey Vultures do not build nests. Instead, they lay their eggs directly on the ground in a covered location, such as a cave, crevice in a rocky outcrop, hollow log, hollow stump, brush pile, thicket, or even an abandoned building. The species also makes use of abandoned stick nests of other large birds. Nesting typically occurs in areas that are isolated from human disturbance.

Turkey Vultures forage in open and partially forested habitats, often close to human settlements or farms, where a mix of wild and domestic carrion is available. Nesting

usually occurs in forested or partially forested habitats, with nest sites that are removed from areas of high human activity. At night, Turkey Vultures often form large, communal roosts in trees, rock outcroppings, utility towers, and buildings.

The Turkey Vulture is a *partial migrant*, and northern populations tend to be highly migratory whereas southern populations are more sedentary. During migration, northern populations typically pass over southern populations and winter farther to the south, a pattern called *leap-frog migration*. Populations in western North America are more migratory than their counterparts in eastern North America, and many western birds winter in Central or South America. The species also undertakes short-term, local movements in eastern North America when weather becomes unfavorable. Due to their reliance on soaring flight, migrating Turkey Vultures concentrate along *leading lines* and *diversion lines*, making them well-suited to migration monitoring.

POPULATION STATUS

The North American population is estimated at approximately 2,000,000 birds continent-wide, representing 29% of the global population (Dunn et al. 2005, Appendix B, Table 1). Data from *raptor migration counts*, *Breeding Bird Surveys (BBSs)*, and *Christmas Bird Counts (CBCs)* indicate that populations of the Turkey Vulture have (1) increased substantially throughout northeastern North America in the last 30 years and expanded the species' range northward; (2) increased since the early 1980s in western North America, but declined since the onset of regional drought in the late 1990s; and (3) increased or remained stable in the regions (primarily western) that contribute migrants to watchsites along the Gulf of Mexico, although statistical power to detect trends is still relatively low in this region.

Eastern North America

Historic analyses. Most earlier accounts of population trends for raptors in eastern North America did not report trends for the Turkey Vulture; however, Hussell and Brown (1992) reported that counts at Hawk Ridge Bird Observatory increased non-significantly (3.9% per year) from 1974 to 1989, while those at Grimsby, Ontario (a spring count) increased a *statistically significant* 11.7% per year from 1975 to 1990.

Recent analyses. Data from raptor migration counts, BBSs and CBCs indicate that populations of the Turkey Vulture have increased substantially in northeastern North America since the mid-1970s. From 1974 to 2004, statistically significant increases were recorded at Lighthouse Point, Connecticut (8.8% per year, $P \leq 0.01$), Montclair Hawkwatch, New Jersey (10.5% per year, $P \leq 0.01$), Hawk Mountain Sanctuary, Pennsylvania (12.5% per year, $P \leq 0.01$), Waggoner's Gap, Pennsylvania (10.0% per year, $P \leq 0.05$), Holiday Beach, Ontario (10.3% per year, $P \leq 0.01$), and Hawk Ridge, Minnesota (3.9% per year, $P \leq 0.05$). A non-significant increase of 1.5% per year was recorded at Cape May Point, New Jersey from 1976 to 2004. Trends for this period from Hawk Mountain and Waggoner's Gap should be interpreted with caution, as the species was not counted consistently at those watchsites until 1990.

From 1994 to 2004, statistically significant increases in Turkey Vulture numbers were recorded at Lighthouse Point (5.6% per year, $P \leq 0.01$), Hawk Mountain Sanctuary (13.7% per year, $P \leq 0.01$), Waggoner's Gap (16.7% per year, $P \leq 0.01$), and Hawk Ridge (3.9% per year, $P \leq 0.05$). Non-significant increases were recorded at Cape May Point (1.5% per year), Montclair Hawkwatch (1.8% per year), and Holiday Beach (5.0% per year) (Fig. 1). L'Observatoire d'oiseaux de Tadoussac, Quebec counted <20 birds

per year, and we were therefore unable to estimate trends at that watchsite. The qualitative pattern in counts at Tadoussac, however, is consistent with the increases recorded at other watchsites, and suggests a northward range expansion. The species began to appear at Tadoussac in 1999, and counts increased from 5 in 1999 to a high of 22 in 2003 (unpublished data, available at www.explos-nature.qc.ca/oot).

Population indexes and fitted trajectories for Turkey Vultures at these sites suggest that populations of this species increased dramatically in the region since 1990, when all watchsites in the region were counting the species consistently. Continued population change at the 1994-2004 rates would lead to a 50% increase of Turkey Vulture source populations in approximately 12 years at Lighthouse Point, 46 years at Cape May, 39 years at Montclair, 5 years at Hawk Mountain, 4 years at Waggoner's Gap, 14 years at Holiday Beach, and 18 years at Hawk Ridge.

BBSs, show statistically significant increases in Turkey Vulture populations in the Atlantic Flyway of 3.6% per year ($P \leq 0.01$) from 1974 to 2004 and 3.5% per year from 1994 to 2004 (Sauer et al. 2004). This region includes the areas from which the seven raptor migration counts receive migrants.

CBC data (National Audubon Society 2002) for the northeastern United States and eastern Canada (Massachusetts, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, New Brunswick, Nova Scotia, Ontario, and Quebec) reveals statistically significant increases of 7.5% per year ($P < 0.01$) for 1975-2004 and 5.2% per year ($P < 0.01$) for 1994-2004. The trend in Turkey Vulture numbers in the *CBC* for the southeastern United States (Delaware, Florida, Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, Virginia, West Virginia) also was

significantly positive for 1974-2004 (4.2 % per year, $P < 0.01$) and 1994-2004 (4.0 % per year, $P < 0.01$).

Overall, migration counts, BBSs, and CBCs indicate that Turkey Vulture populations are increasing throughout northeastern North America, although migration counts suggest that these trends are more pronounced inland than in coastal areas (Fig. 1).

Western North America

Historic analyses. Hoffman and Smith (2003) reported *statistically significant* increases in migrating vultures in the Goshute Mountains, Nevada from 1983 to 2001, in the Wellsville Mountains, Utah from 1987 to 2001, in the Manzano Mountains, New Mexico from 1983-2001, and during spring in the Sandia Mountains, New Mexico from 1985-2001. No significant trends were recorded at Lipan Point, Arizona (1991-2001; monitoring of vultures ceased after 2001 due to complications concerning separation of residents and migrants) or in the Bridger Mountains, Montana (1992-2001).

Recent analyses. The new analytical approach applied in this volume to the Goshute, Manzano, and Wellsville mountains datasets illustrated similar patterns as the previous analyses; however, four years of additional data confirmed a shift from primarily increasing trends through the late 1990s to comparatively stable (Goshutes) or declining (Manzano and Wellsville mountains) patterns since then. Data from raptor migration counts, CBCs, and BBSs indicate that Turkey Vulture populations increased in the western United States between the mid-1980s and late 1990s, but similar to many other species, began to stabilize or decline again following the onset of widespread drought in 1999. From 1983 to 2005, a *statistically significant* long-term increase was recorded at the Goshute Mountains, Nevada (4.3% per year, $P < 0.01$); before 1999 the

average rate of increase was 44% higher (6.2% per year). In the Manzano Mountains, New Mexico from 1985-2005, the estimated long-term rate of increase was a non-significant 2.3% per year; before 1999 the rate of increase was a statistically significant 10.4% per year ($P \leq 0.01$). A more variable, but similar pattern was detected in the Wellsville Mountains, Utah from 1987-2004, which translated to a 0.3% per year estimated rate of increase over that period. In contrast, relatively high rates of increase were detected for three shorter-term datasets from farther west, including a statistically significant increase at Boise Ridge, Idaho from 1995 to 2005 (18.3% per year, $P \leq 0.01$) and similar, positive but non-significant trends at Bonney Butte, Oregon from 1995 to 2005 (5.5% per year) and Chelan Ridge, Washington from 1998 to 2005 (5.0% per year).

These data suggest two possible explanations: (1) the drought affected Rocky Mountain vulture populations more than those farther west; or (2) the drought, or perhaps some other factor operating coincident with the drought period, resulted in a shift of vulture migration activity away from the Rocky Mountain Flyway toward to the Pacific Coast Flyway. Regardless, overall the migration-count data suggest that western Turkey Vulture populations have been increasing during at least the past two decades, with the overall average rate of increase since the mid-1980s generally 2-5% per year.

BBSs also detected a long-term increase of 1.7% per year ($P \leq 0.01$) from 1983 to 2005, and a non-significant recent decline of 0.3% per year from 1995 to 2005 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).

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) indicated that winter Turkey Vulture populations increased 1.5% per year ($P \leq 0.01$) from 1983 to 2005, and declined non-significantly (0.6% per year) from 1995 to 2005.

Gulf of Mexico

Recent analyses. From 1995 to 2005, raptor migration counts indicated non-significant increases in Turkey Vultures at Corpus Christi, Texas (1997-2005, 16.8% per year) and Veracruz, Mexico (1995-2005, 6.7% per year, $P = 0.06$), and a stable trend at Smith Point, Texas (1997-2005, 0% per year). The geography of migration in this species is such that the Smith Point count samples primarily eastern migrants, Corpus Christi a broader blend of eastern, midwestern, and some western migrants, and Veracruz nearly the entire population of long-distance migrants in North America (primarily western breeders). Thus, the pattern of increasing significance in trend estimates from Smith Point to Corpus Christi to Veracruz suggests that Turkey Vultures are increasing more strongly in western regions of North America where they are more migratory.

Survey-wide (throughout Canada and U.S.) BBSs for 1995-2005 indicate a *statistically significant* increase (2.5% per year, $P \leq 0.01$) in breeding populations of Turkey Vultures in North America. BBSs for Texas (2.4% per year, $P < 0.01$) also increased significantly, but those in Florida underwent a non-significant decline (-1.7% per year) during this period.

HISTORIC CONSERVATION CONCERN

Direct persecution in the form of shooting and trapping by ranchers and farmers was historically a threat to Turkey Vultures, but these activities no longer impose high mortality rates. Organochlorine pesticides, such as *DDT* caused thinning of eggshells between 1947 and 1972, as was the case for numerous other species, but the effects on vulture populations are unknown (Kiff et al. 1983).

CURRENT STATUS AND CONCERNS

Turkey Vultures benefit from a variety of human activities, including livestock-rearing, fishing, and garbage dumps. Vultures benefit from high densities of roads and their attendant road-killed wildlife, but roads also lead to vulture mortalities due to collisions with vehicles. Ingestion of lead shot and bullet fragments in carcasses has been known to impact other avian scavengers, and experimental evidence indicates that it also probably affects the Turkey Vulture (Carpenter et al. 2003).

In eastern North America, the Turkey Vulture is considered secure in two, apparently secure in six, vulnerable in two, and imperiled in one of the states and provinces monitored by raptor migration counts (NatureServe 2006; Appendix B, Table 2). In the breeding range monitored by raptor migration counts in western North America, the Turkey Vulture is considered secure in five of the states and provinces within its range, apparently secure in six, vulnerable in one, and imperiled in one (NatureServe 2006; Appendix B, Table 2). Kirk and Hyslop (1998) rated the Turkey Vulture as increasing or stable and expanding its range in Canada.

SUMMARY

Despite some indication that drought conditions may have recently affected populations in the Rocky Mountain Region, the information available for this species

suggests that populations are stable or increasing throughout North America and have been doing so for several decades. Additionally, the Turkey vulture appears to be

ADDITIONAL READING

- Bednarz, J.C., D. Klem, Jr., L.J. Goodrich, and S.E. Senner.** 1990. Migration counts of raptors at Hawk Mountain, Pennsylvania, as indicators of population trends, 1934-1986. *Auk* 107: 96-109.
- Brett, J.** 1991. *The Mountain and the Migration*, revised edition. Cornell University Press, Ithaca, New York, USA.
- Carpenter, J.W., O.H. Pattee, S.H. Fritts, B.A. Rattner, S.N. Wiemeyer, J.A. Royle and M.R. Smith.** 2003. Experimental lead poisoning in Turkey Vultures (*Cathartes aura*). *Journal of Wildlife Diseases* 39: 96-104.
- Dunn, E. H., B. L. Altman, J. Bart, C. J. Beardmore, H. Berlanga, P. J. Blancher, G. S. Butcher, D.W. Demarest, R. Dettmers, W. C. Hunter, E. E. Iñigo-Elias, A. O. Panjabi, D. N. Pashley, C. J. Ralph, T. D. Rich, K. V. Rosenberg, C. M. Rustay, J. M. Ruth, and T. C. Will.** 2005. High priority needs for range-wide monitoring of North American landbirds. *Partners in Flight Technical Series No. 2*. (<http://www.partnersinflight.org/pubs/ts/02-MonitoringNeeds.pdf>) (last accessed February 2006).
- Hoffman, S.W. and J.P. Smith.** 2003. Population trends of migratory raptors in western North America, 1977-2001.
- Hoffman, S. W., J. P. Smith, and T. D. Meehan.** 2002. Breeding grounds, winter ranges, and migratory routes of raptors in the Mountain West. *Journal of Raptor Research* 36:97-110.
- Hussell, D.J.T. and L. Brown.** 1992. Population changes in diurnally-migrating raptors at Duluth, Minnesota (1974-1989) and Grimsby Ontario (1975-1990). Ontario Ministry of Natural Resources, Maple, Ontario, Canada. 67p.
- Kiff, L. F., D. B. Peakall, M.L. Morrison, and S.R. Wilbur.** 1983. Eggshell thickness and DDE residue levels in vulture eggs. Pp 440-458 *in* *Vulture biology and management* (S.R. Wilbur and J.A. Jackson, eds.). University of California Press, Los Angeles, California, USA.
- Kirk, D.A. and C. Hyslop.** 1998. Population status and recent trends in Canadian raptors: a review. *Biological Conservation* 83: 91-118.
- Kirk, D.A., and M.J. Mossman.** 1998. Turkey Vulture (*Cathartes aura*). *In* *The Birds of North America*, No. 339 (A. Poole and F. Gill, eds). The Birds of North America, Inc., Philadelphia, PA, USA
- Mueller, H.C., D.D. Berger, G. Allez, N.S. Mueller, W. G. Robichaud, and J.L. Kaspar.** 2001. Migrating raptors and vultures at Cedar Grove, Wisconsin, 1936-1999: an index of population changes. Pp 1-22 *in* *Hawkwatching in the Americas* (K.L. Bildstein & D. Klem, Jr. eds). Hawk Migration Association of North America, North Wales, Pennsylvania, USA. 277p.
- Titus, K. and M.R. Fuller.** 1990. Recent trends in counts of migrant hawks from northeastern North America. *Journal of Wildlife Management* 54: 463-470.

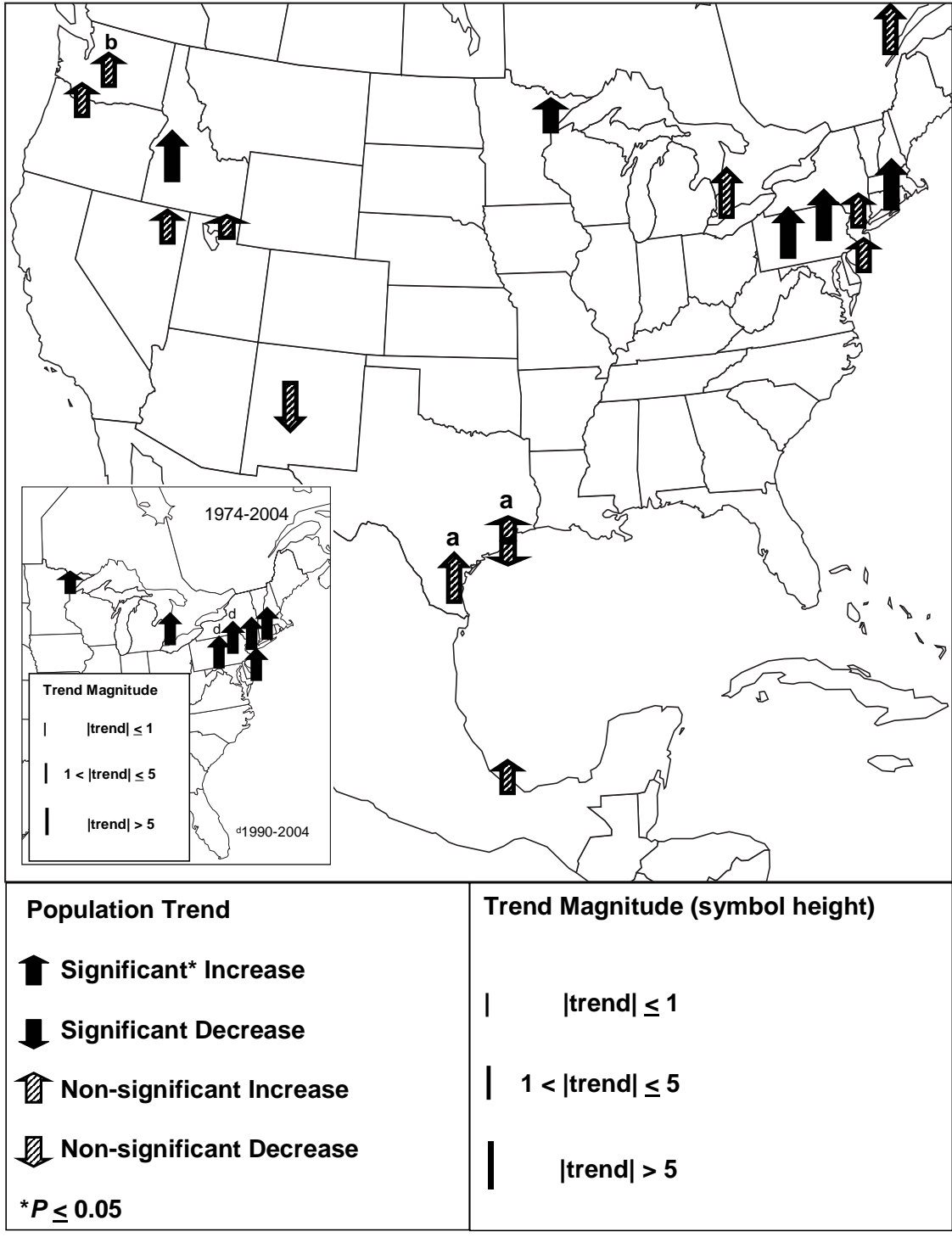


Figure 1. Population trends for Turkey Vultures from 1994 to 2004 at 8 eastern and midwestern, 8 western, and 3 Gulf of Mexico raptor migration counts in North and Central America and North America and long-term trends at 7 eastern raptor migration counts (inset). Trend magnitudes are expressed in percent change per year. A bi-directional arrow indicates that the estimated trend is 0% per year