American Kestrel, *Falco sparverius*

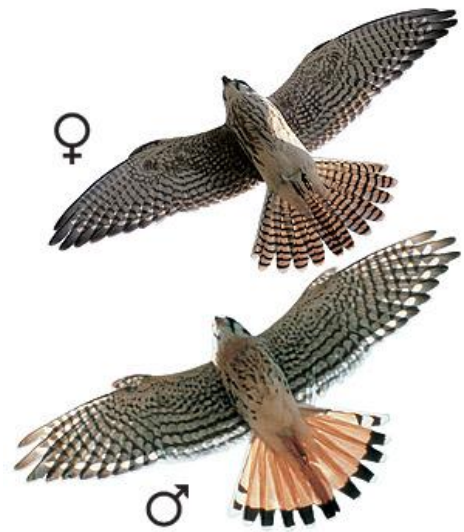
Status: ***State*:** Threatened ***Federal*:** Not listed

Identification

The American kestrel is the smallest and most widely distributed falcon in North America (Smallwood & Bird 2002, Hawk Mountain n.d.). At first glance, kestrels are often confused with other small birds such as mourning doves because of their propensity to perch on utility lines (Hawk Mountain n.d.). Kestrels however, have larger more roundish heads and often tip or "bob" their tails while perched. In flight, kestrels have a diagnostic flight pattern of quickly alternating between rapid wing beating and gliding. With proper lighting, their colorful plumage can further aid in positive identification.

Kestrels are both sexually dimorphic and dichromatic; therefore sexing can be done at a distance and in chicks as young as three weeks (Hawk Mountain n.d.). Males are on average 10% smaller than females though this may be hard to ascertain in the field (Hawk Mountain 1997, Smallwood & Bird 2002). Males are more colorful, with bluish-gray wings (with or without black barring) and rufous (reddish-brown) tails. A single black bar tipped in white extends across the terminal end of the largely unmarked tail. Females are rufous on their wings and tails, often with multiple black bars extending horizontally along the length (Hawk Mountain n.d.). Plumage is highly variable among individuals (Smallwood & Bird 2002). Both sexes exhibit grayish crowns and rufous crown patches with two vertical black stripes down their white cheeks. Black "eyespots on the back of their heads are thought to aid in reducing predation on kestrels by larger birds of prey- giving the illusion of predator awareness. Males and females both have large, dark, yellowish-orange rimmed eyes and small hooked beaks. They have medium-long tails and long wings that reach almost to the end of their tails when folded. In flight, their wings are long and sickle-shaped (Hawk Mountain 1997). They typically vocalize "*klee klee klee klee*" in a high pitched and rapid succession (Hawk Mountain n.d.).

Male American Kestrel
© Jim Gilbert



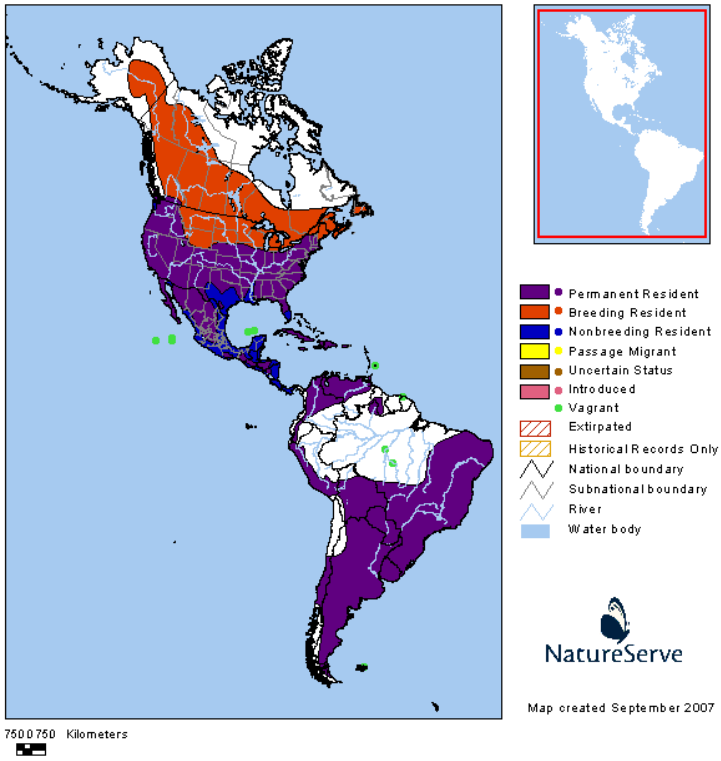
Female and Male Plumage from below
http://www.hawkmountain.org

Habitat

Kestrels occupy large open areas with short vegetation and are thus commonly attracted to human

altered or managed areas such as farmland, parkland and livestock pastures. (Hawk Mountain 1997, Smallwood & Bird 2002, NatureServe 2012). Non-breeding/winter habitats are similar for females though males tend to occupy more forested areas (NatureServe 2012). Kestrels hunt for invertebrates (insects) and small vertebrates (reptiles, mice, voles) from perches (branches or utility wires) but are also capable of hovering when a breeze is present. They hover by facing the wind and using their tails to help keep them aloft while alternatively flapping their wings or gliding (Hawk Mountain 1997, Smallwood & Bird 2002). Some individuals become proficient at hunting on the wing, capturing prey in flight (Smallwood & Bird 2002, NatureServe 2012). Among their varied prey items kestrels may, on occasion consume small birds lending credence to their former, misleading name of sparrow hawk (Hawk Mountain 1997).

American kestrels are secondary cavity nesters. They utilize cavities in trees that are either naturally occurring or excavated by woodpeckers; they do not hollow out their own (NatureServe 2012). Kestrels prefer cavities facing open areas with no obstructions, which limits the availability of nesting sites (Hawk Mountain 1997). Tree/snag removal and competition with other species (squirrels and the introduced European starling for example) compounds this problem (Weitzel 1988, Varland & Laughin 1993, Hawk Mountain 1997). Lack of suitable nesting sites is one hypothesis for the decline in kestrel numbers in recent years. Fortunately, kestrels will also utilize cavities in eaves of buildings, barns and constructed nestboxes (Hawk Mountain 1997). Studies showing the adaptability of kestrels indicate use and reproductive success in constructed nestboxes located next to large highways (Varland & Laughin 1993).



American Kestrel Range Map
Ridgely, R.S., T.F. Allnutt, T. Brooks, D.K. McNicol, D.W. Mehlman, B.E. Young, and J.R. Zook. 2003. Digital Distribution Maps of the Birds of the Western Hemisphere, version 1.0. NatureServe, Arlington, Virginia, USA.

Status and Conservation

Although kestrels are the most numerous of the North American falcons (Smallwood & Bird 2002), their numbers are declining, particularly in the northeast. The reason for this is largely unknown but the lack of nesting sites is thought to be a factor. Land management practices such as removing dead trees/snags reduces the amount of suitable places to rear young resulting in population decrease. Kestrels readily accept and use artificial cavities such as nestboxes as nesting sites. Programs installing nestboxes for kestrels in Pennsylvania date back to the 1950's for population monitoring (Hawk Mountain 1997) and as early as the 1930's in

other parts of the country (Varland & Laughin 1993). The adoption of a nestbox program by an organization can help to track population fluctuations and fledging success as well as provide an arena to band kestrels aiding in further data collection and study.

The shift of farmland to development or reforestation contributes to kestrel habitat loss (Hoffman & Callopy 1988, Hawk Mountain 1997, Smallwood & Bird 2002). A study done in Florida surveying kestrels found an 82% decrease in nesting pairs in an area from the 1940's to the 1980's due to land use change (Hoffman & Callopy 1988). As open patches convert to urban or suburban areas leaving remnant patches smaller and more fragmented, critical habitat disappears. A resurgence in raptor species that prey on kestrels such as sharp-shinned hawks and Coopers hawks may be another factor in their decline (Hawk Mountain n.d.). West Nile is documented in blood samples of adults but absent in nestlings and is yet another concern for kestrel numbers indicating exposure to the pathogen (Nemeth et al 2006). Experts are still investigating population decline in the northeast but the success of nestbox programs for providing nesting habitat is encouraging. However, land use change and development still pose a significant threat to recovery.

References

Hawk Mountain Sanctuary Association. 1997. Nestboxes for kestrels. Kempton, PA: Hawk Mountain Sanctuary Association. http://hawkmountain.org

Hawk Mountain Sanctuary Association. n.d. RaptorPedia. http://hawkmountain.org

Hoffman, Mark L., Collopy, Michael W. 1988. Historical Status of the American Kestrel (*Falco Sparverius paulus*) in Florida. Wilson Bulletin 100(1):91-107.

NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: January 26, 2012).

Nemeth, Nicole, Gould, Daniel, Bowen, Richard, Komar, Nicholas. 2006. Natural and Experimental West Nile Virus Infection in Five Raptor Species. Journal of Wildlife Diseases 42(1):1-13.

Smallwood, John A. and David M. Bird. 2002. American Kestrel (Falco sparverius), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/602 doi:10.2173/bna.602

Varland, Daniel E. and Loughin, Thomas M. 1993. Reproductive success of American kestrels along an interstate highway in central Iowa. Wilson Bullutin 105(3):465-474

Weitzel, Norman H. 1988. Nest-site competition between the European starling and native breeding birds in northwestern Nevada. The Condor 90:515-517.