Falco sparverius (American Kestrel)

Family: Falconidae (Falcons and Caracaras)
Order: Falconiformes (Diurnal Birds of Prey)
Class: Aves (Birds)

Fig. 1. American kestrel, *Falco sparverius.*

[http://www.audubon.org/news/are-kestrels-new-poster-species-pesticides, downloaded 1 March 2017]

TRAITS. Sparrow hawk was the common name for *Falco sparverius* until the American Ornithologist Union changed it to the American kestrel in 1983 (Wauer, 2005). It is the smallest falcon in North America, with an average body length of 22-31cm and wingspan of 51-61cm (Townes, 2014). The mature *F. sparverius* has a round blue head with a rufous patch on the top, a sharp beak with circular nostrils and a white face with two vertical black lines (Fig. 1). This species exhibits sexual dimorphism; the females are bigger (by 9%) and the males are more vibrantly coloured (Fig. 2). Females have rufous back and wings with dark markings, cream chest with dark rufous streaks and dark tail. Males have rufous back with dark brown markings, rufous tail with black lines, blue wings and a cream chest with pale rufous streaks.

DISTRIBUTION. It is a permanent resident in North America, the highlands of Central America and much of South America (Fig. 3), and a rare visitor to Trinidad and Tobago (Birdlife

International, 2016). During the breeding season, it resides in the northern states of the U.S and the southern areas of both Alaska and Canada. During the migration season, it visits all the countries of Central America (Johnsgard, 2015).

HABITAT AND ACITVITY. The American kestrel is found in a range of habitats; mountains, deserts, grasslands, shorelines, and urban neighbourhoods (Townes, 2014), except thick forest, and is absent from Amazonia. Nesting and hunting opportunities (open space, perch areas) are essential to habitat selection. *F. sparverius* is diurnal; it hunts in the morning and evening in the summer and throughout the day in the winter. Females are more dominant and secure open fields during the winter forcing the males to choose other habitats (Bird and Bowman, 1987).

FOOD AND FEEDING. Perch-hunting is the primary method for catching prey. *F. sparverius* will sit on tree branches or wires to scan its territory for prey (Fig. 2). When prey is spotted, it pulls its wings in and dives to the ground (Jones and Sells, 2005). It will dive feet first for insects and head first for mammals – this increases its speed and force (Johnsgard, 2015). The prey is captured with its feet and killed by its beak. Other methods include fluttering around in an open space or hunting on foot (Bird and Bowman, 1987). Its diet varies with the season. During breeding, it consists of insects (beetles and grasshoppers) and during migration, it consists of small mammals and reptiles (Townes, 2014).

POPULATION ECOLOGY. *F. sparverius* has a wide ecological distribution within North and South America (Fig. 3). It is abundant due to its small size and ability to eat both insects and mammals (Johnsgard, 2015). They are solitary birds, but are found in groups during migration and in pairs during breeding. The life expectancy is one year and three months in the wild and this is due to hunting by predators (Townes, 2014).

REPRODUCTION. The breeding season occurs from March to July. Males arrive before the females to determine the territory. Courtship follows with aerial displays such as dives and climbs from the male (Johnsgard, 2015). Also, the male flutter-glides to the female to bring her food. *F. sparverius* are monogamous (one mate at a time) and these rituals establish a bond between the pair. Copulation follows, with the female bending forward to align her tail and body while the male flutters behind her. A partnership is established between the pair; they hunt, find a nest and protect their young together (Fig. 4). They compete for the nest of other birds and then modify it (Johnsgard, 2015). After nest modification, the female lays about 3-5 eggs and both sexes will share the job of incubating the egg for the next month. The eggs are pinkish with brown markings (Fig. 5). Juveniles are motionless and rely solely on their parents for food and protection. Seventeen days after hatching, they reach their adult weight. After a month they have fledged and become independent (Johnsgard, 2015).

BEHAVIOUR. Three calls exist and each serves a different purpose. Both sexes will use the 'klee' for the whole year and it is the most common call. Adults and juveniles will use the 'whine' for food and the 'chitter' is used between the adults throughout the breeding season (Johnsgard, 2015). Predators often mistake the back of a *F. sparverius'* head for its face due to the two vertical lines, and this reduces the likelihood of attacks (Townes, 2014).

APPLIED ECOLOGY. According to the IUCN, *F. sparverius* is listed as Least Concern and therefore no conservation actions are required due to its abundant population. Human impact can sometimes be a threat; nests close to traffic and developed areas are deserted due to noise interference, which may affect the wild population size (Strasser and Heath, 2013). These birds (and humans) are susceptible to the West Nile Virus (Medica et al, 2007), and a decrease in bird population can indicate the presence of the virus. Public health officials use this to detect early signs of a possible outbreak (Townes, 2014). Though *F. sparverius* is taken out of the wild for falconry, 40% are returned to the wild (Millsap and Allen, 2006).

REFERENCES

Bird, D. M and Bowman,R. (1987). The Ancestral Kestrel. Quebec, Canada: Raptor Research Foundation.

BirdLife International (2016). *Falco sparverius.*The IUCN Red List of Threatened Species. http:// www.iucnredlist.org/details/full/22696395/0.

Johnsgard, P. (2015). Hawks, Eagles and Falcons of North America: Biology and Natural History. Electronic Edition. United States: Smithsonian Institution.

Jones, J. and Sells, S. (2005). The Wildlife Garden: American Kestrel *(Falco sparverius.)* Oregon State University: EC 1578.

Medica, D.L, Clauser, R., and Bildstein, K. (2007). Prevalence of West Nile virus antibodies in a breeding population of American kestrels (*Falco sparverius*) in Pennsylvania. *Journal of Wildlife Diseases*, **43:** 538-541.

Millsap,B. A and Allen, G.T. (2006). Effects of Falconry Harvest on Wild Raptor Populations in the United States: Theoretical Considerations and Management Resolutions. *Wildlife Society Bulletin* **34:** 1392-1400.

Strasser,E.H and Heath, J.A (2013). Reproductive failure of a human-tolerant species, the American kestrel, is associated with stress and human disturbance. *Journal of Applied Ecology*, **50:** 912-919.

Townes, S. (2014). *Falco sparverius*. http://animaldiversity.org/accounts/Falco_sparverius/

Wauer, R.H. (2005). The American Kestrel: Falcon of Many Names. United States: Johnson Books.

Author: Kache F. S. Hanna

Posted online: 2017

Fig. 2. Male (left) and female (right) American kestrels, *Falco sparverius.*

[http://hoosierbirding.blogspot.com/2010/02/american-kestrel.html, downloaded 2 March 2017]

Fig. 3. American kestrel, *Falco sparverius*, geographic distribution.

[http://media.eol.org/content/2012/08/24/07/67398_orig.jpg, downloaded 1 March 2017]

Fig. 4. American kestrel, *Falco sparverius*, at nest with prey.

[http://neotropical.birds.cornell.edu/portal/species/gallery?p_p_spp=132916, downloaded 2 March 2017]

Fig. 5. The nest of a *Falco sparverius* with five eggs.

[http://www.nemesisbird.com/bird-science/field-work/south-eastern-american-kestrel-egg-color-variation, downloaded 2 March 2017]