

Megaceryle alcyon (Belted Kingfisher)

Family: Cerylidae (Kingfishers)

Order: Coraciiformes (Kingfishers, Bee-eaters, and Motmots)

Class: Aves (Birds)



Fig. 1. Belted Kingfisher, *Megaceryle alcyon*.

[<http://www.bird-friends.com/BirdPage.php?name=Belted+Kingfisher>, downloaded 12 November 2014]

TRAITS. The belted kingfisher *Megaceryle alcyon*, previously referred to as *Ceryle alcyon*, is a large water kingfisher which possesses a body length of about 30-33cm (Pearson, 1936). The belted kingfisher has a bluish-grey colour on its body and head with white under parts, collar across the hindneck and a small conspicuous spot in front of both its eyes (Fig. 1). The crest on its head has a centre streak of black feathers as well as the feathers on its back and wings possessing similar streaks of black with irregular white markings beneath the wings (Pearson, 1936). It also possesses a long black spear-like bill which allows it to effectively forage. The male and female are almost identical but are distinguishable from each other due the female possessing a band of reddish-brown feathers across its abdomen (Pearson, 1936) (Figs 2, 3). The species is also identifiable by the harsh rattling sound they produce (Davis, 1988).

ECOLOGY. The belted kingfisher is a migratory bird and is found within territories of North America during the breeding season and Panama, the West Indies and Northern areas of South

America during the winter (Pearson, 1936). They are primarily piscivorous, feeding on fishes, but their diet may also include molluscs, reptiles, amphibians, crustaceans, insects, berries and even small birds (Cornwell, 1963). When foraging, the belted kingfisher will hover above the water while it locates its prey before diving and capturing it. The methods employed by the belted kingfisher is that it may spear the fish with its bill or it may carry it to a nearby perch and beat the fish until it is dead before swallowing it head first (Pearson, 1936). The spots of white in front of their eyes are used as light gathering spots, guiding the vision of the individual down grooves, this allows the individual to better fixate its prey by accounting for the refraction of water (Kilham, 1974). They make their nests near bodies of water such as along coasts, large rivers, reservoirs and swamps where food supplies are abundant.

ACTIVITY. Described as diurnal (active during the day), adult belted kingfishers are active from as early as 4:00 a.m. to just after dusk though some reports have stated that they have been observed as active to as late as 11:00 p.m. Only females are known to spend the night within the nests, the males usually spend the night roosting in nearby heavy cover (Cornwell, 1963). During the day is the main time at which the young are fed.

SOCIAL ORGANIZATION. They are extremely solitary, wary and overtly aggressive territorial birds which defend both breeding and non-breeding territories (Davis, 1982), non-breeding territories referring to those where they forage for food. The territory of an individual belted kingfisher has a well-defined boundary and individuals maintain exclusive use to any and all resources within the territory (Davis, 1982). Though solitary, during the breeding season both the male and female of a breeding pair jointly defend the territory of their nest (Davis, 1982). Their nests are typically constructed burrows within banks varying from about 1-5m in length (Pearson, 1936) and 25-30cm from the top of the embankment, should the entrance to the burrow be too low or near rocks it would be abandoned and the kingfisher would begin to excavate a new burrow along the same embankment (Cornwell, 1963). The breeding period of the belted kingfisher occurs from March to June, for every breeding period a total of 5–8 eggs are laid (Davis, 1982). In the autumn, the male and female of a breeding pair as well as the young-of-the-year move on to defend their own individual territories (Davis, 1982).

SEXUAL BEHAVIOUR. Little research has been conducted to observe any actual courtship methods utilized by the belted fisher. What is known is that they are seasonally monogamous, a breeding pair will bond and work together during nesting to ensure the survival of their offspring (Davis, 1982). Breeding typically occurs once a year and may occur twice in some adults of southern territories of North America. Females lay oval shaped, glossy white eggs and most often the same nest is used for every breeding period.

NESTING BEHAVIOUR. Before boundaries of a breeding territory are firmly established nest sites are chosen by a mating pair (Davis, 1980). Eggs are laid onto the bare floor of the larger extremity of the burrow (Pearson, 1936). The nests constructed are typically within sediments composed of more than 75% sand and less than 7% clay, and both male and female of the breeding pair are active in its construction (Brooks and Davis, 1987). One reason this soil composition is preferred is due to the way in which the belted kingfisher constructs its nest by chiselling into the sediment with its beak; under varying composition of clay content when wet the clay retains the moisture and the particles of the soil adhere to each other, when dry the clay causes the soil to harden (Brooks and Davis, 1987). Another reason for the soil composition preference is that high sand compositions are easier to excavate and provide superior drainage

for the semiliquid, nitrogenous wastes of 6-7 nestlings and the water which may enter into the nest during periods of heavy rainfall (Brooks and Davis, 1987). The average time taken for the incubation of eggs is around 23-24 days. Incubation of the eggs are done by both the male and the female, with majority of it being done by the female who is fed regurgitated food by her partner as she incubates the eggs. After around 6 days of hatching however, the female becomes less concerned with the hatchlings and the male becomes the primary care giver.

COMMUNICATION. Vocal communication comprises of both fixed and variable patterns (Davis, 1988). Usually a fixed temporal pattern is used in order to convey an individual's identity whereas changing of the structural properties of a call is used during territorial disputes (Davis, 1986). The structures of the vocalizations are continuously modified when disputes between birds escalate (Davis, 1980) showing a difference in the message conveyed with each signal. Calls of nestlings are less harsh than those of the adults and are typically described as a "begging" sound characterized by frequent fluctuations (Davis, 1988).

JUVENILE BEHAVIOUR. The young are born within the burrow. From observations made by both Cornwell (1963) and Kilham (1974) it was found that the sanitation of the nest was maintained not by the adults but rather by the young belted kingfishers. The excreta of the young kingfishers are extremely liquid due to the casting up of fish bones and scales in pellets (regurgitated from the mouth). The extreme liquidity of the excreta would allow it to adhere to the walls of the burrow, a rapping behaviour was also observed against the walls of the enclosure where the young were kept, which led to the belief that in the natural environment this rapping would cause a systematic wearing down of the burrow walls effectively causing the drying excreta to be covered. In autumn, when the young-of-the-year depart from the nest they venture to a non-breeding territory and it is here that they learn the various foraging techniques (Davis, 1982), though these foraging techniques do not need to be taught to them by an adult (Kilham, 1974). Six weeks after hatching they are able to forage for themselves and venture out on their own.

ANTIPREDATOR BEHAVIOUR. The predators of the belted kingfisher include mammals, snakes and hawks. The primary defences of a belted kingfisher are utilized when it detects an intruder within its territory; it may fly to a perch and heave its body up and down while elevating its crest (Fig. 4) or it may fly back and forth along the water noisily rattling until the intruder leaves (Cornell Lab of Ornithology, 2014). If its primary defence tactics do not deter the intruder from venturing further within its territory and it is directly threatened, the secondary defence technique used by a belted kingfisher is that it may simultaneously scream, spread its wings and raise the patch of white feathers next to both of its eyes in order to intimidate the intruder and therefore force it to leave (Cornell Lab of Ornithology, 2014). When the nest of a mating pair is disturbed, both the male and female play an active part to chase away the intruders by emitting loud rattling calls (Cornell Lab of Ornithology, 2014). It has also been observed that in order to avoid a predator a belted kingfisher may dive below the water until its pursuer gives up (Verbeek, 1985). Predation, however, does not seem to be a major contributing factor to the mortality of belted kingfishers except for the critical period in which the young-of-the-year begin to leave the nest (Cornwell, 1963).

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Fig. 2. Male belted kingfisher.

[<http://blog.duncraft.com/wp-content/uploads/2010/08/Male-Belted-Kingfisher.jpg>, downloaded 12 November 2014]



Fig. 3. Female belted kingfisher.

[<http://blog.duncraft.com/wp-content/uploads/2010/08/Female-Belted-Kingfisher.jpg>, downloaded 12 November 2014]



Fig. 4. Belted kingfisher (*Megaceryle alcyon*) defensive threat display.

[<http://stevetabone.files.wordpress.com/2013/03/belted-kingfisher-3.jpg>, downloaded 12 November 2014]