

Falco ruficularis (Bat Falcon)

Family: Falconidae (Falcons)

Order: Falconiformes (Diurnal Birds of Prey)

Class: Aves (Birds)



Fig. 1. Bat falcon, *Falco ruficularis*.

[<http://www.inaturalist.org/observations/769241>, downloaded 24 September 2014]

TRAITS. *Falco ruficularis* is a falcon, one of the quickest-flying birds that can be found on earth. Adult bat falcons are characterized by having a black back, head and tail. The throats of these falcons are creamy white along with the upper breasts and neck. The lower breast and belly are also black in colour detailed with fine white bars running horizontally. Their thighs and lower belly

are orange in colour. They also have rusty brown leg feathers (Fig. 1). Juvenile bat falcons are similar to the adults but differ in having a buffy throat. Female bat falcons are typically larger in length ranging from 27-30 cm whilst the males range from 23-27 cm. The male bat falcon has an average wingspan of 51-58 cm while the female has an average of 65-67cm.

ECOLOGY. The bat falcon can be found distributed in Neotropical areas. These include northern Mexico, Central and South America and Trinidad (but not Tobago). These birds occur mostly in open woodlands and middle elevations. They can frequently be seen mounted on tall trees which border the edges of the forest. Bat falcons also reside on dead or live trees in lowlands and also along streams and rivers, often in pairs and rather unsuspecting; feeding mostly in early morning and late afternoon (Ridgely and Gwynne, 1989). Sometimes they can even be spotted on buildings in small villages but they show a distinct preference to foraging over forests which is directly related to its diet. They live in humid forest and pine savanna in the Caribbean lowlands, but birds encountered in the latter habitat are never far from the humid forest edge (Howell, 1957; Martínez-Sánchez and Will, 2010). The bat falcon is not considered under threat as the IUCN rates it as being of “Least Concern”. They are known to tolerate and to some extent benefit from patchy forests and the small scale deforestation activities. This is due to the fact that they hunt mostly on the edges of the forests therefore these activities render their prey more susceptible to aerial attacks. In South America the bat falcon has stopped breeding where there has been large scale deforestation. If such deforestation activities were to occur in the bat falcon’s known habitats such as Trinidad or Mexico for example, it is very likely that they will again show this behaviour (del Hoyo et al., 1994).

ACTIVITY. Bat falcons are crepuscular in nature. This is an advantageous adaptation for them as it allows for hunting of its prey i.e. bats. The bat falcons tend to be most active at dusk and dawn because this is the time the bats would be leaving their caves and returning to them. The bat falcon is known as a solitary raptor as they are mostly seen alone except for the breeding season when they are in pairs. It spends most of its time hunting by utilizing its aerial prowess to devastating effect as it performs impressive aerial lunges to catch its prey. The bat falcon is an accomplished flight predator as it boasts a wide range of aerial attacks and stunning manoeuvres to catch its prey. It has an extremely direct and powerful flight which enables it to pursue its prey swiftly with stunning agility. The bat falcon can be seen on many occasions catching its prey in mid-flight. The wings of the bat falcon has strong and shallow wing beats which allow for its powerful flight. Some of the manoeuvres they use are rapid, diagonal power lunges originating from great elevations. The bat falcons can also be seen lunging and attacking prey which are found bordering the vegetation and even on the surface of water bodies.

FORAGING BEHAVIOUR. As its name suggests the bat falcon is particularly fond of feeding on bats as its prey. More specifically the females are most desirous of bats and birds such as hummingbirds, swifts and swallows as their prey. The male falcons tend to be more satisfied with feeding on large insects such as moths, dragonflies, large grasshoppers, Homoptera (cicadas), and Hymenoptera (bees). Another feature or adaptation that relates to its habitat and their hunting time is the crepuscular nature of the falcon which means that they hunt mostly at dawn and dusk when bats can be targeted. The high positions that these falcons assume allows them to target their prey and launch amazing aerial attacks on bats, birds and insects. The birds that the bat falcon tend to feed on are swifts, swallows, hummingbirds, parakeets and small water birds. The bat falcon can also be seen feeding on snakes, lizards, frogs and mice which shows a wide variety of food sources.

The bat falcon frequently perches on elevated and window-like openings at the edges of the forest or in tall trees that have an advantageous view, or alongside lakes or rivers to target prey. It then captures the prey in mid-air after a speedy pursuit (Fig. 2). They can also be seen making diagonally swift power dives from towering elevations and striking at their prey on the outskirts of vegetation, or on the surface of water bodies (Stiles and Skutch, 1989).

The bat falcon's diet can vary by seasons; summer and winter diets. The change in the most copious prey accessible is the cause for the seasonal shift in diets. During the summer bat falcons tend to prey on small birds as mentioned earlier. The winter diet would mostly consist of large insects. The bat falcon can be observed hurtling into canopy vegetation with its feet fully extended and agitating insects and other animal prey to catch them. Most aerial attacks are performed from a range of below 100 m originating from a standstill (Cade, 1982). These falcons would fly several kilometers away from their preferred habitat (perch or tree) to catch its prey then fly back to its favoured location. It has been reported that these bat falcons feed on their prey whilst they are clutched by its talons during flight. In Trinidad these bat falcons are mainly seen preying on bats and birds. Venezuela which is in close proximity to Trinidad is also home to the bat falcon and has been seen feeding on a wide range of animals. The prey were identified as being 33 mammals of 5 species, 163 birds of 56 species, 19 insects of 14 species, 1 lizard, snake and frog respectively. Butterflies comprised most of the insects the bat falcon preyed on. All the mammals that were preyed on were bats except for one species of mouse. The different species of birds preyed on were the same as mentioned earlier. The bat falcon would pluck these birds before consuming them.

COMMUNICATION. The bat falcon primarily communicates through acoustic and visual means. They can often be heard screeching with their respective mate during the breeding season (Fig. 3). This call is a high-pitched screech that sounds like "ke-ke-ke". The male bat falcon tends to have a higher pitched screech than the female. Not much information has been recorded on this behaviour of the bat falcon except for its mating-call. It is known however that the bat falcon can use perception channels such as visual, tactile, acoustic and chemical to good effect.

REPRODUCTIVE BEHAVIOR. The bat falcon's breeding sites may consist of woodpecker holes, cliffs, natural tree cavities or in buildings. Male and female bat falcons will begin courting in February or March. Specifically in Trinidad, nesting begins in February. Before copulation the male bat falcon must offer prey to its mate. This is a behaviour that the female deems important as she must know the male can provide for the young. The female typically lays a clutch of 2-4 eggs. These eggs are characteristically a white ground colour with heavily laden red to brown spots encompassing the structure. Adults stay paired during the whole year (Cade, 1982). The adult males would provide food by hunting prey and bringing it to the incubating and brooding female. The male catches a very large proportion of the food during these periods (Del Hoyo et al., 1996). This paternal behaviour lasts until the young fledge, meaning they are fully feathered and they can eat prey on their own. The incubation period lasts for about 30-35 days and after hatching the nestling period lasts for 35-40 days. During both these important periods of development and growth of the young, the adults are very protective of them and the nest. They can be seen chasing away all other raptors from the nests, sometimes even up to 1 km away. The adult males are present during incubation. They perform the most of hunting during both incubation and early nestling periods to provide food for the young and mother. Particularly in Trinidad breeding was recorded in February. Six Trinidad clutches in the Western Foundation Vertebrate Zoology bird collection were collected from 3 February to 27 April.

JUVENILE BEHAVIOUR. The juvenile bat falcons tend to disperse from their nests once they reach that life stage. This type of movement is seen as irruptive or migratory. Monroe (1968) implied that the juveniles tend to show seasonal wandering in its range, specifically in Honduras and Peru.

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Fig. 2. Bat falcon in flight using its talons to catch a bat.

[http://2.bp.blogspot.com/-yRi3ClfKPJk/UAeQYLux09I/AAAAAAAAACNk/GW-mvNn2xvc/s1600/CNA_7487A.jpg, downloaded 16 November 2014]



Fig. 3. Bat falcon screeching.

[<http://www.factzoo.com/sites/all/img/birds/falcons/bat-falcon-screeching.jpg>, downloaded 16 November 2014]

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