**Manacus manacus** (White-bearded Manakin)

Family: Pipridae (Manakins)
Order: Passeriformes (Perching Birds)
Class: Aves (Birds)

**Fig. 1.** Male white-bearded manakin, *Manacus manacus.*


**TRAITS.** White-bearded manakins are small, passerine birds of compact build (Fig. 1), with short tails, and beaks with a wide gape (Lynx, 2011). Adults range in size from 10-12 cm in length and 10-16 g in weight. The species displays sexual dimorphism (Fig. 2) where males can be easily distinguished by the black plumage on their crowns, backs and wings, along with their contrasting white neck collar. The feathers of the cheek, throat and breast are white, gradually darkening to a light grey at the rump and upper coverts. Males possess elongated feathers on the throat, as well as wing modifications used to produce sounds in courtship displays. Females’ feathers are olive-green and duller closer to their belly and tail, with juveniles possessing similar plumage colour except fluffier in appearance. Juvenile males have dark streaks on their crown.
Beaks of both sexes have a wide gape with black maxillae (upper beak) and grey mandibles (lower beak). Irises are dark brown, and toes and tarsi (feet) are red-orange (Tu et al., 2013).

ECOLOGY. White-bearded manakins are distributed throughout neotropical forests, favouring forest edges where there is dense undergrowth at altitudes no higher than 1000 m. They are found in Central America and the north-eastern side of the South American continent inclusive of Brazil and Venezuela. The densest populations have been found in Trinidad (Snow, 1962); absent from Tobago.

SOCIAL ORGANIZATION. Male white-bearded manakins form classical leks where multiple males gather within the same area to compete in attracting females (Lill, 1974). When not partaking in lek formation, male white-bearded manakin are solitary. Females are also solitary with the exception of the weeks in which they tend to their juveniles. They are polygynous, males mating with multiple partners. Females visit several displaying males but only mate with one. Pair bonds do not last long as males continue breeding while females nest (Snow, 1962).

ACTIVITY. White-bearded manakins are mostly active during the day time. During courtship, males spend up to ninety percent of the daytime in display courts. Foraging occurs strictly during the day as well. The breeding season is not limited by time as males display year round with the exception of their moulting period (Tu et al., 2013). Males practice anting with Solenopsis (fire) ants. The ants are attracted by the seeds in the defecated pellets on display courts, where they are captured and rubbed on undertail coverts (Cestari, 2010). This leads to the ant’s degradation and release of formic acid onto the plumage of the birds. Each ant is then cast away and the manakin searches for a new ant on the court to continue this process (Fig. 3). This is done in order to maintain plumage quality as well as dispel any attached ectoparasites, while preventing others from attaching to them, thus increasing their fitness and chances of successfully mating over other males in the lek (Cestari, 2010).

FORAGING BEHAVIOUR. Manakins are omnivorous and feed by sallying, that is, quickly swooping up from below to pluck insects in mid-flight and off plants. Some fruits are also plucked mid-flight but also by perching on branches nearby while plucking fruit. Adults feed on both insects and fruit while juveniles feed on fruit until sallying can be mastered to allow feeding on mobile insects (Tu et al., 2013). The wide gape of their beaks allows them to swallow small fruit and insects whole, while they roll large fruit in their beak to soften them before swallowing. In South America and Trinidad, more than 100 species of plants have been recorded as food of the white-bearded manakin. They mostly obtain water that is collected in Heliconia wagneriana bracts, while less often drinking from streams (Snow, 1962).

COMMUNICATION. Both males and females produce a high pitched trill which is quite loud when communicating unrelated to lekking, the most common being a high “peer” sound. A variety of vocal and non-vocal sounds are made by males when in display courts (Tu et al., 2013).

SEXUAL BEHAVIOUR. Females breed from as early as one year of age, while males do not start partaking in leks until two years old. Older, dominant males have greater breeding success than younger males, who do not stay in display courts upon the arrival of older males (Snow,
Male white-bearded manakins partake in lek formation where multiple males congregate in display courts and compete against each other to attract females. The largest leks to date have been found in Trinidad. These courts are in food-abundant areas, thus foraging traffic of females in the area is high, increasing the chance of attracting those which pass by to feed. They engage in displays where their success is dependent on both physical and behavioural factors (Lill, 1974). The majority of their time and effort is devoted to showy displays, leaving time only to feed, engage in territorial defence and maintenance of plumage.

While in the lek, males use both vocal and non-vocal sounds to attract females as well as asserting dominance over younger males (Shorey, 2002). Various vocalizations are combined with non-vocal noises produced by wing actions when females are in close range. The vocalizations range from the shrill “peeer” noise, commonly heard outside of the lek, to lower intonations, but is combined with snapping of their wings and jumping to add to their display manoeuvres. Their wings possess stiffened modified shafts and primary feathers which allow them to make loud snapping noises upon beating of their wings or making contact with each other (Tu et al., 2013).

White-bearded manakins display six different actions which they combine with vocalizations while displaying for females resulting in either low-pitched or high pitched sounds (Snow, 1962). Low-pitched sounds results from “fanning”, which is produced by continuously flicking wing tips in the direction of the female of interest resulting in a prolonged rustling sound, “snorting” where the male ascends to his perch from the court with a low grunting sound and a shallow wing flick, “whirring” resulting from flight due to the structure of the primary feathers during beats, and “rattling” also produced during flights by the primary feathers modified structure (Snow, 1962). High-pitched sounds are produced by “snapping”, which is produced when the wings are pulled back to make contact with each other and is used in courtship while perched and jumping from adjacent branches. The “rolling snap” is produced by repetition of the actions used to produce the snapping sound (Tu et al., 2013). During these displays, males stiffen the shafts of the elongated feathers on their throat giving the appearance of a “beard” which is used for both attracting females as well as displaying territoriality to other males in the lek (Fig. 2) (Lill, 1974).

The males do not participate in nest building nor egg incubation and tending to young. Females locate a forked branch and construct nests which are approximately 15 cm in diameter using soft leaves to line the interior, as well as twigs, rootlets and other dried plant fibres, weaving them into a small cuplike shape (Lynx, 2011). Nests are constructed fairly close to the ground and are either near water or sometimes hang over the water’s surface at heights of 0.5-1.5 m (Tu et al., 2013). Each clutch usually comprises of two eggs which are off-white with brown streaks. Eggs are incubated for 17-19 days and are only left unattended for short periods to allow the female to feed, except during the last three days when feeding is less frequent and time is spent tending to the clutch (Lynx, 2011).

**JUVENILE BEHAVIOUR.** Juveniles hatch with a soft, downy layer of feathers, and later resemble the females in plumage colour. During the first five days post-hatch, the female broods and feeds the hatchlings by regurgitating a mixture of fruit and insects (Tu et al, 2013). Juveniles then leave the nest following their mother after two weeks (Fig. 4). After 21-28 days the chicks are left to fend for themselves. They feed in the same sallying manner as adults once able to fly and swoop up with ease, but subsist more on fruits that are easier to pluck from plants more than mobile insects until this manner of flight is mastered (Lynx, 2011).
ANTIPREDATOR BEHAVIOUR. Building nests closer to the ground makes them less visible from the vantage point of many volant (flying) predators (Tu et al., 2013). In instances where nests are built hanging over water, terrestrial predators also have greater difficulty detecting the nests. Terrestrial predators are also avoided by preferential drinking from Heliconia wagneriana bracts rather than streams. Small clutch size and female uniparental care both contribute to antipredatory behaviour as there are less eggs to protect and draws less attention from predators seeking larger food sources, as well as the absence of the males around the nest which call attention to themselves through their displays during lekking. The brooding behaviour of the females during the short period when hatchlings are most vulnerable (Tu et al., 2013), as well as the close vicinity kept by the female in the month post-hatch also ensures predator avoidance as the juveniles follow their mother’s and will therefore avoid predators as she does. The large gathering of individuals during lek formation also deters predators while providing and easy means of communicating with others regarding predators in the vicinity.

REFERENCES

Cestari, C. 2010. Anting behavior by the White-bearded Manakin (Manacus manacus, Pipridae); an example of functional interaction in a frugivorous lekking bird. Biota Neotropica vol. 10, no. 4: 399-342.


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Posted online: 2014
**Fig. 2.** Male (left) and female (right) white-bearded manakins showing sexual dimorphism through their plumage. The male pictured on the left displays his “beard” by stiffening the elongated feathers on his chin in territorial and mating courtship displays.

**Fig. 3.** A male white-bearded manakin practising anting.
Left: he looks for an ant on the court, Centre: he locates the ant and picks it up; Right: he rubs the ant on his feathers to covering himself with formic acid.
[http://www.scielo.br/img/revistas/bn/v10n4/38f01.jpg, downloaded 1 November 2014]
Fig. 4. A juvenile white-bearded manakin (left) in the nest with its mother (right).

[http://lh3.ggpht.com/KCHqKwrEmGwba9U0-pIJONUKIs9A8vUTFQ53nPW514Sz0nJBHYeyZtrGwQS6-lvIRawipt9fpz6dCGf-g68=s580, downloaded 10 November 2014]

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