Piaya cayana (Squirrel Cuckoo or Coucou Manioc)

Family: Cuculidae (Cuckoos and Anis)
Order: Cuculiformes (Cuckoos, Anis and Turacos)
Class: Aves (Birds)

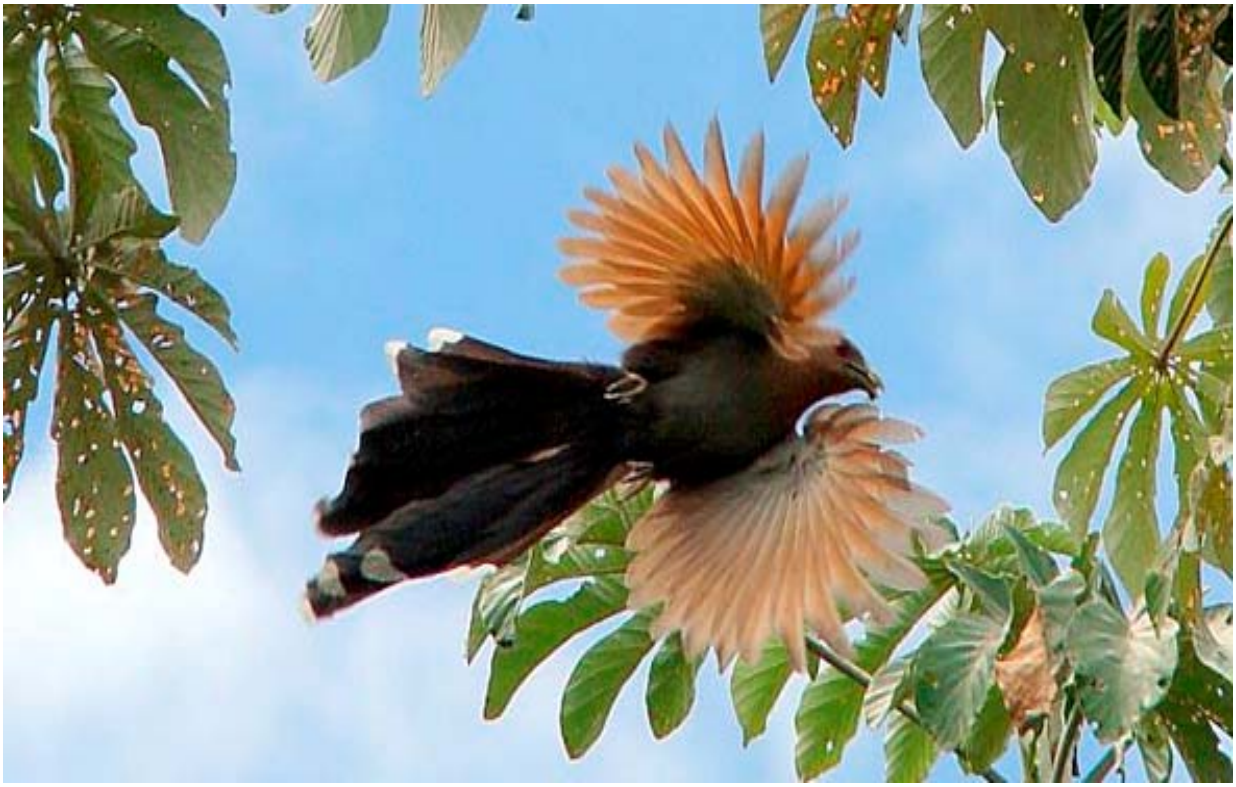

Fig. 1. Squirrel cuckoo, *Piaya cayana*.

[http://neotropical.birds.cornell.edu/portal/image/image_gallery?uuid=d9175bd1-3595-40e3-b83f-d0fe66dd82c8&groupId=11003, downloaded 11 November 2012]

TRAITS. Squirrel cuckoos are arboreal and sizeable with a relatively extensive tail. Both sexes are moderately similar. Its upper body is a chestnut/rufous brown with a prominent, well-developed throat/breast area and a light-grey underbelly. Its tail is also rufous brown with off-black and white tips (Fitzgerald et al., 2011). Its chestnut head is curved downwards with a yellowish green sturdy bill and red eyes circled by a yellow-green eye-ring. The legs/feet are a pale bluish-grey colour. Juveniles have a more subtle variation of colour and are smaller and paler with a greyish beak and brown eyes (Hilty, 2003). Biometrics of adult sizes range with a length of 45-50 cm and a weight of 98-110 g. The name squirrel cuckoo was formulated by the relative similarity of pigmentation and behaviour to a squirrel.

ECOLOGY. The squirrel cuckoo occurs extensively in the neotropics (Fitzgerald et al., 2011). They reside within the canopy and the edges of forests/woodlands usually evergreen and/or

deciduous tropical forests, second-growth woodland and mangroves. Other habitats include shrubs, glades and grasslands, along rivulets in dry areas, domestic areas and coffee estates (Van Bael et al., 2007). They can tolerate elevations from sea level to 2700 m. It has the tendency to avoid thick forests. Squirrel cuckoos remain central to the tops of trees, to forage (search) for insects (Ryan, 2012).

SOCIAL ORGANIZATION. Squirrel cuckoos are usually solitary (found singly) unless accompanied by a mate in which case it is found in pairs since it is monogamous (single mate). Even when found in pairs, these cuckoos tend to forage separately. Based on the little information there is about their territoriality (defence for a particular space), they are interspecifically defensive towards congeners (same genus) like the black-bellied cuckoo, *Piaya melanogaster* (Fitzgerald et al., 2011). They however have a tendency to follow mixed-species flocks of birds so that they are capable of a relatively close socialization with different birds. Despite this association, the squirrel cuckoos often forage independent of these flocks. Studies conducted show that in an area in south-east neotropical Peru where squirrel cuckoos are established, the approximate density was four pairs per 100 ha (Terbough et al., 1990). Found most frequently and prevalently at army ant nests/swarms. They are not brood parasites like other cuckoos (use built nests from other birds) and they live in close association with their nests. (OUP, 2005). Even though they are relatively solitary and otherwise found in pairs, single cuckoos may remain and aid in the care of younger cuckoos (Hilty, 2003).

ACTIVITY. The squirrel cuckoos are active diurnally primarily engaged in foraging, nest-building and/or parental care. Naturally, they dart around the vegetation - like a squirrel does within the trees - with its extensive tail behind it, gliding for only a short while. They are capable of full, sustained flight and can also be seen hopping around in the foliage. Both males and females assist with nest building and subsequent egg incubation (Ffrench, 2004). They both forage for food and tend to their young. Nest construction involves the use of dead twigs, leaves and saliva from the mouth using their beaks to interlock material and weave the abode. Both birds co-operate, however males search for the material whilst females remain at the nest site to facilitate building a cup-shaped nest around herself to her specifications, usually in a treetop or within lianas (Oniki and Willis, 1999). Squirrel cuckoos are also extremely fond of following army ant trails however most of these observations proved that they follow ants on liana tangles (vine meshes) where they tend to hide within vegetation, as opposed to on clearings (Fitzgerald et al, 2011). Squirrel cuckoos are resident species (not migratory) and remain in their natural habitat. They also ‘sun’ their wings and preen for self-maintenance

FORAGING. Foraging behaviour is generally flutter-chase. During foraging many of these cuckoos display a tendency to follow army ants (Payne and Sorensen, 2005). It sallies for insects within flight. Squirrel cuckoos usually stalk their prey stealthily before bombarding it. They glean most frequently within the canopies and sub-canopy feeding off mainly insects and small reptiles/amphibians. It seldom eats fruits (Hilty, 2003). Males and females search for food independently and with respect to their young, combine their gain. They forage frequently within the foliage as opposed to ground level. The squirrel cuckoos use their bills to grasp their respective prey, subdue then swallow. For the purpose of their young, the food collected is regurgitated (Fitzgerald et al, 2011). If the prey is difficult to manage despite stealth, they may

utilize their claws to injure and transfer it to a secure area where it can consume it with utmost ease.

COMMUNICATION. Squirrel cuckoos have a varied repertoire of loud, distinctive calls - vocal communication - but vocalizes relatively infrequently to other cuckoos. They can make a rattling sound that sounds like “ch'kerr” that is rusty and gruff. A song is also created monosyllabic in nature with variation in rhythm as a “whip-whip-whip-whip”. Most of the times the opening notes are heralding, loud and clear. They have a somewhat raspy call characterized by a shrill “kikerah/geep-kareer", another that is more brusque and adenoidal “chek-e-rehr/sheh-k-ker” or a sneeze-like “rhi-KID'd'oo” (Fitzgerald et al., 2011). They may create a double-noted call that sounds like "eee-kah," stressing on the last syllable. Other double syllabic calls include “chick, kwah” “chik-wrrr” and an fiery “keek! Wahh” Flight calls include a flamboyant “trrt-trrt-trrt-trrt” or a buzz-like short repetitive “djet!-djet!-djet!" and a succession of sharp “kleh!” notes. Occasionally, there may be the single/double “stit or stit-it.” And this particular vocalization occurs in danger (Hilty, 2003). There are no non-vocal sounds recorded in association with the squirrel cuckoos. The males sing the aforementioned song especially during courtship. Within the foliage and lianas, these cuckoos tend to emit a joyous “woop-wooo” (Ryan, 2012). Females raise their tails upright to indicate readiness for egg laying and males make gruff vocalizations when performing incubation. During foraging, stealth is assumed in most cases and little or no communication is made.

SEXUAL BEHAVIOUR. Squirrel cuckoos are strictly monogamous. Copulation usually follows courtship feeding, but with little or no additional display or vocalization especially with respect to females (Fitzgerald et al, 2011). Courtship feeding is significant in squirrel cuckoo sexuality as it seems to administer a trust relationship between the couple. Males attempt to impress and attract a female mate by foraging in close association with her and bringing food to her to state his claim. Females are generally attracted to bigger males with long tails hence the reason why during courtship, males tend to ruffle their feathers and hold their chests upright when perched, and spreading their tails brilliantly when in full flight (Ffrench, 2004). Breeding and copulation takes place within days after committed courtship feeding usually in the period August to December (Oniki and Willis, 1999). After copulation, nest building is commenced and the males and females work together with the males bringing the material and the females doing most of the interlocking to her discretion. The clutch size is about 2-3 white eggs, egg proportions range approximately 34.6 x 25.3 mm. Incubation follows and the males and females interchange responsibility of incubation (6-8 hours each) and foraging. Incubation takes about 16-20 days and after the eggs have hatched, both male and female tend to and provide for the young. This species can produce several broods per year.

JUVENILE BEHAVIOUR. Young squirrel cuckoos are altricial, remaining in the nests under the care and protection of their parents or helpers. They feed on regurgitated food that their parents bring back to the nest until they are capable of eating small insects. When new-born, their nutrient requirement is high and they need to be fed more often that when they are a little older (Payne and Sorensen, 2005). Young cuckoos play within the nest and are vulnerable to predation incapable of defence so one parent always remains in close proximity. Young cuckoos learn to fly by observation of parents and trial/error occasionally leaping from the nest and flapping their wings. Young squirrel cuckoos may leave their abode fairly quickly after emerging

from the egg and even before they master flight, at approximately 8-10 days. They may also scramble about using their beaks, wings and feet. Even before they are capable of flight, they leave the nest and begin their own solitary life. In some cases the squirrel cuckoo may remain in close association with their original nest and aid the parents in the rearing of other siblings- becoming a helper (Fitzgerald et al., 2011).

ANTIPREDATOR BEHAVIOUR. Squirrel cuckoos move stealthily and relatively undetected by predators. If however it is in danger of predation, it flies away quickly in resounding alarm (Fitzgerald et al, 2011). A squirrel cuckoo will seldom fight off predators except in cases of threat to its brood where it tries to fend off the attacker by calling its mate loudly, pecking with its beak, spreading its wings and its tail to discourage predators and protect its young (Payne and Sorensen, 2005). This is not a very successful strategy but it manages to protect at least one of the 2-3 young birds. To reduce the event of predation, squirrel cuckoos build their nests well hidden within foliage (Oniki and Willis, 1999). The nests are made of twigs and leaves to camouflage or hide the nest from plain sight of predators. One parent always remains close to the nest even during foraging so the young can be protected since the young squirrel cuckoos are most vulnerable to predation (OUP, 2005).

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Fig. 2. Adult squirrel cuckoo at perch.

[http://www.birdforum.net/opus/Squirrel_Cuckoo, downloaded 13 November 2012]

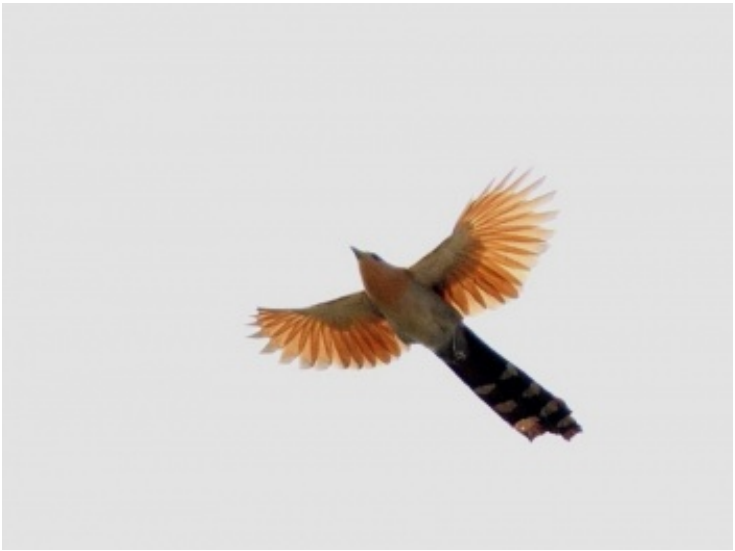

Fig. 3. Squirrel cuckoo in flight.

[http://www.birdforum.net/opus/Squirrel_Cuckoo, downloaded 13 November 2012]

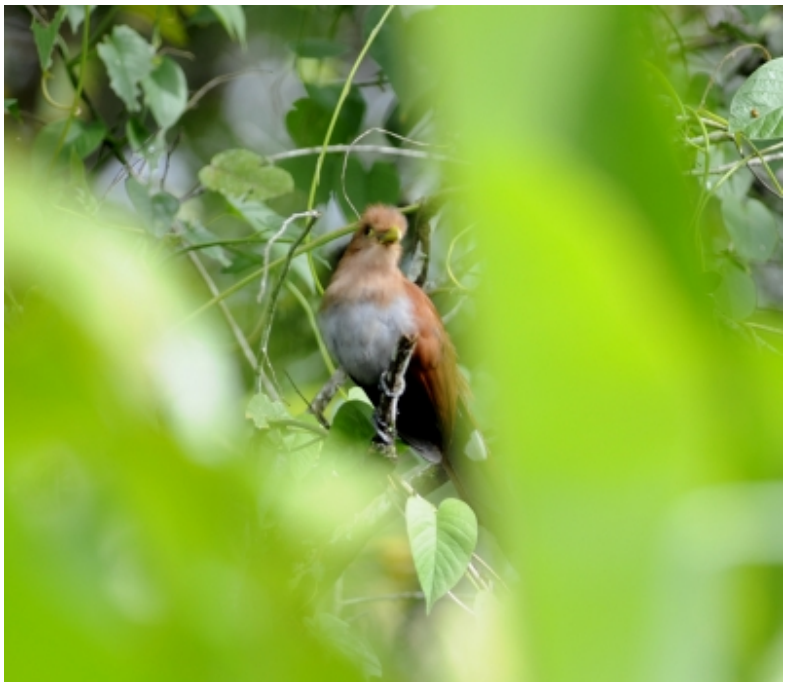

Fig. 4. Squirrel cuckoo foraging stealthily.

[http://biogeodb.stri.si.edu/bioinformatics/dfm/metas/view/47243, downloaded 13 November 2012]

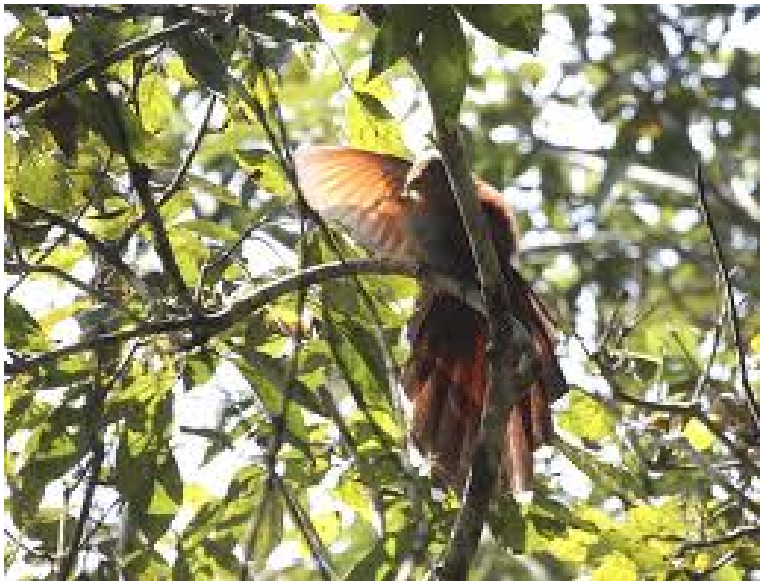

Fig. 5. Squirrel cuckoo sunning.

[http://www.larsonweb.org/belize2010/cayo.html, downloaded 13 November 2012]