Annotated List of Spider Families (Araneida) of Trinidad and Tobago

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ABSTRACT

The spider families of the neotropical islands of Trinidad and Tobago are reviewed. Forty one families are definitely recorded, while an additional 12 families are considered as likely, based on their presence in the nearby South American mainland. Biological and recognition characters are noted for most of the families.

INTRODUCTION

The Araneida, or spiders, are an order within the class Arachnida (arachnids), and number about 38,000 known species. They are diverse, adaptable and found on all the continents except Antarctica.

There are two suborders of spiders, Mesothelae and Opistothelae. The first is a small group found only in southeast Asia. The Opistothelae are further divided into two infraorders, Mygalomorphae and Araneomorphae. The most obvious distinction between these two is the orientation of the chelicerae, or jaws. Mygalomorphs have the chelicerae oriented so that the fangs are parallel to each other. Whereas the Araneomorphs, which make up the great bulk of spider species worldwide, have the chelicerae oriented so that the fangs oppose each other.

The popular image of a spider is an orb weaver sitting in the middle of its web waiting for prey to fly into the snare. But this only applies to a very few families. The tangled webs of some other spiders are much less ornate. Moreover, there are many spiders that do not call a web home or rely on it to catch prey. Members of the families Salticidae and Lycosidae use strength and speed to catch food. Some mygalomorphs, for example Theraphosidae, construct burrows, while some build silken retreats in leaf litter or in crevices of rocks. Most species of spiders are solitary. However, there are about 25 known social species, in several families, for instance *Anelosimus eximus* (Keyserling) which is found in Trinidad and Tobago.

This list aims to act as a guide to the distinguishing features, with some natural history notes, of the spider families found in Trinidad and Tobago. The intention of this paper is to act as an introductory guide and to provide some insight to the little known spider fauna of Trinidad and Tobago. Family determinations often require the examination of structures that are only visible with considerable magnification, consequently this paper is not intended to serve for family identification. A few families (Salticidae) have very obvious characteristics so that they can be determined easily. Family descriptions are based on the literature, and presence in Trinidad and Tobago in some cases confirmed by consulting a catalogue of species names (Platnick 2002). The inclusion of some families in this list is tentative since no specimens confirming their presence have been collected in this country. The assumption that these families are present is based on the fact that Trinidad and Tobago was separated from South America. Therefore the biota North of the Amazon and East of the Andes would be similar to that found in Trinidad and Tobago.

The worldwide spider fauna is still incompletely known. Furthermore, the scientific literature is very scattered, and new species can be found even with the most cursory surveys. Despite these problems there is fair taxonomic literature. As an example, the numerous papers of Levi that revised the taxonomy of the Araneidae, Tetragnathidae and Theridiidae include many examples of Trinidad and Tobago species. There is one recent publication that presents a key to the families of the neotropical country, Panama (Nentwig 1993). This key works fairly well for the spiders of Trinidad and Tobago. The hosting of the 23rd annual meeting of the American Arachnology Society in Trinidad and Tobago, in 1999, encouraged collecting efforts and further research on Trinidad and Tobago spiders. A good inexpensive field guide is Levi and Levi (1968). It should be used with the awareness that many spiders will be found which cannot be accurately determined. Body lengths in the family descriptions refer to adults: minute <3mm; small 3-6 mm; medium 6 - 12 mm; large 12 - 25 mm; very large >25 mm. A 10X hand lens is usually sufficient to view most features, whereas claws and some other features require a microscope of at least 40X magnification.

FAMILY DESCRIPTIONS

Families marked with asterisks have not been recorded from Trinidad and Tobago but have been recorded from biotically similar areas of the northern South American mainland, so that it is expected that at least some of them occur here. All species named in the text, unless specifically stated are found in Trinidad and Tobago.

MYGALOMORPHAE

Actinopodidae (mouse spiders) - Large with a glossy carapace with a high and broad cephalic region and very large, bulbous jaws. Eyes are widespread across the front of the head. Spinnerets short and blunt. They live in burrows, often made in the banks of rivers, creeks and other waterways. These burrows can have single or double trapdoors and an oval entrance.

***Barychelidae** - Large, two clawed with claw tufts, short

maxillary lobe or lobe absent. Burrowing spiders although the burrows are very variable in structure. Some are simple silk retreats others more elaborate with trapdoors.

***Ctenizidae** - Large, very robust, with a distinct dorsal excavation on third tibia. The classic trapdoor spiders, build vertical burrows with a well hinged thick door resembling a short cork.

Cyrtaucheniidae - Large, eyes in a central group near anterior edge of carapace, spinnerets long. Construct silk-lined burrows often beneath stones or fallen timber.

Dipluridae - Minute to very large, easily recognizable by their long spinnerets which may be more than half the length of the abdomen. These spiders are web builders and entangle their prey in a sheet of silk, with the spider hiding in a tube in one corner of the sheet. This tube may be positioned among rock crevices, wood or at the base of a tree. The thick webs of *Ischnothele caudata* (Ausserer) are a common sight on rock walls and poorly maintained structures. Females of this species care for their young after hatching by providing food.

***Idiopidae** - Large, either anterior lateral eyes set well in advance of other eyes or eye group occupying more than half the carapace width. Build trapdoor burrows of various types.

***Microstigmatidae** - Minute to small, booklung covers small and round, scaly cuticle, two spinnerets. Natural history details not known, probably cryptic in leaf litter and on the ground.

***Paratropididae** - Medium to large, scaly cuticle, abdomen with strong coarse setae. Body normally soil encrusted. Natural history poorly known, cryptic in ground litter.

Theraphosidae (tarantulas, bird spiders) - These are the largest of all spiders, with claw tufts and a distinct maxillary lobe, possess a heavy coat of hair on all parts of their body, eyes are closely grouped together. The females lay 40 to 500 eggs depending on the species (West 1983). Many theraphosids live on the ground, some live in trees while others burrow. As their common name suggests they prey occasionally on nestling birds, lizards or small snakes, but mainly on arthropods. A common member of this family is *Avicularia avicularia* (Linnaeus) also known as "pinktoes", because each of its legs has a prominent pink tip against the general black colouration in adults. These arboreal spiders live in large silken tubes (West 1983) commonly found in trees, low plants, lightpoles and buildings, and are often kept as pets due to their docile nature but caging more than one together is not advised. This species is quite widespread with collections being made in Chacachacare, Monos Island, Maracas, as well as Talparo, and Rio Claro (West 1983).

ARANEOMORPHAE

Agelenidae (funnel weavers) - Medium to large, have long posterior spinnerets. They have three leg claws and lack a cribellum. Some make flat funnel-shaped webs on grass, with the spider hiding at the narrow end of the funnel. The spider picks up the vibration of a prey on the web, attacks it, bites it and carries it back to the funnel.

***Amaurobiidae** - Small to medium, cribellate spiders, pale eyes in two rows. Almost nothing is known about the biology of neotropical amaurobiids. If they occupy similar habitats as those in the northern hemisphere they will be found under debris and rocks in moist forest habitats, with an irregular web of thick, non-adhesive cribellate silk produced by the cribellum and used to ensnare flying prey.

Anapidae - Minute, usually armour-plated spiders. The pedipalps of the females have been lost. They build modified sticky silk orb webs. Most species live in leaf litter and low, moist vegetation.

Anyphaenidae - Medium, similar to clubionids in size and colour, but have tracheal opening well forward of the anterior spinnerets. Active hunters that forage on vegetation, leaf litter and trees. They also construct silken retreats on the undersides of leaves.

Araneidae (orb-web spiders) - Small to very large, identified by their characteristic orb webs, where they are often found in the centre. The structure of the web consists of a lattice of silken threads held together with spiral threads coated with sticky webbing, used to catch prey. A few genera do not spin orb webs. They are sedentary predators waiting in webs which intercept flying, and jumping prey. Once caught the prey is immobilised by wrapping in silk and killed with a bite. There are diurnal and nocturnal species. The diurnal groups continually repair their webs. A conspicuous example of a diurnal species is *Argiope argentata* (Fabricius), whose web is identified by heavy zigzag bands of silk which make an x-shaped mark in the centre of the web. The nocturnal groups construct a new web every night, consuming the old web as a valuable source of protein.

Caponiidae - Small to medium, majority have only the anterior median (front central) pair of eyes, rarely some have eight in one group. Their oval abdomen lacks book lungs but has four tracheal slits. Usually with characteristic colouration, carapace and legs orange, abdomen bluish grey. Found in leaf litter, under stones and in low vegetation. They are active hunters that rely on strength and speed to subdue their prey, believed to feed primarily on other spiders, some may feed on termites.

Clubionidae (sac spiders) - Medium, resemble gnaphosids but have a less flattened abdomen, longer legs and closely spaced, conical front spinnerets. Eyes are uniform in size and are arranged in two rows of four. The first and fourth pairs of legs are the longest and are almost equal in length. Construct a resting tube in a rolled leaf, or under bark or stones, and do not use webs to trap their prey. Nocturnal in activity.

Corinnidae - Medium to large, legs are relatively long and slender, possess two leg claws. Most live in leaf litter or on the dry bark of trees, some in vegetation. Many species resemble ants and multillid wasps.

Ctenidae (wandering spiders, tropical wolf spiders) - Medium to very large, the largest araneomorph spiders belong to this family. Eye arrangement is diagnostic with two rows of eyes. The top row consists of four large eyes, two closely spaced in front and one on either side of the face. The same arrangement is mirrored with a bottom row of four smaller eyes. Possess two to three leg claws. Fast terrestrial and arboreal hunters, nocturnal, do not make webs and rely on speed and strength to capture prey.

Deinopidae (net-casting spiders) - Medium to large, cryptically coloured in grays and browns. There are three main genera. Our genus, *Deinopis* (Ogre Face Spiders), so called because of their pair of huge posterior median (back central) eyes. These spiders live on vegetation and hide during the day with their legs stretched like some tetragnathids to resemble sticks. At night they hunt by building a highly modified cribellate orb web that comprises of a small, expandable square which it holds in its first and second pairs of legs. This is then flung over prey as one would cast a net.

***Dictynidae** - Small to medium, cribellate or ecribellate

spiders. The genera likely to be found in Trinidad and Tobago build small space webs with dense cribellate silk. They are found on vegetation often in drier habitats.

***Drymusidae** - Medium, resemble *Loxosceles*, but with longer and more slender three clawed legs. Found in forested areas where they make tube or sheet webs under fallen tree branches and rocks.

Gnaphosidae - Small to large, the long abdomen is slightly flattened and the front spinnerets are cylindrical and separated. Legs have only two claws. They have posterior median oval eyes at an angle and the endites are concave and slightly constricted in the middle. Mostly nocturnal hunters, rest in the daytime under stones or loose bark. The egg sac is a papery disc usually attached to the underside of a stone. Guarded by the female in some species.

***Hersiliidae** - Medium to large, three clawed very flat spiders with extremely long, tapering posterior spinnerets. On tree trunks, move rapidly towards prey, turn so spinnerets face and enswathe prey with silk bands affixing it to substrate.

Linyphiidae - Minute to small, have at least femoral spines. They construct sheet webs amongst vegetation or across indentations in the ground and hang beneath them waiting for prey. Other members of this family live in leaf litter.

Lycosidae (wolf spiders) - Small to large, have a row of four small eyes below four larger eyes, and three tarsal claws. Legs are moderately long and robust. Commonly found running on the ground or over stones. Some dig short tunnels or deep burrows. A few build agelenid like sheet webs. Some genera are diurnal and others nocturnal. Males wave their pedipalps in a rhythmic pattern when approaching potential mates. Female attaches the egg sac to her spinnerets and as the young spiderlings emerge she allows them to climb on her back.

Mimetidae (pirate spiders) - Small to medium, are easily recognised by a row of strongly, curved setae on the front margins of the lower segments of the first pair of legs. As their name suggests, they invade the webs of other spiders. Slow moving spiders that prey on the web owners, while some sit with outstretched legs under leaves and ambush passing spiders. A species has been observed to pluck the prey's web like a courting male to gain entrance.

Miturgidae - Medium, first pair of legs is longer than the fourth and used for detecting and capturing prey. Fast, aggressive, free ranging nocturnal hunters. Construct silk-like retreats in curled leaves. In some agricultural settings they have been reported to be important insect pest control agents.

Mysmenidae - Minute, males with a large spur on the metatarsus, females with a sclerotised subdistal, ventral spot on first femur. Most build highly modified sticky silk orb webs, some with 3-dimensional orbs, while other species of this family are known to build small irregular webs. Most live in dark moist places in leaf litter and low vegetation.

Nesticidae (cave spiders) - Small to medium, fourth leg has a comb on its last segment. Similar to theridiids, rear margin of cheliceral fang furrow, that is, the groove in which the fang lies when at rest (Gertsch 1979), with many denticles. Occupy moist caves and cellars thus their common name. Make an irregular cobweb, female carries her egg sac attached to her spinnerets. Subdue prey by flinging large globs of sticky silk with the comb on the fourth tarsus.

Ochyroceratidae - Minute to small pale spiders very similar to pholcids. Often have a mottled purple coloration. Live in leaf litter where they construct spacewebs.

Oecobiidae - Minute with a cribellum and a large, hairy anal tubercle. Make small, flat webs over crevices in walls and on leaves. Some feed on ants, and some species are known to be social.

Oonopidae - Minute, short-legged with six tiny eyes closely grouped on the front of the carapace. Many have orange plates on the abdomen. Live under stones or in leaf litter, and can run rapidly. Nocturnal hunting predators.

Oxyopidae - Small to large, possess six large eyes in a hexagon arrangement with two Smaller ones below. Their legs are three clawed, covered with many long, strong setae. The abdomen is pointed behind. Diurnal hunting spiders that chase their prey over vegetation or lie in wait and ambush them. Use their silk as draglines for jumping and for anchoring the egg sac to vegetation, not for catching prey. Some species rest at night suspended from a dragline.

Palpimanidae - Small to medium, eight-eyed spiders that resemble zodariids but only have two visible spinnerets. First pair of legs is much thicker than the rest, elevated when walking, have modified setae on the inner surface which may aid in holding prey in place. Sternum surrounds the first segments (coxae) of the legs. Biology poorly known. A few make irregular webs under stones and debris. Others are slow moving terrestrial and arboreal predators of other spiders.

Philodromidae - Small to medium, laterigrade legs, legs I, III, IV subequal in length, leg II longer than the others. Active, very fast runners, most hunt on vegetation, some on ground.

Pholcidae (daddy long leg spiders, cellar spiders) - Minute to large, fragile appearing spiders with very thin legs that are usually many times the body length. Their eyes are always close together. This appears to be true for native Trinidad and Tobago species, however, pholcids from other areas may have eyes that are arranged in two triads. Based on the accounts of the most researched pholcid species *Pholcus phalangioides* (Fuesslin) which is cosmopolitan in temperate regions, many general texts state that pholcids make a messy, irregular tangled web, that is non-adhesive. However the irregular mesh of web lines over which the spider moves easily impedes insects and makes escape difficult. After which the spider quickly wraps its prey in silk and inflicts a fatal bite. These webs are found in caves, under rocks and loose bark, abandoned animal burrows and undisturbed areas in buildings and cellars, hence its other common name, cellar spiders. Tropical species, however, show a diversity of web forms (Eberhard 1992), for example *Mesabolivar aurantiacus* which constructs a domed aerial sheet (Sewlal, unpublished observations). Huber (2000) records six species (in the genera *Canaima*, *Coryssocnemis*, *Mecolesthus* and *Mesabolivar*), and has found one additional genus, *Priscula*, in buildings. An example of a common species found in this country is the red pholcid, *M. aurantiacus* (Mello-Leitão) which is plentiful between the buttresses of forest trees.

Pisauridae (nursery web spiders) - Medium to large with eight eyes of approximately equal size, three tarsal claws. They can walk on water by spreading their legs radially. They resemble the related lycosids but many are found on vegetation. They sit quietly for hours on vegetation or actively hunt in vegetation. The female carries her huge egg sac in her jaws and suspends it among the leaves with silk when it comes near to hatching time, and stands guard nearby (Levi and Levi 1968). The young spiders leave the nursery after about a week.

Prodidomidae - Medium with eight eyes arranged in a semi-

circle at the front of the carapace, and with long spread chelicerae. These ground spiders are related to gnaphosids, and are found under stones.

Salticidae (jumping spiders, sometimes called money spiders in Trinidad) - Minute to large, members of this family are easily identified by two very large anterior median (front central) eyes which form high resolution images. The lateral anterior eyes are smaller, but still large, and play a major role in hunting behaviour (Cutler and Edwards 2002). These simple image forming eyes allow the spider to focus on an object providing information on both colour and size. The posterior eyes are smaller. They generally have squat bodies with short legs, but some species are slender. Some resemble ants, mutillid wasps or small beetles. Have two claws plus a scopulae pad (tuft of hair), which enables them to adhere to various surfaces. This is the largest spider family with 4,500 species currently known, 117 of which are found in this country (Cutler and Edwards 2002). They are found in most terrestrial ecosystems; arctic and alpine tundra, deserts, forests, grasslands, crops and manmade structures, but the greatest diversity is found in tropical forests. Construct silken retreats which they use to moult and produce eggs. Daytime running or ambushing hunters, they stalk and attack walking prey. To catch flying prey, they attach a thread of silk to a substrate and leap at the prey and haul themselves to the substrate with their catch. The males perform ritualised movements during courtship like the Lycosidae.

Scytodidae (spitting spiders) - Small to medium, possess smoothly domed high carapaces underneath which is a pair of large glands. The legs are slender and the spider uses them to stand high off the surface it is resting on. Long lived, active hunters, use the large glands underneath its carapace to squirt sticky threads combined with venom at prospective prey and hold it in place. Females carry the egg sac in their jaws. Several species are common on manmade structures and debris hanging in flimsy webs.

***Segestriidae** - Medium to large, easily recognized as they are the only spiders in which the third legs project forward with the first two pairs, body tubular. Build tube webs in narrow cracks and under stones. Webs have radial lines around the circular entrance.

Selenopidae (wall crab spiders, flatties) - Medium to large, two clawed, easily recognised by the flatness of their bodies as well as their eye arrangement, that is, six eyes in a single row in the front, and one eye towards the rear on each side. Commonly found in houses and under rocks or loose bark. Also their flattened bodies allow them to retreat sideways into cracks and crevices when disturbed. Nocturnal, well camouflaged, free ranging spiders, found on flattish surfaces such as rock faces, tree trunks and walls.

Senoculidae - Medium to large, possess three tarsal claws. Eyes with an anterior pair on the front edge, and the other six in a recurved semi-circle further back. Natural history poorly known, hunt on plants with the female guarding her egg sac.

Sicariidae (members of the genus *Loxosceles* are called violin spiders) - Medium to large, legs two clawed, six eyes arranged in three diads (contiguous groups of two) in a recurved row (the outer ends of the row are behind the central part). All members of this family possess venom capable of causing necrotic lesions in humans. Some live concealed under the surface of sand and hunt by grabbing prey with their front legs. Members of the genus *Loxosceles* are found under stones and debris on the ground and in houses.

Sparassidae (giant crab spiders) - Medium to very large, hold their two-clawed legs in a crab-like fashion. The trilobed membrane at the end of the metatarsus is diagnostic. Mostly nocturnal and occur on the soil surface, vegetation, tree trunks and in buildings. They do not build webs and rely on speed and strength to subdue their prey.

Symphytognathidae - Minute, pale spiders with fused chelicerae and four or six eyes, female pedipalp absent or with just a basal segment. They build horizontal, finely woven sticky silk orb webs. They mostly live in forest litter.

Tetragnathidae - Small to very large, many with elongate bodies, legs long and thin, chelicerae are strong with large teeth, often with spines. Female genital plate often poorly sclerotised. Most spin orb webs often at an angle between vertical and horizontal, orb usually has 12 to 20 radii and widely spaced spirals. Spider hangs in the centre or on a stalk somewhere near web, both diurnal and nocturnal species. A well known member of this family which occurs in Trinidad and Tobago is *Nephila clavipes* (Linnaeus) which is highly sexually dimorphic and constructs a large web of golden silk reaching up to 1m or more in diameter in relatively open spaces like trail edges and clearings. Webs of adult females are often asymmetrical with the hub being placed high in the web.

Theridiidae (comb-footed spiders) - Minute to medium, with three leg claws, possess a tiny comb of bristles (setae) at the end of the fourth leg. Legs with few spines or none. Rear margin of cheliceral fang furrow with at most three teeth. Most spin an irregular web sometimes on the underside of leaves, stones or loose bark. Some build highly modified webs, a few do not build webs and are wandering hunters. The tarsal comb is used to cast strands of silk over prey once it has become entangled in their web. Members of this family include *Latrodectus geometricus* (Koch) (Brown Widow), an extremely timid spider which is rarely reported to bite and is commonly found in houses. Another common member of this family is *Argyrodes nephilae* (Taczanowski). These tiny angular silver spiders are commonly found in the webs of *Nephila clavipes*. They are kleptoparasites. Two other members of this family, *A. eximus* and *A. rupununi* (Levi) are social spiders, the latter is less common in Trinidad and Tobago. Both species reside in colonies with members cooperating in prey capture, transport, tending of egg sacs and communal feeding. They construct huge communal webs ranging from 88 to over 700cm in length, containing a single adult female to almost 3,000 spiders (Avilés and Salazar 1999)

Thomisidae (crab spiders) - Small to medium, stout with two tarsal claws, first and second pairs of legs noticeably longer and thicker than the other pairs. Eyes are small, nearly uniform in size and arranged in two rows. They are sit-and-wait predators that often rely on camouflage to ambush their prey. They can resemble tree bark, flowers and even bird droppings. Some can change colour to match their background. They get their common name from their tendency to walk sideways rather than forwards.

Theridiosomatidae - Minute spiders with globular abdomens, rear of sternum is short and squared off posteriorly. Some build small, modified orb webs that lack a hub, but have several radii tied together near the centre. The centre of the web is held by the spider with a tight thread to form an inverted umbrella, when a prey item gets caught, the thread is released, causing the web to spring back and entangle the prey. One genus builds a line across tiny watercourses with sticky strands hanging down to float on the

water surface. Prey items floating suspended on a stalk, one tends to see far more egg sacs then spiders or capture webs.

***Titanoecidae** - Medium, with a cribellum and calamistrum, the calamistrum appearing bipartite and less than half the length of the metatarsus. Natural history similar to amaurobiids, build webs with dense cribellate silk under stones and debris on ground. Found in drier habitats than are usually occupied by amaurobiids.

Uloboridae - The first two pairs of legs are longer than the other pairs. They possess a cribellum and construct orb webs. Uloborids lack poison glands. These orb weavers wrap their prey in silk to subdue them. The pantropical *Zosis geniculatus* (Olivier) belongs to this family and builds flimsy orb webs that degenerate with age so that the orb is not readily discernible. This species is often found in colonies in sheltered areas, in and around buildings. Another genus constructs a web consisting of a single line, others construct just a sector of an orb.

Zodariidae - Small to large, stout, eight-eyed spiders with more than two spinnerets although the first ones are much larger in comparison to those at the rear. Legs equally thick and robust. Ground-dwelling, hunting spiders which hide under stones, leaf litter or burrow in sand. Many are specialised predators on ants and termites.

***Zoridae** - Small to medium, eyes in three rows, four in anterior row, followed by two rows of two eyes in each, lack claw tufts, with strong ventral macrosetae on the legs. Fast, nocturnal hunters, on ground and vegetation.

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NATURE NOTES

Predation of a Lizard by a Mockingbird in Trinidad and Tobago

On 7 June, 2003, I saw a Mockingbird (*Mimus gilvus*) "hovering" in front of a stone wall . It then landed in the middle of the road and dropped a small lizard, which managed to run about 50 cm before it was caught again. The mockingbird flew with the lizard into a neighbouring garden where it was no longer in view. The lizard could not be identified (it was about 10 m away), but was the size of a species of *Gonatodes vittatus.* These are common in the neighbourhood. In his book, A Guide to the Birds of Trinidad and Tobago, ffrench (1980) notes that mockingbirds have been reported to take lizards in the Dutch Leeward Islands. If you have made observations on the predation of vertebrates by Mocking birds, please send them to The Editor, so that they can be published as a Nature Note in a later edition of The Living World.

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Display of the White-tailed Sabrewing on Tobago

This display must be one of the most spectacular sights in Trinidad and Tobago, if not the whole neotropical area, and it should be a challenge for any wildlife photographer to capture on film this amazing performance.

This hummingbird, *Campylopterus ensipennis*, like many others is largely green, but the outer three pairs of tail feathers are pure white. When the male bird is performing his display at his familiar perch, he constantly calls a repeated double note "**chee-chink……chee-chink**". Often, while doing this, he fans out his tail feathers, sometimes raising the tail at the same time, so that the white feathers stand out brilliantly against the generally green background of the forest environment. It has reminded me of a miniature peacock. Occasionally the bird also raises its wings, as if about to fly.

I have found this bird displaying at Gilpin Trace on Tobago's Main Ridge, not far from the Bloody Bay Look-out, so it is not too difficult to locate. Every birder should try to share this experience, described to me by a friend as "a cosmic mind-blower".

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