Chlorostilbon mellisugus (Blue-tailed Emerald)

Family: Trochilidae (Hummingbirds)
Order: Trochiliformes (Hummingbirds)
Class: Aves (Birds)

Fig. 1. Blue-tailed emerald, *Chlorostilbon mellisugus*.

[http://www.flickriver.com/photos/tags/chlorostilbonmellisugus/interesting/, downloaded 29 January 2017]

TRAITS. *Chlorostilbon mellisugus* is a common species of hummingbird, measuring 75-85mm in length and can weigh up to 2.6g. Females are smaller averaging about 60-75mm in length (Camfield, 2004). They have a wingspan of 31mm across and a 13mm straight, thin, black bill which is relatively shorter compared to other species of hummingbirds (Temeles et al., 2002). The male's plumage is emerald-green or brilliant green (Fig. 1). *C. mellisugus* has a forked, metallic deep-blue tail, with dark underwing and undertail. Its thighs are white, with dark grey feet and legs (Johnson, 2011). The female is distinguished from the male not only by her size (smaller) but by her grey-white underparts and pale green colour. She has a small white supercilium or streak of white above the eye (Fig. 2). Females also possess a black ear patch and tail feathers that have white tips (Johnson, 2011).

DISTRIBUTION. *Chlorostilbon mellisugus* is commonly found in tropical and subtropical areas of South America (Fig. 3). They reside and breed in Aruba, Trinidad, Venezuela, Guyana, Suriname, the Guianas, Columbia, Ecuador and Peru, just east of the Andes, to parts of central Brazil and northern Bolivia (Rappole and Schuchmann, 2003). *Chlorostilbon mellisugus* is sedentary (non-migratory) within its range and distributed among moist areas of Trinidad only (not Tobago). Thomas (1994) found that *C. mellisugus* is one of 12 species of hummingbirds found in the Arima Valley.

HABITAT AND ACTIVITY. *C. mellisugus* prefers moist areas including grasslands, cultivated fields, savannas and semi-open woodlands with trees that contain epiphytes. Most are seen among gardens with brightly coloured flowers, and also artificial feeders containing sugar solutions. The blue-tailed emerald is less attracted to dry, heavy populated, urban areas and dense forests (Rappole and Schuchmann, 2003). It is a diurnal organism, feeding during the day, by visiting flowers in its territory. *C. mellisugus* does not spend all day feeding and flying due to its high metabolic cost. On average, 75% of the time is spent perched on a branch digesting (Fig. 4) (Snow and Snow, 1986).

FOOD AND FEEDING. *Chlorostilbon mellisugus* primarily feeds on nectar from flowers. The feeding ecology of hummingbirds is directly related to bill length (Temeles et al., 2002). *C. mellisugus* possess a short bill, so they tend to pierce the corolla of the longer tubular flowers at the base, in order to obtain the nectar (Temeles et al., 2002). Their long, extendable tongue, which is also forked, rapidly laps up nectar 13 times per second. The aerobic metabolism rate of *C. mellisugus* when hovering, during its feeding, is high, making flight energetically demanding (Altshuler and Dudley, 2003). *C. mellisugus* can also acquire food through foraging for arthropods in flight (hawking) or other insects can be picked up from branches and spider webs. These are important sources of protein for the developing young but one study suggested that arthropods contributed trivial amounts of energy to the adult birds' energy budget (Stiles, 1995). Male *C. mellisugus* predominately takes up more nectar than insects. The females however, have a tendency to pick up more insects when nesting (Thomas, 1994).

POPULATION ECOLOGY. *Chlorostilbon mellisugus* is a solitary animal, usually feeding alone. *C. mellisugus* is a very common within its range (Butchart et al., 2016). In terms of longevity, the estimated life span of the blue-tailed emerald is 6-12 years, if they survive the first year. In captivity hummingbirds can live up to 17 years but there are no substantial data for this species in particular (Camfield, 2004).

REPRODUCTION. They are polygynous, and the pair separate after copulation, with the male taking no part in nest building or parental care. *C. mellisugus* females build cup-shaped nests out of plant fibres and animal hairs (Thomas, 1994). Usually 2 white, elliptical eggs are laid, weighing 0.4g each. Incubation lasts for 13-15 days. Hatched chicks are blind, dusky brown in colour and without down feathers (Johnson, 2011). The mother feeds the developing young via regurgitation of a mixture containing arthropods and nectar (Snow and Snow, 1986). Females brood for up to 12 days or more until the chicks grow feathers and can control their body temperature (Fig. 5). The chicks would leave the nest when they are about 18 days or older (Thomas, 1994). *C. mellisugus* breeds during the start of the dry season, December to May in Trinidad. One study found that breeding in Venezuela happens between the late wet season and

early dry season. Seasonality of reproduction is therefore dependent on location, conditions and food availability. Female *C. mellisugus* can have up to 2 broods per year when the right conditions persist (Baltosser, 1996).

BEHAVIOUR. Fledglings are still fed by their mother for 18 to 25 days until they become fully independent and juveniles begin to wander off in search of nectar on their own (Snow and Snow, 1986). As juveniles mature, the males establish their own feeding territories and defend it by performing diving flights to intimidate and chase away intruders like butterflies, bees and other birds (Altshuler and Dudley, 2003). Female *C. mellisugus* exhibit anti-predator behaviours by actively defending their nesting areas from avian predators and ectoparasitic mites that infest the nestlings (Baltosser, 1996). Hummingbirds have colour vision that assist in feeding and avoiding predators. *C. mellisugus* communicates visually by their brilliantly coloured plumage and aerial displays used to attract females. Its call is described as a pebbly "tsip", and its song is a melodious twittering. Fledglings can make begging calls to their mother and adults can make warning calls after sighting predators (Johnson, 2011).

APPLIED ECOLOGY. The IUCN listed this species as 'Least Concern' in 2016. *C. mellisugus* is considered common within its large range and is even seen feeding from artificial feeders. It has stable population in the absence of threats (Butchart et al., 2016). There are programmes protecting other critically endangered hummingbirds in South America and *C. mellisugus* benefits from this (Snow and Snow, 1986).

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Fig. 2. Adult female blue-tailed emerald, *Chlorostilbon mellisugus*.

[https://www.flickr.com/photos/jestebanberrio/16299922965, downloaded 26 February 2017]

Fig. 3. Blue-tailed emerald geographic distribution.

[http://maps.iucnredlist.org/map.html?id=22687313, downloaded 22 February 2017]

Fig. 4. Resting blue-tailed emerald, *Chlorostilbon mellisugus*.

[https://www.flickr.com/photos/michel_giraud-audine/4844496154/, downloaded 26 February 2017

Fig. 5. Blue-tailed emerald nestlings.

[https://www.flickr.com/photos/michel_giraud-audine/4844496154/ downloaded 26 February 2017]