

## *Vireo olivaceus* (Red-eyed Vireo)

Family: Vireonidae (Vireos)

Order: Passeriformes (Perching Birds)

Class: Aves (Birds)



**Fig. 1.** Red-eyed vireo, *Vireo olivaceus*.

[<http://reglasley.com/redeyedvireo.html>, downloaded 5 November 2015]

**TRAITS.** Angular shaped head. Long, thick bill with tiny hook at tip of upper mandible (USGS, 2011). Adult has a characteristic red iris that appears dark from afar, immature has dark brown eyes (AAB, 2015). No major distinction between the sexes. Total length 11.9-12.9cm and wing span 23-25cm. Bluish grey crown with white supercilium bordered by dark stripes (USGS, 2011), lower stripe passes through the eye (Fig. 1). Back feathers and upper wings olive green, lower wings and tail a darker green with a white underside. Immature has olive yellow flanks and under tail coverts (NatGeo, 2015). Thick grey-blue legs. Four toes: three forward, one pointing backwards to facilitate perching.

**ECOLOGY.** The red-eyed vireo is a passerine bird found extensively in North America (summer range) and South America (winter range), with migration through Central America

(Fig. 2). In Trinidad it breeds from April to June and is absent from October to February, perhaps migrating to South America. There is an endemic subspecies (*V. o. tobagensis*) in Tobago which is resident all year round, and has slightly larger body size. The preferred habitat is deciduous woodlands with thick undergrowth in neotropical regions (Reilly, 1968, p385). It is also found in wooded parklands and urban areas and parks with large trees. Their number increases further away from forest edges. During migration, habitats are similar to breeding habitats however they may be found in citrus type groves.

**ACTIVITY.** Red-eyed vireos are a migrant bird species. Twice a year, they are found migrating between North America and South America. The journey to South America (August-September) is to avoid the winter season and they return in time for breeding season (March-May). Vireos that breed in the north-western regions of North America often move east in the fall season before heading south to South America (NAS, 2015). In the breeding period red-eyed vireos are most active during dawn and dusk. The males sing continuously from before sunrise into the afternoon, often from tree tops around the boundaries of their territory. Females venture a little outside of their mates' territory on lower branches.

**SOCIAL ORGANIZATION.** Solitary, territorial during breeding season, but may associate with mixed species groups during the migratory season. Red-eyed vireos are often found alone foraging or flying around the dense canopies or in the company of another vireo during the breeding season. Male vireos are found higher in the trees as they perch to sing while female vireos are found near to the habitat floor. They are a monogamous species however the length of the breeding pair bond is unknown. Young vireos remain in the company of their parents until 35 days after birth where they become fully independent.

**FORAGING BEHAVIOUR.** Red-eyed vireos are characteristically foliage gleaners (eating insects from the surfaces of leaves). They also practise foraging by hovering next to leaves, hawking to capture airborne insects and pecking from branches, though much less in comparison to gleaning (Williamson, 1971). Foraging occurs mainly at the outskirts of trees on twigs 1cm in diameter) and branches 1-8cm in diameter). Less foraging occurs airborne and a smaller percentage occurs on the limbs or trunks of trees. Red-eyed vireos can forage up to 25m above the ground in thick shrubbery (Williamson, 1971). Male vireos forage less frequently than females at lower levels and are mostly observed at the tops of the trees while females are nearer to the forest floor (Lawrence, 1953). Male foraging height was noted to be closer to singing perches while females foraged closer to nests, which averaged 3m above the ground. For each pair, an estimated total of 0.5ha is covered while foraging. Food was swallowed immediately, while larger prey were eaten in pieces (Williamson, 1971). Females foraged at a faster rate than males with a capture rate of 2.1 items per minute compared to 1.3 in males (Williamson, 1971). The type of food differed between spring/summer (breeding season) when the main diet consisted of insects (dragonflies, beetles, larvae of butterflies, ants, wasps, grasshoppers and spiders) while during the winter season mainly fruits were consumed.

**COMMUNICATION.** Male vireos communicate with each other to establish territorial space. They often sing and compete against each other. They also communicate with other vireos to signal predators with an alarm call. This allows the female vireo to quickly avoid detection once incubating (Williamson, 1971).

**SEXUAL BEHAVIOUR.** Sexual reproduction occurs shortly before nest building. It begins when a male vireo selects a female which may have entered his territory. The male pursues the female in a display consisting of loops, circling and roundabouts though and under bushes (Lawrence, 1953). The female then examines the area as prospective nesting site. The feathers on the female's crown and throat stand on end to signal that the urge to mate is present. The male approaches with quivering wings and a mating note by either bird is given. The male then flips his tail down in a 90° angle to his body and spreads his tail feathers in a fan-like display. Once in a receptive mood, the female raises her tail and crouches. This signal along with a soft chirp invites the male to mate. Copulation is brief and accompanied by an excited twittering and the strong vibrations of the wings of the birds (Lawrence, 1953).

**NESTING BEHAVIOUR.** Red-eyed vireos arrive at the breeding site in March-May. Male red-eyed vireos arrive first, 3-15 days before the females. Males establish territories with a size range of 0.25-1.0ha which contain the nesting site (Beer et al., 1956). Nests are often favoured in a low overgrowth environment near to a feeding area in the canopy. Females build the nest approximately 2-10m above the ground. Nest can also be found 1-20m above ground in a habitat of deciduous saplings or shrubs (NAS, 2015). After a suitable nest site is chosen, 4-5 days is spent by the female constructing the nest (Lawrence, 1953). The nest is placed in the fork of a branch and is usually shaded, concealed and has a 360° view of the surroundings (Fig. 3). The nest consists of grasses, twigs, pine needles, bark strips, wasp nest paper and plant fibres. Spider silk and plant fibres are used to glue the materials together (AAB, 2015; Lawrence, 1953). The nest has a cup-like shape with dimensions: 5cm wide, 4cm deep, 4cm thick walls and a 2cm thick floor (AAB, 2015). 2-4 days after the completion of the nest the first egg is laid; a total of 3-5 eggs are laid, 5 being extremely rare. The eggs have brown spots, concentrated at the larger end (Fig. 4) (Lawrence, 1953). After egg laying, incubation occurs for 11-15 days. Early in incubation, the male vireo becomes attentive to the female and often feeds her. Lawrence (1953) observed that females left the incubating eggs for 7-10 minute intervals later in the incubation period when led by the male to procure food nearby. Also in this period the male resorts to his singing perch and seldom visits the female at the nest. When the young birds begin to hatch, the male vireo is signalled when the female removes eggshells from the nest. The male visits the nest then leaves for a few minutes to forage for food for the newly hatched vireos. Female adult vireos take the food from the males and feed the young directly (Fig. 5). The male is observed feeding the young only in the absence of the female.

**JUVENILE BEHAVIOUR.** New-born vireos appear naked. Their skin is reddish- yellow with a transparent underside. They are blind with a thin covering over the eyes. Beaks are bright orange (Lawrence, 1953). After 5 days, skin turns grey and wing feathers and breast feathers appear, and a slit is noticeable on the eyes. At 8 days old, eyes are fully opened and the young's body is fully covered with feathers, except beneath wings. Feathers are velvet grey-brown and the flanks are slightly yellow. At day 10, the young vireos are ready to leave the nest to feed on their own.

**ANTIPREDATOR BEHAVIOUR.** Adult red-eyed vireos are often the prey of hawks. Young red-eyed vireos and eggs are more vulnerable to predation by species such as blue jays, eastern chipmunks, common grackles, cowbirds, squirrels and crows. Once a predator or a threat is detected the red-eyed vireo begins to raise its feathers on its crown, fan its tail as well as open

and close its beak while pecking and sounding an alarm call. The alarm is especially used when the intruder approaches. Aggressive swooping is also done to deter the predator. Female vireos when incubating crouch into their nests and remain immobile. This behaviour allows the female vireo to achieve a camouflage with its surroundings. When cowbirds approach the red-eyed vireo chases and hits them with the wings. Cowbirds often target the nests of vireos to lay their eggs. If they are successful, sometimes the vireo may cover up the cowbird egg with another nest (AAB, 2015).

## REFERENCES

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**Fig. 2.** Red-eyed vireo geographic distribution during various seasons.

[[https://www.allaboutbirds.org/guide/PHOTO/LARGE/vire\\_oliv\\_AllAm\\_map.gif](https://www.allaboutbirds.org/guide/PHOTO/LARGE/vire_oliv_AllAm_map.gif), downloaded 5 November 2015]



**Fig. 3.** The nest of a red-eyed vireo in the fork of a branch.

[[http://northernwoodlands.ehclients.com/images/gallery/Illustration\\_29-1\\_VIREO.jpg](http://northernwoodlands.ehclients.com/images/gallery/Illustration_29-1_VIREO.jpg), downloaded 5 November 2015]



**Fig. 4.** Red-eyed vireo nest with 5 (rare) eggs.

[[http://vt.audubon.org/sites/default/files/photos/red\\_eyed\\_vireo\\_jim\\_mccormac.jpg](http://vt.audubon.org/sites/default/files/photos/red_eyed_vireo_jim_mccormac.jpg), downloaded 5 November 2015]



**Fig. 5.** The feeding of newly hatched red-eyed vireos.

[<http://cdn.c.photoshelter.com/img-get/I0000W.k1fB1pcmk/s/600/Red-eyed-Vireo-Nest.jpg>, downloaded 5 November 2015]

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