

SHORT COMMUNICATIONS

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SAP FEEDING BY THE GREEN-BACKED FIRECROWN (*SEPHANOIDES SEPHANIODES*)

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Consumo de savia por el Picaflor Chico (*Sephanoides sephaniodes*).

Key words: Sap feeding, hummingbirds, Chile, Green-backed Firecrown, *Sephanoides sephaniodes*.

Tree sap is a common item in the diet of some hummingbird species. In North America, Ruby-throated (*Archilochus colubris*), Rufous (*Selasphorus rufus*) and Anna's (*Calypte anna*) hummingbirds are frequent visitors to sap wells produced by sapsuckers (*Sphyrapicus* spp.) in several tree species (Southwick & Southwick 1980, Sutherland *et al.* 1982, Miller & Nero 1983, Russell 1996). Kattan & Murcia (1985) have also described a similar association between the Buff-tailed Coronet (*Boissonneaua flavescens*) and the Acorn Woodpecker (*Melanerpes formicivorus*) that feed on the sap of *Quercus humboldtii* in Colombia.

Although the sugar content of sap is lower than that of flower nectar, woodpecker-produced sap wells may be a crucial resource for species such as Ruby-throated and Rufous hummingbirds as they are sometimes a more reliable source of energy than flowers (Southwick & Southwick 1980). Miller & Nero (1983) have even argued that the distribution of the Yellow-bellied Sapsucker (*Sphyrapicus varius*) may determine the northern distribution limit of Ruby-throated and Rufous hummingbirds.

On 4 November 1998, while monitoring

bird populations in a forested landscape near Constitución (Maule Region, Central Chile, 35°26'S, 72°15'W), I observed a Green-backed Firecrown (*Sephanoides sephaniodes*) visiting a coihue tree (*Nothofagus dombeyi*) that had a crack in its bark from which a significant amount of sap was flowing. The bird was not attracted by the insects that had come to the wound, as I had initially thought, but was licking the sap that was probably fermented as it had turned into a thick foam.

I later observed several smaller sap wells in other coihues, and recorded visits by firecrowns to at least three of them. These birds were very likely different individuals as the observations were made at locations 800–2500 m distant from each other.

Between 6–12 November, I used a home camcorder to videotape the use of the largest sap well by firecrowns. The first day I recorded a total of 42 visits in 90 min of tape (afternoon). The average duration of visits was 24.3 sec (range 1–80). From the video tape, I could not determine the effective number of individuals that visited the well but my direct observations indicate that most of the time there was one bird that tended to

monopolize the resource, actively chasing away other firecrowns attempting to feed on the sap. The following day (7 Nov.) I set up the camera in the morning and recorded only two visits (12 and 13 sec duration) in 90 min. On 8 November I set up the camera in the afternoon but this time detected only four visits (3 to 16 sec duration) in 90 min of recording. That day, the amount of sap flowing from the tree seemed significantly smaller and the foam had almost disappeared. Over the following three days, the sap flow seemed to have stopped completely and, accordingly, I recorded only one visit (13 sec duration) in 270 min of video-taping. All morning recordings started between 08:00 and 09:30 and afternoon recordings started between 03:30 and 04:00. During the entire observation period (direct and video), the sap source was also visited three times by a White-crested Elaenia (*Elaenia albiceps*), and several wasps and smaller insects.

In the study area, mid-spring (October–November) is the time of the year with the lowest abundance of hummingbird-pollinated flowers (main species are *Lapageria rosea*, *Bomarea salsilla*, *Lobelia tupa*, *Tristerix tetrandus* and *Fuchsia magellanica*; Estades unpubl. data). The Green-backed Firecrown is an endemic hummingbird of the forests and scrubs of the southern cone of South America (Goodall *et al.* 1946) and, although the southern populations tend to migrate to central and northern Chile during the winter, the populations in the study site are mostly resident and densities are relatively stable (Estades unpubl. data). Therefore, in early November firecrowns were likely experiencing a shortage in nectar supply. Miller & Nero (1983) observed that Ruby-throated Hummingbirds were more likely to feed on sap when nectar was scarce. However, at the time that sap wells described in this study were active, a flowering individual of *F. magellanica* (medium sized, with more than 50 open flowers), approx. 200 m away,

was only visited an average of 3.2 times/h (in six periods of 60 min of direct observation during the morning). The latter observation and the strong territorial behavior displayed by some individuals when defending a sap well suggest that firecrowns were strongly attracted to this source of food.

During the following three years, I visited the area for about four months a year (spring, summer and winter) but failed to observe a fermented sap flux in coihues or in any other tree species. This absence of sap flux, added to the abrupt termination of the sap production in 1998, indicate that the observed phenomenon was an unusual event, and that the sap feeding by firecrowns was an opportunistic behavior as opposed to the stable woodpecker-hummingbird relationships described in the literature.

To my knowledge, the only report of hummingbirds feeding on tree sap flowing for reasons other than the result of woodpecker activity is that reported by Kevan *et al.* (1983) who observed several individuals of Broad-tailed Hummingbird (*Selasphorus platycercus*) in western United States feeding on the exudates produced by pathogen induced lesions on *Quercus gambelii*. The exudate described by these authors had high sucrose and amino acid concentrations but neither showed evidence of fermentation nor contained detectable amounts of ethanol. I planned on obtaining samples of the sap during the following season in order to conduct its chemical characterization but, because of the termination of sap production, I was, unfortunately, unable to do so.

Sap may contain a significant amount of energy and nutrients constituting an attractive resource for hummingbirds. Therefore, even though sap may be a minor item in the diet of Green-backed Firecrowns, on the rare occasions when it becomes available, it may constitute a temporal, but important source of energy for the species.

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