

LOW ELEVATION RECORD FOR RESPLENDENT QUETZALS IN COSTA RICA

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Abstract.—We observed five Resplendent Quetzals (*Pharomachrus mocinno*) in premontane rain forest at 1060 m in Parque Nacional Braulio Carrillo, Costa Rica, between 31 Dec. 1986 and 7 Jan. 1987, but saw none in lower montane rain forest at 1500 m. We saw one quetzal at 1500 m on 20 Feb. 1987, but did not record any at 1060 m. These observations represent the lowest sight records of quetzals in Costa Rica and confirm the occurrence of altitudinal migration by this species.

REGISTRO DE BAJA ELEVACIÓN PARA *PHAROMACHRUS MOCINNO* EN COSTA RICA

Resumen.—De diciembre 31, 1986 a enero 7, 1987 observamos a 1060 m de altura cinco quetzales (*Pharomachrus mocinno*) en el bosque pluvial premontano del Parque Nacional Braulio Carrillo, aunque no observamos aves en el bosque montano a 1500 m. El 20 de febrero de 1987 observamos un quetzal a 1500 m de altura, aunque no observamos ninguno a 1060 m. Estas observaciones representan la altura más baja a que hayan sido observados quetzales en Costa Rica y confirman patrones de migración altitudinal en esta especie.

Resplendent Quetzals (*Pharomachrus mocinno*) occur from southern Mexico to western Panama (Ridgely 1976). The northern race (*P. mocinno mocinno*) has been reported as low as 1000 m in Guatemala (Land 1970), but not below 1300 m in Honduras (Monroe 1968). In Costa Rica, quetzals (*P. mocinno costaricensis*) are found in montane forests from 1300 m to 3000 m, with the center of their altitudinal range from 1500 m to 2500 m (La Bastille 1983). Quetzals reportedly disappear from their breeding grounds in Costa Rica from October or November to December or January (Skutch 1944, 1983; Wheelwright 1983) and are believed to migrate altitudinally to lower elevations (Skutch 1944, Slud 1964, Stiles 1983, Wheelwright 1983), presumably in response to changes in fruit abundance (Wheelwright 1983). However, sightings of quetzals in Costa Rica are rare from October to January, probably as a

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result of their cryptic behavior during this period and because there are fewer birders during the rainy season (N. Wheelwright, pers. comm.). Consequently, little is known about the extent and duration of their seasonal movements. We report the lowest altitude sight record of which we are aware for quetzals in Costa Rica. We also report consumption of a fruit genus previously unrecorded in an extensive study of their diets on the breeding grounds (Wheelwright 1983).

Our observations occurred in premontane and lower montane rain forest (Holdridge life zones, Holdridge et al. 1971, G. S. Hartshorn, pers. comm.) on the Caribbean slopes of Parque Nacional Braulio Carrillo from late December 1986 to mid-February 1987. We observed a minimum of five quetzals in premontane rain forest (1060 m) on 4 d between 31 Dec. 1986 and 7 Jan. 1987. In the late afternoon of 31 Dec., an adult male was observed briefly as it flew through the foliage. This glimpse brought our attention to two juvenile males and two females perched 20–25 m high nearby.

For the next 2 d, quetzals were observed feeding on arillate fruits of *Virola surinamensis* (Rol.) Warb. (Myristicaceae). Quetzals plucked fruit on the wing, as described by Wheelwright (1983) and Santana C. and Milligan (1984), and flew to adjacent trees or another branch in the *Virola* to handle the fruits. Records of quetzals feeding on *Virola* are of particular interest because quetzals were not observed to feed on any similar large arillate fruits at Monteverde (Wheelwright 1983, pers. comm.). Howe (1981, 1982) found, however, that a related species, Slaty-tailed Trogon (*Trogon massena*), was an uncommon visitor to two different *Virola* species on Barro Colorado Island, Panama. The trogon and quetzal both feed on fruits in similar ways, and thus our records of quetzals feeding on *Virola* were not unexpected.

We were in lower montane rain forest (1500 m) between 2 Jan. and 6 Jan. and did not observe quetzals. On 7 Jan., we returned briefly to 1060 m and observed a lone female perched for over an hour in the same *Virola* tree. Few open arillate fruits remained on the tree at this time. In addition, on 2 Jan. a quetzal was heard, but not seen, in premontane rain forest at 900 m, approximately 2 km N of the 1060 m sighting (G. S. Hartshorn, pers. comm.).

Loiselle and Blake returned to these two sites for 8 d in February 1987. No quetzals were observed at 1060 m (16–19 and 23 Feb.). However, one male was observed briefly in flight at 1500 m on 20 Feb.

In years past, quetzals would seasonally arrive in forest and forest edge at about 1250 m outside San Jose (P. Paaby, pers. comm.). However, quetzals no longer return to those areas, most likely due to loss of forest in the region. Quetzals are particularly prone to local extinction and their continued existence is dependent on preservation of all seasonally required habitats (Bowes and Allen 1969, La Bastille 1973, Wheelwright 1983). However, we have yet to discover the extent of quetzals' movements and to determine if quetzals regularly occur in forests below 1300 m. This will require continued monitoring of remote montane areas. Our obser-

vations of quetzals and other species that migrate altitudinally in forest connecting Estacion Biologica La Selva to Parque Nacional Braulio Carrillo demonstrate the necessity of such forest elevation corridors for preservation of many species (Stiles 1985).

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