

THE PRESENCE OF THE RESPLENDENT QUETZAL *PHAROMACHRUS MOCINNO* IN OAXACA, MEXICO

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ABSTRACT

The Resplendent Quetzal (*Pharomachrus mocinno*) is reported in Oaxaca, Mexico, seven decades after the Scottish-born, naturalized Mexican explorer and naturalist Thomas MacDougall first discovered it between La Gloria and Cerro Azul in the Los Chimalapas region of the Isthmus of Tehuantepec, Oaxaca. With this discovery and the compilation of other records, the Los Chimalapas region represents a site of great importance for further research and for promoting the community conservation system of its biodiversity, which is the highest in the country.

RESUMEN

Se reporta el quetzal mesoamericano (*Pharomachrus mocinno*) en el estado de Oaxaca, México después de siete décadas desde que el explorador y naturalista de origen escocés y naturalizado mexicano Thomas MacDougall lo descubriera por primera vez entre La Gloria y Cerro Azul en la región de Los Chimalapas en el Istmo de Tehuantepec, Oaxaca, México. Con el hallazgo de la presencia de esta ave tan emblemática y la recopilación de otros registros históricos, la región de Los Chimalapas representa un sitio de gran relevancia para realizar más investigaciones; así como para promover la conservación comunitaria de su biodiversidad, que es la más alta a nivel país.

INTRODUCTION

The Resplendent Quetzal (*Pharomachrus mocinno*) is an iconic and emblematic species of the humid mountain forests (Álvarez del Toro & Palacios-Espinoza, 1993; Ávila-Hernández, 1998; Solórzano et al., 2009). It belongs to the Trogonidae family and is listed as “endangered” in the Mexican NOM-059-SEMARNAT (2025) and globally as “Near Threatened” by the IUCN (2025). Its distribution ranges from Mexico to Central America, including Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and western Panama (Howell & Webb, 1995). Based on biogeographical, morphological, acoustic, and genetic evidence, the species comprises two subspecies: *P. m. mocinno* and *P. m. costaricensis*, which represent two sufficiently distinct evolutionary lineages (Solórzano et al., 2009; García-Padilla & Escalante-Pliego, 2022) to be considered separate species. However, the AOS check-list Committee, under the Biological Species Concept, has not approved the taxonomic change.

In Mexico, the species has been recorded in the Los Chimalapas region of Oaxaca (Hoffmeister, 1951; Rowley, 1984; Binford, 1989; Peterson et al., 2003); in Chiapas, from the Sierra Madre in the localities of La Sepultura, El Triunfo, and Volcán Tacaná (Ávila-Hernández, 1998; Solórzano et al., 2009), as well as in the mountains of the northern and eastern physiographic regions of Chiapas (Hoffmeister, 1951; García-Padilla & Escalante-Pliego, 2022; Guirao-Cruz et al., 2012; Palacio-Peralta et al., 2009).

This document aims to provide new evidence of the presence of *Pharomachrus mocinno* in the Los Chimalapas region of Oaxaca, also confirming its northernmost distribution on the continent. We seek to highlight and communicate not only the biological importance of the region, but also the community conservation system practiced by the indigenous communities.

THE HISTORICAL PRESENCE OF THE RESPLENDENT QUETZAL IN OAXACA

The Resplendent Quetzal was first recorded in the Mexican state of Oaxaca by the Scottish-born, naturalized Mexican explorer and naturalist Thomas MacDougall, who collected it at Los Chimalapas on the Isthmus of Tehuantepec (Rowley, J. S. 1984) in the “cloud forest near the dividing line on the Atlantic slope of the Sierra Madre, at about 1,525m elevation and approximately 19.3 kilometres east of La Gloria, and towards Cerro Azul (Cerro Prieto), Oaxaca, on 25 March 1949. La Gloria is 29 kilometres north of Niltepec and about 80 kilometres northeast of Tehuantepec. Cerro Azul or Cerro Prieto is the local name for the highest group of peaks in the Sierra Madre. The place where the Quetzal was collected had many epiphytic plants, including several species of cacti and bromeliads, along with tree ferns, various kinds of understory of palms and acorn oaks, and, to a lesser extent, white pines, and red gums. The trees were heavily covered with moss. The specimen obtained was one of a pair, apparently nesting, and the female remained in the area after the male had been collected” (Hoffmeister, 1951).

According to MacDougall (1971), the first record for Oaxaca was obtained on 25 March 1949, and the locality undoubtedly represents the extreme extension of the mountain range. Considering this specimen in their monumental work, Miller et al. (1957) noted it at the extreme eastern part of Oaxaca (12 miles east of La Gloria). According to Olguín-Monroy et al. (2008), La Gloria is a locality in the municipality of Santa María Chimalapa, and they mention two possible points: 1. La Gloria, a settlement 11.3 km south of Santa María Chimalapa, with coffee and corn plantations, high jungle, near 460 meters above sea level (m.a.s.l.); 2. La Gloria, rainforest, 10 km south of Santa María Chimalapa, around 760 m.a.s.l. Rowley (1984) mentioned two localities where occupied nests were found: Cerro Baúl, 40 km northwest of Tapanatepec, at more than 2,200 m.a.s.l.; and Rancho Los Minne, at 2,300 m.a.s.l., where cloud forest was the predominant vegetation.

Peterson et al. (2003) reported seven specimens from the Sierra El Retén collected in 1964 and deposited in the Western Foundation of Vertebrate Zoology, and from their own observations: one in the Sierra Espinazo del Diablo in 1991, and in 1991 and 1997, an abundant population above Benito Juárez (Cerro Salomón and Cerro Guayabitos).

In 1997, Donato Acuca-Vázquez recorded a total of 18 adult sightings (only one female) and two juveniles in May within the cloud forest of San Miguel Chimalapa; 18 individuals may represent the largest population

recorded so far in Oaxaca. Donato also noted that the localities described by MacDougall and Rowley were already very disturbed at the time of his expedition. His field observations were not published and are now included in this document.

RESULTS OF THE FIELD OBSERVATIONS

We report a recent field observation of the Resplendent Quetzal in El Cordon del Retén (Community Conservation Area) in the Los Chimalapas region. This area covers 15,328 hectares. The record of this species was obtained on 5 December 2010 at 12:47, when RCG heard the characteristic vocalization of the species and photographed a male individual (Figure 1), 3 kilometers west of San Antonio in the municipality of San Miguel Chimalapa. The expedition involved two weeks of searching within the cloud forest of San Miguel Chimalapa, characterized by dominant trees of the genus *Ticodendron* and others from the *Lauraceae* family, as well as *Pinus chiapensis*, with an undergrowth of tree ferns, *Chamaedorea* palms, bamboos, and other species. The trees host many bromeliads, orchids, and mosses. According to Schibli (personal communication), "*this forest had an area of 63,000 hectares, which makes possible a larger population for the species in Oaxaca compared to El Triunfo, Chiapas, but this possibility had to be confirmed.*" He also noted that the localities cited by MacDougall and Rowley were already very disturbed by that date. All additional localities available in the



Figure 1: Male Resplendent Quetzal in the Cordon del Retén Community Conservation Area in the municipality of San Miguel Chimalapa, Oaxaca, Mexico (Photo by Ramón Castellanos Giralda).

literature and those obtained during an expedition led by the late Donato Acuca-Vázquez in 1998 are mentioned in Figure 2.

The Los Chimalapas region is one of the few areas in Mexico that remains a large, well-preserved mosaic of tropical rainforests. There is also an important remnant of cloud forest, separated from other cloud forests in Oaxaca by the Isthmus of Tehuantepec, with a rich composition of plant and animal species (Stotz et al., 1996). Researchers such as Miguel Ángel García Aguirre (pers. comm.) recognize the eastern zone of the Sierra del Espinazo del Diablo as having the highest levels of biodiversity in the region. During a recent visit by EGP to the village of San Francisco La Paz in the municipality of Santa María Chimalapa, community members reported recent sightings of the Resplendent Quetzal in the

cloud forest areas of this mountain range, known as El Espinazo del Diablo.

Localities where the species had previously been observed, as mentioned by MacDougall in Los Chimalapas, include "La Gloria." The senior author of this note visited La Gloria in November 2017 and May 2018, but did not record a single individual or vocalization of the species. Although the tropical evergreen forest is in excellent condition and elements typical of cloud forest, such as tree ferns, were observed in nearby areas, the species was not detected at this site. Additionally, the author interviewed community guides and hunters of Zoque Chimalapa origin from Santa María Chimalapa, who stated they did not know of such a bird in the area or region.

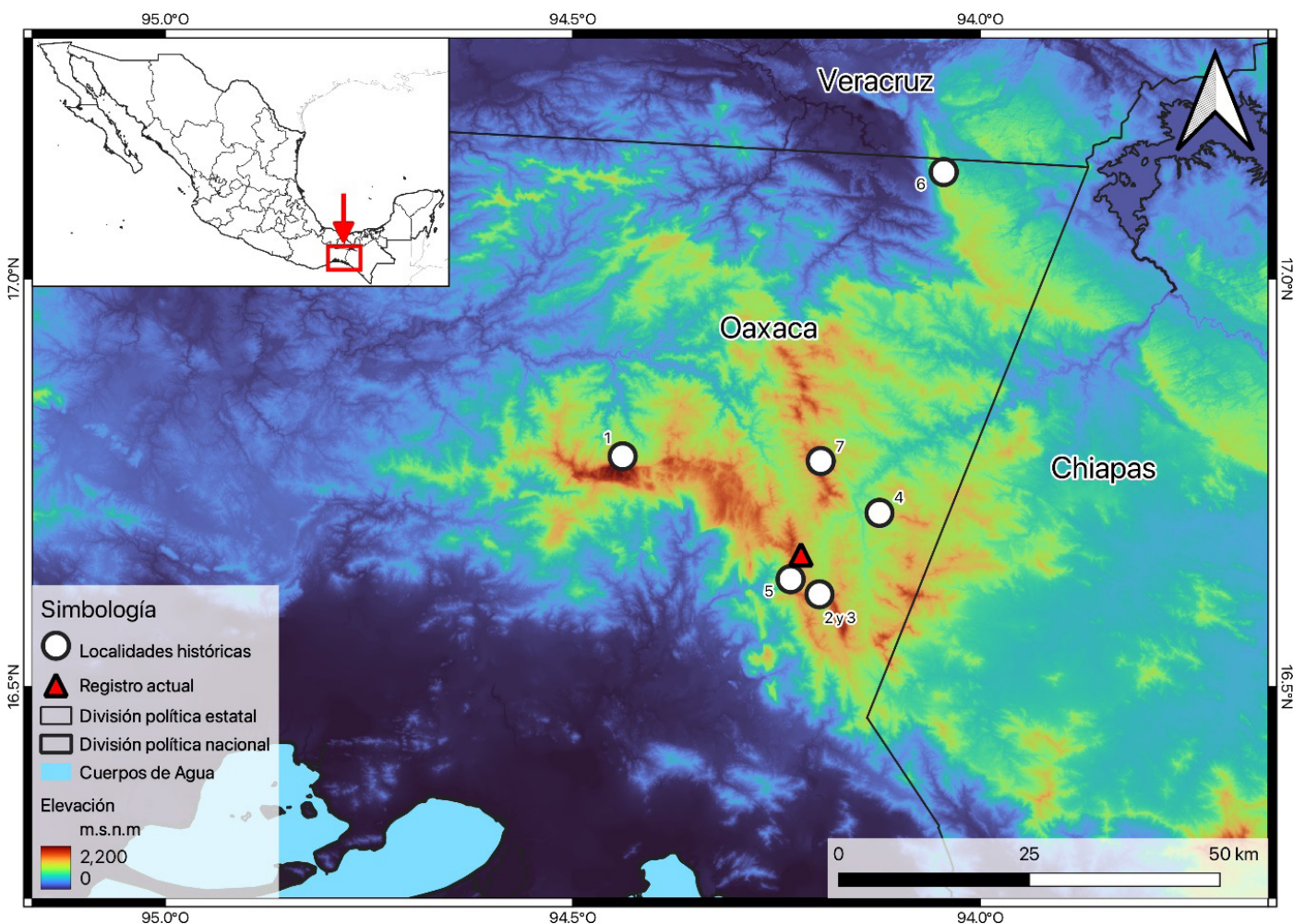


Figure 2. Recent and previous records of the Mesoamerican Quetzal in the Los Chimalapas region, Oaxaca, Mexico. Locality #1: Cloud forest near the dividing line on the Atlantic slope of the Sierra Madre, at about 1,525 m elevation and approximately 19.3 kilometers east of La Gloria, toward Cerro Azul (Cerro Prieto). Locality #2: Cerro Baúl, 40 km northwest of Tapanatepec, at more than 2,200 meters above sea level. Locality #3: Rancho Los Minne, above 2,300 meters above sea level (Ranchería de Cerro Baúl). Locality #4: Mesophilic forests in the eastern part of the Chimalapas region, in the municipality of Santa María Chimalapa, approximately 10 km in a straight-line northwest of the community of Benito Juárez (San Miguel Chimalapa). Locality #5: Sierra Retén. Locality #6: Sierra Espinazo del Diablo. Locality #7: Above Benito Juárez (Cerro Salomón and Cerro Guayabitos). Locality of this study: Cordon del Retén, 3 kilometers west of the town of San Antonio in the municipality of San Miguel Chimalapa (16°39' N, 94°13' W; 1,523 m.a.s.l.).

CONCLUSIONS AND RECOMMENDATIONS

Although the Resplendent Quetzal (*Pharomachrus mocinno*) is considered an emblem of the Mesoamerican cloud forests – one of the most threatened ecosystems globally (Álvarez del Toro and Palacios-Espinoza 1993, Ávila-Hernández 1998, Solórzano et al. 2009)—little is known about its precise distribution and natural history in the northernmost part of its range. Thanks to recent fieldwork in regions previously considered inaccessible or unsafe, such as the mythical Los Chimalapas region, our team has obtained valuable records of some species previously considered “lost,” “extinct,” or simply overlooked by the scientific community. This is the case for the Resplendent Quetzal, a species long considered absent or probably extinct from the Oaxacan avifauna by many ornithologists who evidently overlooked historical records and the very few more recent sightings and formal or informal reports, including previously unpublished data obtained by the late Donato Acuña-Vázquez in the eastern part of the Los Chimalapas region. In fact, not a single photo of a Resplendent Quetzal from Oaxaca was known until this present work.

Even though our team has anecdotally documented that the Resplendent Quetzal faces persecution by humans for illegal wildlife trafficking on the black market, we still consider it essential to confirm its formal presence in the Mexican state of Oaxaca. We assume that no conservation effort or initiative can be undertaken in this state without at least the most basic scientific information available. We emphasize that the Los Chimalapas region is an area of ongoing territorial conflicts and that the conservation system is voluntary, based on agreements reached in community assemblies. This is understandable, as we have also witnessed firsthand and through anecdotal evidence that the Zoque Chimalapa communities are unwilling to cede their still vast territories and common natural resources to the interests of environmental institutions and the Mexican government. At the same time, they are considered pioneers in Mexico of what is now known

as Community Conservation Areas. It is important to note that this region faces serious conservation challenges, including invasions by cattle ranchers, drug cartels, mining concessions, forest fires, illegal logging, poaching, and recent anecdotal evidence of wildlife persecution for the international black market.

Although federal Natural Protected Areas exist in the general Mesoamerican region, such as the El Triunfo Biosphere Reserve in Chiapas with 1,192 km², which is essential to guarantee the long-term viability of the Resplendent Quetzal in Mexico, we encourage more people in the region and in the state of Oaxaca to protect additional areas by converting them into voluntary community conservation areas, as has been done in Cordón del Retén in Los Chimalapas, where about 15,000 hectares are conserved through citizen and community assembly agreements. It is important to preserve the Los Chimalapas region in perpetuity, as it not only contains the most biodiverse forests in Mexico (García-Padilla et al., 2022) but also represents a significant remnant of the imperilled cloud forest, the natural habitat of the Resplendent Quetzal and many other important native and endemic species. We therefore urge all levels of government and environmental institutions to recognize, strengthen, and effectively guarantee community-based conservation processes in Oaxaca and the Los Chimalapas region. The Resplendent Quetzal joins a long list of imperilled species that could serve as a driving force and key to incentivizing the perpetual protection and conservation of community forests and all associated biodiversity.

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