

## The current status of Sinaloa Martin *Progne sinaloae*

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La Golondrina de Sinaloa *Progne sinaloae* es una especie categorizada como Datos Deficientes y endémica reproductiva de la Sierra Madre Occidental y las montañas Volcánicas Centrales de México. Sus áreas de invernada son desconocidas. A pesar de que su estado es descrito como poco común a relativamente común, no hay localidades donde la especie sea vista regularmente o en números significativos. Históricamente, los registros han sido de colonias reproductivas de 15–30 aves o más; pero los registros acumulados por los autores a lo largo de las últimas dos décadas han sido en su mayoría de migrantes en las tierras bajas, sin registros reproductivos definitivos excepto por una colonia recientemente descubierta de solo 2–6 individuos en Sinaloa. La Golondrina de Sinaloa es inherentemente conspicua y los machos son fáciles de identificar, por lo que es una especie difícil de pasar desapercibida. Parece ser poco común y altamente local en el mejor de los casos, y posiblemente muy rara. Monitoreos formales deberían ser desarrollados para evaluar con precisión el actual estado de conservación de la especie y sus tendencias poblacionales.

The Sierra Madre Occidental is an extensive mountain range in north-west Mexico. Although much of the sierra appears to be extremely remote, subsistence farming, ranching, hunting and logging activities have greatly impacted both the habitat and birds. As a result, several of the endemic bird species that inhabit the Sierra Madre Occidental and the associated high peaks of the Central Volcanic Belt are extinct or highly threatened. Imperial Woodpecker *Campophilus imperialis* appears to be extinct, whilst Sierra Madre Sparrow *Xenospiza baileyi* is now very rare and currently classified as Endangered by BirdLife International<sup>1</sup>. Whilst these species, along with Thick-billed Parrot *Rhynchopsitta pachyrhyncha* and Eared Quetzal *Euptilotis neoxenus*, have received considerable attention from conservation bodies, biologists and recreational birders, another endemic breeder to this region, Sinaloa Martin *Progne sinaloae*, appears to have become rare without anyone noticing.

Sinaloa Martin is a migrant breeder to pine–oak woodlands in the mountains of the Sierra Madre Occidental and Central Volcanic Belt in Mexico. Its winter range is unknown. *P. sinaloae* is a colonial breeder that has traditionally utilised cavities in trees for nest sites<sup>8,9</sup>. Historical records of breeding colonies range from southern Sonora to interior Michoacán<sup>7</sup>. Males are easily separated from other martin species in their breeding range as they are bluish purple with a white belly and vent. Females are similarly patterned but have a dark greyish-brown throat and upper breast. Sinaloa Martin has been regarded as a race of the similar Caribbean Martin *P. dominicensis*. However, the apparent reproductive isolation (given widely separated breeding ranges), purely montane breeding habitat, and differences in measurements support its status as a species.

There are potentially several reasons why the apparent rarity of Sinaloa Martin has gone unnoticed.

1. It is a summer visitor, whilst most overseas birders visit Mexico in winter and early spring, and often assume that they are too early to see the bird. As we will demonstrate, the species starts to arrive in numbers in late February and occurs throughout its range by mid March, when many birders visit Mexico.
2. The main work on the status of Mexican birds describes the species as ‘uncommon to fairly common’<sup>7</sup>.
3. The species’ IUCN Red List status is currently ‘Data Deficient’<sup>1</sup>. Birders tend to focus most on species that are designated as threatened, being concerned that these taxa might become very difficult to see.
4. A fair portion of the species’ range is in northern Sinaloa and southern Sonora, areas often bypassed by recreational birders because species diversity is greater further south, although this has become less true in the last decade with many birders visiting the Alamos, Yecora and Copper Canyon areas both individually and with organised tours.

We believe that none of these reasons fully explains the paucity of records and that the species is genuinely rare. Since *Progne* martins are conspicuous by nature, there is little chance that this species would be missed by observers if even fairly common at a given location, as is sometimes the case with skulking species. Our purpose here is to summarise the past and present status of the species, draw attention to its possibly precarious situation, and to make some recommendations

for future work to gain a clearer understanding of its status.

### Historical status in Mexico

For the purposes of this paper, historical records are defined as those dated pre-1990. Most of these have been previously published but are listed here to provide a benchmark for comparing recent records. Additional data on many of the historical records can be found by consulting the references given. Coordinates were mostly unavailable for these records and the information given is thus largely taken from Google Earth. In some cases, this information is not provided because we were unable to determine latitude and longitude. Records are summarised by state and mapped on Fig 1.

#### Chiapas

G. Rosenberg (*in litt.* 2007) reported three at Sumidero Canyon (16°49'35"N 93°03'40"W) on 14 August 1980<sup>7</sup>. This record accords well with more recent records of migrants from Oaxaca and it is best to presume these were migrants.

#### Chihuahua

Chester Lamb noted 'quite a colony' at San Feliz (2,300 m) in extreme south-west Chihuahua on 8–15 August 1936<sup>8</sup>. Six specimens were taken, and are held in the Moore Laboratory of Zoology (MLZ), Los Angeles.

#### Jalisco

Batty found them 'common, pairing' and 'probably breeding' at La Laja (20°34'49"N 103°07'29"W) in north-west Jalisco, on 16–20 May 1905<sup>13</sup>. Batty took 13 specimens, held at the American Museum of Natural History (AMNH), New York. In 1955, a single specimen, held in the Kansas University Natural History Museum (KUNHM), Lawrence, was obtained 5 km west-southwest of Mazamitla (19°54'51"N 103°01'13"W). Also in 1955, Allan R. Phillips secured a specimen, held in the Delaware Museum of Natural History (DMNH), at Guapinole, just north-east of El Pitillal (20°39'18"N 105°13'05"W), on 24 March. More recently, S. N. G. Howell (*pers. comm.*) observed a pair during March, in the mid-1980s, at 3.5 km along the track that ascends the Volcán de Fuego<sup>6</sup>.

#### Michoacán

Davis noted up to 30 on a steep pine-covered ridge, 4.8 km north of Tzitzio (19°35'14"N 100°55'38"W), on 17 April–20 May 1961<sup>2</sup>. At least six specimens,



Figure 1. The range of Sinaloa Martin *Progne sinaloae* in Mexico. H = historical records (pre-1990) of birds in suitable breeding habitat; B = modern records (post-1990) of birds in suitable breeding habitat; M = records of apparent migrants in areas close to the presumed breeding range (all post-1990).

which are held in the Museum of Vertebrate Zoology (MVZ) at Berkeley, California, were taken. These included males with enlarged gonads and females with brood patches, indicating breeding. Interestingly, the species was not seen during a visit on 13–30 July 1951 to the same location, suggesting that the colony was either fairly recent or that birds might depart breeding colonies as early as mid July.

#### Nayarit

Chester Lamb took 14 specimens (held at MLZ) between 9–30 June 1941, 17 km north-west of Santa Teresa (22°29'18"N 104°45'38"W; 1,692 m)<sup>9</sup>. Two females had eggs in the oviduct and all of the ten males had the sex organs fully enlarged, clearly proving breeding. Phillips took a single specimen, held at DMNH, 1.5 km south of La Penita de Jaltemba (21°02'16"N 105°14'45"W) on 7 April 1955. Phillips also took four specimens, likewise held at DMNH, 11 km east and south-east of Compostela (21°14'15"N 104°54'00"W) on 26 June 1956.

#### Sinaloa

Nelson described the type series (of four birds) taken on 18 July 1897 at Plomosas (23°03'39"N 105°30'06"W), extreme south-east Sinaloa<sup>10</sup>. The

holotype is held in the National Museum of Natural History, Washington DC. They were taken from a flock of 20–30 birds that fed over a ridge each day. In 1962, three specimens (KUMHH 40044–46) were collected 12 km north and 50 km east of the city of Sinaloa, at 1,970 m. C. Faanes (*per* L. Hays *in litt.* 2007) observed a single by the km 211 post (c.2,000 m) along the Mazatlán–Durango Highway on 16 June 1987.

### Sonora

A. R. Phillips took two specimens, held at DMNH, at El Riito (29°45'19"N 108°53'40"W; 980 m) on 9–10 June 1953. One specimen with enlarged gonads suggested these birds were breeding<sup>12</sup>. Over four days in mid-July 1987, S. Russell saw up to 15 birds at Sahuarivo (27°19'10"N 108°37'50"W; 1,600 m)<sup>12</sup>.

### Current status in Mexico

To ascertain current status, we conducted extensive searches of the internet for reports of the species, contacted bird tour leaders who regularly visit Mexico, and made limited enquiries of bird biologists working in Mexico. All reports identified on the internet were followed up by directly contacting the observers to gain as much detail as possible. This process of eliciting further information was typically successful, but not invariably so. Since these records were not made during formal scientific surveys, precise location coordinates and altitude readings are not available. Latitude and longitude are taken from Google Earth, and localities are mapped on Fig. 1. In some cases, we were unable to determine the coordinates.

Many of the records listed are not supported by descriptions or photographs. However, with one exception, where there were contrary data from different observers, we decided to publish all records obtained. In most cases, the observers were unaware of the species' rarity and the need to document any sightings. Furthermore, many of the observers are very experienced with birds in North America and Mexico. Given the distinctiveness of male Sinaloa Martins, it is unlikely that misidentifications have occurred.

### Colima

R. Palmer (*in litt.* 2008) reported 15 on 8 September 1998 from the top of the El Toro Microondas Road, near Playa de Oro (19°00'23"N 104°31'79"W). Nearby, a single male was reported by C. Wood (*in litt.* 2008) on the Playa de Oro road on 12 February 2004. These locations are in the coastal lowlands and given their timing, they certainly involved migrants.

### Guerrero

M. Carmody (*in litt.* 2008) reported two on 19 June 2008 at a small reservoir (2,200 m) above Taxco

(18°32'06"N 99°36'35"W) on the Tetipac Road. This appears to be the first record for Guerrero.

### Jalisco

H. Gómez de Silva (*in litt.* 2008) recorded three widely separated sightings of 1–2 birds during the period 8–12 July 1993 in the general area of El Tuito (20°19'06"N 105°19'35"W). J. Hully (*in litt.* 2008) reported a single male on 24 May 1996, 2 km from Route 200 at El Tuito. At least one was seen by L. Vogt (*in litt.* 2008) in the same area, by the Altamira Restaurant near El Tuito, on 30 March 1998. More recently, there have been numerous records from Rancho Primavera, which is also near El Tuito. L. Liese (*in litt.* 2009) has recorded the species on eight out of ten visits in February–April during 2003–09. The range of dates was 19 February–7 April, with all records involving 1–3 birds feeding over a large pond. At the same pond, C. Bushell (*in litt.* 2009) noted a flock of 6–7 on 10 March 2009. Although Rancho Primavera is located at 800 m, it is adjacent to much higher mountains and it is probable that the species breeds in the vicinity.

### Oaxaca

Forcey<sup>4</sup> reported a single over Santa Cruz Etla (17°12'21"N 96°47'51"W) on 27 August 1997 and two on wires near the río Salado on the road to San Juan Guelavia (16°57'19"N 96°32'42"W) on 28 July 2000.

### Sinaloa

There are several recent records of migrants or wanderers from the lowlands of the state. M. Carmody (*in litt.* 2008) reported at least three males, feeding above the microwave road 2 km north of El Rosario (22°59'32"N 105°51'19"W) on 5 March 2001. This location lies along the río Baluarte. K. Garrett (*in litt.* 2008) noted a male at Imala (24°51'18"N 107°12'35"W) on 8 May 2002. The habitat at Imala is tropical deciduous forest and not typical for nesting. In the extreme north of the state, B. Gibbons & B. Lyon (B. Gibbons *in litt.* 2008) reported c.12 at Brand Ranch (100 m) along the río Fuerte close to El Fuerte (26°24'53"N 108°37'09"W) on 25 March 2003. The following spring, on 16 March 2004, Gibbons and M. Iliff photographed two birds at the same location. A remarkably late individual was recorded with other martin species near El Fuerte on 11 October 2009 (B. Gibbons *in litt.* 2009) during Tropical Storm Patricia.

There have also been several recent observations of birds in breeding habitat. F. Rowland (*in litt.* 2008) observed a 'few' on the stretch of dirt road between El Guayabo (25°57'59"N 107°27'57"W) and Huixiopa (probably around 1,800–2,000 m) on 8 April 2001. Rowland also had further observations

along the Panuco Road, off the Mazatlán–Durango Highway on 24 April 2001 (exact number not recorded) and on 7 June 2001 (three birds) along the main Mazatlán–Durango Highway itself. On 10 July 2007, R. Namitz (*in litt.* 2007) discovered a pair at the km 211 post of the Mazatlán–Durango Highway nesting in a crevice in a rock face, which is the first known usage of such a site. This pair was also seen by M. Stackhouse (*in litt.* 2007) on 12 July 2007 and poor, but identifiable, photographs were obtained. Subsequently, one of us (NAL) observed at least four, but only one adult male, at the same site, on 1 April 2008. Later that year, on 26 July, M. Carmody (*in litt.* 2008) observed two pairs there, one bringing food to a circular hole in the rock face. There was no evidence that the second pair was feeding young. On 26 February 2009, M. Carmody (*in litt.* 2009) again observed two pairs there, both investigating nest sites. These birds were not seen the previous day and it seems likely that they were newly arrived. On 23 March 2009, Carmody located six birds, three of each sex, at this site, roosting in trees at the cliff base and feeding overhead but with no evidence of nesting activity. It is interesting that this is the same location as the record by Faanes, some 20 years earlier, suggesting that a few birds have been using the site for some time. However, the Durango Highway has received relatively good coverage by birders over the last two decades and the records above appear to be the only ones available. It seems unlikely that a large colony would have gone undetected.

### Sonora

Both recent records for the state are of migrants from the lowlands. E. Banstorp (*per* M. Carmody *in litt.* 2008) reported at least one on 24 March 2002 at a bridge just north of San José, on the road from Hermosillo to Yecora. A single was seen by L. Liese (*in litt.* 2009) on 17 May 2003 at El Cajon, in the headwaters of the río Cuchujaqui, a c.2–3-hour drive east of Los Alamos. M. Carmody also noted a single male on 28 July 2005 feeding alone along Sonora Highway 12, 40 km north-east of Ciudad Obregón (27°29'32"N 109°56'27"W).

### Putative current status and population trends

The recent records appear to indicate that the species still occupies its historic range, from southern Sonora to Michoacán. Indeed, the recent observation from Guerrero extends the known range c.175 km to the east. Given the relative lack of recent records and that no systematic searches have been made, it is impossible to make a meaningful population estimate. Nevertheless the available data suggest that a population of more than a few thousand individuals is unlikely and that it might be as low as a few hundred. Whilst the species might be very

rare, more formal searches are required to prove this. In practice, recreational birders and bird tours tend to visit a restricted set of areas and there appears to have not been focus on this species by biologists. Therefore, a systematic search of suitable areas might be expected to find new colonies, as has been the case with Sierra Madre Sparrow<sup>11</sup>.

In addition to ascertaining current status, understanding the population trend is even more important. It is possible that Sinaloa Martin has always been an uncommon and local species. That there are recent records from the full extent of its known breeding range and sightings of two sizeable groups of migrants is encouraging and potentially point away from a decline. However, the historical records largely consist of multiple specimens from a given location and include statements such as 'common, pairing', 'quite a colony', 'up to 15', and 'up to 30' that clearly indicate the typical experience was to find sizeable colonies in the past. In contrast, recent records are mostly of migrants in the lowlands, with the only definite breeding record being a colony of just 2–6 birds. Although one explanation could be observer bias, with more observers now working the lowlands and fewer the highland breeding grounds, we believe this is unlikely. Although we lack statistical proof, there are clearly many more birders in North America now than prior to the 1970s, and many of them visit Mexico. In addition, there are many bird tour companies visiting montane western Mexico and professional bird biologists studying the area. Because many Mexican endemics sought by visiting birders occur only in montane habitat, birders spend a significant amount of time there. The complete lack of any recent records of sizeable breeding colonies suggests a significant (possibly of one order of magnitude) decline in the breeding population. Fortunately, sightings of two sizeable migrant groups suggest that some moderate-sized colonies are still extant, although it is unclear where.

The apparent rarity of the species today was reinforced by discussions with many observers who had never or rarely seen it. We also gathered information on how much time observers had spent in suitable habitat at the appropriate time of year. M. Carmody (*in litt.* 2008), who provided several of the records listed above, failed to find the species during multiple visits to potentially suitable areas, including along the Durango Highway, Sinaloa, in March 1995–98, 2001 and 2003, and during July 1997, 2000 and 2001, the Hermosillo / Chihuahua Highway during July 2005 and 2006, and in the Sierra Jolalpa, along the Nayarit / Jalisco border in July 2006. S. N. G. Howell (*pers. comm.*), author of the principal field guide and bird-finding guide to Mexico, has been birding in the country for over two decades and has seen the species only

once. L. Hays (*in litt.* 2007), who was authoring an *Annotated checklist of the birds of southern Sinaloa and adjacent montane Durango* prior to his recent passing, made 6–7 trips along the Mazatlán–Durango Highway during the April–August timeframe. He also received at least ten other reports from other observers who visited during this period. He never saw Sinaloa Martin and received only one record of the species, indicating that it is quite rare at best. We discussed status in Sonora with A. Flesch (*in litt.* 2008), who has been conducting extensive field work in the state with a view to updating Russell & Monson<sup>10</sup>. He has never seen the bird or heard of anyone seeing it, despite a significant increase in birding activity in the Yecora, Alamos and Copper Canyon regions over the last decade, obvious through a perusal of trip reports and with the establishment of Solipaso (a bird tour company) in Alamos.

We also made contact with some Pronatura biologists. Sonia Gabriela Ortiz, who works on the Thick-billed Parrot conservation programme, e-mailed a number of biologists and requested sightings, but none were forthcoming. One of us (JRK) also asked Mexican biologists about the species during a conference in Mexico City in September 2007, but no one had seen it. Whilst our search for potential sightings by biologists is far from comprehensive, there is no indication that we have ‘missed’ substantial numbers of records because of this.

### Seasonal occurrence

The records listed above indicate a consistent pattern of seasonal occurrence in Mexico as follows. Birds begin to arrive at their west Mexican breeding sites from at least late February or, exceptionally, in mid February. Arrivals continue throughout March and at least some are still moving at the end of the month, given the occurrence of migrants in Guatemala and the Sonoran lowlands at this time. At least in some cases, birds appear to stage along the lower reaches of the river systems that emanate in the mountains. It seems possible they then follow these rivers to their nesting grounds. Because the species is already arriving in northern Sinaloa during late February and early March, its apparent rarity is clearly not due to a lack of observers as many birders visit western Mexico at this season. In addition to the lowland Mexican records listed below, later arrival is supported by two records from Guatemala: a specimen from Laguna Perdida, Petén, on 14 March 1920<sup>5</sup> and a sight record at Flores Airport, Flores, on 23 March 2007 by J. Peters (*in litt.* 2008). The birds nest from late February until late August, at altitudes of 950–2,300 m, and breeders start departing in late July, continuing to early September. Migration might follow the coast before cutting inland along

the Balsas drainage and thence through the interior of Oaxaca and Chiapas.

### Potential reasons for a decline

Sinaloa Martins historically nested in tree cavities. Given the impact of logging and the massive declines documented for Imperial Woodpecker and Thick-billed Parrot, it is tempting to blame destruction of nesting trees for any decline<sup>1</sup>. Whilst logging surely has had a negative impact, it appears unlikely that this would be the sole reason for the species’ apparent rarity. Sinaloa Martin requires much smaller holes than the larger species such as woodpeckers and trogons, and is unlikely to be dependent on large areas of mature forest for foraging. In addition, its range has not been extensively invaded by European Starlings *Sturnus vulgaris* or House Sparrows *Passer domesticus*, which compete for nest holes and have caused declines in the congeneric Purple Martin *Progne subis* in North America. Until more is understood about the specific habitat niches used by Sinaloa Martin, it is difficult to understand whether any decline is due to issues on the breeding grounds. If lack of nesting sites is a significant problem, then provision of nest boxes might help expand existing colonies, if these can be located.

Another possibility might be problems on the wintering grounds. Purple Martins winter in very large congregations in Brazil and at least some return to the same wintering locations annually<sup>3</sup>. If Sinaloa Martins possess similar habits, it is possible that use of pesticides, for example, in the wintering area might adversely impact a large percentage of the population. Identifying the wintering range of Sinaloa Martin will probably be very challenging, especially given that the wintering ranges of the much commoner Cuban and Caribbean Martins are still unknown. However, there is a possibility that Sinaloa Martins might winter further south in Central America, rather than in South America, where the large numbers of Purple Martins make finding other *Progne* martin populations more difficult.

### Recommendations for further research

We believe that it is imperative a serious effort is made to locate extant populations, to enable the species’ population trend, biology and habitat requirements to be studied with a view to identifying appropriate conservation measures. The following steps are recommended to locate and estimate populations.

All areas with previous records should be surveyed with an initial emphasis on areas with records post-1980. A failure, for example, to relocate the colony found in Sonora by Russell would certainly suggest the species has declined further in recent decades. In addition, notes should be

made on general habitat to determine if any specific features, such as the proximity of lakes or rivers, influence distribution.

A systematic effort should be made in a limited part of the species' known range, such as northern Sinaloa, to visit all road-accessible areas at suitable altitudes in April–May to search for the species. This would provide a baseline of data to extrapolate a reasonable total population estimate, in conjunction with more limited datasets from elsewhere.

As there is some evidence from recent records that birds might congregate along the lower reaches of rivers in the first half of March, these should be surveyed. If birds are found, minimum population estimates might be possible for a given drainage. Drainages with most birds could be explored further upstream for breeding colonies. Of course, it is possible that birds observed during migration along the lower reaches of a given drainage might be en route further north rather than following the drainage.

If logistically feasible, an effort should be made to survey suitable habitat in the west of the Copper Canyon complex. Records along the lower río Fuente suggest the presence of breeding birds further up this drainage and there are surely areas along the canyon with suitable nesting trees inaccessible to logging, as well as appropriate rock faces, if the birds also utilise these for nesting.

The official IUCN Red List status should be changed from Data Deficient to one of the threatened categories to draw attention to the apparently low population and lack of known nest sites. The species might qualify precautionarily as Endangered under criterion C2a1i, as the population is unlikely to exceed the threshold of 2,500 mature individuals, it is inferred to be declining, and there are unlikely to be completely isolated subpopulations given that the species is a migrant. However, such an assessment is very uncertain for now.

In addition, the apparent rarity of the species should be extensively publicised, along with the fact that it is present in Mexico from early March (even exceptionally mid February), which would encourage greater efforts by recreational birders to look for the species and to document any sightings.

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