

Endemic to the Sierra Madre de Chiapas, Mexico, and neighbouring Guatemala, this rare tanager is restricted to humid evergreen forest in a narrow elevational band primarily on the Pacific slope. Unfortunately, this very same habitat is at the preferred height for coffee cultivation, and in Mexico the species is now limited to less than 1,300 km² of remaining forest.

DISTRIBUTION (Information in this section, unless otherwise stated, derives from Heath and Long 1991). The Azure-rumped Tanager (or Cabanis's) is endemic to the Sierra Madre de Chiapas, Mexico, and neighbouring Guatemala, and has been recorded from just seven discrete areas.

Mexico From north-west to south-east, the five localities (all in Chiapas state) where this species has been recorded are as follows: (1) above San Antonio Miramar (15°40'N 92°59'W; between 1,100 and 1,400 m on the path to Finca Custepec); (2) close to and along a section of the El Triunfo trail (from 1,000 to 1,700 m) between El Limonar on the Pacific slope to above Finca Prusia on the Gulf slope, but especially around Cañada Honda (15°37'N 92°48'W; at c.1,450 m on the Pacific slope), where birds have been recorded annually (since 1973: the first record there was in 1965), but also between Palo Gordo and Loma Bonita (15°39'N 92°51'W; at 1,200 m), and on the Gulf slope, south of Ejido Santa Rita (15°41'N 92°48'W; at 1,450 m) and at Finca El Porvenir (15°42'N 92°58'W; between 1,400 and 1,600 m above Finca Custepec); (3) Monte Ovando (15°24'N 92°36'W), where a specimen was taken at 1,675 m in August 1937; (4) Volcán Tacaná (15°07'N 92°06'W), where a specimen was collected at c.1,000 m sometime between 1955 and 1965; (5) and "Cacahoatán" (c.14°59'N 92°09'W), where two specimens were taken in April and May 1943, apparently at 600 m (see Remarks 1).

Guatemala Records come from two areas (or perhaps only one: see Remarks 2): Costa Cuca (= Flores Costa Cuca) district (c.14°39'N 91°47'W), where the type-specimen was collected in 1866, apparently at 600 m (see Remarks 2); and on the south-western slope of Volcán Santa María (c.14°42'N 91°32'W), where birds have been seen between 1,280 and 1,450 m since 1976, specific localities including Finca El Faro Reserve (a small flock seen in 1987 at 1,450 m: P. Rockstroh *in litt.* 1988), Finca El Patzulín (adjacent to Finca El Faro) (C. Leahy *in litt.* to A. Long 1990), and another unnamed locality in the immediate vicinity of the other two fincas (B. M. Whitney *in litt.* to A. Long 1990), presumably along the road to Quetzaltenango that borders the two fincas.

POPULATION (Information in this section, unless otherwise stated, derives from Heath and Long 1991). In its preferred habitat (see Ecology), the Azure-rumped Tanager is quite common and generally found quickly: however, the extent of this habitat in Chiapas is very small, being less than 1,300 km². Along the El Triunfo trail (whence come the majority of sightings and population data), birds were observed daily during fieldwork between April 1989 and June 1990, with several nests found within the 1,250 to 1,650 m section of the trail (on the Pacific slope). The species is usually noted in groups of up to six individuals (although sometimes 16 or even 30 birds). Population data from Guatemala are generally lacking, the species being known from few sightings: a small flock was seen in 1987 at Finca El Faro Reserve, with two pairs seen near there in March 1989 (B. M. Whitney *in litt.* to A. Long 1989).

ECOLOGY (Information in this section, unless otherwise stated, derives from Heath and Long 1991). The Azure-rumped Tanager occurs chiefly on the Pacific but also on the Gulf slopes (in humid sheltered valleys) of the Sierra Madre de Chiapas (Mexico and Guatemala). In Chiapas, the species is found between 1,000 and 1,700 m on the Pacific slope, with most sightings from between 1,250 and 1,650 m (see Remarks 3), and records from between 1,400 and 1,600 m on the Gulf slope.

The preferred habitat of this species in Guatemala has been described as wet subtropical evergreen forest, but more precisely (along the El Triunfo trail, Mexico: this paragraph) as medium-height broadleaf forest with a canopy up to 25 m and occasional trees to 35 m. It is essentially an evergreen formation although a number of trees shed their leaves towards the end of the dry season in February (this period of flushing is short, with new leaves fully grown by late March). The canopy cover is complete but, with tree

falls common, natural disturbance to the forest can give the appearance of an open, discontinuous canopy. The dominant tree species at El Triunfo are: *Ficus cookii*, *Coccoloba matudae* and *Dipholis minutiflora*. The understorey is well-developed with small trees and shrubs, especially rich in species from the Rubiaceae, Compositae and Solanaceae, and containing a high density of *Chamaedorea* palms. Epiphytes are prominent but are significantly less abundant than in the cloud-forest community above 1,700 m. Mosses are sparse and are replaced by lichen which covers many of the trunks and branches. On the Gulf slope of the El Triunfo trail, the birds were found in habitat similar to that identified on the Pacific slope, although it is generally restricted to humid sheltered valleys and contains more sweetgum. Outside of these Gulf slope valleys, sweetgum–pine–oak forest is the dominant formation and the bird has never been seen in it. It seems likely that 1,700 m is a genuine upper limit for the species as this altitude marks the upper limit of the tropical elements which are characteristic components of its habitat. Although the plant species composition of forest occurring below 1,000 m (on the Pacific slope) is distinct from known Azure-rumped Tanager habitat, it remains possible that such forest supports the species as it shares with the higher formations some physiognomic characteristics and certain species such as *Ficus cookii* (the dominant tree in tanager habitat); if the bird is found below 1,000 m, it will probably be restricted to the humid river valleys where tree species characteristic of its habitat are commoner.

The Azure-rumped Tanager has been seen at forest edges and in areas where limited human activities have degraded the forest, but never in coffee plantations. Observations at El Triunfo (during 1989 and 1990) suggest that it does not frequently use fruiting shrubs in cleared areas; despite on occasions being more visible in open patches or forest edge, it was seen more often foraging in pristine forest. The majority of its time is spent in the upper strata and canopy of the tallest trees. The birds are most often encountered in small groups (see Population), but are also seen in pairs and singly, rarely travelling with mixed-species flocks (Hilty and Simon 1977, A. Long *in litt.* 1991). Food, including fruit (*Ficus* and melostome fruits have been recorded) and mostly insects, is obtained primarily in the canopy, but sometimes lower (Hilty and Simon 1977, A. Long *in litt.* 1991). In Mexico, breeding has been recorded from April to June, with a majority of nests being recorded in *Ficus cookii* trees (one being 12 m up near the end of a 6 m long branch, and overhanging a canyon) (Isler and Isler 1987, A. Long verbally 1992).

THREATS (Information in the section, unless otherwise stated, derives from Heath and Long 1991). The major threat to the Azure-rumped Tanager is habitat destruction which, in Chiapas is a serious problem, owing to the fact that the altitudinal range of the species coincides with the optimal land for coffee cultivation (Chiapas produces more than 30% of Mexico's coffee). During the present century, the primary centre for coffee production in Chiapas has been the Pacific slope of the Sierra Madre from the Guatemala border to about 100 km into the state. Development in this region, and the establishment of important coffee plantations (e.g. Fincas Prusia and Custepec) along the main river valleys on the Gulf slope, has resulted in the destruction of more than 15% of the Azure-rumped Tanager's total range (it is possible that this figure is actually higher owing to the lack of information regarding partially degraded or small patches of agricultural land). Agriculture, especially coffee cultivation, is continually expanding in the Sierra Madre; recently this has been due to new peasant farming communities or “ejidos”. Mexican law states that any land that is national territory and not officially protected or in use can be leased out to a group of families to live from. In the Sierra Madre, ejidos have been granted large land parcels (often greater than 5,000 ha) and, although much of this land usually remains forested, clearance for cultivation occurs quickly (as farming is the ejidos' major source of food and income). Most of the mid-elevation cloud-forest on Volcán Tacaná is severely fragmented (on the Mexican side), although some large patches persist on the higher peaks on the Guatemalan side of the volcano (A. G. Navarro and A. T. Peterson *in litt.* 1991).

In Guatemala, the main problems of habitat destruction caused by agricultural encroachment (primarily coffee production) appear to be the same as those found in Chiapas. The Azure-rumped Tanager is distributed within the primary region of coffee production (i.e. along the Pacific slope of the sierra) where, between 1950 and 1977, land under coffee expanded from 1,600 to 2,700 km² (Colchester 1991).

MEASURES TAKEN (Information in this section, unless otherwise stated, derives from Heath and Long 1991). In Chiapas, the only protection for the species is the El Triunfo Biosphere Reserve which, however, contains as much as 39% (437 km²) of the total probable and possible habitat within the state. This reserve spans both Pacific and Gulf slopes in the central portion of the Sierra Madre de Chiapas, but most suitable habitat for the species is found within the reserve's buffer zone, an area in which there are several small but expanding communities. The future status of the tanager rests heavily on the conservation of this habitat within the reserve, which in many areas is currently inadequate.

In Guatemala, the only protected area where the Azure-rumped Tanager has been recorded is Finca El Faro (670 ha), an experimental private reserve whose elevational range is c.800 to 2,500 m and which comprises 300 ha of forest from 1,500 to 2,200 m, remnant gallery forest in river canyons below 1,500 m, and plantation crops including coffee, cardamon *Elettaria cardamomum* and macadamia nuts *Macadamia integrifolia* (Vannini and Morales 1990).

MEASURES PROPOSED Generally, the range of the Azure-rumped Tanager is poorly understood: the western limits are unknown (but the bird should be searched for in the Sierra Atravesada of the Chimalapas region of Oaxaca: A. G. Navarro and A. T. Peterson *in litt.* 1991), and in Guatemala the bird has been recorded from just two (or perhaps one: see Remarks 2) areas. For these reasons, more surveys are needed within suitable habitat (as defined in the second paragraph under Ecology) to try and locate other populations of the bird, which, if (or when) found, will probably require protection. More specifically, the effective conservation of suitable habitat for the species within the El Triunfo Biosphere Reserve is essential for the species's continued survival: collaboration in favour of conservation (i.e. which provides viable, less damaging alternatives to present agricultural practices) between local people of the buffer zone and the Instituto de Historia Natural (IHN) staff is needed to ensure the adequate protection of suitable remaining habitat (Heath and Long 1991). Proposals put forward by the reserve management state that forest vigilance and relations with local people will be developed in other parts of the reserve where current protection is inadequate (management efforts are currently concentrated around one core area) (Heath and Long 1991).

In Guatemala, apart from locating new populations, the remaining forest on the slopes of Volcán Santa María is in urgent need of protection (apart from that within Finca El Faro) and of extensive ecological survey (in order to determine the status of both suitable habitat and the species). This area (i.e. Volcanes Chicabal and Santa María) has been officially proposed as a protected area (P. Hubbell *in litt.* 1989) which, if granted and ensured, would provide adequate protection for the tanager in the country.

REMARKS (Information in this section comes from Heath and Long 1991) (1) Two specimens in MLZ (collected by M. del Toro Avilés) are labelled "Cacahoatán", and from c.600 m: the town of Cacahoatán (at c.600 m) also gives its name to the small municipality in which it lies, and which encompasses much land over 1,000 m (including the southern slope of Volcán Tacaná). The validity of label data on specimens collected by M. del Toro Avilés has been questioned, and given the evidence concerning the species's altitudinal range (see Ecology) the MLZ specimens may well have come from near Volcán Tacaná whence comes another record (see Distribution). (2) The type-specimen was collected in the district of Costa Cuca which remains untraced, although a village named Flores Costa Cuca appears on recent maps and lies at 550 m in the foothills above the Pacific coastal plain: Volcán Santa María is found just 30 km west-south-west of this locality (see Distribution), and it is clearly conceivable that the Costa Cuca specimen originated on or near Volcán Santa María. (3) The specimens collected from below 1,000 m (i.e. those from Costa Cuca and Cacahoatán) are not considered here owing to the imprecise nature of the localities given (see Remarks 1 and 2).