

Short Communication

Decline of the Tucumán parrot *Amazona tucumana* in Argentina: present status and conservation needs

Luis Rivera, Natalia Politi and Enrique H. Bucher

Abstract The Tucumán parrot *Amazona tucumana* is a rare, Near Threatened species on CITES Appendix I with a restricted range in the tropical and subtropical montane forests of Argentina and Bolivia. We assessed the conservation status of the species in Argentina based on a detailed review of available information and an extensive survey throughout its range. A total of 6,015 individuals were detected in 14 sites, eight of which are new localities. The total number recorded in this study represents less than a

third of the number exported from Argentina between 1985 and 1989 (18,641), indicating a significant reduction in population size. Research needs to be extended to additional sites, especially in Bolivia, to assess further the global status of the species, and high priority given to the creation of state and private reserves for the species.

Keywords *Amazona tucumana*, Argentina, Bolivia, montane forests, population status, Yungas.

The Tucumán parrot *Amazona tucumana* is restricted to the narrow strip of Yungas cloud forest on the eastern slopes of the Andes from south-east Bolivia to north-west Argentina (Fjeldså & Krabbe, 1990; Fig. 1). Information on the species is limited. Ridgely (1981) categorized the Tucumán parrot as common in Argentina based on lack of evidence suggesting a decline, although he did not find the species after a considerable search in May–June 1977. Between 1985 and 1989, 18,641 Tucumán parrots were legally exported for the international pet trade (Nores & Yzurieta, 1994) but in 1990 this trade was banned when the species was included on CITES Appendix I. Collar & Juniper (1992) included the species on a list of highly threatened parrot species because the reported levels of exports suggested a serious decline. Nevertheless, there has been no research on the species since its inclusion on CITES Appendix I. In 2004 the species was categorized as Least Concern (IUCN, 2006). However, lack of information on the population size and distribution of the Tucumán parrot make it difficult to assess the effect of past

management regulations and determine its present conservation status. Here we provide updated information on the species' status in north-west Argentina based on evaluation of available information and a survey of its entire range in Argentina.

The Yungas forests of Argentina cover an area of c. 700 km from north to south and 50 km west to east on the eastern slopes of the sub-Andean mountain ranges (22–29° S). The area includes portions of Salta, Jujuy, Tucumán and Catamarca provinces (Fig. 1). The Yungas, along with the Paranaense forest, contain >50% of the total species richness of Argentina, although they cover <2% of the country's area (Brown *et al.*, 1993). Large tracts of forest have been felled within the last few decades with deforestation continuing at an annual rate of 1.1%, which is much higher than that of many tropical forests (FAO, 2001).

We conducted a literature review (Table 1) and surveyed 20 sites, covering most of the known distribution of the species within Argentina, during July–September 2003 and June–August 2004 (Table 2, Fig. 1). Sites were grouped in three regions (Northern, Central and Southern; Table 2) corresponding to the main sections of the Yungas in Argentina (Brown *et al.*, 2001). We drove (c. 5,300 km) and walked (120 km) along secondary roads, trails and river banks throughout the elevation gradient, following the methodology of Pitter & Christiansen (1995). The survey was conducted during the non-breeding season, when flocks are easier to detect, and all individuals seen flying or perching were counted. A minimum of 2 days were spent at each

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Received 8 August 2005. Revision requested 16 January 2006.

Accepted 6 April 2006.

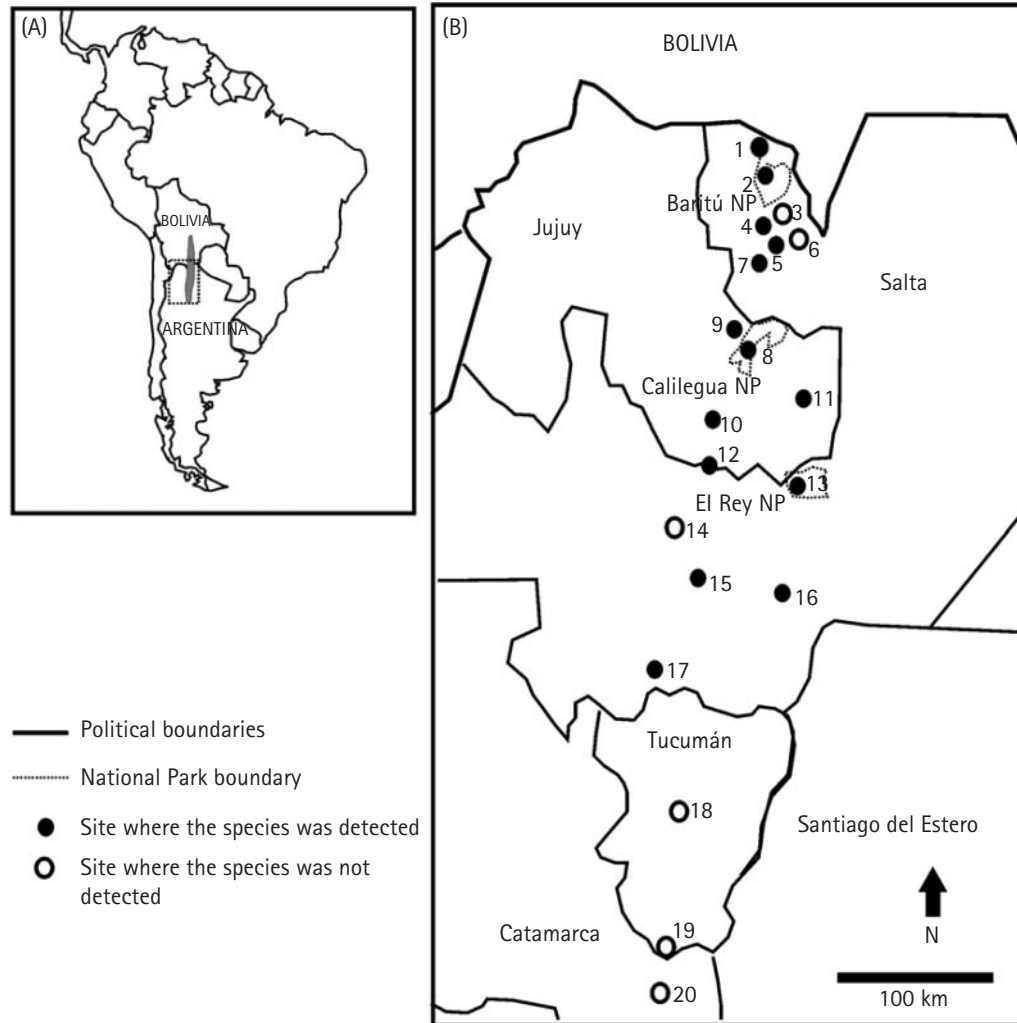


Fig. 1 (A) Geographical range of the Tucumán parrot (grey shading) in Bolivia and Argentina; the rectangle indicates the location of (B). (B) The 20 sites surveyed in 2003 and 2004 in Argentina, with the location of National Parks (NP); the numbers correspond to the sites in Table 2.

site. Daily observations included two 3-hour periods (after sunrise and before sunset) when parrots are active and noisy and therefore easiest to detect (Pizo & Simao, 1997). In those sites where a roost was found we made point counts of unlimited time to estimate the number of parrots entering or leaving the roost. To avoid over-estimation (i.e. double counting on successive days) or underestimation we used the maximum number of parrots seen in each site as an estimate of population size. For each site we calculated abundance per unit effort, i.e. the total number of individuals recorded per survey hour.

We recorded a total of 6,015 individuals in 14 sites over 850–2,000 m altitude, eight of which are new localities for the species (Fig. 1, Table 2), with 22, 76 and 2% of records in the Northern, Central and Southern regions, respectively. We identified four roosts: at Santa Bárbara, San Andrés, San Francisco and in El Rey

National Park (Table 2). The highest number of individuals (4,147; 69% of the total) was recorded in the Santa Bárbara roost.

The total number of Tucumán parrots recorded in this study is less than a third of the number of individuals exported from Argentina during 1985–1989 (18,641; Nores & Yzurieta, 1994), with the extensive deforestation of the last 25 years of the 20th century (Brown *et al.*, 2001) and export probably the main causes of the decline. Even if actual population numbers in Argentina are double the number we recorded, the numbers are substantially lower than they were before the uncontrolled export period (because it would be almost impossible for a population of the present size to sustain an annual capture rate of >3,700 individuals).

El Rey National Park provides further indication of a decline in the Tucumán parrot population. This large (44,162 ha) fragment of Yungas forest probably contains

Table 1 Previously published records of the Tucumán parrot in Argentina.

Location	Date	No. of individuals	Abundance per unit effort (parrots h ⁻¹)	Source
Balcozna, Catamarca ¹	23 Feb. 2003	40		Ferrari <i>et al.</i> (2004)
Los Varela, Catamarca ¹	24 Feb. 2003	6		Ferrari <i>et al.</i> (2004)
Las Juntas, Catamarca ¹	25 Feb. 2003	60		Ferrari <i>et al.</i> (2004)
El Clavillo, Catamarca ¹	18 Jan. 1983	150–200		Nores & Yzurieta (1994)
Tafi Viejo, Tucumán ²	Aug. 1918	4		Orfila (1938)
Tafi Viejo, Tucumán ²				Wetmore (1926)
San Javier, Tucumán ²				Wetmore (1926)
San Javier, Tucumán ²	21 June 1985	50–60		Nores & Yzurieta (1994)
Concepción, Tucumán ²	5 Oct. 1918	1		Orfila (1938)
Raco, Tucumán ²	30 Sep. 1979	30–40		Nores & Yzurieta (1994)
El Rey National Park, Salta	25 Sep. 1976	1,500–2,000		Nores & Yzurieta (1994)
El Rey National Park, Salta	July 2002	153	7.5	Politi & Rivera (2003)
El Rey National Park, Salta	Jan. 2003	256	14.2	Politi & Rivera (2003)
Santa Bárbara, Jujuy				Juniper & Parr (1998)
Yacones, Salta				Mosa <i>et al.</i> (1992)
La Caldera, Salta				Mosa <i>et al.</i> (1992)
Campichuelo, Salta ²				Mosa <i>et al.</i> (1992)
El Eucaliptal, Salta ²				Mosa <i>et al.</i> (1992)
Fraile Pintado, Jujuy ²				Mosa <i>et al.</i> (1992)
Ocoyas, Jujuy ²	19 Oct. 1980	4		Nores & Yzurieta (1994)
Abra Colorada, Jujuy ³	10 Oct. 1984	40–50		Nores & Yzurieta (1994)
Oran, Salta	Oct.			Hoy (1968)
San Martín del Tabacal ²	Sep. 1989	600		Suad <i>et al.</i> (1991)
Pintascayo, Salta	2–7 Nov. 2000		10.93	Monmany <i>et al.</i> (2000)
Río Jordán, Jujuy ³	7 Oct. 1984	25–30		Nores & Yzurieta (1994)
Calilegua National Park, Jujuy	25 Jan. 2000	50		Krabbe <i>et al.</i> (2001)
Calilegua National Park, Jujuy	Feb. 2001	36	4.80	Politi & Rivera (2005)
Calilegua National Park, Jujuy	Aug. 2002	2	0.48	Politi & Rivera (2003)
Calilegua National Park, Jujuy	Jan. 2003	9	0.64	Politi & Rivera (2003)

¹ These localities are grouped as Las Estancias in Table 2.

² Localities that were not surveyed in this study

³ Close to the San Francisco site in Table 2

the best quality breeding habitat for the species in Argentina (L. Rivera & N. Politi, unpubl. data). We counted only 243 individuals in the Park compared to the 2,000 individuals recorded by Nores & Yzurieta (1994) in 1976. We consider our population estimate reliable because it is consistent with a survey carried out in the Park in 2002 (Politi & Rivera, 2003) in which *c.* 250 individuals were recorded.

The Tucumán parrot population in the Southern region has declined considerably. Wetmore (1926), for example, reported that the Tucumán parrot was frequently seen in San Javier, Tucumán, but today the species is rare in the area. A key factor responsible for the decline is the intense and increasing deforestation rate, particularly in the Piedmont Forest (Brown *et al.*, 2001). We did not record the species in several localities where it had been previously recorded (Tables 1 & 2) and the Tucumán parrot may be rapidly approaching local extinction in the Southern region.

Little is known of the species' status in the Bolivian part of its range, although there is evidence that the

species is also severely threatened there (Ridgely, 1981). The Yungas cloud forest is the most threatened ecosystem in Bolivia (Ibisch & Merida, 2003) and Fjeldså & Krabbe (1990) indicated that the Tucumán parrot has disappeared from many areas in Bolivia because of deforestation.

Based on the results presented here the species was uplisted to Near Threatened on the IUCN Red List in 2005 (BirdLife, 2005; IUCN, 2006). However, research needs to be extended to additional sites, especially in Bolivia, to assess further the global status of the species. Conservation efforts for the Tucumán parrot in Argentina should probably prioritize the Northern and Central regions, where 98% of the remaining Tucumán parrot population occurs, with high priority given to the creation of state and private reserves. The recent creation of Las Lancitas Provincial Reserve in Jujuy province (Moschione *et al.*, 2005) is important in this regard. The Natural Resource Agency of Jujuy Province is developing a plan to enlarge this Reserve and is implementing, in collaboration with Argentina National

Table 2 Sites surveyed (Fig. 1), maximum number of Tucumán parrots recorded at each site and in each region, and survey effort and abundance per unit effort in the 2003 and 2004 non-breeding seasons.

Site and site no.	Coordinates	Elevation range (m)	Maximum no. recorded	Survey effort (hours)	Abundance per unit effort (parrots h ⁻¹)
Northern region					
1. El Nogalar National Reserve–El Arazai, Salta ¹	22°16'S 64°42'W	1,700–1,900	36	14	1.79
2. Baritú National Park, Salta	22°26'S 64°44'W	1,000–1,600	121	21	16.67
3. Pintascayo, Salta	22°53'S 64°30'W	600–800	0	70	0
4. Cortadera, Salta ¹	23°01'S 64°47'W	900–1,700	20	14	2.86
5. Isla de Cañas, Salta ¹	22°56'S 64°38'W	900–1,100	45	14	1.79
6. Simbolar, Salta	22°46'S 64°36'W	800–1,000	0	21	0
7. San Andrés, Salta ^{1,2}	23°05'S 64°52'W	700–2,100	678	21	144.67
8. Calilegua National Park, Jujuy	23°40'S 64°53'W	700–1,700	9	14	0.64
9. San Francisco, Jujuy ²	23°36'S 64°56'W	1,400–1,500	390	21	66.48
<i>Total</i>			1,299		
Central region					
10. San Salvador de Jujuy, Jujuy ¹	24°09'S 65°19'W	1,100–1,300	105	14	7.50
11. Santa Barbara mountain, Jujuy ²	24°05'S 64°26'W	1,000–1,700	4,147	28	653.89
12. El Carmen–La Caldera, Jujuy	24°40'S 65°23'W	1,000–1,600	90	14	5.21
13. El Rey National Park, Salta	24°43'S 64°38'W	800–1,600	243	21	23.86
14. Escoipe, Salta	25°09'S 65°40'W	1,200–1,600	0	14	0
15. Metán mountain, Salta ¹	26°28'S 65°01'W	1,000–1,500	20	14	1.43
<i>Total</i>			4,605		
Southern region					
16. Candelaria mountain, Salta ¹	26°02'S 64°49'W	800–1,500	21	14	2.86
17. Carahuasi mountain, Salta ¹	26°04'S 65°29'W	800–1,200	90	14	6.43
18. Rio Los Sosa–Siambon, Tucumán	27°04'S 65°39'W	800–1,800	0	21	0
19. Las Estancias, Catamarca– Escaba, Tucumán	27°20'S 65°58'W	600–1,800	0	21	0
20. Sa. de Ambato, Catamarca	28°18'S 65°53'W	1,000–1,400	0	14	0
<i>Total</i>			111		

¹ These records are new sites for this species

² Roosts

Park Administration, a biological corridor between El Rey National Park and Sierra de Santa Bárbara.

Acknowledgements

Funding was provided by the BP Conservation Programme (2003–2004) and the Loro Parque Fundación (2004–2005). We are thankful to Pedro Blendinger, Alejandro Brown, Francisco Cornell, Lucio Malizia, and Flavio Moschione for providing important information on sites. Jorgelina Brasca revised the English text.

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Biographical sketches

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