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The avifauna and conservation status of the Río Nangaritza valley, southern Ecuador

C. S. BALCHIN and E. P. TOYNE

Summary

An ornithological survey was conducted in December 1994 at the lower Río Nangaritza valley in southern Ecuador, during which 181 species were recorded. These data combined with published records reveal the number of species known for this area to be 290. Of these, nine species are classified as globally vulnerable: Solitary Eagle *Harpyhaliaetus solitarius*, White-breasted Parakeet *Pyrrhura albipectus*, Spot-winged Parrotlet *Touit stictoptera*, Napo Sabrewing *Campylopterus villaviscensio*, Ecuadorean Piedtail *Phlogophilus hemileucurus*, Lanceolated Monklet *Micromonacha lanceolata*, Coppery-chested Jacamar *Galbula pastazae*, Fiery-throated Fruiteater *Pipreola chlorolepidota* and Orange-throated Tanager *Wetmorethraupis sterrhopteron*. Of the 290 species listed 115 are currently unrecorded in the adjacent Podocarpus National Park and therefore inhabit no protected area in southern Ecuador. Wildlife of the Nangaritza valley is threatened by gold mining, encroachment and hunting. Given the high avian diversity and the known botanical importance of the area plans to conserve the undisturbed forests of this region as part of a buffer zone for the adjacent Podocarpus National Park are recommended.

Introduction

Until the late 1980s the avifauna of Zamora-Chinchipe Province in southern Ecuador remained little studied. Most of our knowledge was based on specimens collected around Zamora between 1857 and 1920 (Chapman 1926), with some more recent records from Ridgely (1980). More recently portions of the tropical and montane forested zones of the Cordillera del Cóndor, including the upper Río Nangaritza valley, have been explored (Marín *et al.* 1992, Krabbe and Sornoza 1994, Schulenberg and Awbrey 1997). In addition there is a checklist for the birds of Podocarpus National Park, less than 15 km west of Río Nangaritza (Rasmussen *et al.* 1994). The checklist is the result of much work in the area since the mid 1980s (Rahbek *et al.* 1995, Rasmussen *et al.* 1996). Within the Zamora-Chinchipe portion of the Park, 80% of which is in this province, the avifauna in the Bombuscara and Romerillos areas are best known (Rahbek *et al.* 1995, Rahbek and Toyne 1996*a*,*b*, Figure 1). However, much of the south-east section of the Park remains unexplored, due to access problems caused by the Park's rugged topography. The valleys in this area are at a comparable elevation to the Nangaritza valley, so bird communities in the two areas may well be similar and surveys in the Nangaritza may provide clues as to what birds may be found in this part of the Park.

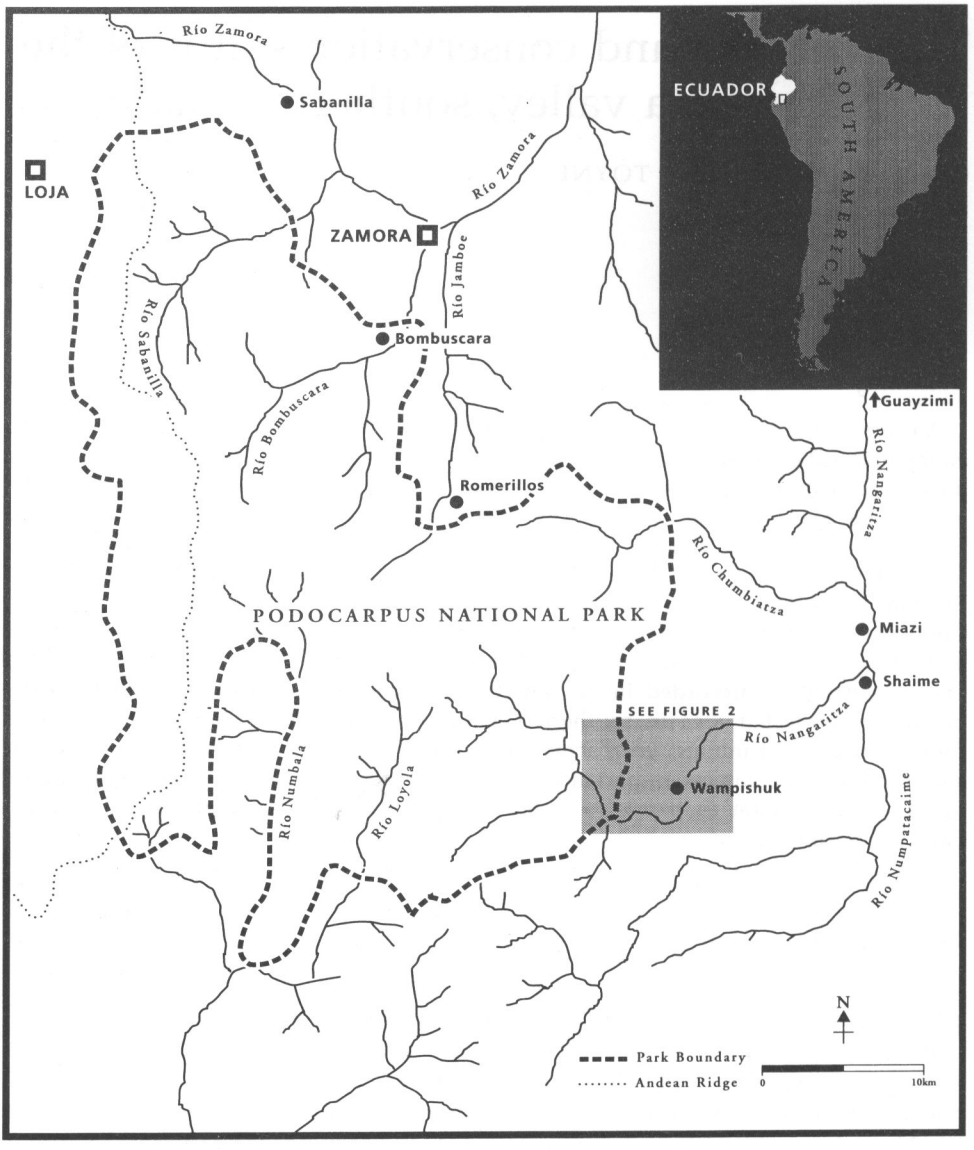

Figure 1. Location of the study area in relation to Podocarpus National Park.

Ornithological surveys of the Río Nangaritza have been confined to the northern end of the valley, with nothing recorded south of Shaime Military Post (Marín *et al.* 1992, Schulenberg and Awbrey 1997, Figure 1). Shaime area was classified as a key area for threatened birds principally because it was the only Ecuadorian locality for the endangered Orange-throated Tanager *Wetmorethraupis sterrhopteron* (Marín *et al.* 1992, Wege and Long 1995). Much of Podocarpus National Park and adjacent areas in both the Cordillera del Cóndor and the Río Nangaritza are threatened by goldmining (Toyne *et al.* 1992, Jiggins *et al.* unpubl. report, 1996, Schulenberg and Awbrey 1997). With this in mind, and the lack of

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records for the south-east corner of the Park, the aims of this study were to catalogue the avifauna and assess threats to the southern (lower) end of the Río Nangaritza valley.

In this paper we include observations made by the late Ted Parker III at Miazi, on the west slope of the Río Nangaritza valley (Figure 1). Parker's records are published in Conservation International's Rapid Assessment Program report on the Cordillera del Cóndor (Schulenberg and Awbrey 1997). We felt this work complemented our study and should be included as part of the general overview of the avifauna of the area.

Background, study areas and methods

The study area was situated at the southern end of the Cordillera del Cóndor in Zamora-Chinchipe Province, southern Ecuador, a low front-range of the eastern slope of the Andes (900–1300 m Toyne and Balchin 1996). Vegetational surveys around the Río Nangaritza from Paquisha south to Shaime have suggested this habitat is unique to this area of Ecuador (Palacios 1997). The area is home to the indigenous Shuar Indians who have traditionally lived in this part of southern Ecuador (Anon. 1978). The area south of Shaime is a Shuar Indian reserve, home to nine Shuar communities. However the area is rich in gold and the habitat and livelihood of the Shuars has been threatened by the influx of miners during the late 1980s and 1990s. These miners are looking to establish another goldtown similar to nearby Nambija (Doltz 1989, Vallée 1992). Throughout the Province, including the Nangaritza valley, miners are polluting the environment with mercury which is used in the amalgamation process (Vallée 1992, F.Jiggins *et al.* unpubl. report 1996). Other settlers include members of the military and colonists who farm livestock and grow crops. They were encouraged to the area with the offer of free land rights by the government which was worried about losing territory to nearby Peru. Due to the problems associated with mining and colonization, such as deforestation and pollution, Palacios (1997) considered it urgent that the zone be declared a protected area by law.

Global positioning systems (Mag Pro 5000) were used to map coordinates and elevations of study sites. Fieldwork was conducted in December 1994 when the following areas of upper-tropical humid forest were investigated:

Shaime Military Post (04°20'S, 78°40'W; 1000 m Figure 1): the disturbed mature forest at this settlement was briefly surveyed on 16 22–24 December.

The habitat surrounding the *Mariposa Community*, also referred to as Wampishuk (04°22'S, 78°44'W at 940 m Figures 1 and 2), was surveyed during dry weather on the 17–18 and 21 December. This included the west bank of the Río Nangaritza and cultivated areas surrounded by semi-disturbed mature forest. The Mariposa Community was established by the Shuars in 1983 and now consists of 18 farms situated along the west bank of the Río Nangaritza and the Río Mariposa tributary.

The *Río Mariposa Camp* (04°22'S, 78°45'W at 1000 m Figure 2) was made after a four-hour walk, north-west, from the Mariposa Community. The area surrounding the camp (1000–1200 m) was surveyed between 17 and 21 December during overcast, rainy conditions, apart from the 21 December

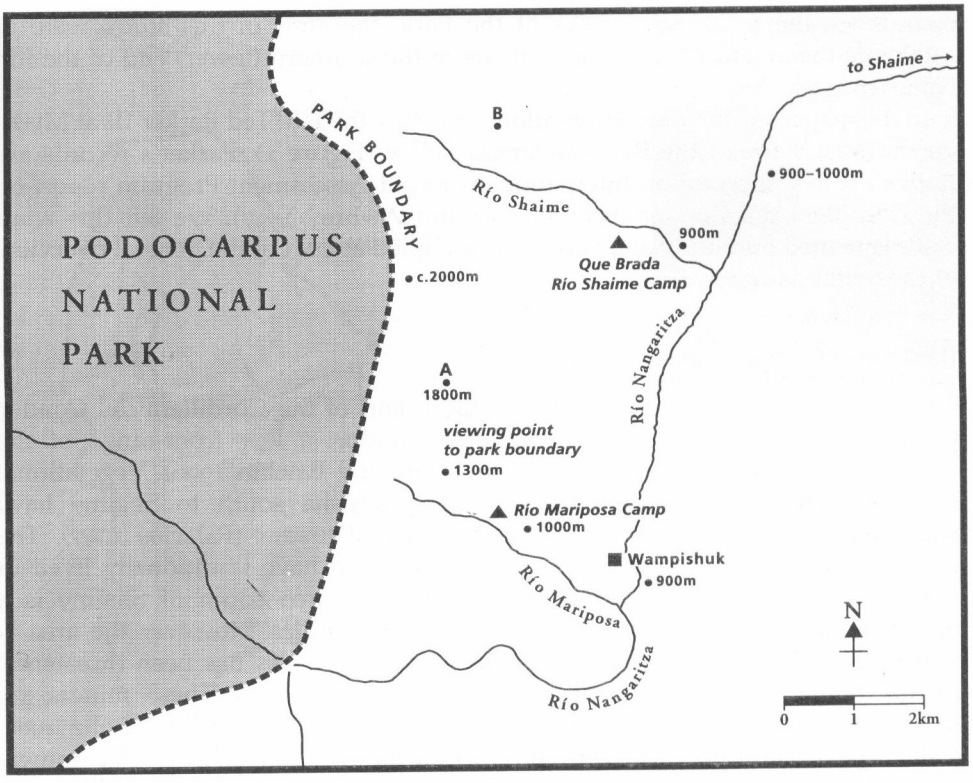

Figure 2. Location of the two camp sites in relation to Podocarpus National Park and the Río Nangaritza valley.

which was sunny with showers. The vegetation at this site was relatively undisturbed although there were some trails (less than 1 m wide) which Shuars used whilst hunting. The tropical humid forest consisted of tall (40+ m) emergent trees and a closed canopy at around 30 m. There was some shrub vegetation and tree ferns (Cyatheaceae) were common. Denser vegetation was found along the river edge. Observations were made from walking Shuar trails and from vantage points along the Río Mariposa, which was shallow and 4 m wide. Whilst at this camp a trail ($1\frac{1}{2}$ hours walk) was made up to a ridge at 1300 m. A further trail was cut to Position A at an elevation of 1800 m 3 hours walk from the camp (Figure 2). From this point approximately 8 km of the boundary of the Podocarpus National Park could be seen (Instituto Ecuatoriano Forestal y Areas Naturales (INEFAN) Park boundary points 440–455) and the status of the boundary was assessed for likely threats such as encroachment. The habitat encountered was pristine subtropical forest with shorter trees, dense bamboo understorey, and more shrub and ground vegetation than at the lower elevations.

The area surrounding a second camp, *Quebrada Río Shaime* (04°22'S, 78°44'W at 890 m Figure 2) was surveyed between 24 and 28 December during dry, mainly sunny (three out of four) days. Here habitat comprised of mature

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humid upper-tropical forest. The forest canopy was more open than the forest at the Río Mariposa Camp due to selective logging and trail cutting by Shuars. Observations were made from Shuar hunting trails on a northern ridge above the camp (1000 m), from a southern trail leading to the Río Nangaritza (1000 m) and from cultivated areas around the camp (900–950 m). On the 27 December the boundary of the Park was assessed at Position B (Figure 2: 04°21'S, 78°45'W at 900 m; INEFAN Park boundary points 428–440).

Observations were also made during the following journeys by boat along the Río Nangaritza: Guayzimi to Shaime Military Post, 6 and 16 December; Shaime Military Post to Mariposa, 7 December; Shaime Military Post to Guayzimi, 7 December, Shaime Military Post to Mariposa, 16 December, Mariposa to Shaime Military Post, 22 December; Shaime Military Post to Quebrada Río Shaime, 24 December; and Quebrada Rio Shaime to Shaime Military Post, 28 December.

Fieldwork between 6 and 22 December 1994 involved Pablo Andrade, C.S.B., Jeremy Flanagan, Orfa Rodriguez and E.P.T. Observations during 23–28 December were made by C.S.B. and E.P.T. For both periods additional records were supplied by Tracey-Ann Hooley and Jenny Rudston. The work included tape-recordings of vocalizations, mist-netting at Río Mariposa and Quebrada Río Shaime camps, and sight observations of birds. Sound recordings are deposited at the Wildlife Section of the National Sound Archives in London.

Results

A total of 181 bird species was recorded during the December 1994 survey (Appendix). Altogether 290 species have now been recorded for the southern end of the Nangaritza valley. These species are listed in the Appendix. Nine species, judged to be vulnerable (Collar *et al.* 1994), were recorded, although Lanceolated Monkbird *Micromonacha lancelota* is no longer regarded as threatened (Ridgely *in litt.* 1997). The eight threatened species are listed below.

Solitary Eagle *Harpyhaliaetus solitarius*: individual eagles were seen twice, at 1300 m above the Río Mariposa camp 21 December and soaring above the Río Nangaritza between Mariposa and Shaime Military Post on 22 December.

White-breasted Parakeet *Pyrrhura albipectus*: the lower forested slopes of the Río Nangaritza valley were suspected to be ideal habitat for this parakeet (Toyne *et al.* 1992) but it was surprisingly not recorded. Instead, it was encountered only between 1300 and 1800 m above the Río Mariposa camp. In September 1997 a flock of about 20 were observed from Shaime village which is about 1 km downstream of Shaime Military Post (J. Flanagan *in litt*). The status within Podocarpus National Park (Toyne *et al.* 1992, Toyne 1996) and further north in the Cordilleras de Cutucú and del Cóndor (Robbins *et al.* 1987, Krabbe and Sornoza 1994, Schulenberg and Awbrey 1997) suggest the species is not as severely threatened as first feared.

Spot-winged Parrotlet *Touit stictoptera*: was recorded at Miazi and elsewhere in the Cordillera del Cóndor (Schulenberg and Awbrey 1997). This parrotlet is regarded as vulnerable (Collar *et al.* 1994). Within southern Ecuador it has been recorded further north in the Cordillera de Cutucú, Morona-Santiago Province and further south at Zumba in Zamora-Chinchipe (Collar *et al.* 1992). The

Nangaritza valley should provide suitable habitat within the species's elevational range, which is between 1000 and 1700 m (Collar *et al.* 1992)

Napo Sabrewing *Campylopterus villaviscensio*: three individuals were seen around the Quebrada Río Shaime camp clearing on 27 and 28 December. They were more often heard than they were seen. Their call was similar to the "chink" call of Sparkling Violetear *Colibri coruscans*. Adult Napo Sabrewing plumage recalls that of Fork-tailed Woodnymph *Thalurania furcata* with the underpart colours reversed, so it is possible on brief views that they will be overlooked. One individual was mist-netted. It had buffy malar stripes and dusky greyish underparts with reduced purple throat patches. These latter markings were not noticeable on adult skins examined in collections at the British Museum (Natural History) and Museo de Ciencias Naturales (Quito), so it is possible that the individual was a juvenile, but little is known about plumage variation within this species.

Ecuadorian Piedtail *Phlogophilus hemileucurus*: surprisingly not seen or heard at the Quebrada Río Shaime camp. They were regularly heard, a single hermit-like note given from the undergrowth, at Mariposa Camp, although only two were observed.

Coppery-chested Jacamar *Galbula pastazae*: observations of a pair at 1300 m above the Río Mariposa camp were not surprising as it is now known from the Zumba region further south (R. S. Ridgely and P. J. Greenfield unpubl. data, Paul Coopmans pers. comm. 1997), throughout Ecuador to southern Colombia on the lower slopes of the eastern Andes (Poulsen and Wege 1994). Its current status is probably no longer threatened.

Fiery-throated Fruiteater *Pipreola chlorolepidota*: one male was seen in the forest behind the Shaime Military Post on 23 December and another individual (sex not determined) was seen on the northern ridge above the Quebrada Río Shaime camp on 27 December.

Orange-throated Tanager *Wetmorethraupis sterrhopteron*: this unmistakable tanager was only recorded at Miazi (Schulenberg and Awbrey 1997). It was absent further south during this survey. This result was disappointing as the tanager had previously been recorded in July 1990 in the same forest as we had searched at Shaime Military Post (Marín *et al.* 1992, J. M. Carrion pers. comm. 1995) and they are known to occur in both disturbed and undisturbed mature forest in north-eastern Peru (Ridgely and Tudor 1989, Marín *et al.* 1992, Schulenberg and Awbrey 1997).

During the December 1994 survey 26 species were recorded at the upper limit of their elevation range, four of which represent noticeable elevational records (Table 1). Also of interest were 26 species that were recorded along the Río Nangaritza valley which were previously only known from Chapman (1926), denoted as PC in the appendix. One hundred and fifteen species (39%) of the 292 species known for the Nangaritza, including the former 26 species, have not been recorded for Podocarpus National Park.

The following observations also deserve attention.

Yellow-throated Bush-tanager *Chlorospingus flavigularis*: this species was the main constituent of all feeding flocks of tanagers observed at the Río Mariposa camp, however it was rarely encountered at the Quebrada Río Shaime camp. As both sites were at the same altitude we can only guess that their rare occurrence

Table 1. Species recorded at the upper limit of their known elevation ranges in the Río Nangaritza valley during December 1994

Species	Location and elevation	Known elevation range
Aratinga weddellii[a]	RN; 900 m	to 500 m***
Forpus sclateri	RN; 900 m	to 900 m (RSR)
Brotogeris cyanoptera[a]	RN, QRS; 900–1000 m	to 800 m (NK)
Campylopterus largipennis[a]	MC, RMC; 950–1200 m	to 750 m (RSR)
Pteroglossus azara	QRS; 1000 m	to 1000 m (RSR)
Selenidera reinwardtii	M; 1000 m	to 1200 m (NK)
Metopothrix aurantiacus	MC; 950 m	to 900 m (PC), but to 1000 m in S Peru**
Myrmotherula axillaris	QRS; RMC; 900–1200 m	to 900 m**
Cercomacra cinerascens	QRS; 950 m	to 900 m (NK), but to 1150 m in S Peru**
Myrmoborus myotherinus	QRS; 1000 m	to 1300 m (RSR)
Hylophylax naevia	QRS; 1000 m	to 1000 m but to 1360 m in Venezuela**
Pithys albifrons	MC, RMC; 940–1200 m	mostly below 1000 m**
Formicarius analis	QRS; 1000 m	to 1100 m**
Corythopis torquata	QRS; 1000 m	mostly below 1000 m less often up to 1500 m**
Rhynchocyclus olivaceus	QRS: 1000 m	to 1000 m (NK)
Platyrinchus coronatus[a]	MC; 940 m	mainly below 1000 m but to 1300 in SW Ecuador**
Pipra erythrocephala	QRS; 1000 m	to 1100 m**
Manacus manacus	RMC; 1000–1200 m	mainly below 500 m recorded to 1300 m in Venezuela**
Tyranneutes stolzmanni[b]	QRS; 950 m	to 1000 m**
Piprites chloris	QRS; 1100 m	to 500 m occasionally to 1300 m**
Cyanocorax violaceus	RN; 900–950 m	to 1000 m*
Thryothorus coraya	S; 1000 m	to 1000 m*
Microcerculus marginatus	QRS, MC; 950–1200 m	to 1000 m to 1800 m in Venezuela*
Hemithraupis flavicollis	QRS; 950 m	to 800 m**
Dacnis flaviventer	S, QRS; 950–1000 m	to 500 m occasionally to 1400 m in Bolivia *
Cacicus cela	RN; 900–950 m	to 900 m*

See Appendix for key to location names. [a]Species recorded at a noticeable increase in elevation (+200 m). Upper limits to elevation ranges are taken from Ridgely and Tudor 1989*, 1994** and Hilty and Brown 1986*** and from unpublished records of the following: RSR, Robert Ridgely; NK, Niels Krabbe; PC, Paul Coopmans; [b]*T. stolzmanni* was listed for Zamora (950–1000 m) by Chapman (1926) but most literature does not refer to this record.

at the latter area was related to vegetational difference between the two sites. In general they inhabit the humid foothills and lower subtropical forests between 700 and 1600 m (Ridgely and Tudor 1989).

Blue-gray Tanager *Thraupis episcopus*: an adult observed feeding a juvenile near the Río Mariposa camp showed characteristics of the nominate race, as it lacked whitish shoulders (Ridgely and Tudor 1989).

Slaty-capped Shrike-vireo *Vireolanius leucotis*: a single bird was seen along the trail near the river south of the Quebrada Río Shaime camp on 24 December. Its ear coverts were all yellow and it did not show a white cheek stripe typical of the race expected in this area (Ridgely and Tudor 1989).

Discussion

The Shuars at Mariposa knew of the existence of Podocarpus National Park and the approximate location of the boundary. They also realized the importance of the Park, as it provided their main source of potable water, and they were worried about the possible pollution of the rivers by potential gold mining activities.

The main threat to the wildlife in the portion of Río Nangaritza valley we surveyed was from hunting. No primates were encountered and the local indians said that woolly monkey *Lagothrix lagothrix* and other monkeys used to be common. Overhunting by the Shuars and, to a lesser extent, habitat destruction has doubtless caused a decline in large mammal numbers. The Shuars still hunt but their quarry is now medium-sized birds such as parrots and toucans. Shuars rely upon domesticated animals such as chickens and pigs, and crops like banana and plantain for food, some of which are traded in Guayzimi for goods (J. Rivadeneira, unpubl. report, 1996).

The eastern Andean slopes from the boundary ridge of the Podocarpus National Park between Quebrada Río Shaime and the Río Mariposa consisted of pristine subtropical forest but most of this area is under mining concessions (Schulenberg and Awbrey 1997). The nearest settlement to the Park was a farm with one inhabitant. The Shuar's current rate of colonization is slow as it is only when a son leaves the family home (6–12 people) to start a family that forest is cleared for settlement and there was little immigration from other areas. This suggested that encroachment was not a threat to the Park's status in this area. However the status of the Park's north-eastern boundary should be investigated as the Shuar communities living along the Río Nangaritza and the Río Chumbiatza, downstream from Shaime (Figure 1) are four times larger than the 100–120 people at Mariposa. The Río Chumbiatza communities are close to the north-east boundary of Podocarpus National Park and encroachment into the Park may occur here (Figure 1).

Considering the limited survey time the high number of species found, many of which occur at their upper elevational limit, suggested that this area contains a high degree of avian richness. The lower number of bird species recorded at the Río Mariposa Camp compared with those recorded at Quebrada Río Shaime can be attributed to poorer weather and background noise of the Río Mariposa which made hearing difficult at the former site. This work was only a preliminary survey and further work in this area is encouraged.

Whether or not some birds found in the Nangaritza also occur in Podocarpus National Park remains unknown. It is reasonable to assume that 26 species have been sensitive to the deforestation that has taken place around Zamora after 1920, as they have not been recorded since 1920 (Appendix). Chapman (1926) described Zamora as a small frontier settlement of about 8–10 huts, which is comparable to the present day Mariposa Community. However, since the gold boom in the late 1970s and early 1980s the frontier has moved, Zamora has grown and other towns, such as Nambija and Guayzimi, have been established further east (Doltz 1989). As deforestation resulting from gold mining and colonists' activities continues these species and possibly others could become locally extinct. One solution to this potential problem could be the creation of a buffer zone that stretches east from Podocarpus National Park's eastern boundary to

the Río Nangaritza. This would lead to a 16% increase (552 to 641 species) in birds known for the Park. There would need to be controls on the type and levels of hunting by Shuar Indians allowed within the zone. But if an agreement could be reached between the Shuar Indians and the Park authorities protected status could be given to the area and any form of mineral exploration outlawed. For this to happen the Ecuadorian laws would need to be changed and this could be a long and complicated process. However, the buffer zone would provide the Shuars with a reserve free from interference from gold mining. The nearest lowland Amazonian protected habitat in Ecuador is Yasuni National Park, some 300 km north-east of the Nangaritza area so a buffer zone would provide a habitat for many bird species whose habitat in southern Ecuador at present remains unprotected.

Acknowledgments

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Appendix

Taxonomy and nomenclature follow as closely as possible that given by Ridgely and Greenfield (in prep.) and used by Williams *et al.* (1996). Species that have not been recorded for Podocarpus National Park are denoted ^{P} or ^{PC} if they have only been recorded for Zamora by Chapman (1926). Due to the limited period spent at each location we feel that it might be misleading to give levels of abundance; instead presence (X) is recorded. Observations made on the Río Nangaritza (RN) north of Shaime Military Post and including Guayzimi, are denoted^{N}, and observations made on the Río Nangaritza south of Shaime Military Post are denoted^{S} and Shaime Military Post by S; QRS, Quebrada Río Shaime camp; MC, Mariposa community; RMC, Río Mariposa camp; M, Miazi (see Schulenberg and

Awberry 1997). Species observed above RMC between 1300 and 1800 m are denoted by *. *Pipreola chlorolepidota, Hyloctistes subulatus, Hylophylax naevia, Machaeropterus regulus* are new records for Podocarpus National Park not given in Rasmussen *et al.* 1994 (P. Coopmans and P. Greenfield pers. comm. 1997). Species listed as "sp" are only included in counts if no other member of that family was located, i.e. *Xenops* sp. is not included in the overall species count as two other *Xenops* were identified.

Species	RN	S	QRS	MC	RMC	M
Little Tinamou *Crypturellus soui*						X
Brown Tinamou *Crypturellus obsoletus*			X			
Striated Heron *Butorides striatus*[PC]	X[S]					
Cattle Egret *Bubulcus ibis*[P]	X[S]					
Snowy Egret *Egretta thula*[P]	X[S]					
King Vulture *Sarcoramphus papa*[P]	X[N]					
Turkey Vulture *Carthartes aura*						X
Greater Yellow-headed Vulture *Cathartes melambrotus*	X[S]	X	X	X		
Swallow-tailed Kite *Elanoides forficatus*	X[S]		X	X	X	X
Plumbeous Kite *Ictinia plumbea*					X	
Solitary Eagle *Harpyhaliaetus solitarius*	X[S]				X	
Roadside Hawk *Buteo magnirostris*	X[S]					X
Short-tailed Hawk *Buteo brachyurus*					X	X
Black Caracara *Daptrius ater*	X[S]			X	X	X
Barred Forest-falcon *Micrastur ruficollis*						X
Laughing Falcon *Herpetotheres cachinnans*					X	X
Bat Falcon *Falco rufigularis*			X	X		
Grey-breasted Crake *Laterallus exilis*[P]						X
Chestnut-headed Crake *Anurolimnas castaneiceps*[PC]				X		X
Blackish Rail *Pardirallus nigricans*						X
Spotted Sandpiper *Actitis macularia*	X[NS]	X		X		
Scaled Pigeon *Columba speciosa*[PC]		X		X		
Pale-vented Pigeon *Columba cayennensis*[P]	X[S]	X				
Ruddy Pigeon *Columba subvinacea*				X		
Plumbeous Pigeon *Columba plumbea*				X		X
Grey-fronted Dove *Leptotila rufaxilla*				X		X
Sapphire Quail-dove *Geotrygon saphirina*						X
Ruddy Quail-dove *Geotrygon montana*					X	
Chestnut-fronted Macaw *Ara severa*[P]	X[S]	X				
White-eyed Parakeet *Aratinga leucophthalmus*	X[S]	X		X	X	
Dusky-headed Parakeet *Aratinga weddellii*[P]	X[S]		X			
White-necked Parakeet *Pyrrhura albipectus*			X*			
Dusky-billed Parrotlet *Forpus sclateri*[PC]	X[S]					X
Cobalt-winged Parakeet *Brotogeris cyanoptera*[P]	X[S]		X			X
Spot-winged Parrotlet *Touit stictoptera*[P]						X
Blue-headed Parrot *Pionus menstruus*	X[S]		X	X	X	X
Mealy Amazon *Amazona farinosa*[P]			X			
Squirrel Cuckoo *Piaya cayana*		X				X
Little Cuckoo *Piaya minuta*[P]						X
Band-bellied Owl *Pulsatrix melanota*						X
Pauraque *Nyctidromus albicollis*						X
White-collared Swift *Streptoprocne zonaris*			X			
Chestnut-collared Swift *Streptoprocne rutilus*						X
Grey-rumped Swift *Chaetura cinereiventris*						X

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Species	RN	S	QRS	MC	RMC	M
White-tipped Swift *Aeronautes montivagus* [P]						X
Pale-tailed Barbthroat *Threnetes leucurus*			X		X	X
Green Hermit *Phaethornis guy*			X		X	X
Long-tailed Hermit *Phaethornis superciliosus*						X
Grey-chinned Hermit *Phaethornis griseogularis*		X	X	X	X	X
Little Hermit *Phaethornis longuemareus* [P]						X
Sicklebill sp. *Eutoxeres* sp.		X		X		
Grey-breasted Sabrewing *Campylopterus largipennis*[P]				X	X	X
Napo Sabrewing *Campylopterus villaviscensio*			X			
Violet-headed Hummingbird *Klais guimeti*						X
Hummingbird sp. *Chlorestes sp?*			X			
Fork-tailed Woodnymph *Thalurania furcata*			X			X
Speckled Hummingbird *Adelomyia melanogenys*						X
Ecuadorian Piedtail *Phlogophilus hemileucurus*					X	
Black-throated Brilliant *Heliodoxa schreibersii*[P]						X
Black-eared Fairy *Heliothryx aurita*				X	X	X
White-tailed Trogon *Trogon viridis*[P]						X
Collared Trogon *Trogon collaris*[PC]			X		X	X
Blue-crowned Trogon *Trogon curucui*[P]						X
Ringed Kingfisher *Megaceryle torquata* [P]	X[S]	X				X
Amazon Kingfisher *Chloroceryle amazona*	X[NS]			X	X	
Green Kingfisher *Chloroceryle americana*						X
Highland Motmot *Momotus aequatorialis*						X
Coppery-chested Jacamar *Galbula pastazae*					X*	
Purplish Jacamar *Galbula (leucogastra) cahlocothrax*[P]						X
Puffbird sp.*Malacoptila sp.*						X
Lanceolated Monklet *Micromonacha lanceolata*						X
Black-spotted Barbet *Capito niger*[P]		X	X			
Lemon-throated Barbet *Eubucco richardsoni*[P]			X			
Red-headed Barbet *Eubucco bourcierii*					X	
Chestnut-tipped Toucanet *Aulacorhyncus derbianus*					X	
Many-banded Aracari *Pteroglossus pluricinctus* [P]						X
Ivory-billed Aracari *Pteroglossus azara* [P]			X			
Golden-collared Toucanet *Selenidera reinwardtii*[P]						X
Yellow-ridged Toucan *Ramphastos culminatus*[PC]					X	X
Black-mandibled Toucan *Ramphastos ambiguus*					X	
White-throated Toucan *Ramphastos tucanus*[P]			X			
Lafresnaye's Piculet *Picumnus lafresnayi*			X			X
Golden-olive Woodpecker *Piculus rubiginosus*						X
White-throated Woodpecker *Piculus leucolaemus*[P]						X
Yellow-tufted Woodpecker *Melanerpes cruentatus*		X	X	X		X
Smoky-brown Woodpecker *Veniliornis fumigatus*					X	
Little Woodpecker *Veniliornis passerinus*						X
Red-stained Woodpecker *Veniliornis affinis* [P]		X	X			X
Lineated Woodpecker *Dryocopus lineatus*			X			X
Crimson-crested Woodpecker *Campephilus melanoleucus*						X
Crimson-bellied Woodpecker *Campephilus haematogaster*					X	
Dusky Spinetail *Synallaxis moesta*[PC]				X		
Dark-breasted Spinetail *Synallaxis albigularis*				X		X

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Species	RN	S	QRS	MC	RMC	M
Speckled Spinetail *Cranioleuca gutturata*[P]						X
Orange-fronted Plushcrown *Metopothrix aurantiacus*[P]				X		
Spotted Barbtail *Premnoplex brunnescens*			X		X	
Striped Woodhaunter *Hyloctistes subulatus*[P]						X
Lineated Foliage-gleaner *Syndactyla subalaris*	X[S]					
Montane Foliage-gleaner *Anabacerthia striaticollis*				X		
Rufous-rumped Foliage-gleaner *Philydor erythrocercus*						X
Rufous-tailed Foliage-gleaner *Philydor ruficaudatus*						X
Dusky-cheeked Foliage-gleaner *Automolus dorsalis*[PC]						X
Buff-throated Foliage-gleaner *Automolus ochrolaemus*[P]		X				X
Ruddy Foliage-gleaner *Automolus rubiginosus*[P]						X
Xenops sp. *Xenops* sp.			X			
Streaked Xenops *Xenops rutilans*						X
Plain Xenops *Xenops minutus*[P]						X
Tawny-throated Leaftosser *Sclerurus mexicanus*[PC]						X
Long-tailed Woodcreeper *Deconychura longicauda*[PC]						X
Wedge-billed Woodcreeper *Glyphorhynchus spirurus*	X[N]		X		X	X
Olivaceous Woodcreeper *Sittasomus griseicapillus*		X		X	X	X
Barred Woodcreeper *Dendrocolaptes certhia*[P]						X
Ocellated Woodcreeper *Xiphorhynchus ocellatus*						X
Buff-throated Woodcreeper *Xiphorhynchus guttatus*[P]						X
Olive-backed Woodcreeper *Xiphorhynchus triangularis*			X			
Lineated Woodcreeper *Lepidocolaptes albolineatus*[P]						X
Sicklebill sp. *Campylorhampus sp.*[P]						X
Fasciated Antshrike *Cymbilaimus lineatus*[P]						X
Lined Antshrike *Thamnophilus tenuepunctatus*			X	X		X
White-shouldered Antshrike *Thamnophilus aethiops*[P]						X
Plain-winged Antshrike *Thamnophilus schistaceus*[PC]		X				X
Russet Antshrike *Thamnistes anabatinus*						X
Plain Antvireo *Dysithamnus mentalis*					X	X
Dusky-throated Antshrike *Thamnomanes ardesiacus*[P]						X
Pygmy Antwren *Myrmotherula brachyura*[P]						X
Stripe-chested Antwren *Myrmotherula longicauda*		X		X		X
Foothill Antwren *Myrmotherula spodionota*			X		X	X
White-flanked Antwren *Myrmotherula axillaris*[P]			X		X	X
Slaty Antwren *Myrmotherula schisticolor*						X
Long-winged Antwren *Myrmotherula longipennis*[P]						X
Grey Antwren *Myrmotherula menetriesii*[P]			X			
Rufous-winged Antwren *Herpsilochmus rufimarginatus*			X			X
Antwren sp. *Terenura* sp.						X

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Species	RN	S	QRS	MC	RMC	M
Grey Antbird *Cercomacra cinerascens*[P]			X			X
Black Antbird *Cercomacra serva*[P]						X
White-browed Antbird *Myrmoborus leucophrys*				X		X
Black-faced Antbird *Myrmoborus myotherinus*[P]			X			X
Warbling Antbird *Hypocnemis cantator*			X			X
Spot-backed Antbird *Hylophylax naevia*[P]			X		X	X
Banded Antbird *Dichrozona cincta*[P]						X
Chestnut-tailed Antbird *Myrmeciza hemimelaena*[P]						X
Sooty Antbird *Myrmeciza fortis*[P]						X
White-plumed Antbird *Pithys albifrons* [P]			X			
Hairy-crested Antbird *Rhegmatorhina melanosticta*[P]						X
Black-faced Antthrush *Formicarius analis*[PC]				X	X	X
Short-tailed Antthrush *Chamaeza campanisona*			X		X*	
Thrush-like Antpitta *Myrmothera campanisona*			X			X
Sooty-headed Tyrannulet *Phyllomyias griseiceps*[PC]						X
Red-billed Tyrannulet *Zimmerius cinereicapillus*[P]						X
Golden-faced Tyrannulet *Zimmerius chrysops*						X
White-lored Tyrannulet *Ornithion inerme*[P]						X
Yellow-crowned Tyrannulet *Tyrannulus elatus*[P]						X
Yellow-bellied Elaenia *Elaenia flavogaster*[P]		X	X	X		
Scrub-flycatcher sp. *Sublegatus (obscurior?)*[P]						X
Torrent Tyrannulet *Serpophaga cinerea*	X[NS]		X	X		
Olive-striped Flycatcher *Mionectes olivaceus*			X			
Ochre-bellied Flycatcher *Mionectes oleagineus*[P]						X
Slaty-capped Flycatcher *Leptopogon superciliaris*						X
Spectacled Bristle-tyrant *Pogonotriccus orbitalis*						X
Ringed Antpipit *Corythopis torquata*[PC]			X			X
Black and White Tody-tyrant *Poecilotriccus capitalis*[P]						X
Buff-throated Tody-tyrant *Hemitriccus rufigularis*[P]						X
Tody-tyrant sp. *Hemitriccus* sp.			X			
Rusty-fronted Tody-flycatcher *Todirostrum latirostre*						X
Golden-winged Tody-flycatcher *Todirostrum calopterum*[P]			X	X		X
Common Tody-flycatcher *Todirostrum cinereum*				X		X
Flatbill sp. *Rhynchocyclus* sp.						X
Olivaceous Flatbill *Rhynchocyclus olivaceus*			X			
Yellow-margined Flycather *Tolmomyias assimilis*[P]						X
Yellow-breasted Flycatcher *Tolmomyias flaviventris*						X
Golden-crowned Spadebill *Platyrinchus coronatus*[P]				X		
Ornate Flycatcher *Myiotriccus ornatus*	X[S]	X	X		X	X
Ruddy-tailed Flycatcher *Terenotriccus erythrurus*						X
Tawny-breasted Flycatcher *Myiobius villosus*						X
Sulphur-rumped Flycatcher *Myiobius barbatus*			X			
Black-tailed Flycatcher *Myiobius atricaudus*[P]				X		
Olive-chested Flycatcher *Myiophobus cryptoxanthus*						X
Wood-Pewee sp. *Contopus (sordidulus?)*				X		
Euler's Flycatcher *Lathrotriccus euleri*[P]						X
Black Phoebe *Sayornis nigricans*	X[NS]		X			

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Species	RN	S	QRS	MC	RMC	M
Cliff Flycatcher *Hirundinea ferruginea*						X
Long-tailed Tyrant *Colonia colonus*		X		X		X
Bright-rumped Attila *Attila spadiceus*						X
Greyish Mourner *Rhytipterna simplex*[P]						X
Dusky-capped Flycatcher *Myiarchus tuberculifer*						X
Short-crested Flycatcher *Myiarchus ferox*[P]				X		
Boat-billed Flycatcher *Megarynchus pitangua*						X
Social Flycatcher *Myiozetetes similis*	X[N]	X	X	X		X
Grey-capped Flycatcher *Myiozetetes granadensis*			X	X		X
Lemon-browed Flycatcher *Conopias cinchoneti*						X
Tropical Kingbird *Tyrannus melancholicus*	X[NS]		X	X		X
Yellow-cheeked Becard *Pachyramphus xanthogenys*						X
Chestnut-crowned Becard *Pachyramphus castaneus*[P]						X
Black-capped Becard *Pachyramphus marginatus*[P]					X	X
Black-and-white Becard *Pachyramphus albogriseus*			X			
Masked Tityra *Tityra semifasciata*		X		X	X	
Sharpbill *Oxyruncus cristatus*[P]						X
Fiery-throated Fruiteater *Pipreola chlorolepidota*[P]		X	X			
White-browed Purpletuft *Iodopleura isabellae*[P]						X
Cinerous Mourner *Laniocera hypopyrrha*[P]						X
Elegant Mourner *Laniisoma elegans*						X
Grey-tailed Piha *Lipaugus subalaris*[P]						X
Amazonian Umbrellabird *Cephalopterus ornatus*					X	
Andean Cock-of-the-rock *Rupicola peruviana*			X			X
Golden-headed Manakin *Pipra erythrocephala*[PC]			X			X
Blue-backed Manakin *Chiroxiphia pareola*[P]						X
White-bearded Manakin *Manacus manacus*[PC]				X		X
Striped Manakin *Machaeropterus regulus*[PC]				X		
Green Manakin *Chloropipo holochlora*					X	X
Dwarf Tyrant-manakin *Tyranneutes stolzmanni*[PC]			X			X
Wing-barred Piprites *Piprites chloris*[PC]			X			X
Thrush-like Mourner *Schiffornis turdinus*[PC]						X
Violaceous Jay *Cyanocorax violaceus*[PC]		X				X
Rufous-browed Peppershrike *Cyclarhis gujanensis*						X
Slaty-capped Shrike-vireo *Vireolanius leucotis*			X			X
Red-eyed Vireo *Vireo olivaceus*			X			X
Dusky-capped Greenlet *Hylophilus hypoxanthus*[P]						X
Olivaceous Greenlet *Hylophilus olivaceus*		X				X
Tawny-crowned Greenlet *Hylophilus ochraceiceps*[P]						X
Swainson's Thrush *Catharus ustulatus*		X	X	X		
Black-billed Thrush *Turdus ignobilis*	X[N]	X		X		X
White-necked Thrush *Turdus albicolis*[PC]						X
Blue-and-white Swallow *Notiochelidon cyanoleuca*	X[S]	X				X
White-banded Swallow *Atticora fasciata*	X[NS]	X		X		X
White-thighed Swallow *Neochelidon tibialis*[PC]						X
Southern Rough-winged Swallow *Stelgidopteryx ruficollis*	X[S]			X		X
Barn Swallow *Hirundo rustica*	X[N]		X			
Thrush-like Wren *Campylorhynchus turdinus*				X		X

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Species	RN	S	QRS	MC	RMC	M
Coraya Wren *Thryothorus coraya*[P]		X				X
House Wren *Troglodytes aedon*	X[N]			X		X
White-breasted Wood-wren *Henicorhina leucosticta*		X		X	X	
Musician Wren *Cyphorhinus arada*						X
Southern Nightingale-wren *Microcerculus marginatus*[P]			X	X		X
Tawny-faced Gnatwren *Microbates cinereiventris*[P]						X
Tropical Parula *Parula pitiayumi*					X	X
Blackburnian Warbler *Dendroica fusca*		X	X			
Canada Warbler *Wilsonia canadensis*		X	X	X	X	
Slate-throated Whitestart *Myioborus miniatus*			X			X
Three-striped Warbler *Basileuterus tristriatus*						X
Buff-rumped Warbler *Basileuterus fulvicauda*	X[NS]			X		X
Banaquit *Coereba flaveola*	X[N]	X	X	X		X
Purple Honeycreeper *Cyanerpes caeruleus*			X			
Green Honeycreeper *Chlorophanes spiza*						X
Blue Dacnis *Dacnis cayana*						X
Black-faced Dacnis *Dacnis lineata*	X[S]		X		X	X
Yellow-bellied Dacnis Dacnis *flaviventer*[PC]	X[S]		X			X
Deep-blue Flower-piercer *Diglossa glauca*				X		
Yellow-backed Tanager *Hemithraupis flavicollis*[P]			X			X
Golden-rumped Euphonia *Euphonia cyanocephala*					X*	X
Orange-bellied Euphonia *Euphonia xanthogaster*			X	X	X	X
Rufous-bellied Euphonia *Euphonia rufiventris*[P]						X
Bronze-green Euphonia *Euphonia mesochrysa*						X
White-lored Euphonia *Euphonia chysopasta*[P]						X
Orange-eared Tanager *Chlorochrysa calliparaea*			X		X	
Golden Tanager *Tangara arthus*			X		X	
Golden-eared Tanager *Tangara chrysotis*					X	
Blue-browed Tanager *Tangara cyanotis*					X	
Blue-necked Tanager *Tangara cyanicollis*		X	X	X	X	X
Masked Tanager *Tangara nigrocincta*						X
Turquoise Tanager *Tangara mexicana*		X				
Paradise Tanager *Tangara chilensis*		X	X		X	X
Green-and-gold Tanager *Tangara schrankii*		X	X		X	X
Spotted Tanager *Tangara puncata*			X		X	
Yellow-bellied Tanager *Tangara xanthogastra*						X
Bay-headed Tanager *Tangara gyrola*		X	X		X	X
Blue-winged Mountain-tanager *Anisognathus flavinucha*					X	
Orange-throated tanager *Wetmorethraupis sterrhopteron*[P]						X
Swallow Tanager *Tersina viridis*[PC]				X	X	
Blue-grey Tanager *Thraupis episcopus*		X	X	X		X
Palm Tanager *Thraupis palmarum*		X	X	X		
Silver-beaked Tanager *Ramphocelus carbo*	X[N]	X	X	X		X
Vermilion Tanager *Calochaetes coccineus*					X	
Summer Tanager *Piranga rubra*				X		
White-winged Tanager *Piranga leucoptera*					X*	
Fulvous Shrike-tanager *Lanio fulvus*			X		X	X
Flame-creasted Tanager *Tachyphonus cristatus*[P]						X
Ashy-throated Bush-tanager *Chlorospingus canigularis*					X	

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Species	RN	S	QRS	MC	RMC	M
Yellow-throated Bush-tanager *Chlorospingus flavigularis*			X		X	
Magpie Tanager *Cissopis leveriana*		X	X	X		X
Greyish Saltator *Saltator coerulescens*		X		X	X	X
Buff-throated Saltator *Saltator maximus*			X			X
Slate-coloured Grosbeak *Saltator grossus*				X		X
Blue-black Grosbeak *Cyanocompsa cyanoides*[P]						X
Yellow-shouldered Grosbeak *Caryothraustes humeralis*[P]						X
Black-and-white Seedeater *Sporophila luctuosa*				X		
Chestnut-bellied Seedeater *Sporophila castaneiventris*		X		X		X
Lesser Seed-Finch *Oryzoborus angolensis*				X		X
Yellow-browed Sparrow *Ammodramus aurifrons*	X[N]	X		X		X
Giant Cowbird *Scaphidura oryzivora*[PC]				X		
Russet-backed Oropendola *Psarocolius angustifrons*	X[N]		X	X	X	X
Yellow-rumped Cacique *Cacicus cela*[P]		X	X	X		
Ecuadorian Cacique *Cacicus sclateri*[P]						X
Orange-billed Sparrow *Arremon aurantiirostris*		X			X	X
	39	48	90	71	63	208

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C. S. BALCHIN
24 Juniper Close, Towcester, Northamptonshire NN12 6XP, U.K.

E. P. TOYNE
Department of Biology, Imperial College, London SW7 2BB.
Present address: *WWF-UK, Panda House, Weyside Park, Catteshall Lane, Godalming, Surrey GU7 1XR, U.K.*