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**PYRRHURA ORCESI, A NEW PARAKEET FROM
SOUTHWESTERN ECUADOR, WITH SYSTEMATIC
NOTES ON THE *P. MELANURA* COMPLEX**

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ABSTRACT.—A new species of parakeet, *Pyrrhura orcesi* sp. nov., from southwestern Ecuador is described and named the El Oro Parakeet. This species is most closely related to the Maroon-tailed Parakeet (*P. melanura*). *Pyrrhura orcesi* is restricted to a narrow band of forest, between ca 600 to 1100 m in elevation, along the western slope of the Ecuadorian Andes. Its range is only ca 100 km in length, and, given the current rate of deforestation in the area, it soon may be threatened with extinction. *Received 26 Mar. 1987, accepted 3 June 1987.*

In August 1980 a field party consisting of R. S. Ridgely, P. Greenfield, and R. A. Rowlett was investigating remnant patches of cloud forest west of Piñas, Prov. El Oro, Ecuador, at ca 900 m on the west slope of the Andes. On 4 August, the group observed a flock of nine parrots, clearly members of the genus *Pyrrhura*, landing in the canopy. The flock was observed for about 15 min; all members of the flock displayed a red forecrown and a virtual lack of breast scaling. No known member of the genus shares such characters; however, no photographs or voucher specimens were obtained.

Not until June 1985 could a return expedition be organized, under the auspices of the Academy of Natural Sciences, Philadelphia (=ANSP) and the Museo de Ciencias Naturales in Quito, Ecuador. Members of the expedition spent three weeks during late June and early July in the region of the original discovery, found the parakeet to be relatively numerous in what forest habitat remained, and collected 12 specimens. In August

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The male (the type; lower bird) and female of the El Oro Parakeet, *Pyrrhura orcesi*, a new parakeet from southwestern Ecuador. Painting by William T. Cooper.

1986, a field party returned to southwestern Ecuador to determine the northern limit of the bird's distribution, and obtained four additional specimens at a site ca 100 km north of the original locality. In addition, a heretofore unrecognized specimen of the bird in the British Museum of Natural History, Tring (=BM) was brought to our attention by T. Schulenberg. Study of this material, and of specimens of related species in the genus *Pyrrhura*, convinces us that the new parakeet deserves recognition as a full species, which we propose to name:

Pyrrhura orcesi sp. nov.

EL ORO PARAKEET

HOLOTYPE.—Academy of Natural Sciences No. 177523; adult male, ca 9.5 road km W of Piñas, ca 900 m, 3°40'S, 79°44'W, Prov. El Oro, Ecuador, 21 June 1985; collected by Mark B. Robbins, original number 1541.

DIAGNOSIS.—A *Pyrrhura* parakeet most similar to *P. melanura*. Readily distinguished from all forms of that species by its obsolete scaling on the breast and sides of neck, its red frontal band, and its much greener crown (the feathers without any dusky-brown centers). Superficially resembles geographically distant *P. rhodocephala*, but differs strikingly in its smaller size, having only forecrown red (not the entire crown), green (not red) ear-coverts, red (not white) alula and median coverts, and much more green in tail.

DISTRIBUTION.—So far, known only from three localities, all on the west slope of the Andes of southwestern Ecuador in Provs. El Oro (the type locality and Piedras) and Azuay (7 km E of Naranjal, 2°40'S, 79°32'W), at elevations ranging from 600 to 1100 m. Presumably occurs in intervening areas at appropriate elevations, and where suitable forest remains (Fig. 1).

DESCRIPTION OF HOLOTYPE.—General coloration green, closest to Parrot Green (Color 60; capitalized colors from Smithe 1975, 1981), but shinier and brighter than that color on face, crown, nape, back, rump, and abdomen; slightly darker and duller on the wing-coverts and breast. Pale buffy grayish marginations virtually absent from breast feathers, but somewhat more pronounced on sides of neck. Center of abdomen with slight maroon-red suffusion. Broad (ca 5 mm) frontal band Geranium (Color 12), extending back to just in front of eye. Outermost greater and median primary coverts, as well as the alula, Geranium Pink (Color 13), somewhat more intense on bend of wing. Outer webs of outer primaries blue, very narrowly edged with green. Tail above mostly Burnt Sienna (Color 132), with outer webs and base green; below mostly dusky with inner webs margined with Burnt Sienna. Soft part colors in life: irides dark brown; tarsi black; bill horn; eye ring pinkish-white.

MEASUREMENTS (mm).—Wing (chord) 123.2; tail 102.2; culmen from anterior edge of cere 16.4; mass 73 g.

SPECIMENS EXAMINED.—*Pyrrhura orcesi*: ECUADOR: type locality 11 (ANSP), 1 skeleton (photo of fresh skin in VIREO VO1-3-007-011); Prov. El Oro, Piedras, 1 (BM); Prov. Azuay, Naranjal, 3 (ANSP), 1 (Museo Ecuatoriano de Ciencias Naturales, Quito). *P. m. pacifica*: ECUADOR: Prov. Esmeraldas, San Lorenzo, 5 (ANSP), San Mateo, 1 ([FMNH=] Field Museum of Nat. Hist.), Lita, 1 ([AMNH=] American Museum of Nat. Hist.); Prov. Pichincha, Río Blanco, 1 (ANSP); *P. m. melanura*: VENEZUELA: Amazonas, Cerro Duida, 7 ([MCZ=] Museum of Comparative Zoology, Harvard), Boca de Sina, 1 (MCZ), El Mery, 3 (MCZ); BRAZIL: Amazonas, Iauarete, 1 (MCZ), Tahuapunto, 2 (MCZ), Lago Tefe, 1 (MCZ), Rio Mirapinimi, 1 (MCZ), Rio Mazan, 1 (MCZ); ECUADOR: Prov. Pastaza, Chicherota, 1 (ANSP), Montalbo, 2 (ANSP); Prov. Napo, Limnoncocha, 1 ([LSUMZ=] Loui-

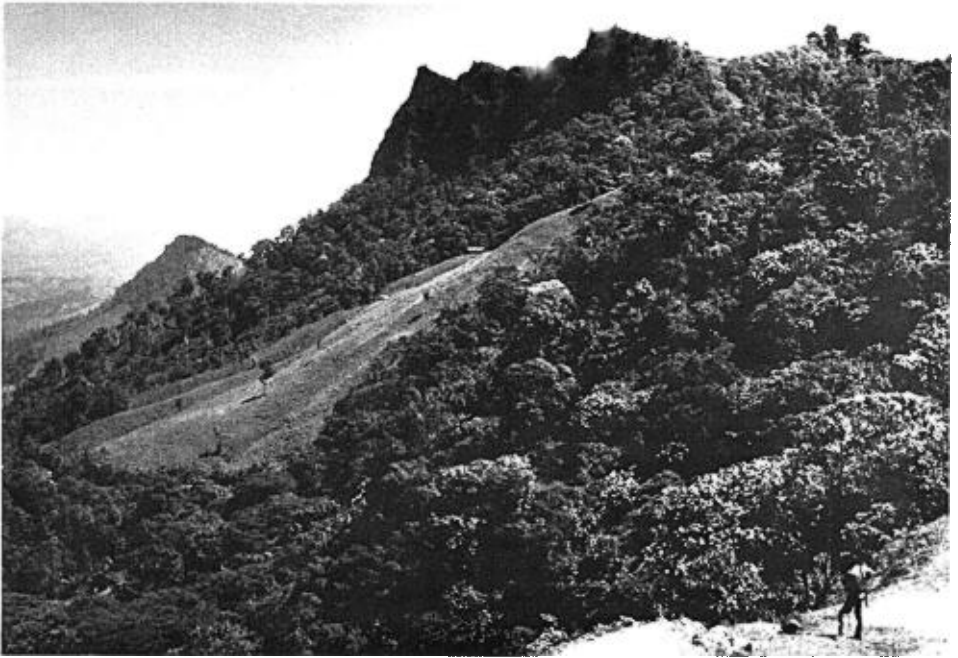


FIG. 1. Type locality of the El Oro Parakeet.

siana State Univ. Museum of Zoology, Baton Rouge), Archidona, 1 (AMNH); Prov. Morona-Santiago, Huila, [incorrect locality]; PERU: Dept. Loreto, Río Curaray, 2 (MCZ), 80–90 km N of Iquitos, 7 (LSUMZ), Río Nanay, 2 (FMNH), Apayacu, 1 (ANSP), Morado-Pamba, 2 (FMNH); *P. m. souancei*: ECUADOR: type, no locality, 1 (BM); COLOMBIA: Dept. Caqueta, Morelia, 5 (ANSP); Dept. Putumayo, Umbria, 1 (ANSP), Puerto Asis, 1 (ANSP), San Antonio, 1 (FMNH); Dept. Meta, La Macarena, 1 (FMNH); *P. m. berlepschi*: PERU: Dept. San Martín, Nuevo Loreto, 2 (AMNH), Tarapota, 1 (LSUMZ); ECUADOR: Prov. Morona-Santiago, Cord. de Cutucú, 1 (ANSP), Macas, 1 (AMNH), 1 (photograph, VIREO, R10-1-005); Prov. Pastaza, Río Curaray, 1 [incorrect locality]; *P. m. chapmani*: COLOMBIA: Dept. Huila, La Plata (type locality), 4 (ANSP), La Candela, 3 (ANSP), El Isno, 4 (ANSP), San Agustín, 2 (ANSP); Dept. Cauca, Moscopán, 2 (ANSP), 3 (FMNH); *P. rhodoccephala*: VENEZUELA: Mérida, El Valle, 1 (ANSP).

ETYMOLOGY.—We are pleased to name this species in honor of Dr. Gustavo Orcés V., in recognition of his many contributions to Ecuadorian ornithology and his continuing encouragement of younger generations of field biologists. The proposed English name, El Oro Parakeet, refers to the province in Ecuador where this species was discovered.

REMARKS

Variation within the species.—Only very slight variation is apparent within adults of *P. orcesi*. Besides the holotype, only four other individuals (ANSP 177524, 177522, 177525, 177528) show even a hint of red on the

center of the abdomen; in all other examples, the abdomen is more or less uniform green. However, young birds (based on presence of bursa Fabricius in some individuals, and on begging behavior in others; ANSP 177526, 177530, 178081, 178083, plus 177533, which was preserved as a skeleton, but photographed before preparation; VIREO VO1-3-007-011) show markedly reduced red on the frontal area and have the red on the wing entirely or virtually restricted to the carpal edge (there is considerable variation, presumably due to molt stage). On one specimen (ANSP 177524), the entire 9th primary on the right wing is red.

Systematic relationships.—The closest relative of *P. orcesi* is the rather variable species *P. melanura*. The two species share relatively small size and overall plumage pattern, including tail and wing pattern and color. All races of *P. melanura*, however, show conspicuous narrow to broad pale tipping on the breast feathers and sides of neck, absent (or virtually so) in *P. orcesi* (see Fig. 2). All races of *P. melanura* do show a faint trace of reddish on the feathers just above the maxilla, most marked in *P. m. pacifica*, the race of *melanura* found on the western slope to the north of the range of *P. orcesi* (Fig. 2). This hint of color could argue for considering *orcei* as merely the southwestern Ecuador representative of *P. melanura*. However, in none of the six available specimens of *pacifica* does this in any way approach the condition found even in young *P. orcesi* (in which the amount of red on the forecrown is reduced); furthermore, the color itself differs, being (in *pacifica*) closest to Brick Red (Color 132 A). In addition, while we are uncertain whether this has any taxonomic significance, the eye ring of *pacifica* is gray (Arndt 1983, pers. obs.), while that of *P. orcesi* is pinkish-white.

During the course of assessing the relationship of *P. orcesi* to the *P. melanura* complex, we critically examined specimens of *melanura* in American museums, and a number of problems came to light. Five subspecies of *P. melanura* have been described. Nominate, *souancei*, *berlepschi*, *pacifica*, and *chapmani* are known from various parts of western Amazonia or from the slopes of the northern Andes. Both *chapmani* and *pacifica* are isolated geographically and are relatively well differentiated. *Chapmani* differs from all other forms of *P. melanura* by virtue of its larger size in all measurements (see Table 1). It further differs in occupying a higher elevation zone than other races, ca 1600–2800 m (Forshaw and Cooper 1973); the lowest point at which it has been recorded is thus above the highest known elevation (1500 m, *berlepschi*; VIREO R10-1-005) for

FIG. 2. The *Pyrrhura melanura* superspecies complex. Clockwise from lower left: *P. orcesi*, range = red; *P. m. pacifica*, range = diagonal lines; *P. m. chapmani*, range = stippled; *P. m. melanura/souancei*, range = light gray; *P. m. berlepschi*, range = black. Thin red line represents 1000 m contour. Painting by Paul Greenfield.

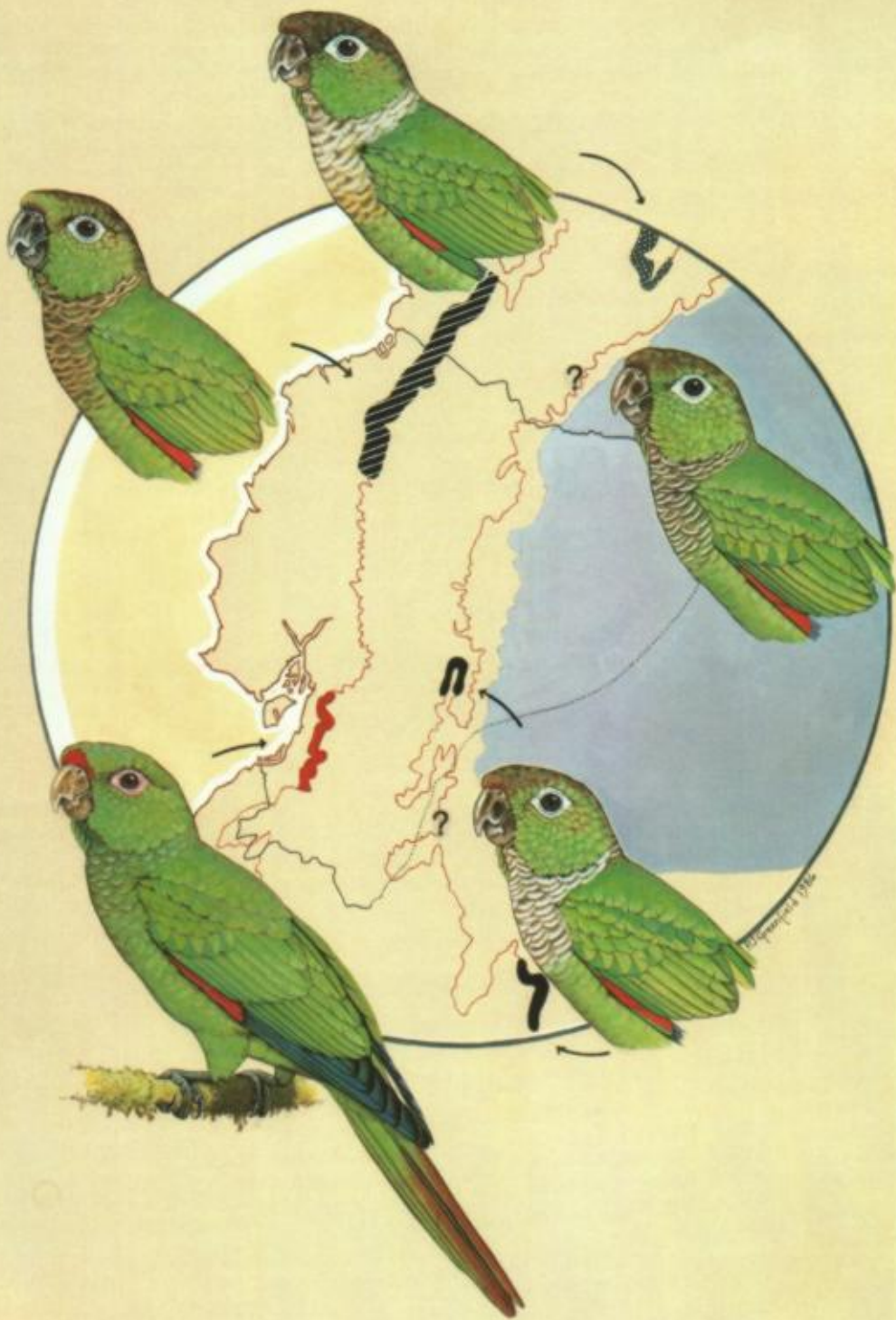


Fig. 2. The *Pyrrhura melanura* superspecies complex. Clockwise from lower left; *P. orcesi*, range = red; *P. m. pacifica*, range = diagonal lines; *P. m. chapmani*, range = stippled; *P. m. melanura/souancei*, range = light gray; *P. m. berlepschi*, range = black. Thin red line represents 1000 m contour. Painting by Paul Greenfield.

TABLE 1
SELECTED MEASUREMENTS (MM) OF THE *PYRRHURA MELANURA*
SUPERSPECIES COMPLEX

Species	Wing chord		Tail length		Mass	
	N	Range (mean)	N	Range (mean)	N	Range (mean)
<i>Orcesi</i>	15	113.8–127.7 (119.2)	11	90.0–103.1 (98.2)	14	65.0–73.5 (70.8)
<i>Melanura pacifica</i>	6	118.8–129.0 (124.3)	6	90.0–99.6 (92.9)	—	—
<i>M. melanura</i>	21	119.6–133.9 (126.6)	19	101.6–120.0 (109.9)	9	64.0–79.0 (73.3)
<i>M. souancei</i>	9	121.0–129.6 (127.9)	8	102.7–112.5 (112.5)	—	—
<i>M. chapmani</i>	16	133.0–141.8 (136.8)	13	118.1–132.6 (125.2)	—	—

any other form in the species. It might, in fact, be argued that *chapmani* deserves to be recognized as a full species (as indeed it was described; Bond and Meyer de Schauensee 1940), but we hesitate to do so in the absence of supporting evidence from other lines of investigation (e.g., biochemical).

Pyrrhura m. pacifica is also geographically isolated from other forms of *P. melanura*, being the only race found on the west slope of the Andes. It differs most obviously in its shorter tail (Table 1) and grayish eye ring (whitish to white in all other races of *P. melanura*; Arndt 1983, pers. obs.); in other respects it most resembles representatives of the species found far to the east in Amazonia, i.e., it has narrower breast scaling.

What is now known as *P. m. melanura* was described by Spix (1824) on the basis of two specimens taken at Tabatinga, a town in what is now Amazonas, Brazil, on the north bank of the Amazon near Leticia, Colombia. *P. m. souancei* was described as a species by Verreaux (1858) on the basis of three specimens to which he ascribed no locality, and with no reference to the description of the very similar *melanura*; none of the three specimens was designated as the holotype. Both descriptions of *melanura* and *souancei*, were accompanied by plates, rather crudely rendered; the birds depicted appear very similar. Sclater (1862) restricted the type locality of *souancei*, with no explanation, to "Río Napo." We presume that Sclater had access to information, not available now, when he did so. In fact, the one specimen of the three syntypes that we have examined (BM 59.11.22.25) is marked "Río Negro." The two forms were first considered conspecific by Chapman (1926), who correctly established

that *souancei* resembled nominate *melanura* but for its relatively wider pale breast scaling. Neither Chapman nor Peters (1937), however, seems to have addressed adequately the problem of *souancei*'s actual range, Peters listed it as "Amazonian Ecuador" (which at that time extended east to the Iquitos area in what is now northeastern Peru). Following this, specimens of this parakeet from anywhere in or near the Napo drainage have usually been labeled *souancei*.

Based on the available series of specimens from numerous localities, we believe that this is not the best treatment. Birds from the middle and lower Napo drainage, in fact, closely resemble birds from southern Venezuela and northwestern Brazil, nominate *melanura*: they have narrow breast scaling. Not until one gets relatively close to the Andes, or ascends their lower slopes, does one consistently find birds with relatively broader breast scaling. It is to this population that the name *souancei* should be applied; thus we restrict the type locality of *souancei* to the "upper Río Napo." We should point out that gene flow apparently occurs between these two forms.

These broad-scaled birds also appear to exhibit geographic variation. Several birds of a small series (N = 9) from western Caquetá and western Putumayo in southeastern Colombia seem virtually identical with the type of *souancei*. Southward along the base of the Andes, however, there occurs another population of birds with even broader, and consistently whiter foreneck scaling. This population was described by Salvadori (1891) as *P. berlepschi*, with the type locality of Chyavetas (=Chayahuitas, Dept. Loreto) in northeastern Peru south of the Río Marañón. Still known from very limited Peruvian material, we believe that a recent specimen (ANSP 176701) taken on the western slope of the Cordillera de Cutucú in southeastern Ecuador, as well as a photograph of a netted bird from the nearby Upano River valley (VIREO R10-1-005) are referable to *berlepschi*, extending the range of this form ca 320 km northward. It should be noted that in the Colombian series there is also at least one bird (FMNH 286758) that approaches typical *berlepschi* in the width of its breast scaling. No such variation is apparent in the series of *berlepschi* from Peru and southern Ecuador available to us (5 of the 6 known specimens), but this may simply reflect inadequate material of *berlepschi*. Should variation in *berlepschi* prove to be comparable to that seen in *souancei*, we would synonymize *berlepschi* with *souancei*.

Two anomalous specimens deserve mention. One, AMNH 230883, taken by the Olalla brothers, is labeled as having been collected at "Boca Río Curaray," well within the range of nominate *melanura* (as defined above). Two other typical *melanura* (MCZ 137818, 137817) were obtained there on virtually the same date, but this particular specimen seems in every way identical to *berlepschi*. We suspect the locality is inaccurate.

Another specimen (AMNH 156769), is labeled as having been obtained at "Huilca" in Ecuador. The precise location of this town seems uncertain (see Paynter and Traylor 1977), but it seems unlikely to be in the "Macas Region," as its tag is labeled, and the bird appears to be referable to nominate *melanura*. The latter may have been a cagebird (its rectrices are very heavily worn), perhaps transported over the Cordillera de Cutucú from east of the Andes (as RSR has observed local Shuar Indians doing with *Pionites melanocephala* and other parrots).

To summarize, we would recommend considering birds from virtually the entire Amazon basin as *P. m. melanura*, restricting *P. m. souancei* to a limited area near the base of the Andes in southeastern Colombia (and probably adjacent northeastern Ecuador), and *P. m. berlepschi* to a relatively small area on the east slope of the Andes in northeastern Peru and southeastern Ecuador. The extent of gene flow between *souancei-berlepschi* and nominate *melanura* presumably is unimpeded, although to date there is no specimen material conclusively demonstrating this. Likewise there is presumably a connection between *souancei* and *berlepschi* along the east slope of the Andes, also as yet not found; they may prove to be the same group.

A problem that needs to be addressed is the possible relationship of *P. melanura* and *P. albipectus*. This question came to light during our investigations in 1984 on the Cordillera de Cutucú in southeastern Ecuador, when we found a somewhat variable population of *P. m. berlepschi* on the lowermost slopes of the cordillera. One specimen was taken, and a significant amount of white on the breast of flock members was observed, with some showing almost all white. At higher elevations, what appeared to be pure flocks of *P. albipectus* were found; two specimens were taken. One interpretation of this distribution would be to consider *albipectus* as a partially localized upper-elevation replacement of *P. m. berlepschi*, but we hesitate to do this because of complications elsewhere (Robbins et al. 1987).

Distribution, habitat, and ecology.—The known range of this species is no more than 100 km in length and between 5 and 10 km in width, extending north from the type locality (Fig. 1) to just east of Naranjal, Prov. Azuay. Despite extensive searches, we failed to find *orcesi* north of the Naranjal site, and, in fact, no *Pyrrhura* was found at the appropriate elevations in the provinces of Cañar or Bolívar. *Pyrrhura melanura pacifica* is unrecorded south of Río Palenque, Prov. Los Rios, ca 280 km north of the northernmost locality of *orcesi*. It thus appears that a gap exists between the ranges of *orcesi* and *m. pacifica*. Within this gap, at elevations where *orcesi* and *m. pacifica* should occur, a substantial amount of naturally occurring vegetation has been converted to orange groves and other agricultural use. Nevertheless, it appears that this gap may not have

been artificially induced, as a number of early collectors (e.g., Rhoads in 1911; Gill in 1921; Chapman et al. in 1922; see Bucay locality in Paynter and Traylor 1977) spent considerable time at appropriate elevations in this region without obtaining *Pyrrhura*.

We found *P. orcesi* only in a narrow band of humid, upper tropical zone forest, between 600 and 1100 m. The British Museum specimen (53.68.106), which L. Gomez collected at Piedras, however, is noted as having been obtained at 300 m. Perhaps at the time this specimen was taken (9 September 1939), suitable cloud forest extended lower than it does anywhere at present; Gomez obtained only one specimen, so perhaps the species was rare at that locality. At the type locality, forest canopy height on the more level areas exceeded 20 m, although average canopy height was lower on steeper slopes. During our investigation, the forest usually was enshrouded by clouds from predawn until about midday (VIREO RO8-7-014). Trees and the relatively dense understory were laden with epiphytes. Moisture is carried by westerly winds from the Pacific Ocean (ca 75 km west of the type locality). The forest at the Naranjal site was very similar to the El Oro site, except that it was even more fragmented by human activity.

At the El Oro site, at least six flocks of birds, comprised of from four to twelve individuals per flock, were observed. A highly conservative count gave us a total of between 55–60 birds at the type locality. Over twenty, in three different flocks, were recorded at the Naranjal locality. Flocks consisted of adults and young of both sexes. On 27 June 1985 in the early morning, Robbins observed a flock of four individuals foraging on fruit in the canopy of a tall tree. One of the individuals, a bird with no apparent red forecrown, was giving a distinctive, slightly higher-pitched, more raspy, and shorter call than the flight and contact calls of the birds it was with. As it called, its head, body, and tail were oriented horizontally, with its wings extended and constantly quivering. This behavior was directed at a nearby bird which had a broad red forecrown. On four separate instances the “red-fronted” individual regurgitated food to this bird. Attempts to collect the begging individual failed. At 12:00 on the same day, Robbins again encountered what appeared to be the same flock. Begging by a single individual was again observed. This bird (ANSP 177526) proved to be a female, in fresh plumage, with only a hint of a red forecrown. The throat and crop were filled with regurgitated fruit. The previous day another collected individual (ANSP 177533; VIREO VO1-3-007-011) with little red on forecrown, in fresh plumage, also had its throat and crop filled with regurgitated fruit. Both of these birds had less red in the alula and the outermost greater wing coverts than birds that had relatively broad red frontal bands.

Further evidence that birds with a reduced amount of red in the fore-crown and on the bend in the wing are immatures comes from birds collected in 1986 at the Naranjal site. Two of the four birds collected (ANSP 178081, 178083) had the bursa present, and both of these birds had minimal amounts of red in the forecrown and the alula and outermost greater wing coverts. The other two birds that had larger amounts of red in the above regions did not have the bursa. Our 1985 series of parakeets unfortunately were not examined for the presence of bursa. No difference in soft part colors were noted between adults and immatures. Given that some young birds were begging food in late June, we speculate that the main breeding period for *orcesi* is from March through May.

At the type locality, the birds were observed feeding repeatedly at a fig (*Ficus* cf. *macbridei*; section *Pharmacosycea*) and on the fruit of *Helio-carpus popayanensis* (family Tiliaceae). At the Naranjal site, the parakeets were observed feeding only on the fruit of *Hieronyma* sp. (family Euphorbiaceae).

Conservation.—The natural forest habitat at the type locality and the Naranjal site has been reduced significantly by human activity (VIREO RO8-7-004, 006–009, 011, 018–024). At the El Oro site, between 10 and 15 large trees were being removed daily from a small tract of accessible forest (see Fig. 1); typically, once the larger trees are removed, the area is burned and cattle are brought in. Although *orcesi* was relatively numerous and appeared to be thriving in the patchy forest now found at both localities, significant further disturbance and fragmentation of the forest may eliminate vital nesting and feeding sites. Fortunately, there is still extensive, mostly inaccessible forest remaining between the type locality and the Naranjal site. We strongly recommend that a sizable tract of land in this area be preserved, not only to insure that a large population of the parakeet is protected, but also to protect other taxa that have distributions restricted to this region (e.g., the Ochre-bellied Dove [*Lep-totila ochraceiventris*]).

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York Botanical Garden), the Aarhus Univ. Herbarium, Denmark, kindly identified botanical specimens. We are grateful to T. S. Schulenberg for bringing to our attention the presence of the Tring specimen of what proved to be the new parakeet. We are also grateful to M. Dolack for translating several articles. We thank the following people and institutions for the loan of their valuable specimens: M. LeCroy, American Museum of Natural History; J. Fitzpatrick and D. Willard, Field Museum of Natural History; J. V. Remsen, Jr. and S. Cardiff, Louisiana State Museum of Zoology; and R. Paynter, Jr., Museum of Comparative Zoology; and we also thank G. Cowles, of the British Museum, Tring for photographing the three types (and daring to send us one!) of *souancei*. We thank K. Bildstein, G. Graves, and K. Parkes for comments on the manuscript.

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FRONTISPIECE

The male (the type; lower bird) and female of the El Oro Parakeet, *Pyrrhura orcesi*, a new parakeet from southwestern Ecuador. Painting by William T. Cooper.