

Distribution, variation, and conservation of Yellow-headed Parrots in northern Central America

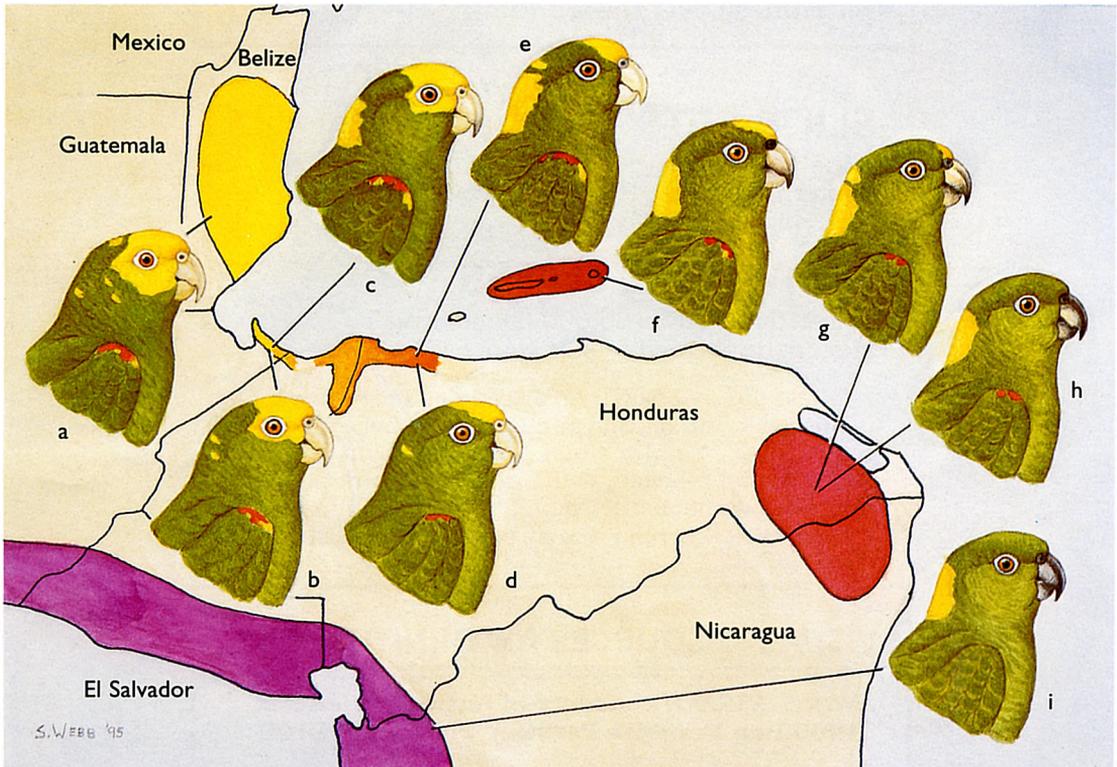
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Introduction

The Yellow-headed Parrot *Amazona ochrocephala* complex comprises a number of allopatric forms, differing primarily in the amount and distribution of yellow on the head and in bill colour. As a rule, the amount of yellow on the head of both Atlantic Slope and Pacific Slope adult birds decreases from north and west to south and east. Thus, the American Ornithologists' Union¹ recognises three species in the complex: Yellow-headed Parrot *A. oratrix* (the pale-billed, yellow-headed and yellow-faced birds of Mexico and Belize: the described forms *tresmariae*, *magna*, *oratrix* and *belizensis*), Yellow-naped Parrot *A. auropalliata* (the darker-billed, yellow-naped birds of the Pacific slope from S Mexico to

NW Costa Rica, disjunctly in the Mosquitia: the described forms *auropalliata*, *caribaea* and *parvipes*), and Yellow-crowned Parrot *A. ochrocephala* (the yellow-crowned, mostly pale-billed birds from Panama to South America, disjunctly in the Sula Valley of Honduras: the described forms *panamensis*, *ochrocephala*, *xantholaema* and *nattereri*). Alternatively, Forshaw³ considers all birds in this complex as members of a single, highly variable species, the Yellow-crowned Amazon *A. ochrocephala*.

Here we attempt to clarify the complex variation, distribution, and status of birds on the Atlantic slope from Belize to Nicaragua (see Fig. 1). This paper is not intended as a taxonomic treatise, although at least it suggests a re-evalu-





a



b



c



d

Figure 2. "Yellow-headed Parrots" from Guatemala and Honduras (all adults except d). Photos by Sebastian A. Lousada

- a) "*guatemalensis*" (yellow-crowned type);
- b) "*guatemalensis*" (yellow-naped type);
- c) "*hondurensis*" (yellow-naped type);
- d) juvenile "*hondurensis*";
- e) *caribaea*;
- f) *parvipes* (dark-billed).



e



f

Figure 1 (facing page). Distribution of the Yellow-headed Parrot complex in northern Central America, and adults of the various forms.

- a) *belizensis*
 - b) yellow-crowned "*guatemalensis*"
 - c) yellow-naped "*guatemalensis*"
 - d) yellow-crowned "*hondurensis*"
 - e) yellow-naped "*hondurensis*"
 - f) *caribaea*
 - g) pale-billed *parvipes*
 - h) dark-billed *parvipes*
 - i) *auropalliata*
- Painting by Sophie Webb.



Figure 3 (right). "North to south" variation in adult birds of the Yellow-headed Parrot complex (Photo by Sebastian A. Lousada). From left to right: *oratrix* MCZ 71470, Petapa, Oaxaca, Mexico; *belizensis* MCZ 119739, near Ycaos Lagoon, Belize; "*hondurensis*" CMNH 20448, Chasniguas, Honduras; *caribaea* CMNH 131583, Isla Barbareta, Honduras; *parvipes* UCLA 51466, Leicus Creek, Comarca de El Cabo, Nicaragua.

ation of the geographical limits of the three species recognised by the AOU¹. Most of our information comes from fieldwork in Belize, Guatemala, and Honduras, although we also have experience in Mexico and throughout Central America south to Panama. Present-day field studies of "yellow-headed parrots" are often difficult since, for example, *A. oratrix* is considered "the most popular and sought-after amazon in the [cagebird] trade"². Consequently it is a threatened species whose status in the wild ranges from greatly reduced to locally extirpated² (and SNGH pers. obs.) and geographic distribution often has to be extrapolated from a paucity of data. Our experience with captive birds adds relevant data, and we also have examined museum specimens of all populations discussed here (except "*guatemalensis*", of which no specimens exist, to our knowledge). Table 1 lists adult characters of Middle American populations of the Yellow-headed Parrot complex (and see Fig. 1).

The problem in northern Central America

Monroe & Howell⁸ discussed geographic variation in the Yellow-headed Parrot complex, and named two new races from northern Central America: *belizensis* of Belize (a race of Yellow-headed Parrot¹; Fig. 1a), and *parvipes* of the Mosquitia and Honduras Bay Islands (a race of Yellow-naped Parrot¹; Figs. 1g/h, 2f), while Lousada⁷ further distinguished Bay Island birds as the race *caribaea* (Figs. 1f, 2e); Parkes⁹, however, questioned the validity of this last taxon. Monroe & Howell⁸ were puzzled by the presence of yellow-crowned birds in the Sula valley of N Honduras and concluded that these birds probably represented an undescribed subspecies. At that time, however, age variation in plumage of these parrots was poorly understood (T. R. Howell pers. comm.) and this may have contributed to the confusion surrounding the Sula Valley birds. The situation has never been clarified satisfactorily as there are only a few museum skins and an apparent extreme scarcity of these birds in the wild. Collar *et al.*² hinted at the complexity of the problem by noting the presence in NE Guatemala of birds intermediate between Belize yellow-headed parrots and Honduras yellow-crowned parrots.

Luckily, portions of the coastal areas of NE Guatemala and N Honduras are relatively inaccessible, and enough birds survive, albeit precariously, to help solve the problem. In January 1994, SAL and Armando Morales visited this region, located and studied the following four

populations of the complex, and gathered much information through interviews with local people:

- 1) "*guatemalensis*", the undescribed, intermediate form mentioned by Collar *et al.*² (Figs. 1b/c);
- 2) "*hondurensis*", the undescribed, yellow-crowned form mentioned by Monroe & Howell⁸, located in NW Honduras (Figs. 1d/e);
- 3) *caribaea*, the yellow-naped birds of the Honduras Bay Islands (Fig. 1f);
- 4) *parvipes*, the yellow-naped birds of the Mosquitia of NE Honduras and N Nicaragua (Figs. 1g/h). Our studies indicate that the yellow-headed parrots of Belize are "connected" with the dimorphic, yellow-crowned and yellow-naped birds of the Sula Valley of Honduras by an intermediate, dimorphic yellow-headed population in NE Guatemala and NW Honduras (see Fig. 1). Today, despite an overall distance of less than 200 km, these three populations are isolated from one another due to habitat loss, although introgression presumably occurred in the past. We refer to the Belizean and Guatemalan/Honduran yellow-headed birds as the *belizensis* group, the Sula Valley yellow-crowned birds as "*hondurensis*" (recognising that this population has not been named formally), and the allopatric yellow-naped birds of the Honduras Bay Islands and Mosquitia as the *parvipes* group.

Age variation

As well as consistent age-related differences between juveniles and adults, there is sometimes considerable variation in coloration among individuals of the same subspecies, even from the same nest. Fledglings generally have duskier bills (especially noticeable on the upper mandibles; Fig 2d) and duller, browner eyes than adults. Cere/bristle and eyelid edge colour may also be darker in juveniles, as are the claws in Yellow-headed birds. Young birds have the yellow on the head much reduced, or totally absent (as with the yellow hindneck patches typical of adult yellow-naped birds). Further, any red or yellow on the bend of the wing or rectrices is reduced or absent, as is any yellow coloration on the thighs (typically found on adult yellow-headed birds).

After changing rapidly from grey-brown to pale amber in the first six months of age, eye colour changes gradually to its final amber colour over the first 2-3 years. Also, most of the dark areas on the mandibles of paler-billed forms lighten during the first 2-3 years. When the birds

first moult, during 12-16 months after fledging (at least in most captive birds), areas of yellow and red plumage increase; thus, in yellow-naped birds, a spotty nape patch usually becomes apparent. Colours increase with each successive moult, until by sexual maturity at three to five years, adult plumage is attained. Each annual moult may then differ in that individual birds can be slightly more or less colourful in some years than others but often, as a bird ages further, coloration can increase slowly, giving some aged individuals a decidedly magnificent appearance. The bill also may vary slightly in colour over time.

The *belizensis* group

These birds are known locally as "Loro Real" in NE Guatemala, and as "Lora" in NW Honduras. Belizean birds (typical *belizensis*) inhabit the pine savannas and adjacent evergreen forest patches of Belize. Another form (which we term "*guatemalensis*", recognising that it has not been named formally) occurs in coastal scrub and mangroves at Punta Manabique, in NE Guatemala (near Puerto Barrios) and through the coastal lowlands into extreme NW Honduras, east to Cuyamel (SAL pers. obs.). There is also a report in September 1993 of *belizensis*-type birds from the pine savannas of Petén, N Guatemala (R. Clay *in litt.*), in addition to an old report of Yellow-headed Parrot (in the broad sense) from Petén⁶; the presence of *belizensis* in this area, ecologically similar to pine savanna in Belize, is not unexpected.

Typical mature *belizensis* (Fig. 1a) are yellow-faced with relatively extensive yellow on the crown, lores, and auriculars. Some birds also have yellow nape feathers, e.g. MCZ specimen 119739 from southern Belize, with relatively extensive yellow in its nape (Fig. 3). Interestingly, green nape flecks are found frequently in adult *oratrix* Yellow-headed Parrots (e.g. Fig. 3), and may almost delineate a yellow nape patch.

In "*guatemalensis*", the yellow is usually restricted to a crown patch and broad eyering (Figs. 1b, 2a), and a significant number of adult birds also have a yellow nape patch of variable extent (Figs. 1c, 2b). For example, SAL and Morales visited the Punta Manabique area in 1994 and saw c.100 "*guatemalensis*" coming to roost at a group of half-dead mangroves on a remote beach near the Honduras border: three pairs of birds were observed clearly, one of which comprised two birds with sizeable yellow nape patches along with somewhat reduced *belizensis*-type face

pattern. Although *belizensis* typically have pale bills, ceres/bristles, and claws, all (15) captive "*guatemalensis*" seen showed some or all of the following features: dark grey streaks or tips to the mandibles, dusky ceres/bristles, and, most commonly, dark claws. Without exception, they also had a dark eyelid edge that contrasted with the pale orbital ring (see Fig. 2a); it appears that true *belizensis* have pale eyelids indistinguishable from the orbital ring. *Belizensis* group juveniles have yellow restricted to the forecrown, usually with some yellow around the eye.

Sula Valley birds ("*hondurensis*")

These birds are known locally as Guarará. From previous reports and information gathered during our recent research it is clear that these birds formerly ranged throughout the Sula Valley from Yojoa to Puerto Cortes, west along the coast towards Guatemala (and "*guatemalensis*"), and east towards La Ceiba and perhaps beyond. Due to extreme habitat loss through human settlement and agriculture, the distribution of "*hondurensis*" has been "very local"⁸ for at least the past 30 years. In our extensive searches for this bird, locals interviewed were mostly not familiar with it or said they used to see it years ago. S. Thorn and V. Roth (pers. comm.) saw two birds in the late 1980s at Lago Tikamaya, near San Pedro Sula, and one near Puerto Cortes, but we know of no other recent reports. SAL and Morales finally located a remnant population of "*hondurensis*" just south of Punta Sal (a few kilometres east of where the Río Ulua/Sula joins the sea), in similar coastal scrub habitat to where they found "*guatemalensis*" on the Honduras-Guatemala border. At a slightly elevated roosting site of patchy trees amid some cleared agricultural land they saw c.75 "*hondurensis*" assembling for the night in loose conjunction with about 30 Red-ored Parrots *A. autumnalis*. This may be a traditional roosting area that the birds are still using despite severe habitat alteration, as noted for Red-tailed Amazon *A. brasiliensis*¹⁰.

"*Hondurensis*" always have yellow crowns (Figs. 1d/e, 2c/d), frequently in a broad, rounded or triangular shape that covers most of the forehead. As adults, about 67% of birds also have full yellow napes (Fig. 1e) although some 20% have either no yellow nape or just a few flecks (Fig. 1d); the remainder are intermediate, with spotty nape patches. Among captive birds these two morphs appear to occur in somewhat opposite proportions to the "*guatemalensis*" popu-

Table 1. Typical characters of adults of the *Amazona ocrocephala* complex found in Middle America

	bill	cere/ bristles	orbital ring/ eyelid edge	head	bend of wing	thighs	claws
Yellow-headed group							
Mexican Birds (<i>tresmariae</i> , <i>oratrix</i> , <i>magna</i>)	very pale	pale/pale	pale/pale	yellow head, often with green flecks	extensive red, often with some yellow	green and yellow	pale
<i>belizensis</i>	very pale,	pale/pale	pale/pale	extensive, yellow face, occas. with some yellow nape feathers	relatively extensive red, often some yellow flecks	mainly green, some yellow	pale
" <i>guatemalensis</i> "	very pale, some with dark tips/ streaks	pale/pale or with some dusky	pale/dark	reduced yellow face, some with yellow nape patch	relatively extensive red, often some yellow flecks	mainly green, some yellow	dark, some pale
Yellow-naped and Yellow-crowned group							
" <i>hondurensis</i> "	very pale, occasional darker tips/ streaks	pale-light grey/pale- dusky	grey/dusky -dark	generally a wide yellow forecrown patch and yellow nape; some birds solely yellow-crowned	red patches, occas. yellow flecks	green, occas. a little yellow	dark
<i>caribaea</i>	pale, often with dark tips/narrow streaks	dark/dark	grey/dusky -dark	yellow forecrown (narrower than "hondurensis"), yellow nape patch	red patches, occas. yellow flecks	green, occas. a little yellow	dark
<i>parvipes</i>	variable, pale- dark, usually with dark tips /broad streaks	grey-dark/ dark	grey/dusky -dark	yellow nape patch, forehead green or yellow (less than <i>caribaea</i>)	red patches, rarely yellow flecks	green, occas. a little yellow	dark
<i>auropalliata</i>	dark, rarely paler	dark/dark	grey/dusky -dark	yellow nape patch, some with yellow fore- head patch, esp. in N	green, rarely red flecks	green	dark
<i>panamensis</i>	pale, usually with dark tip/streaks	pale-dusky/ pale	pale/ grey-dark	yellow forecrown sim. to "hondurensis", no yellow on nape	red patches, rarely yellow flecks	green	gen- erally pale

lation; i.e., the yellow-naped morph of "*guatemalensis*" may be about as rare as the plain yellow-crowned morph of "*hondurensis*". The bill of "*hondurensis*" is pale like the *belizensis* group (with just occasional dark tips or streaks), while the cere/bristles range from pale (as in typical *belizensis*) to dusky. On most birds, at least a portion of the bristle-like feathers on the cere are pale and hard to see without close inspection (generally the ratio of blond to dark bristles and underlying skin creates the overall "cere colour"). The shoulders have red patches with occasional yellow flecks, and the thighs also frequently have a little yellow. The yellow-crowned and yellow-naped morphs have interbred in captivity (SAL pers. obs.), as has "*hondurensis*" with *belizensis* (H. Voren pers. comm.).

Juveniles (Fig. 2d) have variably sized yellow crowns and no yellow on their napes, and a colourful "*hondurensis*" juvenile can look similar to juvenile *belizensis*. Juveniles of the fully

yellow-headed Mexican populations look quite similar but tend to have more yellow on their crowns and have paler bills and ceres; see Plate 21 of Howell & Webb⁵. Thus, coloration of juveniles in this complex tends to reflect their parentage.

The *parvipes* group

Yellow-naped birds occur in open pine woods and pine savannas on the Honduras Bay Islands of Roatán, Barbareta, and Guanaja, and in the Mosquitia of E Honduras and N Nicaragua. These birds (Figs. 1f/g/h, 2e/f) differ from the "*hondurensis*" yellow-napes in having dark cere/bristles, less yellow on the forecrown, and, especially in the case of Mosquitia *parvipes*, a generally dusky bill. They differ from Pacific Slope yellow-napes (*auropalliata*; see Plate 21 Howell & Webb⁵ and Fig. 1i) in their smaller size, especially feet ("*parvipes*" = small feet), commonly paler bills, and red at the bend of the wing. Oc-

casual mature birds of both *parvipes* and *auropalliata* lack yellow nape patches (SAL pers. obs.).

Examination of series of photos, combined with subsequent field experience of SAL in the Mosquitia and Bay Islands, supports the distinctness of Bay Island *caribaea*. The bill of *caribaea* (Figs. 1f, 2e) is generally paler than *parvipes* (Figs. 1g/h, 2f), the darker bill of which is not an artefact of blood staining, *contra* Parkes⁸. *Parvipes* bills do vary more in colour than noted by Lousada⁷: c.20% have fairly pale bills (Fig. 1g) but 60% (Figs. 1h, 2f) have bills only slightly, if at all, paler than *auropalliata* (which is also quite variable; Fig. 1i); about 20% are intermediate between these two extremes. In more than 200 wild *caribaea* sightings, SAL has seen none without a yellow crown other than reduced yellow in a few immature birds. Generally *caribaea* have long, rather narrow yellow crowns that are not as broad at the forehead as "*hondurensis*" (Fig. 3). *Parvipes*, on the other hand, frequently lack any yellow on the crown or have just spotty patches. Both *parvipes* and *caribaea* have darker ceres/bristles than mature "*hondurensis*" and, partially due to the paleness of the bill of *caribaea*, its dark cere is especially contrasting (Fig 2e). While some *parvipes* have relatively pale bills similar to *caribaea*, and others have significant yellow on their crown, we have seen no *parvipes* that combine both the paler bill and extensive yellow crown of *caribaea*. Thus, *caribaea* is somewhat intermediate between "*hondurensis*" and *parvipes*.

Juvenile *caribaea* have far less yellow on the crown than mature birds but some yellow is usually present; juvenile *parvipes* often have little or no yellow on the crown.

Discussion

Monroe & Howell⁸ considered, but basically rejected, the possibility of two colour morphs of "yellow-headed" parrot in the Sula Valley, or that the differences between the birds were sex- or age- related. Rather, they guessed it most likely that the yellow-crowned birds constituted "an isolated, undescribed subspecies of *A. ochrocephala*" and that the yellow-naped birds "were individuals of *parvipes* that had wandered outside their normal range or were escaped cage birds." This explanation overlooks the fact that immature birds lack yellow napes and that the two yellow-naped specimens they examined are different from *parvipes*. The historical record in 1858 of a large flock of yellow-crowned birds still

needs some explanation. In our experience, yellow nape patches may be difficult to see without optical aid, i.e. binoculars, unless one is above the birds; however, since every "*hondurensis*" has a yellow crown, that tends to be a more consistently noticeable feature. Further, at that time, flocks probably contained larger numbers of young birds (without yellow napes) due to less nest robbing; and lastly, perhaps the yellow-crowned morph was then simply more common.

Monroe & Howell⁸ also described Sula Valley yellow-crowns as duskier-billed than Panamanian yellow-crowns. While this may be true in juveniles, mature "*hondurensis*" are very pale-billed⁵ (and Figs. 1d/e, 2c) and, apart from their larger size and frequent yellow nape patches, are extremely similar to Panama yellow-crowned birds.

Thus, if one follows the Pacific coast from Mexico to South America and examines specimens of the *oratrix*, *auropalliata*, and *ochrocephala* groups, the birds appear different enough to be separate species: Yellow-headed, Yellow-naped, and Yellow-crowned parrots respectively¹. However, if one follows the Caribbean coast and takes a close look at birds in Guatemala and Honduras (Table 1 and Figs. 1, 3), one finds intermediate populations which confuse the issue and support the view of a single, polymorphic species³ or at best a redefinition of species-limits within the three species of the AOU¹. Thus, if "*hondurensis*" yellow-crowns are considered conspecific with Panama birds (as by the AOU¹), then Yellow-headed *A. oratrix* and Yellow-crowned *A. ochrocephala* parrots should be lumped. Furthermore, since the Bay Island and Mosquitia "yellow-napes" are intermediate between Atlantic slope yellow-headed forms and Pacific slope yellow-naped forms, they could be placed with either group or used as an argument to lump Yellow-naped *A. auropalliata* and Yellow-headed *A. oratrix* parrots!

Conservation status

Yellow-headed parrots (in the broad sense) have suffered extensive habitat loss combined with thorough nest-robbing for the pet trade. The remnant populations noted here are highly vulnerable due to their small sizes. Also, in Honduras (and no doubt elsewhere) even *auropalliata* "has apparently declined very strongly in recent years" and "has been nearly extinguished"¹¹.

True *belizensis* is uncommon to fairly common⁵, although nest-robbing is still quite widespread and birds are killed locally as they

eat fruit crops (SNGH pers. obs.). The unique coastal "*guatemalensis*" population is in a more serious condition, being restricted to a narrow coastal strip increasingly encroached upon by cattle-ranching. Punta Manabique has a well-run sea-turtle refuge but other wildlife is not protected. The parrot population there is probably slightly larger than "*hondurensis*", as evidenced by numbers of each in the pet trade, but must number in the low hundreds. Local Guatemalans apparently harvest an insignificant number of the birds; unfortunately, it appears that Hondurans cross into Guatemala to take nestlings (and other wildlife) and also harvest heavily from the Honduran end of the habitat (thus "*guatemalensis*" are fairly common as pets in NW Honduras but relatively uncommon in Guatemala). In order to safeguard this population, Guatemala should recognise the wealth of wildlife on Punta Manabique and make strong efforts to protect it, particularly from its Honduran neighbours. Honduras should recognise the presence of "*guatemalensis*" in that country and also take steps to protect it.

"*Hondurensis*" has apparently been in decline for over a century. The Sula Valley has been developed heavily for agriculture for a long period and this may be the primary cause. The remnant population discovered by SAL and Morales is fortunate in inhabiting a part of the Punta Sal National Park (administered by PROLANSATE), although much nest-robbing still occurs and, like "*guatemalensis*", the population must be only in the low hundreds. An employee at the Lancetilla botanical gardens reported "*hondurensis*" there occasionally (in company with Red-ored Parrots); this may suggest that other small populations exist, or may reflect seasonal wandering in search of food (*parvipes* move 50 km or more according to food supply: SAL pers. obs.). For "*hondurensis*" to survive it is important for PROLANSATE staff to recognise their bird as unique and to try and continue to limit nest-robbing and shooting of parrots. However, with the tragic February 1995 murder by loggers of Jeannette Kawas, head of PROLANSATE, Punta Sal's future is far from secure.

Caribaea now appears rare on Roatán⁴; there is a small population on the tiny island of Barbareta (S. Thorn pers. comm.); and a larger population on Guanaja. In 1987, SAL estimated 200-300 birds on Guanaja and saw only one immature in several days of observations; but, after fieldwork in 1994, he considers the earlier esti-

mate may have been excessively high and now estimates 100-200 birds. Encouragingly, however, in 1994 he noted a healthier balance of young and old birds: about 15 immatures were seen, including immature pairs. According to locals, one can now get into trouble for nest-robbing, and people are doing so far less frequently than in the past. Thus, even a little education and enforcement can be quite effective, although there does still seem to be a potential shortage of nest sites.

Parvipes is still relatively common in the Mosquitia due to large expanses of relatively inaccessible, undisturbed habitat; Wiedenfeld¹¹ estimated a population of about 140,000 individuals in Honduras.

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