

SHORT COMMUNICATIONS

A hybrid manakin (*Pipra*) from Roraima, Brazil, and a phylogenetic perspective on hybridization in the Pipridae.—On 17 September 1987, I captured an unusual male *Pipra* in a line of mistnets at BV-8, Roraima, Brazil (4°29'N, 61°09'W) in a patch of forest at approximately 900 m elevation. I collected the bird and it was prepared as a study skin. The specimen (Field Museum of Natural History—FMNH 344171) is a hybrid between a White-fronted Manakin (*Pipra serena*), and a Blue-crowned Manakin (*P. coronata*), a previously unreported combination (Parkes 1961). Here, I describe the specimen, explain how the putative parents were identified, and discuss the pattern of hybridization in Pipridae from a phylogenetic perspective.

The skull was completely pneumatized and testes measured 2×1 mm. The plumage is primarily non-glossy black. However, the black feathers of the flanks and lower breast have a blue tone, lacking on the rest of the body plumage. A similar blue tone to the abdominal feathers occurs in *P. coronata carbonata*, the subspecies of *P. coronata* that occurs at BV-8. The crown of the hybrid specimen is sky blue, becoming darker on the nape. The rump and upper tail coverts are cobalt blue. The feathers of the abdomen are basally black, broadly tipped with dull yellow with a greenish tone, forming an irregular patch from the lower edge of the breast to the vent; the undertail coverts are green.

The fifteen species of the family Pipridae that occur in the border region of the Venezuelan state of Bolivar and the Brazilian state of Roraima constitute the pool of potential parental species. In analyzing the possible parents, I assume that a hybrid should possess either the phenotype of one of the parental types or an intermediate phenotype in each of the characters that differ between the parents (see Graves 1990).

The contrasting blue rump of the hybrid, as well as its yellow abdominal patch, unequivocally identify one parent as *P. serena*, as no other species in this region possess contrasting color patches in these regions (see Table 1). The race occurring in tepuis, *P. suavissima* (considered a separate species from *P. serena* in Prum 1990a), seems more likely both geographically and based on plumage than nominate *P. serena*. Although *P. serena suavissima* was not encountered at BV-8, it is known to occur in the tepuis of this region at least as close as Pauri-tepui (Phelps and Phelps 1963), about 50 km from BV-8. *P. s. serena* is known no closer than southern Guyana and Suriname, about 400 km distant. In addition, *P. s. serena* has a tuft of orange-yellow feathers on the breast and short, plush feathers on the forecrown. There was no indication of a tendency toward either of these conditions in the hybrid.

The identity of the second parent as *P. coronata* seems no less certain. Only *P. coronata* possesses a blue crown (although of a darker tone than on the hybrid specimen), and only it and the substantially smaller Dwarf Manakin (*Tyrannneutes stolzmanni*) (mass ca 7 g) and the larger Thrush-like Manakin (*Schiffornis turdinus*) (mass ca 30 g) possess olive undertail coverts. In neither of the other species, which Prum (1990b) has in fact argued convincingly do not belong in Pipridae at all, are these a different color from the lower abdomen, as in the hybrid and *P. coronata*. Additionally, the hybrid is intermediate in external measurements between *P. serena* (data from specimens from Cerro de Neblina, FMNH) and *P. coronata* (data from specimens collected at BV-8; specimens from other sites not included because there appears to be a cline in size in the subspecies *P. c. carbonata*, with smaller birds southward), arguing against a much larger or smaller species as a parent (see Table 2).

At BV-8, *P. coronata* was the most abundant bird in mist nets, while, as noted above, *P. serena* was not encountered. In the tepuis *P. coronata* and *P. serena* replace one another

TABLE 1
PLUMAGE CHARACTERS OF *P. SERENA SUAVISSIMA*, *P. CORONATA CARBONATA*, AND
PRESUMED HYBRID

	<i>P. serena suavissima</i>	Hybrid	<i>P. coronata carbonata</i>
Crown color	White with Light Sky Blue (168C)* posterior edge	Sky Blue (168C) darkening to Venetian Blue (168B) on nape	Cobalt Blue (168) with Ultramarine (270) on the posterior edge
Crown patch extent	Forehead and front half of crown	Entire crown including nape, but narrowing on nape	Entire crown including nape
Rump color	Sky Blue (168C)	Cobalt Blue (168)	Black with indistinct purplish tips to feathers
Abdominal color	Orange Yellow (18)	Black basally, broadly tipped yellow, near Sulfur Yellow (157), but with a greenish tone	Blackish Neutral Gray (82), some individuals show an olive cast to abdomen
Undertail coverts	Black narrowly edged with yellow	Leaf Green (146)	Leaf Green to Dark Neutral Gray

* Capitalized color names and numbers are from Smithe 1975.

altitudinally (Willard et al. 1991) with *P. coronata* at lower elevations. It seems likely that the contact between *P. serena* and *P. coronata* needed for hybridization occurred when a *P. serena* wandered downslope from nearby higher peaks (elevations over 1200 m occur within 15 km of BV-8). The displays of *P. coronata* and *P. serena* are very similar (Prum 1985, although the display of *P. s. suavissima* is unknown). The combination of extreme rarity of one parental type and the similarity of displays should help encourage occasional hybridization in such a situation.

In fact, within the *P. serena* superspecies (including *P. coronata*, *P. serena*, *P. iris*, *P. coeruleocapilla*, *P. isidorei*, *P. nattereri*, and *P. vilasboasi*) the lack of hybridization among adjacent species is striking (Haffer 1970). The contact between lowland black *P. c. coronata* and green *P. c. exquisita* is characterized by a broad zone of intermediates (Haffer 1970), but none of the other contact zones shows any hybridization. The five lowland species are isolated from one another by river courses, so perhaps hybridization is not to be expected; however, *P. coeruleocapilla*, *P. isidorei*, and *P. serena* all replace *P. coronata* altitudinally, without an extrinsic barrier between the populations. *P. coeruleocapilla* and *P. coronata*, at least, occur syntopically (captured on the same mistnet line in southeastern Peru, specimens in FMNH), apparently without hybridizing.

Parkes (1961) discussed the known hybrids in the family Pipridae. At that time, all were the result of pairings between species placed in different genera. Since then, one of the pairs, *Teleonema filicauda* × *P. aureola* or *P. fasciicauda*, has been changed from an intergeneric

TABLE 2
SELECTED MEASUREMENTS OF MALE *P. SERENA SUAVISSIMA*, *P. CORONATA CARBONATA*, AND
PRESUMED HYBRID

	<i>P. serena suavissima</i> (N = 4)	Hybrid	<i>P. coronata carbonata</i> (N = 6)
Mass ^a	10.4 ± 0.34	10.1	9.4 ± 0.67
Wing	59.4 ± 1.03	63.0	63.5 ± 0.93
Tail	28.4 ± 1.73	29.8	30.3 ± 0.54
Bill length	6.9 ± 0.34	6.5	6.5 ± 0.14
Tarsus	14.7 ± 0.54	14.8	13.7 ± 0.55

^a Mass in g, other characters in mm ($\bar{x} \pm SD$); bill length taken from anterior edge of nostril.

hybrid to a hybrid between component species of a superspecies (Haffer 1970, Snow 1975), owing to changes in taxonomic thinking (the close relationship of the monotypic *Teleonema* to *Pipra* was noted by Parkes [1961, 1978]). The hybrid *P. serena* × *P. coronata* is another example of a hybrid between component species of a superspecies.

As a result, within Pipridae, the pattern of known hybridization (3 intergeneric hybrids and 2 hybrids within superspecies) remains a more extreme version of that noted by Parkes (1961, 1978) for the family Parulidae, where the vast majority of hybrids are either intergeneric or among members of superspecies. Sibley (1957) suggested that the genera of Pipridae were probably oversplit owing to the reliance on male secondary sexual characters to demarcate genera, so that the parents of intergeneric hybrids may not necessarily be distantly related. Bledsoe (1988) has argued that the lack of a well-corroborated phylogenetic hypothesis for the Parulidae and the strong probability that various genera, especially *Dendroica* and *Vermivora*, are not monophyletic makes interpretation of the pattern of hybridization in that family impossible. His point is a valid one; however, Parkes' argument (1978) that the various species of eastern North American forest *Dendroica* are more closely related to each other than they are to *Mniotilta* or *Seiurus* still rings true, even without an explicit phylogenetic hypothesis.

In Pipridae, such a phylogenetic hypothesis now exists (Prum 1990a, 1992). Prum (1992) placed the *P. serena* superspecies in a different genus, *Lepidothrix* and tribe Manacini, along with *Manacus*, *Chiroxiphia*, and *Antilophia*, from the rest of *Pipra*. Although the genus *Pipra* appears not to be monophyletic, the basic pattern implied by the prevalence of intergeneric hybrids remains true: hybrids generally occur between members of a superspecies or between rather distantly related taxa. Prum (1990a, 1992) found that the *P. aureola* and *P. erythrocephala* superspecies are sister taxa, but there are no hybrids known between them despite their being broadly sympatric through much of Amazonia. Yet both have hybridized with the distantly related *Manacus*, placed in a different tribe and separated phylogenetically from them by four genera (Prum 1992). Even if one were to take an extreme view and lump all of these genera together, creating a large and diverse *Pipra*, it does not change the fact that the parents in these hybrid combinations are phylogenetically distant.

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Kirtland's Warblers benefit from large forest tracts.—There is growing recognition that some songbirds prosper only on tracts of suitable habitat larger than logic would suggest—that is, larger than the total of their defended territories. Recent declines in some American songbirds have focused attention on the role of forest fragmentation, especially among Neotropical migrants (Askins et al. 1990). The Kirtland's Warbler (*Dendroica kirtlandii*) provides a prime example. Present evidence suggests that major increases in the population of this species have resulted from the sudden availability of very large tracts of suitable habitat on the nesting grounds. Very large forest fires that have produced vast areas of young jack pine (*Pinus banksiana*) repeatedly have resulted in increases in the bird's population over more than a century.