

## Notes on the vocalizations of White-crowned Manakin (*Dixiphia pipra*)

Peter Boesman

In the following we briefly analyze and compare voice of the different races of White-crowned Manakin (*Dixiphia pipra*). We also try to quantify the extent of any vocal differences using the criteria proposed by Tobias *et al.* (2010), as a support for taxonomic review. We have made use of sound recordings available on-line from Xeno Canto (XC) and Macaulay Library (ML).

This species has quite a few vocal groups, some very different from others. Given its present taxonomic arrangement as one single species, this may well be the only Manakin with such a divergent voice among races.

A qualitative analysis of 'song during lekking' by Andrew Spencer (2012), led to the following groups:

### **South/West Amazonian** (ssp. *discolor/pygmaea?/comata?/microlopha/separabilis*)

Song is a long, buzzy, downslurred note given at fairly long intervals.

Range: E Ecuador, E Peru and southern Amazonian Brazil.

### **North Amazon/Guianan** (ssp. *pipra*)

Song recalls the previous type in form, but is much higher pitched, more insect-like, and does not drop as much in pitch.

Range: North of the Amazon, and at least as far west as Mitu, Colombia and as far north as the Orinoco drainage and the Guianas.

### **Foothills North** (ssp. *coracina*)

The song of this type consists of a short, evenly pitched buzzy note that ends in a short, slightly higher pitched and less buzzy 'hiccup'. The whole song is lower pitched than in the Amazon, and has a very different effect. It also seems to be given with shorter intervals.

Range: From Lara, Venezuela south along the Andean foothills through Ecuador to N Peru.

*Coracina* is also listed as being the subspecies in the Perija mountains in northern Colombia and western Venezuela (despite that population being disjunct from the other *coracina* populations and closer, geographically, to the central Colombian type).

### **Foothills South** (ssp. *occulta*)

Song is a short, quiet buzz similar to, but higher pitched, than the first part of the *coracina* type, followed by a very short pause, and then a very high 'tink' note that is much louder than the buzz.

Range: Central and northern Peru in the foothills and lower subtropics. The range of this type goes from the north in southeastern-most Ecuador in the Cordillera del Condor, to the west in eastern La Libertad (see ML#17461, 17454, 42071), and to the south it has been reported at least at the Cordillera Azul. Partially parapatric with *coracina*, which there occurs at lower elevations

### **Central Colombian** (ssp. *bolivari/unica*)

No recordings of song available (a single available recording may simply be a call)

**Choco** (*ssp. minima*)

Song is a long, upslurred buzzy call, nearly the opposite of the southern/western Amazonian type and very similar to the Central American type (see below).

Range: the southern Choco of Colombia

**Central American** (*ssp. anthracina*)

Song is similar to those in the Choco of Colombia, but with a more 'clipped' sound to the upslur.

Range: from Costa Rica to central Panama

**Southeast Brazil** (*ssp. cephalucos*)

Song is a buzz similar to the southern/western Amazonian type, but it is a bit higher pitched, and the buzz has a slightly rougher quality. It also is a shorter vocalization that doesn't fall in pitch nearly as much (the change in pitch being barely perceptible in some examples), and occasionally has a lower pitched 'tonk' (mechanical?) sound at the end of the buzz.

Range: Atlantic SE Brazil

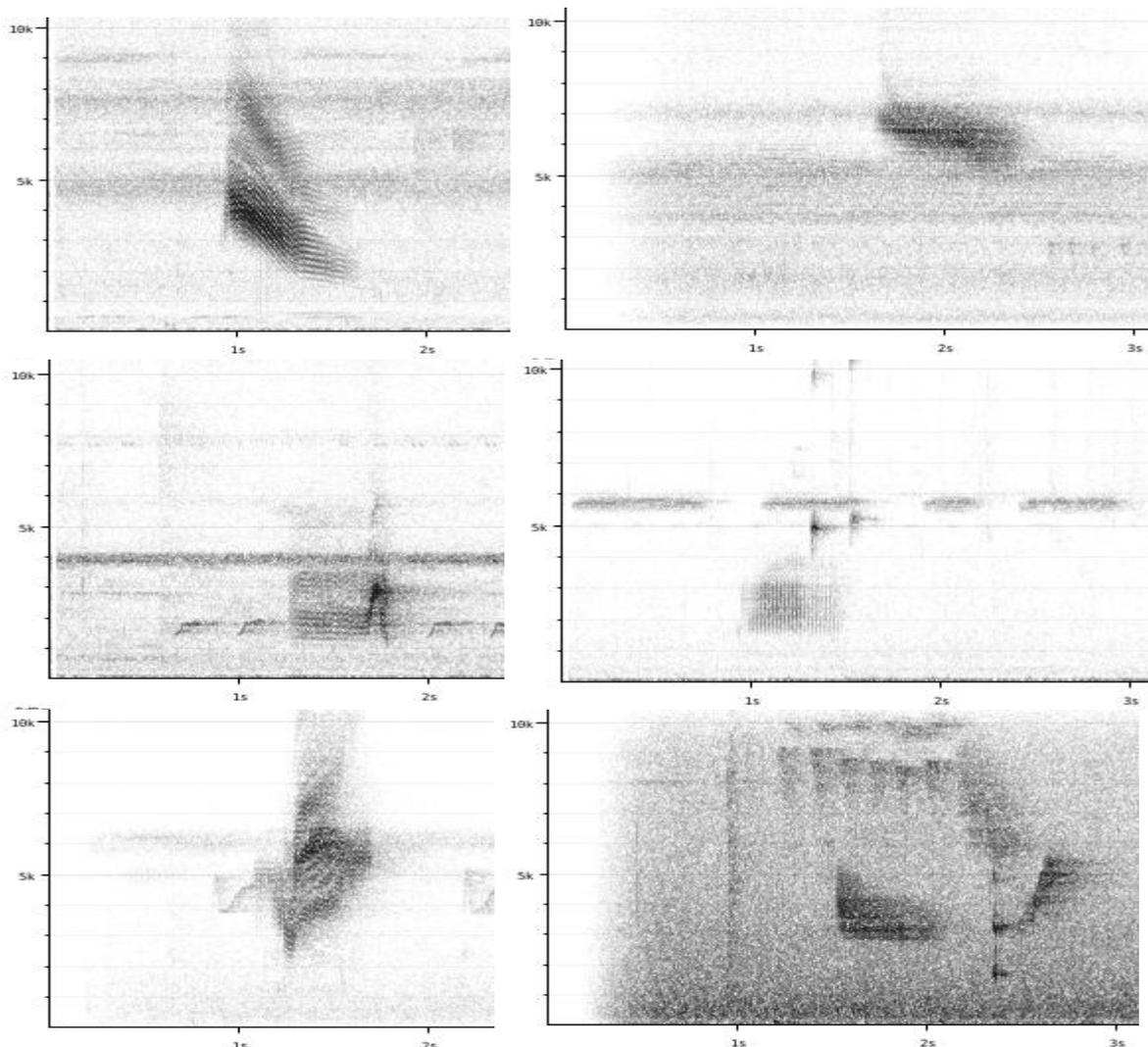


Figure 1: from top to bottom and left to right: Typical song of SW Amazonian, Guianan, Northern Foothills, Southern Foothills, Central American and SE Brazilian races.

While these 7 groups (with a potential 8th one in Central Colombia) can probably be safely told apart in all cases (except for *minima/anthracina*) (Fig. 1), not all differ as much when measuring the basic sound parameters. Furthermore, measurements are far from straightforward due to the buzzy to noisy tone quality, resulting in fuzzy boundaries on a sonogram. The following are thus kind of average values.

**South/West Amazonian** (ssp. *discolor/pygmaea?/comata?/microlopha/separabilis*)

# of notes	1 or 2
total length	0.6s (or 0.8s when 2nd note included)
max. freq.	4000-5000Hz
min. freq.	1400-1900Hz
freq. range	3000-4000Hz
start freq. - end freq.	1600-1700Hz

**North Amazon/Guianan** (ssp. *pipra*)

# of notes	1
total length	1.0- 1.04s
max. freq.	7500-8700Hz
min. freq.	3900-4500Hz
freq. range	3000-4500Hz
start freq. - end freq.	1000-1500Hz

**Foothills North** (ssp. *coracina*)

# of notes	2 (or up to 26 when well articulated buzzy call)
total length	0.6s (occasionally up to 1.5s)
max. freq.	2500-2800Hz
min. freq.	1000-1100Hz
freq. range	1500Hz
start freq. - end freq.	700Hz

**Foothills South** (ssp. *occulta*)

# of notes	15-20 (buzzy call is very well articulated)
total length	0.38-0.5s
max. freq.	4600-4700Hz
min. freq.	1400Hz
freq. range	3400-3500Hz
start freq. - end freq.	-1300 to -1800Hz

**Choco** (ssp. *minima*) and **Central American** (ssp. *anthracina*)

# of notes	1 (or 2?)
total length	0.48-0.7s
max. freq.	5700-7000Hz
min. freq.	1670-2500Hz
freq. range	4000-6000Hz
start freq. - end freq.	-3000 to -3800Hz

**Southeast Brazil** (ssp. *cephaleucos*)

# of notes	2
total length	0.58-0.60 noisy note (0.74-0.76 including 2nd note)
max. freq.	4200-5100Hz
min. freq.	1400-1580Hz
freq. range	2800-3600Hz
start freq. - end freq.	0 (of buzzy note)

The above 6 groups are perfectly identifiable, but few have basic sound parameters which are unique. Nevertheless, we can differentiate based on the following quantifiable parameters:

**North Amazon/Guianan** (*ssp. pipra*) stands out most because of by far the highest max. and min. frequencies (score 3) and the longest drawn-out buzzy note (score 2-3) -> total score 5-6

**Foothills N** (*ssp. coracina*) stands out because it has the lowest max. and min. frequency (score 2-3) and the lowest frequency range (score 2) -> total score 4-5

**Foothills S** (*ssp. occulta*) stands out because it is the only one where the 'buzzy note' is so well articulated that it has changed into a rattle with countable notes (score 2) and a very short total length (score 1) -> total score 3

**Choco** (*ssp. minima*) and **Central American** (*ssp. anthracina*) stand out because they have the largest frequency range (score 2) and the largest rise in frequency from start to end (score 1) -> total score 2-3

**Southeast Brazil** (*ssp. cephalucos*) stands out because it has always 2 notes (difference with e.g. S Amazonia) and has a buzzy note at a constant frequency -> total score 2

**South/West Amazonian** (*ssp. discolor/pygmaea?/comata?/microlopha/separabilis*) remains with differences vs. all races explained above.

This note was finalized on 23rd June 2015, using sound recordings available on-line at that moment. We would like to thank in particular the many sound recordists who placed their recordings for this species on XC and ML.

## References

Spencer, A. (2012). White-crowned Manakin vocal variation. URL: <http://www.xeno-canto.org/article/108> (download April 2015).

Tobias, J.A., Seddon, N., Spottiswoode, C.N., Pilgrim, J.D., Fishpool, L.D.C. & Collar, N.J. (2010). Quantitative criteria for species delimitation. *Ibis* 152(4): 724–746.

## Recommended citation

Boesman, P. (2016). Notes on the vocalizations of White-crowned Manakin (*Dixiphia pipra*). *HBW Alive Ornithological Note* 107. In: *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona. (retrieved from <http://www.hbw.com/node/932012> on 2 August 2016).