

## Notes on the vocalizations of White-winged Becard (*Pachyramphus polychopterus*)

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In the following we briefly analyze and compare voice of the different races of White-winged Becard (*Pachyramphus polychopterus*). 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).

White-winged Becard has a typical song, but also has quite some 'variants' of this song. This would make a thorough analysis over the 9 subspecies quite complicated and time-consuming. In order to save time, we have tackled this case in a somewhat different way: we have looked for 1-2 randomly selected recordings of typical song for every race. If these are nearly identical, then it is very unlikely there will be a significant vocal difference.

Typical song is a single plaintive note followed by a series of 4-6 similar notes after a somewhat longer pause, the series starting usually with 2 notes delivered fast (or these 2 linked into a modulated note), then slowing down towards the end. All notes downslurred. "tew...tew-tu..tew..tew..tew". First note has largest frequency range (Fig. 1).

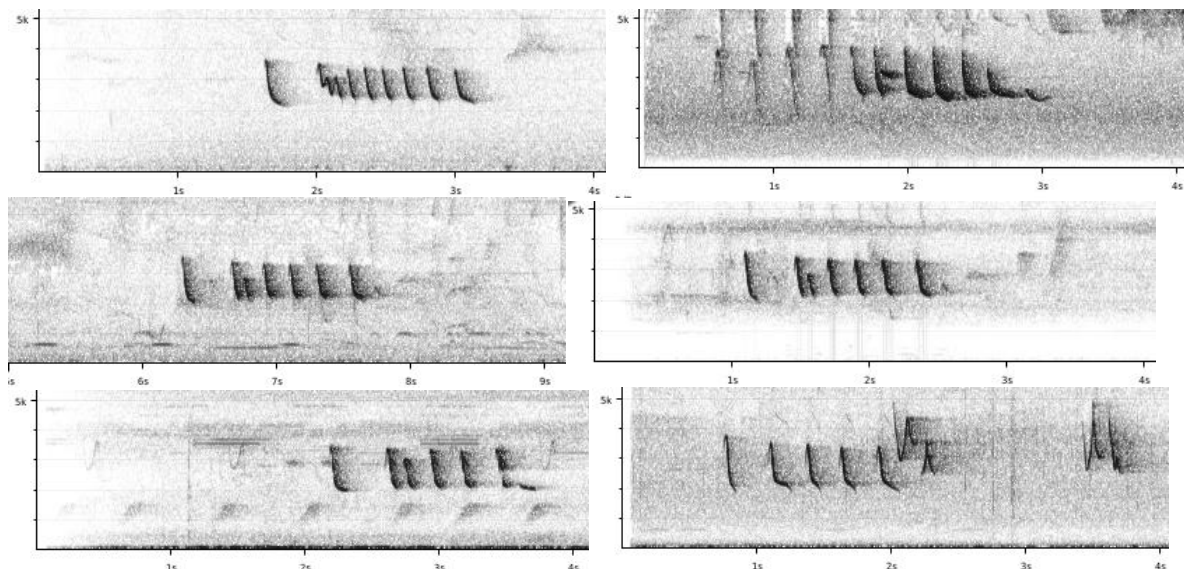


Figure 1: sonogram of some selected recordings, from left to right and top to bottom: XC107784 (*similis*), XC11292 (*dorsalis*), XC221597 (*tristis*), XC227168 (*nigriventris*), XC259049 (*tenebrosus*) and XC227172 (*polychopterus*)

*P. p. similis* (C Guatemala E to S Belize (Toledo) and N Honduras, S to N Colombia (N Chocó))

Selected recording: XC107784

max. freq.	3440Hz
min. freq.	2000Hz
length 1st note	0.14s
length 1st pause	0.22s
# of notes	9
length last pause	0.11s
total length	1.52s

*P. p. cinereiventris* (N Colombia (Chocó except extreme N, E to Santa Marta, S to upper R Sinú and César).

Selected recording: XC17258

max. freq.	3220Hz
min. freq.	2100HZ
length 1st note	0.14s
length 1st pause	0.26s
# of notes	6
length last pause	0.096s
total length	1.55s

*P. p. dorsalis* (C & SW Colombia (S Antioquia and Cundinamarca S to SW Nariño) and NW Ecuador (E Esmeraldas, N & W Imbabura, and N Pichincha S to Mindo area).

Selected recording: XC11292

max. freq.	3750Hz
min. freq.	2080Hz
length 1st note	0.17s
length 1st pause	0.14s
# of notes	8
length last pause	0.12s
total length	1.78s

*P. p. tristis* (NE Colombia (E of Andes from Norte de Santander S to Boyacá, probably to Guainía), Venezuela (except Cerro Duida, in S Amazonas), Trinidad and Tobago, the Guianas and NE Brazil (Roraima E to Maranhão and SE Pará)).

Selected recordings: XC221597, XC192112

max. freq.	3400Hz
min. freq.	1850-1900Hz
length 1st note	0.11-0.13s
length 1st pause	0.19-0.25s
# of notes	6-7
length last pause	0.10-0.14s
total length	1.35-1.44s

*P. p. nigriventris* (E Colombia (E of Andes in W Meta S to Vaupés), S Venezuela (S Amazonas at base of Cerro Duida), W Brazil (both banks of upper Amazon E to R Jamundá and E bank of R Madeira), E Peru (S of R Marañón) and N Bolivia (Beni)).

Selected recording: XC227168

max. freq.	3370Hz
min. freq.	1880Hz
length 1st note	0.12s
length 1st pause	0.24s
# of notes	7
length last pause	0.13s
total length	1.39s

*P. p. tenebrosus* (SE Colombia (SE Nariño and W Caquetá E to Amazonas), E Ecuador and NE Peru (N & W Loreto and San Martín)). Selected recording: XC259049

max. freq.	3390Hz
min. freq.	1880Hz
length 1st note	0.14s
length 1st pause	0.27s
# of notes	6 (7)
length last pause	0.17s
total length	1.35s

*P. p. polychopterus* (E Brazil (Piauí and Ceará S to Alagoas and Bahia)).

Selected recordings: XC227172, XC7449

max. freq.	3500-3700Hz
min. freq.	1850-1870Hz
length 1st note	0.095-0.11s
length 1st pause	0.24-0.25s
# of notes	5
length last pause	0.12-0.16s
total length	1.07-1.37s

*P. p. spixii* (NW Bolivia (Pando and La Paz E to Santa Cruz and S to Tarija), S & SE Brazil (Mato Grosso E to Espírito Santo, S to Rio Grande do Sul), Paraguay, N Argentina (S to Tucumán, Córdoba and N Buenos Aires) and Uruguay).

Selected recordings: XC115719, XC227171, XC32332

max. freq.	3250-3550Hz
min. freq.	1800-1900hz
length 1st note	0.12-0.14s
length 1st pause	0.20-0.25s
# of notes	5-6
length last pause	0.09-0.12s
total length	1.16-1.42s

It is clear that if one looks for 'typical songs', they are indeed very similar among races (with the exception of *dorsalis*, for which we didn't find a true 'typical song' among the few available recordings).

While the above is no proof for lack of vocal differences, it greatly reduces the possibility that any race has a significantly different song.

This note was finalized on 17th July 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.

## References

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.

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