

## Observations of the enigmatic Grey Wren *Thryothorus griseus* from the rio Javari, Brazil, including the first reported nest

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A garrincha-cinza *Thryothorus griseus* é uma das espécies menos conhecidas de Passerines da América do Sul. Neste artigo resumimos a escassa literatura sobre a espécie e apresentamos nossas próprias observações de vários pares na margem direita do rio Javari, Amazonas, Brasil. Nossas observações são as mais detalhadas até hoje sobre o habitat, vocalizações, comportamento de dueto e comportamento de forrageamento da espécie, incluindo a primeira descrição do ninho. Nós também apresentamos ainda as primeiras imagens da ave viva, captadas a partir de gravações em vídeo.

Grey Wren *Thryothorus griseus* is one of the most enigmatic members of its family. Cracraft<sup>3</sup> considered it to be an endemic of the 'South Amazon' or 'Inambari' centre of endemism, which he defined as being bound by the rio Madeira to the east, the Andes to the west, the rio Madre de Dios or rio Beni to the south, and by the rio Marañón to the north. Pinto<sup>19</sup> listed the range of *griseus* as extreme western Brazil south of the Solimões / Amazon, along the rio Javari, the upper rio Juruá, and the upper rio Purús. More than 60 years later, our knowledge of the range of the species is essentially unrefined<sup>10,20</sup>. The species was described by Todd<sup>21</sup> from a series of 14 specimens taken along the left bank of the upper rio Purús at Hyutanahán, Amazonas (= Hyutanahan or Huitanaã), c.120 km south-west of Lábrea (07°40'S 65°46'W<sup>17</sup>) by Samuel M. Klages in 1921–22. Although apparently not uncommon at that locality, it went undetected elsewhere along the Purús during Alfonso Olalla's extensive collecting expedition in 1935–36 on behalf of the Royal Natural History Museum in Stockholm<sup>6</sup>. During a subsequent (1936–37) expedition for the Stockholm museum, Olalla and his assistants did find Grey Wrens to be quite common on both banks of the upper rio Juruá<sup>5</sup> near Eirunepé (c.06°40'S 69°52'W), and collected four specimens at Lago Grande, and nine at Santa Cruz, rio Eirú, right bank (c.06°42'S 69°52'W)<sup>17,19</sup>. Conversely, an expedition to Barro Vermelho (06°28'S 68°46'W; downstream of Eirunepé), Amazonas, conducted by personnel from the Museu Paraense Emílio Goeldi, Belém, Brazil (MPEG) between 15–30 October 1991 failed to locate the species, despite surveys of *várzea*, transitional forest and *terra firme* on both banks of the rio Juruá<sup>22</sup>. Additional MPEG expeditions (1991–96) to previously unexplored portions of the upper rio Juruá basin in the state of Acre were equally unsuccessful in locating Grey Wrens<sup>22</sup>. S. L. Hilty (pers. comm.) conducted field work along the rio Javari in August 1976, 26–29 July 1977, 28–31 August 1979 and 20–22 June 1981, basing himself near Pobre

Allegre, a small village on the Peruvian side, a few hundred metres upriver from where the Quebrada Soco empties into the Javari on the Brazilian side. He found Grey Wrens to be fairly common, but only on the 1981 visit, and only on Brazilian side of the river. Beyond the field work of these ornithologists, virtually nothing has been learned about this bird, and only a relative handful of ornithologists or birders have seen the species in life.

*Thryothorus griseus* is morphologically aberrant for its genus. Of the 27–30 species currently recognised in *Thryothorus*, *griseus* is unique in being predominantly grey, lacking prominent auricular markings, and in being small and exceptionally short-tailed<sup>10</sup>. All other *Thryothorus* are predominantly brown or rufous, often with extensive areas of black, whitish or buff in the plumage. With few exceptions, they tend to have boldly streaked, spotted, or scaled auriculars/cheeks, or, lacking that, have a contrasting black mask through the auriculars, and often have a boldly contrasting supercilium and/or moustachial or malar stripe. For all of these reasons, the taxonomic placement of *griseus* has been questioned.

The species currently included in *Thryothorus* formerly were divided amongst three different genera (*Thryothorus*, *Thryophilus* and *Pheugopedius*), based primarily on variations in the structure of the nasal operculum and associated membranes<sup>14</sup>. Todd<sup>21</sup> assigned Grey Wren to *Thryophilus*, where it remained until Hellmayr<sup>8</sup> dismissed the distinctiveness of *Thryophilus* and *Pheugopedius*, subsuming them in *Thryothorus*, which had priority. Meanwhile, Pinto<sup>18</sup>, presumably unaware of Todd's description of *griseus*, described a new species of wren, *Odontorchilus olallae* from the right bank of the upper rio Juruá. As pointed out by Zimmer & Mayr<sup>23</sup> and Gyldenstolpe<sup>5</sup>, Pinto's '*Odontorchilus olallae*' was the same bird as *Thryothorus* / *Thryophilus griseus*, and not an *Odontorchilus*, which it somewhat resembled in plumage (but not structural) characters. Recent



Figure 1. Grey Wren *Thryothorus griseus*, Reserva Natural Palmari, rio Javari, Amazonas, Brazil, August 2002 (still image captured from video by Kevin J. Zimmer)



Figure 2. Grey Wren *Thryothorus griseus*, Reserva Natural Palmari, rio Javari, Amazonas, Brazil, August 2002 (still image captured from video by Kevin J. Zimmer)

molecular analyses<sup>1,14</sup> have shown *Thryothorus*, as currently constituted, to be paraphyletic, with the type species of the genus, *T. ludovicianus* (Carolina Wren) not part of a monophyletic group with the other members of the genus. Mann *et al.*<sup>14</sup> advocated the resurrection of *Thryophilus* and *Pheugopedius*, along with erection of a new genus, *Cantorchilus*, and restriction of *Thryothorus* to the type species, *ludovicianus* and *T. [ludovicianus] albinucha*. As yet another indication of the mystery surrounding *griseus*, it was one of only four *Thryothorus* (*sensu lato*) species not sampled in the Mann *et al.*<sup>14</sup> study, due to lack of material. The authors considered *griseus* to be of uncertain affinities (*incertae sedis*), the only species so considered in their reorganisation. To date, *griseus* has not been included in any molecular study.

Next to nothing is known of the natural history of the Grey Wren<sup>10</sup>. Olalla<sup>16</sup>, based on his experiences along the rio Juruá, published a brief description of its habits and habitats in the *Revista Museu Paulista*, a translated version of which was provided by Gyldenstolpe<sup>5</sup>, and is quoted, in part, here. Olalla described the Grey Wren as being most frequently encountered around cultivated clearings 'where the vegetation is low and chiefly consists of thorny bushes intermingled with a few low trees. Particularly such low trees that are growing at a short distance from more or less impenetrable thickets—formed by thorny creepers and a tangled vegetation. Such trees which are overgrown by numerous epiphytes and other parasitic plants, mostly belonging to the Bromeliaceae, are mostly favoured.' Olalla further stated that the wrens were strictly arboreal, keeping to heights of c.4 m above ground; were gregarious; and ate mostly 'small beetles and other insects which live at the bases of the dry leaves'<sup>5</sup>. Hilty & Brown<sup>9</sup> described the preferred habitat along the rio Javari as 'Várzea forest vine tangles, eye level to subcanopy.'

Olalla<sup>16</sup> (translated in Gyldenstolpe<sup>5</sup>) also described the song of *T. griseus* as 'melodious', and provided the following vocal description: '... resembles that of other wrens, but is finer, less often repeated and mostly ended by some deep guttural notes. As distinguished from other of its allies in South America, the song of this Grey Wren is only composed of a single note instead of by two sounds.' Hilty & Brown<sup>9</sup> provided a more detailed description, describing the song as 'reminiscent of Stripe-breasted Wren (*Thryothorus thoracicus*), a rhythmic *tor-chilip, tor-chilip* . . . , or *fiddle-dip, fiddle-dip* . . . , or *chur-dúrt, chur-dúrt* . . . , 5–8 melodic phrases in series, typically growing stronger as it goes along; many single phrases.' During his 1981 visit to the Javari, Hilty made the first known tape-recordings of the voice of *Thryothorus griseus*, a copy of which appeared on the out-of-print cassette tape *Voices of the wrens*<sup>7</sup>.

Against this backdrop, finding out more about the Grey Wren was one of our priorities during a survey trip to the rio Javari in 2002. We spent 28 August to 4 September based at the Reserva Natural Palmari, Amazonas, Brazil (04°17'S 70°17'W), a privately owned, tourist / fishing lodge on the east bank of the rio Javari. During our short stay, we located three Grey Wren territories, obtained extensive video and audio recordings (KJZ recordings to be archived at the Macaulay Library of Natural Sounds, Cornell University, Ithaca, New York; AW recordings archived at the British Library National Sound Archive, London, UK), and located a single nest. We also spent considerable time making detailed observations of foraging behaviour, all of which were dictated onto micro-cassette tape. AW returned to Palmari on 22–27 August 2003 and 23–30 April 2006 and located an additional two territories. In the account that follows, we present the first description of the nest of the Grey Wren, along with the most detailed

account to date of its foraging behaviour, vocalisations and bare-part colours. We also present multiple still images (taken from single-frame video captures) of Grey Wrens and of the single nest; the first such published images of the species.

### Habitat

All of the Grey Wren territories that we found were in *várzea* or transitional forest on the Brazilian side of the rio Javari. All sites were characterised by an abundance of woody vines and epiphytes at all levels, and by a relatively open understorey. The two *várzea* territories located in 2002 included significant patches of second growth resulting from regeneration after treefall and (to a minor extent) from anthropogenic modification of forest along the river edge. The inclusion of tangled second growth within these territories fits with Olalla's<sup>16</sup> observations. The third territory was more deeply embedded in transitional forest, but centred along a small stream bordered by light-gap vegetation. One of the two territories located by AW in 2003 was in flooded *várzea* within 50 m of the river; the other territory was in transitional forest, further from the river edge.

Four of the five territories that we located were within auditory range of territorial Moustached Wrens *Thryothorus genibarbis* and Buff-breasted Wrens *T. leucotis*. Under current taxonomy, there are three species in the genus *Thryothorus* occurring syntopically along the rio Javari, an unusual number for any one site east of the Andes.

### Morphology

Grey Wrens are small, and proportionately short-tailed and large-billed. They are grey throughout, being slightly paler on the underparts than the upperparts, with the throat being an even paler, whitish grey (Figs. 1–5). The remiges are faintly barred dusky, with bolder dusky barring on the under tail. The species has a long, pale superciliary that begins just in front of the eye; the lores are plain grey; the cheeks are faintly streaked white. The iris is dull amber to pale orange. The bill is uniformly pale greyish horn in some individuals, whereas others have the basal two-thirds to three-quarters of the culmen dusker. The legs and toes are bluish grey, with contrastingly whitish nails.

### Vocalisations and duetting behaviour

When singing, Grey Wrens often adopt a very upright posture, and the throat and neck appear to 'inflate' in a distinctive manner that is reminiscent of members of the genus *Cyphorhinus* (Fig. 4). Songs were much as described by Hilty and Brown<sup>9</sup>, being melodic, generally simple phrases, repeated 3–13 times in succession, and usually gaining in amplitude through the series. Both sexes sing. Because the members of a pair could not be

identified to sex on the basis of any plumage characters, we could never be certain of the sexual identification of any individual. However, only the presumed males delivered solo songs that were not part of a duet. These individuals also were consistently vocal without playback, and switched song phrases from one series to the next. Frequently given vocalisations included the following: *churlip churlip churlip* . . . ; *whipple-wheet whipple-wheet* . . . or *toodle-teep toodle-teep* . . . (this was one of the most commonly employed phrases during male–female duets); *churdleet, churdleet* . . . ; *cheroot, cheroot, cheroot-CHOOP, cheroot-CHOOP* . . . ; *churdurt churdurt* . . . (these more subdued notes often used singly, as a contact call when birds were visually out of contact with their mate); *CHURT CHURT CHURT* . . ., often with a noticeable diphthongal tremor at the end of each note *CHURTrt, CHURTrt* . . . or, *CHUTTRTT* . . . and typically gaining in amplitude through the series (individuals giving this call seemingly held the bill all but closed, with both the maxilla and mandible vibrating visibly for the duration of each note).

Duets were often responsorial, with the presumed male initiating the duet with a loud, repetitive series of a single phrase (*TOODLE-TEEP, TOODLE-TEEP* . . .) and the presumed female answering immediately with a similar, but usually more melodic and lower amplitude series consisting of fewer phrases (*toodleet toodleet* . . .). On other occasions, duets were antiphonal, with one bird inserting the notes of its song in between the song-notes of its mate. The individual songs comprising the antiphonal duets were typically sweeter in quality, more complex in phraseology and delivered at a faster pace, with the presumed female inserting her phrases between the phrases of her partner's song; the two combining for a very fast, jumbled duet, in which it was difficult to discriminate the individual voices. One member of each pair (presumably the male) consistently initiated duets, and also initiated any switches in phrasing from one series to the next.

In general, although possessing a varied vocal repertoire like other *Thryothorus* wrens, Grey Wrens were notable for the repetitiveness of very simple phrases, and for the marked tendency for virtually all songs or series of calls to increase in amplitude through the song or series. We also found that pairs of Grey Wrens frequently sang duets even when pair members were separated by several metres and not in visual contact. Most of these were responsorial duets, in which the presumed male sang first, eliciting an immediate response from the female, even though she was some distance away. It has been our experience that with other species of *Thryothorus*, separated members of a pair, when presented with tape playback, typically reunite

before launching into a duet, and most often deliver these duets when in immediate proximity to one another. This was sometimes, but not always, the case with the Grey Wrens that we observed.

### Foraging behaviour

Grey Wrens foraged between 1.5–18.0 m above the ground, but most frequently at 3–10 m. Foraging was almost entirely in dense tangles of vines, either in vertical columns of vines clinging to large trunks, or in smaller trees with umbrella-like, shaded canopies of viney mats topping the crowns, with open, woody vines hanging below the leafy mat. The latter situation was mostly restricted to forest edge and light-gaps, where overtopping vine tangles were more common. The wrens also frequently inspected the bases of *Philodendron* spp. along trunks.

On several occasions we noted wrens to spend more than ten minutes foraging within a single tree, zigzagging back and forth and changing direction frequently, while retracing routes already covered. They were active foragers, remaining in fairly constant motion, and seldom pausing for more than 1–2 seconds between hops to scan for prey. Posture was mostly horizontal, with the tail held at the same plane as the body. During pauses to scan, individuals assumed an upright posture, often craning the head and neck, with the tail held downward but occasionally flicked sideways. Most attack manoeuvres were perch-gleans, executed by reaching out, up or down with quick stabs, and frequently making quick horizontal lunges to stab prey that were beyond reach. Individuals occasionally made short, upward-directed jumps or sallies, or darting horizontal or diagonal sallies outward of up to 1 m or more, but these were much less common than perch-gleans. On a few occasions we saw the wrens flush prey (including one moth), in which case they made rapid hopping and fluttering pursuits around and through foliage. At least 65–70% of all gleanings were to bare woody branches or vines; gleanings were also directed at foliage (most often to leaf petioles or undersides of green leaves), but less commonly. The wrens occasionally probed curled dead leaves suspended as arboreal litter, but just as frequently passed these by without inspection. Prey items that we identified included spiders, several types of orthopterans (including crickets, katydids and mantids), moths, and one large ant.

### Nest description

We found a single nest, sited within a small, treefall light-gap (Fig. 5). The nest was located c.2.5 m above the ground, and placed above a large, fallen tree trunk that was c.23 cm in diameter. The fallen tree was lodged at a c.20°-angle to the ground, and the nest was at the upper end, among numerous

leafy branches. The nest was 6 cm above the actual trunk (as measured from the bottom of the nest), and lodged in the fork of a small branch emanating from the trunk. The nest was domed and roughly spherical in shape, with the following external dimensions: length (horizontal axis from front to back) 16 cm; depth (vertical axis from top to bottom) 15 cm; and width at widest point (horizontal axis from left to right across mid-section) 9 cm. It appeared to be in the middle-latter stages of construction, and the entrance hole was still broadly open-ended. The nest was composed mostly of dark brown plant fibres (some >25 cm in length) and rootlets, with some green leaves and a few dead leaves interwoven, and was partially lined inside with dried grass. It was placed amid green foliage, and shaded above by a dense cluster of leafy branches originating from the same trunk. Both members of the pair made multiple visits to the vicinity of the nest, but only one individual entered the nest to add material or inspect it on any given trip. On such occasions, the bird entering the nest would disappear inside of the nest for up to 15 seconds at a time.

### Discussion

Our observations of *T. griseus*, although limited, are the most extensive to date, and may have important taxonomic implications. Details of nest architecture and song behaviour, particularly with respect to female song and the nature of male-female duets, could provide clues to the taxonomic affinities of the Grey Wren. Members of the genus *Thryothorus* (*sensu lato*) are well known for their male-female duets<sup>4,10</sup>, and numerous studies have detailed the song behaviour of particular species<sup>2,11–13,15</sup>. These studies have shown that the various species differ in the prominence of female song, as well as in the extent to which the female song is integrated or coordinated with that of the male. It would be of great interest to see if variation in duet structure between the various species is concordant with the revised generic limits proposed by Mann *et al.*<sup>14</sup>.

More survey work is needed to determine whether the seemingly patchy distribution of *T. griseus* is real or an artefact of under-sampling. In November–December 2007, AW participated in surveys of *várzea* forest along both banks of the middle rio Juruá at the Uakarai Reserve for Sustainable Development (05°46'S 67°51'W; municipality of Carauari), but did not find Grey Wren, furthering the impression that, for reasons still unknown, the species is very localised in its distribution. Work along the Peruvian side of the rio Javari would be of particular interest, to establish whether or not the Javari represents the true western boundary of the species. Collection of tissue samples would permit an informed hypothesis regarding the taxonomic affinities of *T.*





Figure 3. Grey Wren *Thryothorus griseus*, Reserva Natural Palmari, rio Javari, Amazonas, Brazil, August 2002 (still image captured from video by Kevin J. Zimmer)



Figure 4. Grey Wren *Thryothorus griseus*, Reserva Natural Palmari, rio Javari, Amazonas, Brazil, August 2002; this presumed male shows the 'inflated' appearance to the neck typical of singing birds (still image captured from video by Kevin J. Zimmer) .



Figure 5. Grey Wren *Thryothorus griseus* inspecting its partially completed nest, Reserva Natural Palmari, rio Javari, Amazonas, Brazil, August 2002 (still image captured from video by Kevin J. Zimmer)

*griseus*, and would be important in recovering the phylogenetic history of *Thryothorus* and related genera in the Amazon Basin.

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