

## Notes on the sleeping behaviour and perch-site use in Ochre-striped Antpitta *Grallaria dignissima*

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Todas las especies animales muestran algún proceso de sueño, un comportamiento estudiado en múltiples taxones, incluidas las aves. El género *Grallaria* (Grallaridae) sigue siendo uno de los menos conocidos en el Neotrópico debido a su naturaleza esquiva. Durante nueve noches diferentes desde el 10 de marzo de 2025 al 24 de julio de 2025, varios individuos de Tororoí Ocrelistado *Grallaria dignissima* fueron observados durmiendo sobre dos ramas de un árbol de *Lozania klugii* (Lacistemataceae) y sobre el tallo de un *Anthurium breviscapum* (Araceae), que asemejaba una rama del árbol, en la Estación Científica Yasuní, dentro del Parque Nacional Yasuní, Orellana, Ecuador. Los individuos fueron encontrados durmiendo solos (cinco noches), en pares (tres noches) y una ocasión en un grupo de tres, siempre en las mismas perchas. Todos se ubicaron entre 2,70–3 m sobre el suelo, en perchas situadas en un área sin sotobosque dentro del bosque. Esta selección del sitio de descanso podría estar influenciada por procesos de termorregulación, asociación de grupos familiares y evasión de depredadores.

Animal species undergo several forms of resting or sleeping, serving several key functions such as energy conservation, neural restoration and minimising predation risk<sup>30,35</sup>. Research on sleep behaviour has explored aspects like sleep duration, locations and associated behavioural patterns, with comprehensive reviews conducted across various animal taxa<sup>8,17,27</sup>. Among bird species, there are extensive studies about several components of the sleeping behaviour of many species, such as preferred location<sup>1</sup>, sleep posture<sup>18</sup>, perch characteristics<sup>18</sup>, underlying neuroscience<sup>4,33</sup>, thermoregulation<sup>25,29</sup>, predator avoidance<sup>2,12,32</sup>, social sleeping<sup>14</sup>, effects of light pollution<sup>3</sup> and the effects of climate change<sup>3,5</sup>. Many of these components are also examined in a broad synthesis of avian sleep research<sup>31</sup>.

The Neotropical genus *Grallaria* (Grallaridae) comprises 47 species of passerine birds, with a peak diversity in the tropical Andes of Colombia, Ecuador and Peru. *Grallaria* species are primarily terrestrial insectivores and are amongst the most poorly known taxa in the Neotropics, as many species are extremely elusive and inhabit dense vegetation, making them difficult to detect<sup>19,22</sup>. In general, most species are highly sensitive to human disturbance and prefer undisturbed, mature forest, often with dense understorey vegetation<sup>19</sup>.

Information on the sleeping behaviour of *Grallaria* species is scarce. Observations regarding sleeping behaviour while nesting have been documented for Scaled Antpitta *G. guatemalensis*<sup>13</sup>, Plain-backed Antpitta *G. haplonota*<sup>21,22</sup>, Tawny Antpitta *G. quitensis*<sup>22</sup> and Urubamba Antpitta *G. occambambae*<sup>28</sup>. In contrast, there are only two observations of sleeping behaviour in a non-nesting

context – for *G. haplonota*<sup>21</sup> and Variegated Antpitta *G. varia*<sup>26</sup>.

Ochre-striped Antpitta *Grallaria dignissima* is an elusive species confined to the western Amazon basin of southern Colombia, eastern Ecuador and northeastern Peru<sup>19,36</sup>. It is notoriously difficult to observe, as suggested by the fact that (at the time of writing) there are 310 records reported on eBird, of which only seven are documented with photographs and 34 with audio recordings<sup>15</sup>. Further, there are only three records on iNaturalist<sup>24</sup>, two with photographs of roosting individuals and one with a sound-recording.

Like many other *Grallaria* species, *G. dignissima* remains poorly studied. It is currently listed as globally Least Concern<sup>5</sup>, because it occurs in large and apparently undisturbed forests. Nevertheless, it is documented that the global population of *G. dignissima* have been declining over time<sup>5</sup>. Even if the causes of decline for *G. dignissima* have not been documented, habitat loss, noise and air pollution associated with oil companies and other anthropogenic activities are potential threats for several terrestrial and insectivorous bird species<sup>9,10,19,34</sup>. There is essentially no information available about this species' natural history, including its sleeping behaviour<sup>21</sup>.

In this paper, I describe observations of roosting and sleeping behaviour of *G. dignissima* observed in Parque Nacional Yasuní, Orellana province, Ecuador. I mostly focus on perch availability, perch characteristics and social sleeping. This study provides the first substantive behavioural information for *G. dignissima* and may also serve as a valuable reference for future research on other



Figure 1. Sleeping individuals of Ochre-striped Antpitta *Grallaria dignissima* in Parque Nacional Yasuni, Orellana, Ecuador (Martín Carrera). **A** One individual sleeping on the stem of *Anthurium breviscapum*, 10 March 2025; **B** One individual sleeping on a main branch of a *Lozania klugii* tree, 26 May 2025; **C** Two individuals, each sleeping on a branch of the same *L. klugii* tree, 23 June 2025; **D** Three individuals sleeping on main branches of the same *L. klugii* tree, 24 July 2025.

two birds on separate branches of the very same tree (one standing on a single leg, the other on two) on 4 February 2025 (<https://www.inaturalist.org/photos/468472580>) – a record of which I became aware only subsequent to my fieldwork.

*Grallaria dignissima* may select its roost perch in relation to specific microhabitat characteristics, such as branch height within areas lacking understorey vegetation, which could produce microclimates that aid thermoregulation processes<sup>20,29</sup>. During the night of 24 July 2025, the three individuals were seen sleeping even during the rain. There is a possibility that *G. dignissima* uses open perches without understorey vegetation to take advantage of cooler microclimatic conditions created by breeze and rainfall, potentially allowing roosting individuals to cool down<sup>25,29</sup>. It is also possible that the individuals observed related to a family group, as seen in *G. haplonota*<sup>21</sup>. Since most observations involved a single individual,

presumably additional undiscovered roost perches exist in the study area.

Perch selection may also be influenced by branch stability and exposure, which could facilitate early detection of predators and enable quick escape<sup>1,2,7,11</sup>. Although predators of *G. dignissima* have not been reported, the absence of understorey vegetation surrounding the *L. klugii* roost tree could be a barrier to potential predators, such as arboreal snakes, which might generate vibrations while climbing the tree and thereby alert the sleeping antpittas<sup>7,23</sup>. Finally, a word of caution: given that there are very few published observations on sleeping behaviour in other *Grallaria* species, my interpretations should be considered preliminary and speculative. Other factors must be explored to properly test sleeping-perch selection.

*Grallaria dignissima* is a rare and elusive species that, although not currently considered globally threatened, is experiencing population