

Plegadis ridgwayi (J.A. Allen, 1876) (Aves, Threskiornithidae): range extension and a new country record for Ecuador

Jorge Córdova-González¹, May Platt¹, Leonardo Ordóñez-Delgado^{1,2}

1 Laboratorio de Ecología Tropical y Servicios Ecosistémicos (EcoSs-Lab), Departamento de Ciencias Biológicas, Universidad Técnica Particular de Loja, 1101608, Loja, Ecuador. **2** Programa de Doctorado en Conservación de Recursos Naturales. Escuela Internacional de Doctorado, Universidad Rey Juan Carlos, 28933, Madrid, Spain.

Corresponding author: Leonardo Ordóñez-Delgado, lyordonez2@utpl.edu.ec

Abstract

We report the second record of Puna Ibis, *Plegadis ridgwayi* J.A. Allen, 1876 (Aves, Threskiornithidae), from Ecuador and the first record of this species in seasonally dry tropical forests of the southwest of the country. An individual of *P. ridgwayi* was sighted in November in Zapotillo, Loja province, 440 km from the only previous record in Ecuador and 65 km from the northernmost Peruvian record. The new record from Ecuador, along with records from the northern coast of Peru, suggests that *P. ridgwayi* may be expanding its geographic distribution northward in this region.

Keywords

Distribution, dry forests, Loja, Puna Ibis.

Academic editor: Galo Buitrón-Jurado | Received 9 May 2020 | Accepted 20 September 2020 | Published 12 October 2020

Citation: Córdova-González J, Platt M, Ordóñez-Delgado L (2020) *Plegadis ridgwayi* (J.A. Allen, 1876) (Aves, Threskiornithidae): range extension and a new country record for Ecuador. Check List 16 (5): 1343–1346. <https://doi.org/10.15560/16.5.1343>

Introduction

The pelecaniform genus *Plegadis* Kaup, 1829 has a cosmopolitan distribution and includes three species: *Plegadis chihi* (Vieillot, 1817), *Plegadis falcinellus* (Linnaeus, 1766), and *Plegadis ridgwayi* (J.A. Allen, 1876) (del Hoyo et al. 2020). The last two species are found in Ecuador (Freile and Restall 2018).

Plegadis ridgwayi, Puna Ibis, is a medium-sized species of bird (56–61 cm, 478–608 g; Dunning 2008) most commonly found in marshes, on lake edges, and in wetlands, and often in large flocks (Schulenberg et al. 2010). Although its diet is not well known, it is believed to feed on arthropods and other invertebrates, which it catches mostly by probing into the mud in creeks and flooded areas (Matheu et al. 2020). This wading bird is common in the central Andes of Peru, western Bolivia, northeastern

Chile and northwestern Argentina, and occurs at elevations mainly between 3200 and 4500 m a.s.l. However, since the early 1990s, nesting has been reported on the coast of Peru (González et al. 1999). BirdLife International (2016) lists the global conservation status of this species as Least Concern, despite decreasing populations due to habitat loss and degradation. In Ecuador, the conservation status of *P. ridgwayi* has not been assessed (Freile et al. 2019a), and it has been recorded only once in the country, at Limpiopungo Lake (3890 m a.s.l.) in Cotopaxi National Park, northern Cotopaxi province in the Inter-Andean region (Freile et al. 2019b). Herein, we present a second record of *P. ridgwayi* in Ecuador and the first record in the country's southwestern seasonally dry tropical forest.

Methods

A single individual of *Plegadis ridgwayi* was photographed by two of us (JCG and MP) while observing waterbirds along the Alamor River, Zapotillo canton, southwestern Ecuador. The locality is within a seasonally dry tropical forest, an ecosystem with extensive arid zones and predominantly deciduous vegetation (Escribano–Avila et al. 2017). Plant species characteristic of this region are *Tabebuia chrysantha* (Jacq.) G. Nicholson, *Ceiba trischistandra* (A. Gray) Bakh, *Centrolobium ochroxylum* Rudd, *Phytolacca dioica* L., *Triplaris cumingiana* Fisch. & C.A. Mey, *Cochlospermum vitifolium* (Willd.) Spreng, and *Gallesia integrifolia* (Spreng.) Harms (Espinosa et al. 2012). These forests, along with those in northern Peru, form the Tumbesian region, an area well known for its endemism (Best and Kessler 1995).

We identified this bird using the descriptions by Schulenberg et al. (2010) and Matheu et al. (2020). In addition, photographs were taken and examined, and our identification was corroborated by Juan F. Freile of the

Ecuadorian Ornithological Records Committee (CERO). We determined the nearest records to our new sighting of this species using documented evidence available in the public online databases Xeno–Canto (www.xeno-canto.org) and eBird (www.ebird.org). The map was generated using QGIS v.2.14 (QGIS Development Team 2016).

Results

New record. Ecuador • Loja province, Zapotillo, Alamor River; 04°18'24.53"S, 080°13'16.52"W; 222 m a.s.l., JCG and MP leg.; 10 Nov 2019, at 14h45; observed and photographed 1 adult individual (Fig. 1).

An adult *Plegadis ridgwayi* (Fig. 2) was wading slowly in shallow water near the edge of the river, with its head elevated (presumably searching for food), lowering it only when something under water caught its attention. It became aware of our presence after 10 minutes and flew off towards the southwest, disappearing from sight. Close by and foraging in the same area, where several individuals of *Himantopus mexicanus* (Statius Müller,

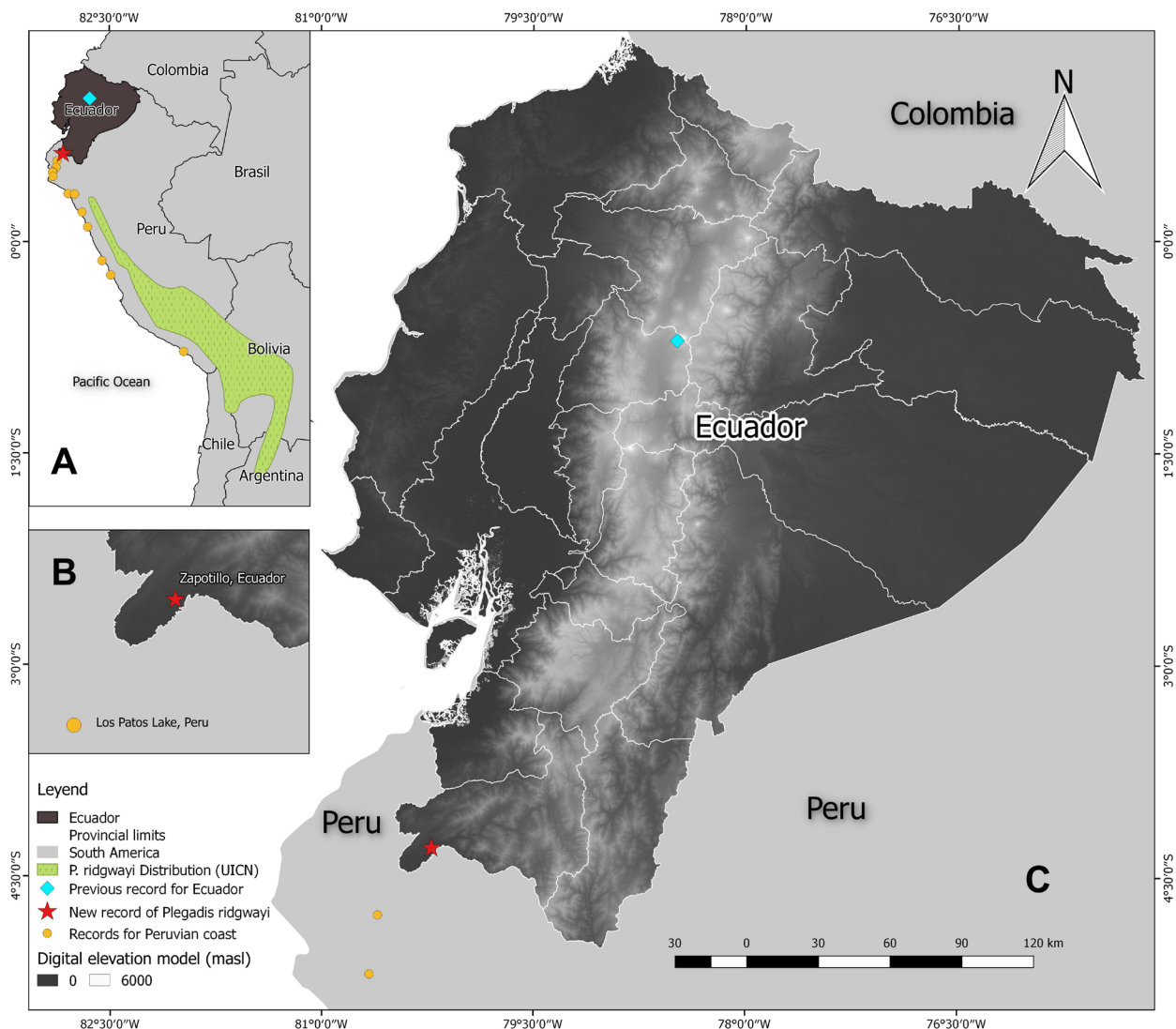


Figure 1. *Plegadis ridgwayi* distribution and records. **A.** Distribution range according to the International Union for Conservation of Nature. **B.** Peru's northernmost and nearest record (orange circle). **C.** Records in Ecuador: previously known (blue diamond) and newly reported (red star).

1776) (Fig. 2B), *Ardea cocoi* (Linnaeus, 1766), *Egretta thula* (Molina, 1782), *Chloroceryle americana* (Yamashina, 1943), *Butorides striata* (Linnaeus, 1758), and *Phalacrocorax brasilianus* (Gmelin, 1789) were seen.

Identification. The photographed bird (Fig. 2) had a dull pink bill, which was wide and thick at the base, slightly curved downward, and pointed towards the tip. The base of the bill has a fleshy dark brown band. The loreal region was pink, the eyes chestnut, and the rest of the body was mainly dark chestnut-colored with some fine white streaking on the head and neck. The scapular feathers were a glossy green, fading towards the coverts. This individual showed the same characteristics as the one photographed previously in Cotopaxi National Park (Limpiopungo Lake, 0°36'47.79"S, 078°28'23.86"W; 3875 m a.s.l.) (Ahlman 2015), except that the latter had gray facial skin (loreal region) and the head was more heavily streaked.

In Ecuador, the only species with which *P. ridgwayi* can be confused is *P. falcinellus*, due to similarities in shape, size, and coloration. However, *P. falcinellus* is a larger and stockier bird, its bill is blackish and twice the size of that of *P. ridgwayi*, and it has a strong, rusty-brown coloration on the neck, mantle, chest, and thighs. There is also a distinctive white line at the base of the forehead and at the corners of the bill bordering the back of the eyes (Freile and Restall 2018), an obvious diagnostic facial pattern lacking in the individual that we observed.

Discussion

Our observation of *Plegadis ridgwayi* is approximately 440 km southwest of the only previous location in Ecuador (Cotopaxi National Park; Fig. 2). Additionally, the elevation of this new record is notably lower (222 m) than that of the first record (>3688 m) (Freile et al. 2019b). The nearest records within Peru, and also the northernmost locations for the species in Peru (Parra and Callán 2011), are approximately 65 km southwest from ours.

Furthermore, our record is the first for the species in Ecuadorian dry forests. The Cotopaxi National Park sighting was in a high Andean lake, in an area dominated by paramo ecosystems mostly composed of herbaceous and shrubby vegetation, of which the characteristic genera are *Calamagrostis* Adans., *Baccharis* L., *Gynoxys* Cass., *Brachyotum* (DC.) Triana, and *Escallonia* Mutis ex L.f. (Ministerio del Ambiente del Ecuador 2013). The presence of *P. ridgwayi* in these distinct life zones confirms its ecological plasticity in moving across large territories and using a variety of resources within aquatic ecosystems at different elevations (Chávez-Villavicencio 2007).

Despite the fact that our new record of *P. ridgwayi* was in a suitable habitat for the species (Chávez-Villavicencio 2007), this observation is unusual for Ecuador and, thus, the importance of monitoring this species'

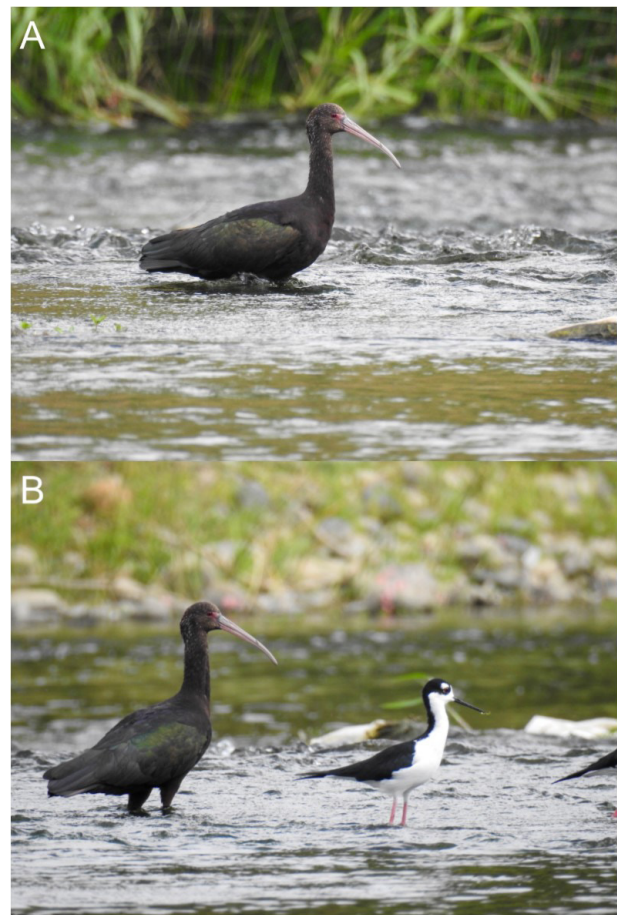


Figure 2. *Plegadis ridgwayi* on the Alamor River, in Zapotillo, southwestern Ecuador. **A.** Wading in the river. **B.** Beside a Black-necked Stilt, *Himantopus mexicanus* (Statius Müller, 1776).

presence in the region. The dynamics of the recent previous records from the northern coast of Peru (Chávez-Villavicencio 2007; Angulo-Pratolongo et al. 2010; Parra and Callán 2011; Rivas et al. 2013), in addition to the sightings in Ecuador (Ahlman 2015; herein), suggest that *P. ridgwayi* may be expanding its geographic distribution beyond its historical area of occupancy (Chávez-Villavicencio 2007; Schulenberg et al. 2010). Oswald et al. (2019) proposed that the expansion of the geographic distribution of *P. ridgwayi* along the Peruvian coast during the last century is likely a result of the nomadic nature of this species in addition to anthropogenic modifications of the landscape, namely the application of large-scale irrigation practices and the increase of open habitats. Elphick (2010) and Toral et al. (2012) have also shown that flooded crops, such as rice fields, provide alternative habitats for a number of waterbirds, including the genus *Plegadis*. According to Alvarez et al. (2015), the area under cultivation in Zapotillo has increased considerably since 2000, driven mainly by the implementation of the Zapotillo irrigation canal. Much of this cultivated land, predominantly planted with rice and corn, is along the Alamor River where *P. ridgwayi* was recorded. Therefore, the nomadic nature of this species, combined with this change in land use and the presence of a permanent river, are likely responsible for the dispersal of this

species to Zapotillo.

We consider it important to monitor the movements of this species, particularly in southwestern Ecuador, and to continue research on its natural history and ecology. Information on habitat preferences, diet, breeding, and other details will allow us to define local conditions that facilitate or restrict its presence and mobility in the region's freshwater ecosystems.

Acknowledgements

We thank the Department of Biological Sciences, Universidad Técnica Particular de Loja for its institutional support. In addition, we thank Juan F. Freile of the Ecuadorian Committee of Ornithological Records for his help in corroborating the identification of the species. Fieldwork was supported by the Secretaría de Educación Superior, Ciencia, Tecnología e Innovación (SENES-CYT) as part of the project "Spatio-temporal responses of bird and bat communities to altitudinal gradients and disturbance in three ecosystems south of Ecuador" (PIC-13-ETAPA-004). We appreciate the valuable comments of the reviewers and editors.

Authors' Contributions

JCG and MP made observations in the field. JCG photographed the species and produced the map. JCG and LOD identified the species. All authors wrote the manuscript.

References

- Ahlman R (2015) Morito de la puna *Plegadis ridgwayi* – ML 205005671. The Cornell Lab of Ornithology, Macaulay Library. <https://macaulaylibrary.org/asset/205005671>. Accessed on: 2020-4-14.
- Alvarez P, Veliz F, Muñoz J, Aguirre N (2015) Análisis multi-temporal del cambio de uso de suelo en el cantón Zapotillo, provincia de Loja. *Bosques Latitud Cero* 5: 33–47.
- Angulo-Pratolongo F, Schulenberg TS, Puse-Fernández EE (2010) Las aves de los humedales de Eten, Lambayeque, Perú. *Ecología Aplicada* 9 (2): 71–81.
- Best BJ, Kessler M (1995) Biodiversity and conservation in Tumbesian Ecuador and Peru. *BirdLife International*, Cambridge, 218 pp.
- BirdLife International (2016) *Plegadis ridgwayi*. The IUCN Red List of threatened species 2016: e.T22697429A93613504. <https://doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22697429A93613504.en>. Accessed on: 2020-4-4.
- Chávez-Villavicencio C (2007) Las aves del Santuario de Conservación Regional Manglares San Pedro de Vice, Sechura, Perú. *Cotinga* 27 (1): 32–37.
- del Hoyo J, Elliott A, Sargatal J, Christie DA, Kirwan G (2020) Handbook of the birds of the world alive. Lynx Edicions, Barcelona. <http://www.hbw.com/>. Accessed on: 2020-4-20.
- Dunning JB Jr (2008) CRC handbook of avian body masses. 2nd edition. CRC Press, Boca Raton, Florida, 656 pp.
- Elphick CS (2010) Why study birds in rice fields? *Waterbirds: The International Journal of Waterbird Biology* 33 (suppl. 1): 1–7. <https://doi.org/10.1675/063.033.s101>
- Escribano-Avila G, Cervera L, Ordóñez-Delgado L, Jara-Guerrero A, Amador L, Paladines B, Briceño J, Parés-Jiménez V, Lizcano D, Duncan D, Espinosa CI (2017) Biodiversity patterns and ecological processes in Neotropical dry forest: the need to connect research and management for long-term conservation. *Neotropical Biodiversity* 3 (1): 107–116. <https://doi.org/10.1080/23766808.2017.1298495>
- Espinosa CI, de la Cruz M, Luzuriaga AL, Escudero A (2012) Bosques tropicales secos de la región Pacífico Ecuatorial: diversidad, estructura, funcionamiento e implicaciones para la conservación. *Ecosistemas* 21 (1–2): 167–179. <https://doi.org/10.7818/re.2014.21-1-2.00>
- Freile JF, Restall R (2018) *Birds of Ecuador*. Bloomsbury Publishing, London, 656 pp.
- Freile JF, Santander T, Jiménez-Uzcátegui G, Carrasco L, Cisneros-Heredia DF, Guevara EA, Sánchez-Nivicela M, Tinoco BA (2019a) Lista roja de las aves del Ecuador. Ministerio del Ambiente, Aves y Conservación, Comité Ecuatoriano de Registros Ornitológicos, Fundación Charles Darwin, Universidad del Azuay, Red Aves Ecuador, Universidad San Francisco de Quito, Quito, 97 pp.
- Freile JF, Solano-Ugalde A, Brinkhuizen DM, Greenfield PJ, Lysinger M, Nilsson J, Navarrete L, Ridgely RS (2019b) Fourth report of the Committee for Ecuadorian Records in Ornithology (CERO) and a revision of undocumented and erroneous records in the literature. *Revista Ecuatoriana de Ornitología* 5: 52–79. <https://doi.org/10.18272/reo.vi5.1277>
- González O, Tello A, Torres L (1999) El Yanavico *Plegadis ridgwayi*, de migratorio Andino a residente de la costa peruana. *Cotinga* 11: 64–66.
- Matheu E, del Hoyo J, Garcia EFJ, Kirwan GM, Boesman PFD (2020) Puna Ibis (*Plegadis ridgwayi*), version 1.0. In: del Hoyo J, Elliott A, Sargatal J, Christie DA, de Juana E (Eds) Handbook of the birds of the world alive. Cornell Lab of Ornithology, Ithaca. <https://doi.org/10.2173/bow.punibi1.01>
- Ministerio del Ambiente del Ecuador (2013) Sistema de clasificación de los ecosistemas del Ecuador Continental. Subsecretaría de Patrimonio Natural, Quito, 235 pp.
- Oswald JA, Harvey MG, Remsen RC, Foxworth DU, Dittmann DL, Cardiff SW, Brumfield RT (2019) Evolutionary dynamics of hybridization and introgression following the recent colonization of Glossy Ibis (*Aves: Plegadis falcinellus*) into the New World. *Molecular Ecology* 28 (7): 1675–691. <https://doi.org/10.1111/mec.15008>
- Parra HL, Callán AA (2011) Avistamiento de *Plegadis ridgwayi* en la laguna Los Patos, Piura, Perú. *Boletín Informativo de la Unión de Ornítólogos del Perú (UNOP)* 6 (2): 3–4.
- QGIS Development Team (2016) QGIS Geographic Information System. Open Source Geospatial Foundation Project. <http://qgis.org>. Accessed on: 2020-4-4.
- Rivas E, Pariapaza E, Nuñez E (2013) Aves del Humedal de Santa Julia, Piura - Perú. *Boletín Informativo de la Unión de Ornítólogos del Perú (UNOP)* 8 (1): 10–20.
- Schulenberg TS, Stotz DF, Lane D, O'Neill JP, Parker TA III (2010) *Birds of Peru*. Revised and updated edition. Princeton University Press, Princeton, 664 pp.
- Toral GM, Stillman RA, Santoro S, Figuerola J (2012) The importance of rice fields for glossy ibis (*Plegadis falcinellus*): management recommendations derived from an individual-based model. *Biological Conservation* 148 (1): 19–27. <https://doi.org/10.1016/j.biocon.2012.02.001>