





# The once-invisible legacy of Elizabeth L. Kerr, a naturalist in the early 20th century, and her contributions to Colombian ornithology

Juliana Soto-Patiño, 1,2,3,4,\*, (1) Katherine Certuche-Cubillos, 5, (1) Jessica Díaz-Cárdenas, 1, (1) Daniela Garzón-Lozano, 6, (1) Estefanía Guzmán-Moreno, 6, (1) Nelsy Niño-Rodríguez, 1, (1) Natalia Pérez-Amaya, 2, (1) and Natalia Ocampo-Peñuela 7, (1)

#### **Abstract**

Mrs. Elizabeth L. Kerr was a bird and mammal collector who traveled to Colombia in the early 20th century when women had very limited access to education or scientific expeditions. Despite her notable contributions to Colombian ornithology, including collecting the holotype of a new species to science (Chocó Tinamou—*Crypturellus kerriae*), her name is not mentioned in historical accounts of ornithology in Colombia. Here, we describe what we know about Kerr's life as a collector and her legacy in the study of Colombian birds. We highlight the fact that Kerr has become a role model for female naturalists and provide a short account of an all-female ornithological expedition to resurvey one of Kerr's collecting sites. By bringing Kerr's legacy to the public eye, we hope to raise awareness of implicit bias and barriers faced by women in science.

Keywords: bird collector, Chocó, Colombia, female ornithologist, gender bias

#### **How to Cite**

J. Soto-Patiño, K. Certuche-Cubillos, J. Díaz-Cárdenas, D. Garzón-Lozano, E. Guzmán, N. Niño-Rodríguez, N. Pérez-Amaya, and N. Ocampo-Peñuela (2023). The once-invisible legacy of Elizabeth L. Kerr, a naturalist in the early 20th century, and her contributions to Colombian ornithology. Ornithological Applications 125:duad006.

## LAY SUMMARY

- Historically, ornithology has been a male-dominated field.
- Mrs. Elizabeth Kerr collected birds and mammals in the early 20th century in Colombia, including holotypes of new species and subspecies to science.
- Kerr's legacy has not been recognized despite her important contributions.
- We describe Kerr's legacy to Colombian ornithology.
- Kerr's story inspired an all-female ornithological expedition in 2020.
- By telling Kerr's story, we aim to raise awareness of implicit biases and barriers faced by women in science.

El legado alguna vez invisible de Elizabeth L. Kerr, naturalista de principios del siglo XX y sus contribuciones a la ornitología colombiana

#### **RESUMEN**

Mrs. Elizabeth L. Kerr fue una recolectora de aves y mamíferos que viajó por Colombia a principios del siglo XX, cuando las mujeres tenían acceso limitado a la educación y a las expediciones científicas. A pesar de sus notables contribuciones a la ornitología colombiana, incluyendo la recolección del holotipo de una especie nueva para la ciencia (Tinamú del Chocó - *Crypturellus kerriae*), no es mencionada en los textos sobre

<sup>&</sup>lt;sup>1</sup>Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, Bogotá, Colombia

<sup>&</sup>lt;sup>2</sup>Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia

<sup>&</sup>lt;sup>3</sup>Illinois Natural History Survey, Prairie Research Institute, University of Illinois, Champaign, IL, USA

<sup>&</sup>lt;sup>4</sup>Program in Ecology, Evolution, and Conservation Biology, University of Illinois, Urbana, IL, USA

<sup>&</sup>lt;sup>5</sup>Asociación Tolimense de Ornitología - Anthocephala, Ibagué, Tolima, Colombia

<sup>&</sup>lt;sup>6</sup>Universidad del Tolima, Ibagué, Tolima, Colombia

<sup>&</sup>lt;sup>7</sup>Environmental Studies Department, University of California, Santa Cruz, CA, USA

<sup>\*</sup>Corresponding author: dorajs2@illinois.edu

la historia de la ornitología en Colombia. En esta perspectiva, describimos lo que sabemos de la vida de Kerr como colectora y su legado en el estudio de las aves colombianas. Resaltamos que Kerr se ha convertido en un modelo a seguir para naturalistas mujeres, y proveemos un resumen de la expedición femenina que llevamos a cabo en el 2020 para estudiar aves en una de las localidades visitadas por Kerr. Al contar la historia de Kerr, esperamos crear conciencia sobre los sesgos implícitos y las barreras que afrontan las mujeres en las ciencias.

Palabras clave: recolectora de aves, sesgo de género, Colombia, Chocó, ornitóloga

"A woman must have two qualities to be a successful naturalist. She must love nature, and she must be without fear" – Kerr, 1912.

## INTRODUCTION

Women and their contributions have often been ignored in historical accounts of scientific discovery and exploration (Rossiter 1993; Slobodian et al. 2021), despite the evidence showing that female perspectives are unique and add value to male-dominated views (Haines et al. 2020). Although most females do not make it into historical accounts and texts, sometimes even the ones who do appear in these texts are "hiding in plain sight." In the latter case, female contributions have failed to be acknowledged by those who review and summarize legacies. Here, we present the story of Mrs. Elizabeth L. Kerr, a female naturalist who explored Colombia in the early 20th century and whose legacy and contributions to ornithology and mammalogy remained unrecognized, until today. To increase the accessibility of this research to Latin American and other Spanish reading public, we have provided a Spanish translation of the article in the supplementary material. We highlight that Kerr, as well as other Global North naturalists in the same era, were part of a colonialist system that extracted specimens from Global South countries with little respect for traditional knowledge and indigenous peoples. We describe her contributions to ornithology, and the inspiration she provided to us in planning an all-female expedition to study Colombian birds. By showcasing Kerr's unrecognized legacy, we hope to provide a much-needed historical role model, inspire young women in ornithology, and promote a more equitable scientific community. Elevating women's participation in science is not only ethically and morally important, but also increases the quality of our science and results in more novel and higher-impact research (Campbell et al. 2013; Yang et al. 2022), enriches our interpretations of scientific phenomena (Haines et al. 2020), and boosts our collective creativity (Nielsen et al. 2018). Bird conservation needs innovation and creativity to tackle the challenge of protecting bird habitats and populations in the face of accelerating anthropogenic impacts such as land cover and climate change. To succeed, our discipline needs an "all-hands on deck" approach. By systematically excluding women and minorities from ornithology and conservation, we needlessly hamstring one of our most important sources of innovation.

## Women in the History of Colombian Ornithology

Accounts of the history of Colombian ornithology published in 1966 and 2008 (Olivares 1966, Naranjo 2008) do not mention women ornithologists or naturalists. The first recognition of women ornithologists began in the 2nd half of the 20th century in the 1970s and 1980s and even then, mentions were very scarce (pp. 8, 16, 17 in Córdoba-Córdoba 2009). This phenomenon is not unique to Colombia. Since its inception and up to the 2nd half of the 20th century, ornithology was a male-dominated field (Walters 2004; Birkhead and

Charmantier 2009). In fact, there is evidence that certain birdrelated activities are still male dominated (Cooper and Smith 2010). Despite the many barriers faced by women historically (e.g., traditional gender roles, lack of access to higher education, no voting rights), a few females have been recognized in books of ornithology. Most of these women were European and/or carried out their work in Europe (Leal 2020), or were the spouses of renowned male naturalists (Kohler 2006). A notable exception of the era in the North American context was the ornithologist Margaret Morse Nice (Trautman 1977). Some of the few female ornithologists whose legacies have been recognized in the study of South American birds are Emilie Snethlage (1868-1929) and Maria Koepcke (1924–1971), German ornithologists who spent their lifetime conducting field expeditions and contributing to the study of Brazilian and Peruvian bird species, respectively (Servat et al. 2012; Mere 2013). In contrast, the legacies of many other female naturalists have been overshadowed by their male counterparts. For example, Amelia "Daisy" Woolworth, an American woman who worked on many field expeditions side-by-side with her well-known husband, Herbert H. Smith, is hardly mentioned in historical texts for their expeditions to the Sierra Nevada de Santa Marta in Colombia (Soto-Patiño I, personal communication). In an effort to elevate the story of one of these unrecognized women, here we describe the contributions of Elizabeth L. Kerr.

#### Elizabeth L. Kerr, the Once-Invisible Naturalist

After having read and studied the history of male-dominated Colombian ornithology, our group of female ornithologists was both thrilled and astounded when we found mention of Mrs. Elizabeth L. Kerr in one of Frank Chapman's ornithological monographs from 1917. The book The Distribution of Bird-life in Colombia: A Contribution to a Biological Survey of South America (Chapman, 1917) details the American Museum of Natural History (AMNH) expeditions to Colombia led by curator of birds, Frank Chapman, from 1911 to 1915. Our team was preparing an avian resurvey of the Magdalena Valley in the context of the Colombia Resurvey Project in 2020 (Gómez et al. 2022) when we discovered the mention of Kerr. Chapman briefly describes some "auxiliary collections" that aided his research in understanding and uncovering biogeographical patterns of bird distribution in Colombia; in that section, he mentions the "Mrs. Kerr collection" (Figure 1a). Chapman details that Kerr sold the AMNH 194 specimens from the Magdalena Valley close to Honda, and that she was later commissioned to collect birds in the Atrato Valley, where she secured 200 bird specimens for the museum (Chapman 1917). Following the excitement of finding a female bird collector from the early 20th century, our team continued researching Kerr's story. With help from AMNH personnel and Professor Andrés Cuervo, curator of the ornithological collection of the Instituto Natural de Ciencias Naturales at Universidad Nacional de Colombia, we uncovered the facts and contributions of Kerr that we describe here.

A The Mrs. Kerr Collections.— In 1908 the American Museum purchased from an American woman, Mrs. Elizabeth L. Kerr, one hundred and ninety-four bird skins which she had collected in Colombia west of Honda, in the Magdalena Valley, and on the eastern slopes of the Central Andes up to an altitude of 3000 feet.

Later Mrs. Kerr was commissioned to collect specimens in the Atrato Valley, and the two hundred skins secured by her and listed under the localities she visited are the only ones we have secured from this region, except those taken by Miller and Boyle at Dabeiba and Alto Bonito.

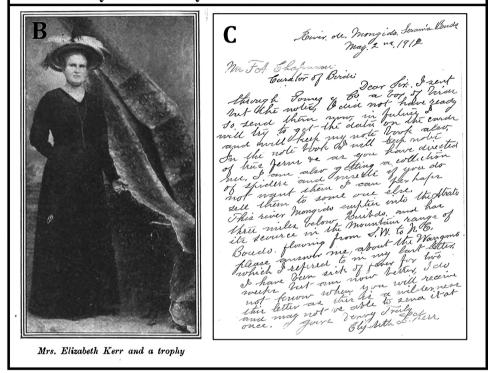


FIGURE 1. Historical sources about Mrs. Elizabeth L. Kerr. (A) Reference to the "Mrs. Kerr collections" as one of the auxiliary collections reviewed by Frank Chapman in his book "The Distribution of Birdlife in Colombia" (Chapman, 1917). (B) Portrait of Elizabeth L. Kerr from the 1912 Collier's Magazine self-authored article "A Woman Naturalist: A personal account of the work and adventure of a woman collector in the wilderness of tropical America" (Kerr 1912). (C) Example of correspondence between Kerr and Chapman held between 1912 and 1913 (AMNH 2021b). Images (A) and (C) reproduced with permission from the Ornithology Archive of the American Museum of Natural History. Image (B) reproduced with permission from Collier's Magazine, registered trademark of JTE Multimedia, LLC 435 Devon Park Drive Boulevard 500, Wayne, PA 19087, USA.

The little we know about Kerr and the specimens she collected comes mainly from 4 sources: a self-authored article in the Collier's magazine in 1912 entitled "A Woman Naturalist: A personal account of the work and adventure of a woman collector in the wilderness of tropical America" (Kerr 1912; Figure 1b shows her portrait from that article); correspondence between Kerr and Chapman between September 1911 and May 1913 provided by the AMNH (Figure 1c shows an example); a 1912 letter about Kerr from Chapman to Henry Osborn, then president of the AMNH, and museum specimens databases from the AMNH (AMNH 2021a), VertNet (http://www.vertnet.org/index.html), and the California Academy of Sciences (Flannery 2022) (supplementary material).

Elizabeth L. Kerr's date and exact place of birth remain unknown, although we know that she was born in the United States. In the Collier's article, she described herself as a naturalist and collector of birds, mammals, and other animals, and we have documentation through the correspondence of her travels to Colombia in 1906–1907 and 1909–1912. Although we have little information about her motivation to become a specimen collector, Kerr mentioned that she inherited her love for hunting from her brother and that "[while] a great grief drives some women to enter the convent. It caused me to shoulder a gun and march into the wilderness" (Kerr 1912).

Based on her letters written in a grammatically correct cursive style, which is remarkable given that some of them were composed in the field under trying circumstances, she had received education to a level that suggests she was from a family with some resources. However, we suspect that Kerr did not have formal biology or taxidermy training. She was not an employee of the AMNH; her status seemed to be a freelance collector who worked solo rather than with a team. Chapman continuously complains in letters to Mrs. Kerr about the form of her museum skins, and Kerr herself writes to Chapman when referring to specimen preparation: "[g]ive me full instructions as you know I am only an amateur and an

ignorant one at that" (Kerr to Chapman, May 9, 1912). The correspondence between the 2 of them was ridden with demands from Chapman for better collections from Kerr, often expecting her solo work to meet the same standards as that of experienced collectors and even team expeditions conducted by the AMNH in Colombia. "We have been at work in the mountains east and west of the Cauca only a year, but already have over 6000 specimens, and I trust you will now succeed in sending an equally fine collection from the Atrato and its surrounding mountains." (Chapman to Kerr, May 14, 1912; AMNH 2021b). In addition, Chapman provided explanations of the need for complete collections, proper specimen packing, and recording of detailed locality data for the specimens to be useful as museum skins. The latter request was not unique to the communications between Kerr and Chapman. We know of other cases in which Chapman presented similar requests (e.g., Chapman-Richardson letters; AMNH 2022). Most of the Chapman-Kerr letters discuss the difference in specimen prices and the constant battle between Kerr requesting more funds for her expedition and Chapman demanding better results to wire more money. Kerr's struggle was not limited to her interactions with Chapman. Being equipped for the humidity and rain was a challenge, especially for a woman during those times.

Her field expedition outfit was composed of bloomers, a long shooting jacket, and a rubber hat to protect her from the tropical rains (Kerr 1912), none of which were commonly worn by women in the early 20th century. In fact, fashionable women of that era wore fancy hats adorned with tropical bird feathers and even stuffed birds (Doughty 1975; Quintero Toro 2012), but Kerr took her relationship with bird plumages and bodies to another level. As a bird lover, she was amazed by Colombia's vast biodiversity: "Colombia is a naturalist's paradise. Such an abundance of animal forms I have not found anywhere else. In a hundred years I would not be able to exhaust this teeming life which is calling me night and day" (Kerr 1912).

Though not an experienced taxidermist, Kerr was an adventurous woman who showed no signs of fear of impenetrable jungles, disease, or unknown local inhabitants. We know that she spent extended periods living in Colombia because she describes having her headquarters in Cartagena and a small native-like house built on poles on the Atrato River (Kerr 1912). Her quest to collect rare birds took her to remote places along the Atrato River and its tributaries in Chocó, where she described: "This river has very few inhabitants on account of the difficult navigation, the Indians are very treacherous, they started with me, and halfway up here they left me on the riverbank and went back. I was twenty days alone without seeing a living soul" (Kerr to Chapman, Río Salaquí, March 21, 1912) (AMNH 2021b). We want to highlight that the reference to local Indigenous peoples as "treacherous" in the previous quote is evidence of the racist colonial system of natural expeditions at the time. In the same region she also reports that she was "lost in the woods three days in the Salaquí region, and barely came out alive" (Kerr to Chapman writing on board a steamer to Quibdó, April 19, 1912); AMNH 2021b). We know that she mostly collected birds alone as she also writes "often I see no human being for three weeks at a time" (Kerr 1912).

Her bravery in exploring the jungles of Colombia was widely recognized by her fellow countrymen who also ex-

plored South America. She writes that they would say to her, "Mrs. Kerr you must be the bravest woman in the world" (Kerr 1912). She pushed the exploration frontier to the limits. In describing her upcoming trip to the Chocó, she wrote, "No white man has ever penetrated the country which I intend to visit". The previous quote is evidence of the lack of recognition that foreign naturalists had for local people and the traditional knowledge of their own territories. Despite Kerr's fearless explorations, her achievements remain unrecognized and unaccounted for in modern texts.

Kerr's drive, courage, and skill were admirable. Her legacy to ornithology is also impressive, as described in the next section. The last record we have of Kerr was a letter from Chapman to Kerr in May of 1913. What happened to her after that date is unknown; the last known specimen collected by her for the AMNH is dated 1913.

## Kerr's Ornithological Legacy

To our knowledge, Kerr had 2 periods of specimen collecting in Colombia, and also contributed a few specimens from Mexico and Costa Rica. Here, we focus on her Colombian expeditions and describe each collecting period, highlighting Kerr's contribution to the knowledge of Colombian birds.

# Magdalena Valley and Central Andes near Tolima (1906–1907).

Locality details for these specimens are absent, and most of the specimens are labeled as being from "Tolima" (a department in Colombia), "Honda" (a town in Tolima), or "Magdalena Valley" (an entire ecoregion). A few specimens share the locality "20 miles West of Honda" which, when considered with the suite of species she collected, points to the fact that she collected some of the birds on the Central Andes Eastern foothills (Figure 2a). Elevations from specimen labels range from 1,000 to 1,800 meters above sea level (m.a.s.l.) and span from December 1906 to October 1907. Though Chapman reports having purchased 194 skins from Kerr from this region (Chapman 1917), AMNH database searches yielded around 280 specimens collected by Kerr in the area (AMNH 2021a). Kerr's specimens from this region belong to ~128 species (some are identified only to genus).

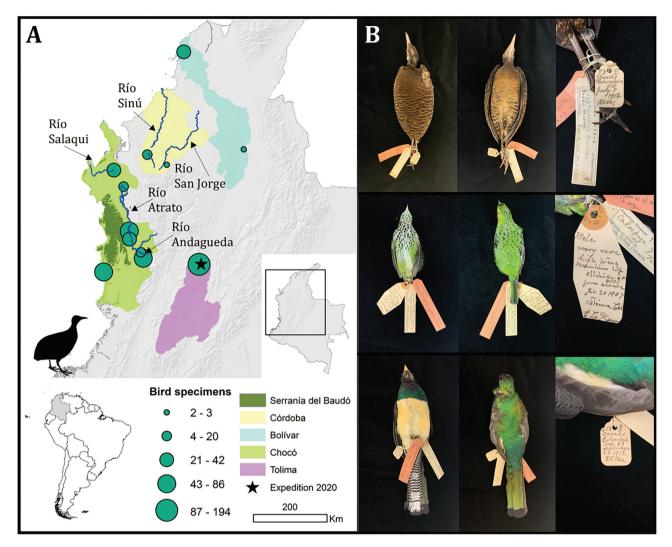
#### Northern and Pacific regions of Colombia (1909–1912).

Chapman commissioned Kerr to collect birds from the Northern Pacific of Colombia, from where he lacked representation in the AMNH collections, hindering his ability to thoroughly assess bird distributions. This time Kerr explored localities along the Valley of the Atrato River with specific instructions from Chapman about recording locality, elevation, and even detailed instructions on the proper preparation of museum skins. She collected birds and mammals from various localities in the departments of Bolivar, Córdoba, Magdalena, and mostly Chocó (Figure 2a). Most specimens are dated from 1912, but around 70 skins have dates between 1909 and 1911. Chapman reports 200 specimens accrued from Kerr from the region (Chapman 1917), but the AMNH database searches yield around 400 specimens collected by Kerr (AMNH 2021a). From this region, Kerr's specimens belong to ~200 species.

Kerr's explorations of the 2 regions in Colombia, and particularly the specimens obtained from Chocó, remain one of the few investigations of the avifauna of this remote, inaccessible, and incredibly diverse territory. Kerr's shooting skills are

5

J. Soto-Patiño et al. Kerr's ornithological legacy



**FIGURE 2.** Mrs. Elizabeth Kerr's ornithological legacy. (**A**) Bird collection localities by Kerr in Colombia. (**B**) Bird specimens collected and skinned by Kerr, currently housed at the American Museum of Natural History in New York City, USA. From top to bottom: Chocó Tinamou (*Crypturellus kerriae*), holotype AMNH 12304, Baudó, Chocó, Colombia; *Ixothraupis guttata tolimae*, holotype AMNH 95087, Tolima, Colombia; *Trogon cupreicauda*, holotype AMNH 123271, Bagadó, Chocó, Colombia. Photos by P. Sweet, AMNH.

not to be doubted. Her specimens include a myriad of species that are difficult to observe and shoot. Her collections include tinamous, raptors, toucans, antbirds, and even the elusive and enigmatic Rufous-vented Ground-cuckoo (*Neomorphus geoffroyi*), which has very few observations in Colombia (eBird website accessed August 25, 2022).

#### Mexico and Costa Rica (1906).

There are 16 records of specimens belonging to 14 species of birds collected by Kerr between April 15 and September 10 from Mexico and Costa Rica (Flannery 2022). Two of them are labeled with the Acapulco, Guerrero, México locality. The remaining 14 are from Costa Rica, 5 of them specified with the Puntarenas locality, one from Taboga, and the remaining just labeled with the country name. There are 2 specimens with the note "collected on the coast." Based on the locations of the known localities from these 2 countries as well as the dates of her first collection stage in Colombia, those 16 specimens could presumably have been collected during her journey to South America.

Based on the specimens accrued by Kerr in Colombia, Chapman described new bird species and subspecies to science (Greenway 1973, 1978; Lecroy and Sloss 2000; LeCroy 2012). Here, we highlight the most important contributions.

#### Species holotype.

The Chocó Tinamou (Crypturellus kerriae) was described from the holotype collected by Kerr (AMNH 123204, holotype) and named after her by Chapman in 1915 (Figure 2b). To date, this specimen of Chocó Tinamou is one of only 2 from Colombia found in museums (Greenway 1973). This species has a tiny distribution (12,400 km<sup>2</sup>) at the border of Colombia and Panama, and only 171 observations are reported on the platform eBird (website accessed August 25, 2022), most of which are from Panama. Three pictures of the bird are published on eBird, all from Panama, and 9 audio recordings, 4 of them from Colombia. There are no details of the natural history of the Chocó Tinamou and very little information about it in field guides or the comprehensive Birds of the World database (Gomes 2020). Our collective knowledge of this species and its description is a remarkable ornithological legacy of Kerr. An interesting fact is that when referring to the name of this tinamou on some bird



FIGURE 3. Team of the all-female expedition inspired by Mrs. Kerr's legacy. Pictured from left to right: Jessica Díaz—JDC (ornithologist for the Expeditions BIO Alas, cantos y colores), Daniela Garzón Lozano—DGL (local ornithologist from Tolima), Juliana Soto—JSP (manager of the Expeditions BIO Alas, cantos y colores, and researcher at Instituto Humboldt and Instituto de Ciencias Naturales de la Universidad Nacional), Estefanía Guzmán—EGM (local ornithologist from Tolima), and Dr. Natalia Ocampo Peñuela—NOP (Assistant Professor at University of California, Santa Cruz, then leader of the Expeditions BIO Alas, cantos y colores and then researcher at the Instituto Humboldt). Photo by Laura Gómez-Unda. Not pictured: Natalia Pérez Amaya—NPA (ornithologist for the Expeditions BIO Alas, cantos y colores and researcher at Instituto de Ciencias Naturales de la Universidad Nacional), Nelsy Niño Rodríguez—NNR (social leader of the Expeditions BIO Alas, cantos y colores and researcher at Instituto Humboldt), Katherine Certuche Cubillos—KCC (local ornithologist from Tolima).

encyclopedias, it is assumed to be named after a Mr. Kerr, instead of Mrs. Kerr (e.g., Arango 2017).

### Subspecies holotypes and paratypes.

Kerr's collections also aided in the description of at least 4 subspecies of birds: Tangara guttata tolimae (currently Ixothraupis guttata tolimae) (AMNH 95087, holotype; AMNH 95088, paratype; Figure 2b), Grallaria guatimalensis chocoensis (AMNH 123351), Conopophaga castaneiceps chocoensis (AMNH 123321), and the trogon Trogonurus curucui cupreicauda (AMNH 123271) (Greenway 1973; Lecroy and Sloss 2000; LeCroy 2012; Figure 2b). Currently, this trogon (Trogon cupreicauda) is recognized as a species, thanks to a recent split. The authors of the study that proposed the split suggested its English name as Kerr's Black-throated Trogon "after the pioneering explorer in the region who collected the holotype" (Dickens et al. 2021).

In general, Kerr's exploration of the Serranía del Baudó (Figure 2a) and the Atrato greatly contributed to Chapman's understanding of bird biogeography, particularly the connection between Central and South American avifauna. It is important to note that there are no Kerr specimens in Colombian museums as most of them reside in the AMNH in New York or have been exchanged/donated to The Brooklyn Museum, The Field Museum of Natural History (FMNH),

The Cleveland Museum, The Michigan State University Museum (MSU, East Lansing, Michigan), and El Museo Paulista, among others (AMNH 2021a). The fact that all of Kerr's specimens are housed outside Colombia constitutes, in part, a barrier to Colombian ornithology, and our lack of knowledge about Kerr.

Although our review of literature and specimens was mainly focused on birds, here we briefly summarize and highlight Kerr's contributions to Colombian mammalogy. The AMNH purchased from Kerr around 40 mammal specimens collected in the Northern and Pacific regions of Colombia, where she also collected birds for the AMNH (as mentioned earlier) (Allen et al. 1916). These specimens were from 10 species and 12 subspecies of mammals including terrestrial and aquatic opossums, sloths, tamanduas, agoutis, pacas, rats, mice, kinkajous, bats, squirrels, and monkeys, according to the taxonomic categories presented in Allen (1916). Two species of monkeys were described in 1912 by Elliot from these specimens (Seniocebus meticulosus, holotype AMNH 32703; and Oedipomidus salaguiensis, holotype AMNH 33076) and 2 new subspecies of squirrels (Sciurus gerrardi salaquensis, holotype AMNH 33078; and Mesosciurus gerardi baudensis, holotype AMNH 33180) were described by Allen in 1914 and 1915, respectively (Goodwin 1953). Given our findings for birds, we recommend a closer look at Kerr's legacy in mammalogy.

J. Soto-Patiño et al. Kerr's ornithological legacy 7

## Kerr Inspires Colombian All-Female Expedition

Kerr's legacy is not limited to scientific discovery and a large specimen count. To us, female ornithologists, she is a role model we have longed for and a true inspiration. She was an example of a woman defying cultural norms and overcoming barriers to female participation in scientific expeditions. Kerr's bravery was impressive, as she collected birds in some of Colombia's most impenetrable regions and forests. Yet, her story is another example of how significant female contributions continue to be ignored when the history of scientific discoveries is written (Rossiter 1993).

To honor Kerr's legacy, inspire future generations of female ornithologists, and assess changes in Colombia's avifauna over a century of land cover and climate transitions, we included an account of all-female ornithological expedition in the context of the Colombia Resurvey Project expeditions (Figure 3). From December 11 to the 14 of 2020, a team of Colombian female ornithologists (all of whom authored this manuscript) undertook a collecting ornithological expedition in the locality of Fresno, Tolima (Figure 3). The locality was selected to resurvey Kerr's first collecting period (as mentioned earlier) based on general descriptions such as "20 miles from Honda" or "W of Honda," the few elevations that Kerr recorded, and a careful analysis of the distributions of the species collected by her in historical expeditions.

The expedition took place in the family property "El Tesoro" (5°10′4.12″N, 74°59′0.58″W) at 1,050 m.a.s.l. The area, located on the eastern slope of the Central Andes is a mosaic of riparian forest remnants, plantain crops, avocado trees, soursop trees, cattle pastures, and a wetland. The team was composed of 5 female ornithologists, including 2 students from the regional university, a junior ornithologist, a project manager, and a lead scientist (Figure 3). This all-female expedition was carried out in the context of the "Expeditions BIO Alas, cantos y colores" of the Resurvey Colombia Project and thus follows methods described in Gomez et al. (2022).

During the Kerr resurvey expedition, we recorded 89 species through visual surveys, and captured and collected specimens (supplementary material). Noteworthy records include the endemic and vulnerable (VU) Sooty Ant-tanager (Habia gutturalis), and the near-endemics: Stilpnia vitriolina, Corapipo leucorrhoa, and Sipia palliata. Of the 89 species we found, 26 matched those collected by Kerr in 1907.

Our expedition was covered by many news outlets (supplementary material) and was well received by the Colombian public (per our interactions with the public on social media and public events), reinforcing a need for more activities that visualize, recognize, and elevate the role of women in science. We join other female ornithologists, like the team of the Snethlage expedition (Del-Rio et al. 2021), in their efforts to recognize, highlight, and elevate the voices and legacies of women that have been systemically kept invisible. We hope that our legacies will not be invisible in the way Kerr's was and that we can promote the building of an equitable and diverse ornithological community following guidelines from recent articles such as Lerman and collaborators' lifecycle approach for mother ornithologists (Lerman et al. 2021), Ramírez-Castañeda and collaborators' concrete actions to be collaborative, be respectful, be legal, and be safe when doing fieldwork (Ramírez-Castañeda et al. 2022), and Soares and collaborator's guidelines for inclusion and empowerment of Neotropical Ornithologists (Soares et al. 2023), to name a few.

We hope that by dismantling barriers to women and implicit bias in science, we can support and elevate female role models for the next generations of ornithologists, in the same way, that Kerr continues to inspire us every day.

## Supplementary material

Supplementary material is available in Ornithological Applications online.

## Acknowledgments

The authors thank Paul Sweet, Mary LeCroy, Thomas Trombone, and the AMNH Ornithology Archive team for providing us with the information, correspondence, and pictures related to Mrs. Kerr's ornithological work. Pamela J. Winton deciphered and transcribed Mrs. Kerr's handwritten letters and helpfully edited the manuscript. The Díaz Gómez family hosted us during the female expedition in Fresno on their property "El Tesoro". We thank the entire "Expeditions BIO Alas, cantos y colores" team and the field crew for the Honda/Fresno/Guaduas expedition for working with us to study and conserve biodiversity in Colombia. We thank peer reviewers and the journal editors for their input.

## **Funding statement**

NOP was funded by a Minciencias postdoctoral fellowship during the time the work was carried out.

## **Positionality statement**

We are eight Colombian-born ornithologists, descendants of Spaniard settlers and mixed-blooded mestizos who identify as women. Six of us attended public university, and two of us private university, and were awarded degrees in Biology, Ecology, and Anthropology in Colombia. Three of the authors are from Tolima, where the female expedition took place. We have all been trained as ornithologists and have different levels of experience in the field and laboratory. Two of us are mothers.

#### **Author contributions**

JSP, KCC, JDC, DGL, EG, NNR, NPA, NOP conceived the idea, collected the data, wrote and edited the paper.

# LITERATURE CITED

Allen, J. A., F. M. Chapman, L. E. Miller, W. B., Richardson, A. A. Allen, G. K. Cherrie, G. M. O'Connell, H. S. Boyle (1916). List of mammals collected in Colombia by the American Museum of Natural History expeditions, 1910–1915. Bulletin of the American Museum of Natural History 35:191–238.

American Museum of Natural History (AMNH). (2021a). Vertebrate Zoology Collection Database. https://emu-prod.amnh.org/db/emuwebamnh/index.php

American Museum of Natural History (AMNH). (2021b). *Unpublished Ornithology Archives: Mrs. Elizabeth L. Kerr.* American Museum of Natural History, New York, NY, USA.

American Museum of Natural History (AMNH). (2022). *Unpublished Ornithology Archives: William Richardson*. American Museum of Natural History, New York, NY, USA.

Arango, C. (2017). Tinamú del Chocó—Crypturellus kerriae. Wiki Aves de Colombia. http://www.icesi.edu.co/wiki\_aves\_colombia/tiki-index.php?page\_ref\_id=1943

- Birkhead, T. R., and I. Charmantier (2009). History of Ornithology. In *Encyclopedia of Life Sciences (ELS)*. John Wiley & Sons, Ltd, Chichester.
- Campbell, L. G., S. Mehtani, M. E. Dozier, and J. Rinehart (2013). Gender-heterogeneous working groups produce higher quality science. *PLoS One* 8:e79147.
- Chapman, F. (1917). The distribution of bird-life in Colombia: A contribution to a biological survey of South America. *Bulletin of the American Museum of Natural History* 36:1–729.
- Cooper, C. B., and J. A. Smith (2010). Gender patterns in bird-related recreation in the USA and UK. *Ecology and Society* 15:4.
- Córdoba-Córdoba, S. (2009). Historia de la ornitología colombiana: Sus colecciones científicas, investigadores y asociaciones. *Boletín SAO* 19:1–26.
- Del-Rio, G., M. J. Mutchler, B. Costa, A. E. Hiller, G. Lima, B. Matinata, J. F. Salter, L. F. Silveira, M. A. Rego, and D. C. Schmitt (2021). Birds of the Juruá River: Extensive várzea forest as a barrier to terra firme birds. *Journal of Ornithology* 162:565–577.
- Dickens, J. K., P.-P. Bitton, G. A. Bravo, and L. F. Silveira (2021). Species limits, patterns of secondary contact and a new species in the *Tro-gon rufus* complex (Aves: Trogonidae). *Zoological Journal of the Linnean Society* 193:499–540.
- Doughty, R. W. (1975). Feather Fashions and Bird Preservation: A Study in Nature Protection. University of California Press, Berkeley, CA, USA.
- Flannery, M. (2022). CAS Ornithology (ORN). v126.348. California Academy of Sciences. Dataset/Occurrence. http://ipt.calacademy.org:8080/resource?r=orn&v=126.348.
- Gomes, V. (2020). Choco Tinamou (Crypturellus kerriae), version 1.0. In *Birds of the World* (T. S. Schulenberg, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.chotin1.01
- Gómez, C., C. D. Cadena, A. M. Cuervo, J. Díaz-Cárdenas, F. García-Cardona, N. Niño-Rodríguez, N. Ocampo-Peñuela, D. Ocampo, G. Seeholzer, A. Sierra-Ricaurte, et al. (2022). Reexpedición Colombia: Entender el pasado para empoderar acciones que fortalezcan el conocimiento y conservación de las aves. *Biota Colombiana* 23:e984–e984.
- Goodwin, G. G. (1953). Catalogue of the type specimens of recent mammals in the American Museum of Natural History. Bulletin of the American Museum of Natural History 102:207–412.
- Greenway, J. C. (1973). Type specimens of birds in the American Museum of Natural History. Part 1. *Bulletin of the American Museum of Natural History* 150:207–346.
- Greenway, J. C. (1978). Type specimens of birds in the American Museum of Natural History. Part 2. Bulletin of the American Museum of Natural History 161:1–306.
- Haines, C. D., E. M. Rose, K. J. Odom, and K. E. Omland (2020). The role of diversity in science: A case study of women advancing female birdsong research. *Animal Behaviour* 168:19–24.
- Kerr, E. L. (1912). A woman naturalist: A personal account of the work and adventure of a woman collector in the wilderness of tropical America. Collier's: The National Weekly 49:26.
- Kohler, R. E. (2006). All Creatures: Naturalists, Collectors, and Biodiversity, 1850–1950. Princeton University Press, Princeton, NJ, USA.
- Leal, A. (2020). Historia de la ornitología: Pioneras de la ornitología. Aves y Naturaleza 31:20–25.

- Lecroy, M., and R. Sloss (2000). Type specimens of birds in the American Museum of Natural History. Part 3. Passeriformes: Eurylaimidae, Dendrocolaptidae, Furnariidae, Formicariidae, Conopophagidae, and Rhinocryptidae. Bulletin of the American Museum of Natural History 2000:1–88.
- LeCroy, M. (2012). Type specimens of birds in the American Museum of Natural History. Part 10. Passeriformes: Emberizidae: Emberizinae, Catamblyrhynchinae, Cardinalinae, Thraupinae, and Tersininae. Bulletin of the American Museum of Natural History 2012:1–125.
- Lerman, S. B., L. Pejchar, L. Benedict, K. M. Covino, J. L. Dickinson, J. E. Fantle-Lepczyk, A. D. Rodewald, and C. Vleck. (2021). Juggling parenthood and ornithology: A full lifecycle approach to supporting mothers through the American Ornithological Society. Ornithological Applications 123:duab001.
- Mere, G. (2013). Emil-Heinrich Snethlage (1897–1939): Biographical note, expeditions and legacy of an interrupted career. Boletim Do Museu Paraense Emílio Goeldi. Ciências Humanas 8:773–804.
- Naranjo, L. G. (2008). El arcano de la ornitología colombiana. Ornitología Colombiana 7:5–16.
- Nielsen, M. W., C. W. Bloch, L. Schiebinger (2018). Making gender diversity work for scientific discovery and innovation. *Nature Human Behaviour* 2:726–734.
- Olivares, A. (1966). Introducción a la historia de la ornitología colombiana. *Revista de la Academia Colombiana de Ciencias* 12:367–375.
- Quintero Toro, C. (2012). Birds of Empire, Birds of Nation: A History of Science, Economy, and Conservation in United States-Colombia Relations. Ediciones Uniandes-Universidad de Los Andes, Bogotá, Colombia.
- Ramírez-Castañeda, V., E. P. Westeen, J. Frederick, S. Amini, D. R. Wait, A. S. Achmadi, N. Andayani, E. Arida, U. Arifin, M. A. Bernal, et al. (2022). A set of principles and practical suggestions for equitable fieldwork in biology. *Proceedings of the National Academy of Sci*ences USA 119:e2122667119.
- Rossiter, M. W. (1993). The matthew matilda effect in science. *Social Studies of Science* 23:325–341.
- Soares, L., K. L. Cockle, E. Ruelas Inzunza, J. T. Ibarra, C. I. Miño, S. Zuluaga, E. Bonaccorso, J. C. Ríos-Orjuela, F. A. Montaño-Centellas, J. F. Freile, et al. (2023). Neotropical ornithology: Reckoning with historical assumptions, removing systemic barriers, and reimagining the future. Ornithological Applications 125:duac046.
- Servat, G., I. Franke, and J. Terborgh. (2012). Maria Koepcke and her contribution to Peru and neotropical ornithology. Ornitología Neotropical 23:399–404.
- Slobodian, V., K. D. Soares, R. L. Falaschi, L. R. Prado, P. Camelier, T. B. Guedes, L. C. Leal, A. S. Hsiou, G. Del-Rio, and E. R. Costa (2021). Why we shouldn't blame women for gender disparity in academia: Perspectives of women in zoology. *Zoología (Curitiba)* 38:1–9.
- Trautman, M. B. (1977). In memoriam: Margaret Morse Nice. *The Auk* 94:430–441.
- Walters, M. (2004). A Concise History of Ornithology. Yale University Press, New Haven, CT, USA.
- Yang, Y., T. Y. Tian, T. K. Woodruff, B. F. Jones, and B. Uzzi. (2022). Gender-diverse teams produce more novel and higher-impact scientific ideas. *Proceedings of the National Academy of Sciences USA* 119:e2200841119.