

## First records of *Charadrius semipalmatus*, Bonaparte 1825 (Charadriidae) and *Gelochelidon nilotica* Gmelin 1789 (Sternidae) in the State of Minas Gerais, Brazil

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### Abstract

Around forty bird species habitually reproduce in the Northern Hemisphere during summer, and migrate to the Southern Hemisphere during northern winter. These migrating birds fly together in large or small groups until they have reached the Caribbean, Central American, or Brazilian shores. *Charadrius semipalmatus*, Bonaparte 1825, is one of these migrating species that uses resting and feeding areas along eastern and western coasts of North and South America, with several records for the Brazilian coast, and very few for the inland country. On November 24, 2011, an individual of this species was observed on the banks of one of the lakes that compose a complex of about 40 temporary lakes within the Karst of Lagoa Santa Environmental Protection Area. On October 29 and 30, 2012 a single individual of *Gelochelidon nilotica*, Gmelin 1789, was also observed in Sumidouro State Park. We suggest that these specimens have used the Atlantic Ocean migration route, following the São Francisco River Basin, until the karst area. Although highly impacted, the temporary lakes within the Karst of Lagoa Santa still harbor a significant number of bird species, and serve as resting and feeding places for migratory or errant species that are still eliciting new records.

**Keywords:** Karst of Lagoa Santa, migration route, Semipalmated Plover, temporary lake, Gull-Billed Tern.

### Primeiro registro de *Charadrius semipalmatus*, Bonaparte 1825 (Charadriidae) e *Gelochelidon nilotica* Gmelin 1789 (Sternidae) em Minas Gerais

### Resumo

Cerca de 40 espécies de aves se reproduzem no hemisfério Norte durante o verão e migram durante o inverno, desse hemisfério, para o hemisfério Sul. Essas aves migratórias se reúnem em grandes ou pequenos bandos até atingir o Caribe, América Central e região costeira do Brasil. *Charadrius semipalmatus*, Bonaparte 1825, é uma das migratórias que usa áreas de repouso e alimentação ao longo das costas leste e oeste das Américas do Norte e do Sul, tendo vários registros no litoral brasileiro e muito poucos no interior do país. No dia 24 de novembro de 2011, um indivíduo da espécie foi observado nas margens de uma das lagoas que compõem um complexo de cerca de 40 lagoas temporárias da Área de Proteção Ambiental (APA) Carste de Lagoa Santa. Nos dias 29 e 30 de outubro de 2012 um indivíduo de *Gelochelidon nilotica*, Gmelin 1789, foi observado na lagoa do Sumidouro, no Parque Estadual do Sumidouro. Sugerimos que os indivíduos utilizaram a rota do Oceano Atlântico para a migração, seguindo a bacia do rio São Francisco até atingir a área da APA Carste de Lagoa Santa. Apesar de altamente impactadas, as lagoas temporárias da APA Carste de Lagoa Santa ainda abrigam expressiva riqueza em espécies e servem como local de repouso e alimentação para espécies migratórias ou errantes ocasionais que continuam sendo registradas.

**Palavras-chave:** Carste de Lagoa Santa, rota de migração, Semipalmated Plover, lagos temporários, Gull-Billed Tern.

Around forty bird species habitually reproduce in the Northern Hemisphere during summer, and migrate to the Southern Hemisphere during northern winter (Campos et al., 2008; Mestre, 2007; Nunes and Tomas, 2008). In the US, migration of large groups occurs mainly along the eastern and western coasts, while small groups utilize inland migrating routes, making use of flooded regions, until they have reached the Caribbean, Central America, and the Brazilian coast (Nol and Blanken, 1999; Sick, 1997). The migration within the Brazilian territory occurs through four main routes (Antas, 1983; Nunes and Tomas, 2004, 2008): i) the Atlantic Ocean coastline, ii) Central Brazil (includes the routes of Rio Negro – Pantanal and Rio Xingu – Tocantins), iii) Central Amazon and Pantanal, and iv) Western Amazon (Cis-Andina).

*Charadrius semipalmatus* Bonaparte, 1825 (Charadriidae), commonly known as Semipalmed Plover, is a migrating bird that leaves the Arctic lakes, rivers and swamps in the winter (Nol and Blanken, 1999). During migration, it utilizes resting and feeding areas along the North and South American eastern and western shores (Barbieri et al., 2000; Nol and Blanken, 1999; Sick, 1997). It reaches the Brazilian coast between August and November (Nol and Blanken, 1999; Sick, 1997), when it is found from the Amapá coast to the Southern end of Rio Grande do Sul. There are further records for the Fernando de Noronha archipelago, and for the countryside in the States of Pará, Maranhão, Ceará, Paraíba and Santa Catarina (Branco et al., 2004; Campos et al., 2008; Cardoso and Zeppelini, 2011; Cremer et al., 2011; Rodrigues, 2000; Serrano, 2011). Some juveniles, unable to migrate, are found in Brazil throughout the year (Barbieri and Paes, 2008; Campos et al., 2008). On November 24, 2011, a single adult *C. semipalmatus* was observed feeding on invertebrates, on the banks of the Lagoa da Pedrinha ( $19^{\circ}31'16.1''S$ ,  $44^{\circ}1'19.7''W$ ; see Figure 1), one of the temporary lakes of the Karst of Lagoa Santa Environmental Protection Area (APA Karst of Lagoa Santa), in the State of Minas Gerais.

*Gelochelidon nilotica* Gmelin, 1789 (Sternidae), commonly known as Gull-Billed Tern, formerly *Sterna nilotica* (Bridge et al., 2005), is a migrating bird that inhabits the Northern Hemisphere, also migrating to the Southern Hemisphere during the winter (Hoyo et al., 1996). There are six *G. nilotica* recognized subspecies (Molina et al., 2009), and among them, *G. n. aranea*, which can be observed in coastal and freshwater lakes and rivers in Central America, and on the coasts of Brazil and Peru (Hoyo et al., 1996; Molina et al., 2009). This subspecies was recorded along the Brazilian coast in the Amazon estuary, Pará, Ceará and Rio Grande do Norte, and in the coastal lagoons of Rio Grande do Sul (De Luca et al., 2006; Girão et al., 2008; Kirwan et al., 2012; Petersen and Petry, 2011; Sick, 1997). There are also records in Rio de Janeiro (Sick, 1997), however, these need confirmation (De Luca et al., 2006). On the other hand, Hoyo et al. (1996), suggest a continuous distribution of this species along the eastern Brazilian coast, which seems far more likely. Reproductive activity was observed in Rio Grande do Norte (Azevedo et al., 2004), Rio Grande

do Sul and the Amazon estuary (De Luca et al., 2006). On October 29 and 30, 2012, a single adult *G. nilotica* was observed flying and foraging alone near the margins of the Sumidouro lake ( $19^{\circ}32'16.01''S$ ,  $43^{\circ}56'41.61''W$ ; see Figure 2), the largest temporary lake of the APA Karst of Lagoa Santa.

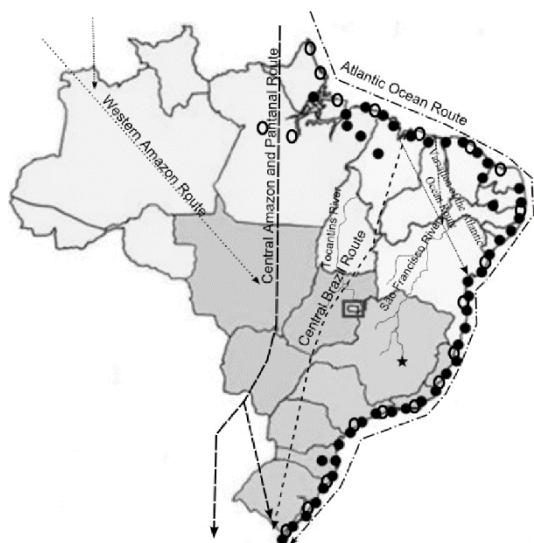
The records of *C. semipalmatus* and *G. nilotica* were made on sunny days with two binoculars Bushnell Excursion (8×42), a spotting scope Bushnell Legend Ultra High Definition (15-45×60mm) and photographs Canon PowerShot (SX30 IS 14.1Mp Zoom 35×). Both records are remarkable and very unexpected, since the first species is a shorebird, the second a seabird, and the two lakes, where both species were sighted, make part of a complex of about 40 temporary lakes situated at least 380 Km from the Brazilian eastern coast (see Figure 3). Probably this system of temporary lakes is used by these and other Northern migratory species as stopover places, where they may rest and forage (Barbieri et al., 2013), during their passage to the Southern Hemisphere. These records are outside the Brazilian coastline and, as far as it is known, the first for the State of Minas Gerais.



Figure 1. *Charadrius semipalmatus* on the banks of the Lagoa da Pedrinha, Matozinhos – MG.



Figure 2. *Gelochelidon nilotica* flying in the Sumidouro Lake, Lagoa Santa – MG.



**Figure 3.** Distribution map of *Charadrius semipalmatus* (closed circles) and *Gelochelidon nilotica* (open circles). Star indicates the location of the new records in Minas Gerais. (Adapted of Antas (1983) and Hoyo et al. (1996))

Larkin and Szafoni (2008) suggest that several closely related species of birds migrate in mixed groups, sharing information on food and guidance, increasing their chances of survival. Campos et al. (2008) have observed a strong correlation between *C. semipalmatus* and *Pluvialis dominica*, (Statius Muller 1776) and *C. semipalmatus* and *Tringa solitaria* (Wilson 1813) on the Amapá coast, which may indicate synchronized arrivals and departures, or migratory movements in mixed groups. On the other hand, Azevedo et al. (2004) related the presence of mixed groups of *G. nilotica* and *Larus cirrocephalus* on the Rio Grande do Norte coast. In addition to the aforementioned species, around fifty aquatic bird species have been recorded in the APA Karst of Lagoa Santa. Among these species, *Calidris melanotos* (Vieillot 1819), *T. flavipes* (Gmelin 1789), *T. melanoleuca* (Gmelin 1789), *T. solitaria* and *P. dominica* come from the Northern Hemisphere (Krabbe, 2007; Lins et al., 1998; Oliveira and Figueira, 2009; Rodrigues and Michelin, 2005). *Charadrius semipalmatus* was observed foraging near a single *T. flavipes* and a single *T. solitaria*. Thus, it is possible that this bird strayed from its species flock and followed groups of *Tringa* spp., which have been recorded in the APA Karst of Lagoa Santa since the nineteenth century (Warming, 1908, see also Krabbe, 2007). *Charadrius semipalmatus* and *G. nilotica* were not recorded on other occasions (the fieldwork occurred every two months between November 2011 and November 2013 when 16 out of the near 40 temporary lakes were regularly sampled), though *Tringa flavipes* and *T. solitaria*, were still observed.

Although highly impacted by mining activities, deforestation, agriculture, cattle raising, and urbanization (Drummond et al., 2005), the APA Karst of Lagoa Santa

still harbors a significant species richness, serving as a resting and feeding place for several migratory birds, most of them coming from other Brazilian wetlands, and a few from the Northern Hemisphere.

It is not possible to surely assert which migratory route these specimens have used to reach this region. Nevertheless, for *C. semipalmatus*, we indicate two possibilities: i) the Atlantic Ocean route, which concentrates almost all records of this species in Brazil; and ii) the variation of the Atlantic Ocean route, crossing the Brazilian Northeast until the Baía de Todos os Santos, Bahia (Antas, 1983). It is possible that the observed specimens have deviated from these routes and followed the São Francisco River Basin, which connects with the Velhas River, which in turn delimits the eastern boundary of the APA Karst of Lagoa Santa (see Figure 3).

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