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ARTICLE

Seabirds of São Paulo, Brazil: species occurrence, conservation status and knowledge gaps

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Abstract. Seabirds across all the seas and oceans of the planet interact with human activities and, as a result, approximately 30% of all species are in decline and threatened with extinction. The knowledge of the composition of seabird communities in both breeding and non-breeding ranges is necessary to guide appropriate conservation measures according to its status. Fisheries, oil and natural gas exploration, offshore wind farms, among other activities, require regulation and legal frameworks to protect seabirds and other organisms in this environment. The state of São Paulo already hosts numerous such activities within its territorial waters and has its own environmental protection legislation (including a list of threatened fauna species), requiring impacts on threatened species are evaluated. The present study compiles all available information on seabirds in São Paulo and update its species list based on data obtained from literature reviews, museum specimens, band recovery records, and citizen-science platforms. São Paulo has a total of 68 recorded seabird species, including the recently recognized *Oceanites chilensis* and the sole Brazilian records of *Pterodroma externa* and *Pachyptila turtur.* Most (50 species) are migratory, with 14 species from the Northern Hemisphere and 36 from the Southern Hemisphere. Only 18 species are resident in Brazil, of which six breed along the São Paulo coast. Among the recorded species, 24 (35%) are listed as threatened with extinction by the IUCN, MMA and/or SMA lists. Notably, three (50%) of the six resident breeding species in São Paulo are threatened. Most of the new records came from beached birds, particularly through the Beach Monitoring Program (PMP). Unfortunately, this program forwards few of the collected specimens, including rare and unprecedented records for São Paulo's avifauna, to scientific collections. Based on the available studies on São Paulo's seabirds, even basic data on breeding biology, home range, and diet of even the commonest coastal, and resident species is virtually nonexistent. Similarly, knowledge regarding trends in population and occupancy of breeding sites is scarce, with only outdated data available from studies carried between 1997 and 2005. Further studies and monitoring programs on the breeding areas of these resident species are necessary to fill these knowledge gaps and provide updated scientific information to support effective conservation measures.

Keywords. South-west Atlantic; Seabirds; Phaethontiformes; Sphenisciformes; Procellariiformes; Suliformes; Charadriiformes; Review; Records; Documentation; Distribution; Conservation; Migration; Nesting colonies; Status.

INTRODUCTION

The wide distribution of seabirds across all seas and oceans of the planet exposes them to human activities, resulting in approximately 30% of these species currently experiencing population declines and, consequently, facing extinction threats (Croxall *et al.,* 2012). Since most seabirds undertake migratory movements and significant displacements throughout their life cycles, they are subject to diverse laws and regulations established by the various jurisdictions they use. In this context, conservation efforts limited to protecting a single breeding area, for example, are limited if the species seasonally and consistently moves to other regions for foraging or overwintering to escape the harsh boreal or austral winters and suffers human-caused mortality there.

Globally, 346 seabird species are currently recognized, all of which depend on marine habitats for at least part of their life cycle and are distributed across all seas and oceans (Young & Vanderwerf, 2023). This number represents about 3.5% of all recognized bird species, yet 29% of them

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are considered threatened with extinction by the IUCN (Croxall *et al.,* 2012; Dias *et al.,* 2019; Nunes *et al.,* 2023).

In Brazil, 100 seabird species have been recorded along the coast and Exclusive Economic Zone (EEZ), according to the latest published and updated country list (Pacheco *et al.,* 2021; Nunes *et al.,* 2023). This number includes resident, migratory, and vagrant or accidental species (Mancini *et al.,* 2016; Somenzari *et al.,* 2018), of which 21 are under some threat category in the national red list (MMA, 2022).

The primary threats currently affecting seabirds include bycatch in fisheries, predation by invasive species, marine pollution, habitat loss, disturbance at breeding and resting sites, installation of wind farms, oil and natural gas exploration platforms, and climate change (Barbieri *et al.,* 2007; Croxall *et al.,* 2012; Rodríguez *et al.,* 2019; Nunes *et al.,* 2023).

In the state of São Paulo, the list of seabird species has grown over the years, as previously unrecorded species are frequently documented (*e.g.,* Martuscelli *et al.,* 1995; Silva e Silva & Campos, 2006; Barbieri *et al.,* 2010; Chupil *et al.,* 2018; Chupil *et al.,* 2024b). The number of species increased from 35 (Olmos *et al.,* 1995) to 39 (Willis & Oniki, 2003), then to 41 (Silveira & Uezu, 2011), and recently reached 61 (Valls *et al.,* 2023).

One species of particular interest in São Paulo is the Royal Tern (*Thalasseus maximus*), which in Brazil breeds exclusively on a few islands, islets, and rocky outcrops along the state's coastline (Campos *et al.,* 2004; Yorio & Efe, 2008), and it is listed as a threatened species in both the Brazilian and São Paulo red lists (São Paulo, 2018; MMA, 2022).

MATERIAL AND METHODS

Definition of Seabirds

In this study, seabirds were defined as species adapted to marine environments (coastal or pelagic) during at least part of their life cycle and that rely entirely or partially on marine organisms for food (Croxall *et al.,* 2012; Gatt *et al.,* 2022). Thus, the following orders and their respective families were considered seabirds: Charadriiformes (Stercorariidae and Laridae), Phaethontiformes (Phaethontidae), Sphenisciformes (Spheniscidae), Procellariiformes (Diomedeidae, Oceanitidae, and Procellariidae), and Suliformes (Fregatidae and Sulidae).

Due to their ecological peculiarities and primary association with freshwater habitats (rivers, lakes, reservoirs, etc.), data for three species, Black Skimmer (*Rynchops niger*), Yellow-billed Tern (*Sternula superciliaris*), and Large-billed Tern (*Phaetusa simplex*), were included only for records along the coastal zone of São Paulo. Conversely, records of typically marine birds observed inland in the state were also documented and discussed.

Only species with verifiable documentation were considered, including: complete or partial museum specimens; complete or partial skeletons, skulls; archived blood, feather, skin, or muscle samples; photographs and banded or remotely tracked individuals (via GPS tags or geolocators).

Taxonomy and sequence follow the Brazilian Ornithological Records Committee (Pacheco *et al.,* 2021).

Study Area

Data on seabirds recorded along the coast of São Paulo state, located in southeastern Brazil, were compiled. This densely inhabited region lies near São Paulo, Brazil's most populous city, and encompasses 15 coastal municipalities (Ubatuba, Caraguatatuba, Ilhabela, São Sebastião, Bertioga, Guarujá, Santos, São Vicente, Praia Grande, Mongaguá, Itanhaém, Peruíbe, Iguape, Ilha Comprida, and Cananéia) within the Santos Basin, adjacent to the Atlantic Ocean (Fig. 1). The study area extends between latitudes 23°22′S to 25°18′S and longitudes 44°43′W to 48°04′W, covering approximately 864 km of non-linear coastline (Silveira, 1952; Lamparelli, 1999).

The marine environments considered include:

— Coastal and pelagic zones within the territorial waters of São Paulo (extending ~ 22 km/12 nautical miles from shore), totaling 2,119,000 ha (Oliveira *et al.,* 2023);
— The Exclusive Economic Zone (EEZ), spanning 370 km (200 nautical miles) from the coast (Souza, 1999).

Exceptionally, records from non-coastal municipalities were included in cases of rare or unprecedent seabird occurrences in São Paulo.

The regional climate shows a transition between Humid Tropical Highland and Subtropical, influenced by cold fronts from the south. Most rainfall occurs during summer (November-March), though intense winter rains are also observed due to orographic effects from the Serra do Mar mountain range, which traps moisture from oceanic air masses. Cold fronts during the winter are associated with strong winds from south-southeast bringing pelagic species closer to the shore and causing strandings (CETESB, 2021).

The continental shelf in this region averages 200 km in width and features two major estuarine-lagoon systems fringed by mangrove vegetation (Santos-Cubatão and Iguape-Cananéia), which enhance coastal water productivity. Oceanographic dynamics, including the Subtropical Convergence, Falklands Current, Brazil Current, and continental runoff, support high plankton biomass over the shelf and slope, providing a critical food base for resident and migratory seabirds (Olmos, 1997; Silveira *et al.,* 2000).

Data Collection Methods

Literature Review

Information on seabirds from São Paulo was initially obtained through a comprehensive review of:

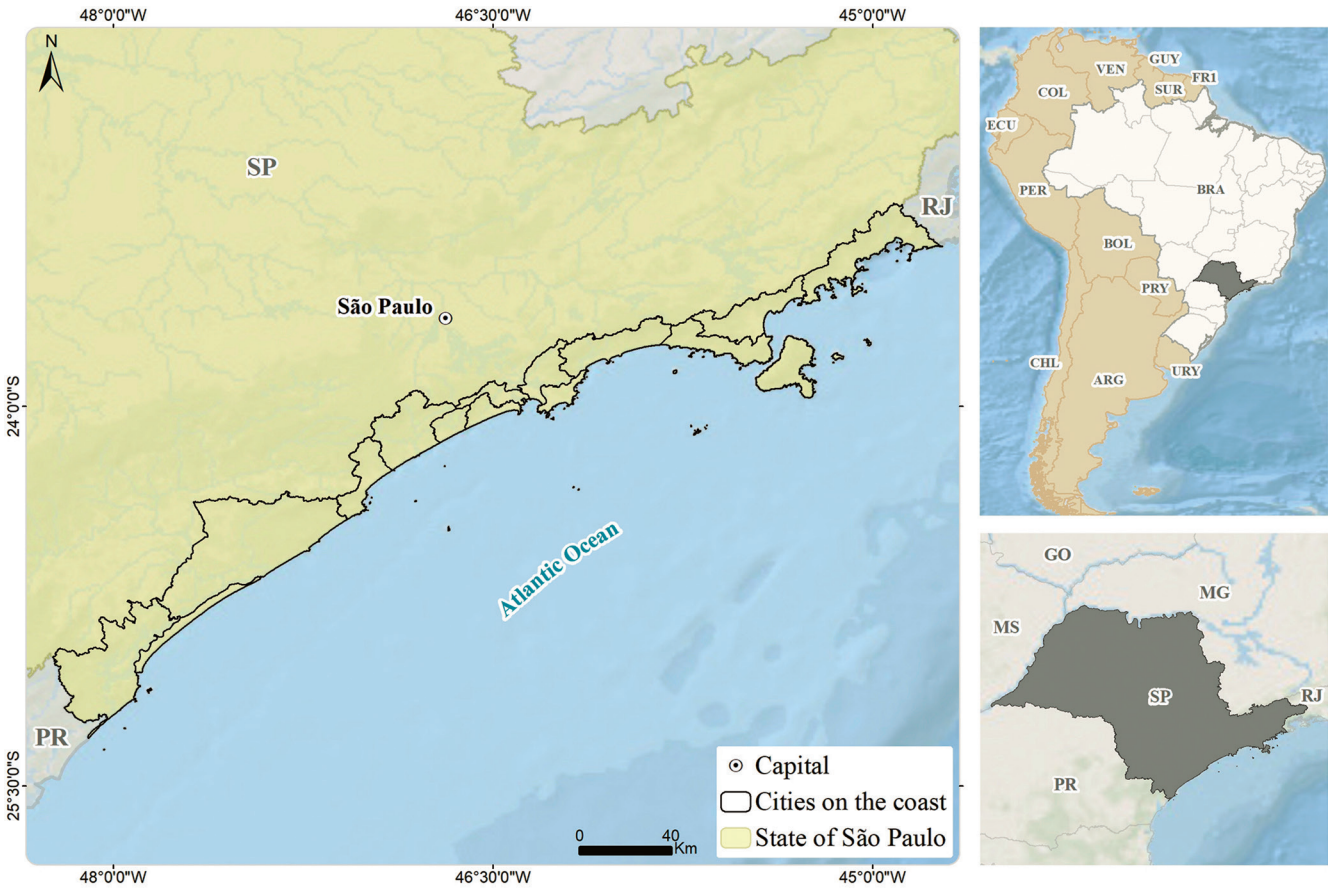

Figure 1. Study area: Coastal region of São Paulo state and its municipalities.

— Peer-reviewed articles and scientific notes published in indexed journals;
— Conference abstracts;
— Undergraduate and graduate theses;
— Technical reports;
— Books and other relevant publications.

The following major databases were consulted:

— Web of Science;
— Scopus;
— SciELO;
— SORA;
— Google Scholar.

Specimen Surveys in Museums and Collections

Data on seabird specimens from São Paulo were gathered from major ornithological collections in natural history and zoology museums, both in Brazil and abroad. Private collections were also included in this survey.

Formal requests were submitted to curators of each collection, seeking the following specimen details:

— Species identification;
— Catalog number;
— Collection date;
— Locality;
— Sex;
— Collector's name;
— Type of preserved material.

Physical specimen examinations were conducted at:

— Museu de Zoologia da Universidade de São Paulo (MZUSP);
— Roberto Antonelli Filho Collection (RAF);
— Instituto de Pesquisas Cananéia (IPC).

Additional records were obtained through:

— Direct communication with curators;
— Online museum collection databases;
— The Global Biodiversity Information Facility (GBIF; https://www.gbif.org).

List of Collections

The following institutions house preserved seabird specimens from São Paulo:

— **AMNH**: American Museum of Natural History, New York;
— **FMNH**: Field Museum of Natural History, Chicago;
— **GNM**: Göteborgs Naturhistoriska Museum, Gothenburg;
— **IPC**: Instituto de Pesquisas Cananéia, Cananéia;
— **LACM**: Los Angeles County Museum of Natural History, Los Angeles;

— **MCNA**: Museu de Ciências da PUCMG, Belo Horizonte;
— **MHNT**: Museu de História Natural de Taubaté, Taubaté;
— **MM**: Museu do Mar, Santos;
— **MN**: Museu Nacional/UFRJ, Rio de Janeiro;
— **MPEG**: Museu Paraense Emílio Goeldi, Belém;
— **MZUSP**: Museu de Zoologia da Universidade de São Paulo, São Paulo;
— **NHMW**: Naturhistorisches Museum Wien, Vienna;
— **RAF**: Coleção Roberto Antonelli Filho, São Paulo;
— **USNM**: United States National Museum, Washington;
— **ZUEC**: Coleção de Aves da UNICAMP, Campinas.

A complete list of specimens from São Paulo, including their respective metadata, is provided in Appendix 1.

Data from the Beach Monitoring Project – Santos Basin (PMP-BS)

In compliance with the conditions established by the federal environmental licensing process, overseen by IBAMA, concerning offshore oil and natural gas exploration and production activities carried out by PETROBRAS in the Santos, Campos, Espírito Santo, Sergipe-Alagoas, and Potiguar Basins, a series of Beach Monitoring Programs (PMPs) were implemented. These aim to assess the potential impacts of such activities on seabirds, sea turtles, and marine mammals in the affected regions. The monitoring program includes beach surveys, veterinary care for live and debilitated animals found along the shore, and the collection of dead specimens for subsequent scientific analysis. All records of animals found between August 2015 and December 2024 are publicly available through the SIMBA database (Aquatic Biota Monitoring Information System), accessible at https://simba.petrobras.com.br.

For the state of São Paulo, data were collected by four marine fauna rescue and rehabilitation centers distributed along the coast: the Argonauta Institute, based in Ubatuba, is responsible for the municipalities of Ubatuba, Caraguatatuba, Ilhabela, and São Sebastião; the Gremar Institute, based in Guarujá, covers Bertioga, Guarujá, Santos, and São Vicente; the Biopesca Institute, located in Praia Grande, operates in Praia Grande, Mongaguá, Itanhaém, and Peruíbe; and the Cananéia Research Institute, based in Cananéia, is responsible for Iguape, Ilha Comprida, and Cananéia. Each occurrence is documented in individual data sheets, which include detailed information and photographic records of the specimens, enabling species identification and confirmation. Due to the large volume of records, however, a comprehensive review of all available images was not feasible.

Survey of Citizen Science Databases

An additional and valuable source of information regarding seabird occurrences in São Paulo was the citizen-science platform Wikiaves (https://www.wikiaves.com.br), the most comprehensive online repository for bird observations in Brazil. This platform has the largest collection of photographs and audio recordings of avifauna from Brazil, contributing significantly to the documentation of seabird presence in coastal São Paulo despite its municipality-based database making many pelagic records without complementary information either doubtful or useless as they are labelled based on the nearest town or just as "Brazilian coast". Additional data were also gathered from the eBird citizen-science platform (https://ebird.org).

Data from the National Bank of Biological Samples of Albatrosses and Petrels (BAAP)

Since 2013, the Albatross Project has been collecting biological samples from albatrosses and petrels incidentally caught in commercial fisheries. In 2015, the National Center for Research and Conservation of Wild Birds (CEMAVE) initiated the management of BAAP in partnership with the Albatross Project. The bank was established to catalog, consolidate, and manage biological samples obtained from beach monitoring programs, incidental captures, and other sources. These samples are made available to researchers for studies aimed at supporting the conservation of these vulnerable species. This dataset is particularly valuable for identifying the species of Procellariiformes recorded in São Paulo, as well as the number of individuals with properly archived biological material available for future scientific investigations.

RESULTS

Context and Evolution of Seabird Checklists in the State of São Paulo

The compilation of the first checklists of bird species in the state of São Paulo began in the late 19th century, based on the collections of the then *Museu Paulista,* currently the Museum of Zoology of the University of São Paulo. At that time, 18 seabird species were listed in 1896 and 19 species in 1898 (Koenigswald, 1896; Ihering, 1898, 1899). In the "Catalogue of Brazilian Birds" published in 1938, the number of recorded seabird species had increased to 23 (Pinto, 1938). Several decades passed without substantial updates to these lists, until 1995, when the first dedicated study on seabirds in São Paulo was published. That work presented individual information for each species and reported a total of 35 seabird species (Olmos *et al.,* 1995). Subsequently, a comprehensive study on the avifauna of São Paulo was released, listing 39 seabird species (Willis & Oniki, 2003). A revised statewide list published later included 793 bird species (Silveira & Uezu, 2011), of which 42 were considered seabirds, according to the same classification criteria adopted in the present study.

A more recent and detailed checklist of bird species from São Paulo, including documentation of first records and types of evidence, was compiled by the *Centro de*

Estudos Ornitológicos (CEO), listing 835 species, among which 53 were classified as seabirds (Figueiredo, 2019). According to data retrieved from the citizen science platform Wikiaves, the total number of bird species recorded in São Paulo reaches 812, of which 42 are identified as seabirds (Wikiaves, 2025). It is important to note that the Wikiaves database only includes species that are documented through photographs or vocalization recordings.

More recently, a comprehensive review of seabirds in the Santos Basin was published (Valls *et al.,* 2023), covering the coastal regions of the states of Rio de Janeiro, São Paulo, Paraná, and Santa Catarina. This review identified a total of 75 seabird species based on an extensive compilation of sources, including bibliographic data and monitoring project reports. For the state of São Paulo, 61 seabird species were initially reported in that study. However, upon careful examination of the references supporting each species' inclusion, inconsistencies were found for six species. Therefore, the corrected total number of seabird species for São Paulo in that review would be 55, not 61.

The current study, following a comprehensive and critical revision of the available data on seabird occurrences in São Paulo, found 68 seabird species are reliably recorded in the state (Fig. 2).

Species Composition and Richness of Seabirds in São Paulo

The present study confirmed the occurrence of 68 seabird species in the state of São Paulo (Table 1), with only two species recorded in inland municipalities and the remainder along the coastal and oceanic regions. Of this total, 18 species are residents, nesting on islands, islets, rocky outcrops, or artificial structures along the São Paulo coastline or in other Brazilian states and oceanic islands. The other 47 species are migrants nesting outside Brazil, 14 coming from the Northern Hemisphere, mostly from the Arctic, British Isles, New England and Macaronesia, and 32 from the Southern Hemisphere, mostly from southern Atlantic islands. Species classified as vagrants, those with only single or rare records outside their usual distributional range are also categorized as migratory. According to their habitat use, the species were further categorized as oceanic or coastal.

Species Removed from the São Paulo Seabird Checklist

Some species previously included in seabird checklists for São Paulo (Olmos *et al.,* 1995; Willis & Oniki, 2003; Silveira & Uezu, 2011; Valls *et al.,* 2023) were excluded in this review, based on new taxonomic insights, particularly from genetic studies, which demonstrated that certain subspecies are, in fact, distinct species. Other species were removed due to misidentification, and in one case, a species was excluded because of a documented error regarding the locality of a recovered banded individual found outside Brazil. The following are the justifications for the removal of these five species:

Great Skua *Catharacta* (or *Stercorarius*) skua

This taxon was formerly recognized as comprising four subspecies, with breeding populations in south-

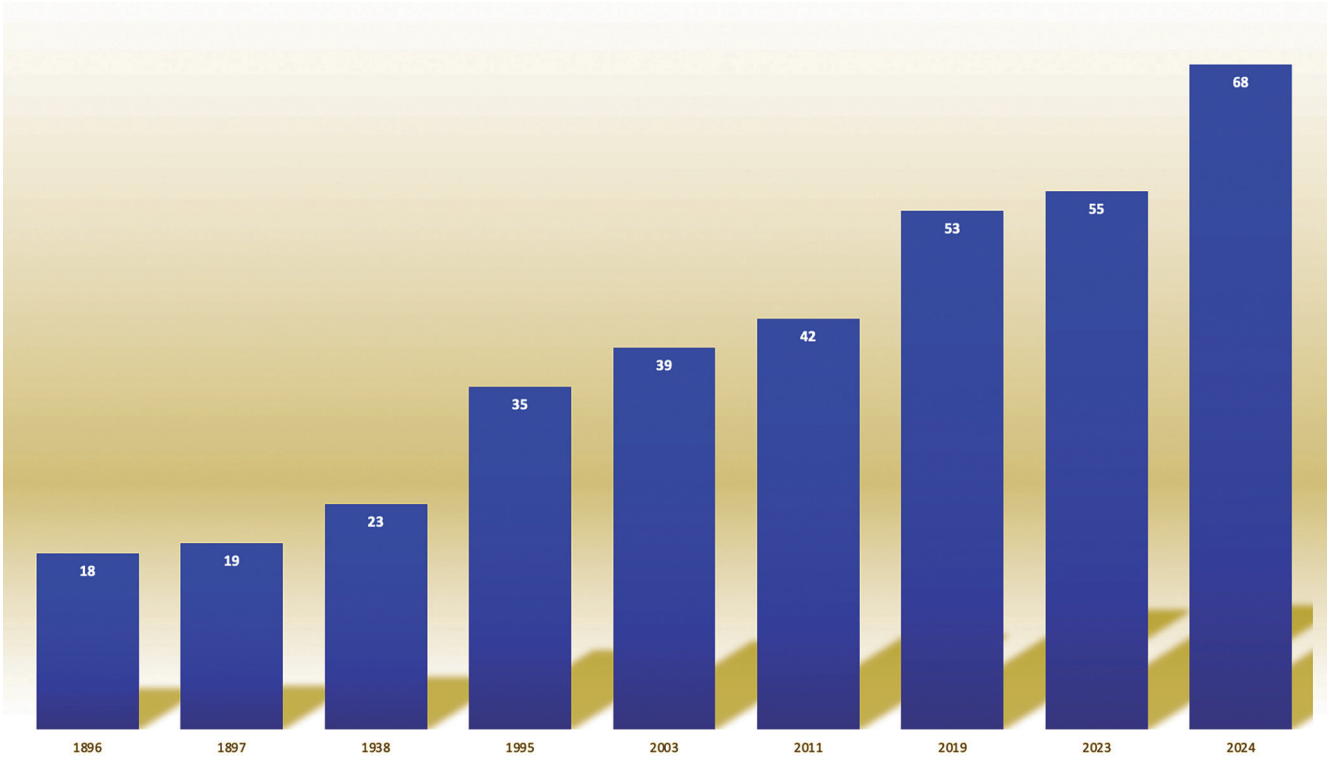

Figure 2. Evolution of the number of seabird species recorded in the state of São Paulo.

Table 1. Systematic checklist of seabird species recorded in the state of São Paulo. Taxonomic sequence and nomenclature follow Pacheco *et al.* (2021). **Conservation status:** IUCN = International Union for Conservation of Nature (global list); MMA = Ministry of the Environment (national list); SMA = State Secretariat for the Environment (state list). **Categories:** LC = Least Concern; NT = Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered; DD = Data Deficient. **Status:** MB = Brazilian Migrant; MC = Southern Cone Migrant; MN = Northern Hemisphere Migrant; MS = Southern Hemisphere Migrant; RE = Resident; VA = Vagrant. **Habitat use:** CS = Coastal; PL = Pelagic. **Documentation types:** B = Band recovery; C = Cranium; E = Skeleton; P = Photography; G = GPS; S = Skin; T = Tissue; V = Vocalization recording.

Taxon	Common name	Conservation			Status	Habitat	Documentation
		IUCN	MMA	SMA			
Charadriiformes Huxley, 1867							
Stercorariidae Gray, 1870							
Stercorarius chilensis Bonaparte, 1857	Chilean Skua	LC	LC	LC	MC	PL	P/S/T
Stercorarius maccormicki Saunders, 1893	South Polar Skua	LC	LC	LC	MS	PL	P/S/T
Stercorarius antarcticus (Lesson, 1831)	Brown Skua	LC	LC	LC	MS	PL	P/S/T
Stercorarius pomarinus (Temminck, 1815)	Pomarine Jaeger	LC	LC	LC	MN	PL	P/V
Stercorarius parasiticus (Linnaeus, 1758)	Parasitic Jaeger	LC	LC	LC	MN	PL	P/S/E
Stercorarius longicaudus Vieillot, 1819	Long-tailed Jaeger	LC	LC	LC	MN	PL	P
Laridae Rafinesque, 1815							
Xema sabini (Sabine, 1819)	Sabine's Gull	LC	LC	—	MN	PL	P
Chroicocephalus maculipennis (Lichtenstein, 1823)	Brown-hooded Gull	LC	LC	LC	MC	CS	P/S/T
Chroicocephalus cirrocephalus (Vieillot, 1818)	Gray-hooded Gull	LC	LC	LC	MC	CS	P
Leucophaeus modestus (Tschudi, 1843)	Gray Gull	LC	LC	—	VA	CS	P
Leucophaeus atricilla (Linnaeus, 1758)	Laughing Gull	LC	LC	LC	MN	CS	P
Leucophaeus pipixcan (Wagler, 1831)	Franklin's Gull	LC	LC	LC	MN	CS	P
Larus dominicanus Lichtenstein, 1823	Kelp Gull	LC	LC	LC	RE	CS	P/V/A/S/E/T
Anous stolidus (Linnaeus, 1758)	Brown Noddy	LC	LC	LC	MB	PL	P/S/T
Rynchops niger Linnaeus, 1758	Black Skimmer	LC	LC	LC	MB	CS	P/S/T/V
Onychoprion fuscatus (Linnaeus, 1766)	Sooty Tern	LC	LC	—	MB	PL	P
Sternula superciliaris (Vieillot, 1819)	Yellow-billed Tern	LC	LC	EN	MB	CS	P/S/T
Phaetusa simplex (Gmelin, 1789)	Large-billed Tern	LC	LC	VU	MB	CS	P/S/T
Gelochelidon nilotica (Gmelin, 1789)	Gull-billed Tern	LC	LC	LC	MC	CS	P/S
Chlidonias niger (Linnaeus, 1758)	Black Tern	LC	LC	—	MN	CS	P
Chlidonias leucopterus (Temminck, 1815)	White-winged Tern	LC	LC	—	MN	CS	P
Sterna hirundo Linnaeus, 1758	Common Tern	LC	LC	LC	MN	CS	P/B/S/T
Sterna paradisaea Pontoppidan, 1763	Arctic Tern	LC	LC	LC	MN	CS	P/S/T
Sterna hirundinacea Lesson, 1831	South American Tern	LC	VU	VU	RE	CS	P/S/E/T/B/V
Sterna trudeaui Audubon, 1838	Snowy-crowned Tern	LC	LC	LC	MC	CS	P/S
Thalasseus acuflavidus (Cabot, 1847)	Cabot's Tern	LC	VU	VU	RE	CS	P/B/S/E/T/V
Thalasseus maximus (Boddaert, 1783)	Royal Tern	LC	EN	EN	RE	CS	P/S/V/B/T
Phaethontiformes Sharpe, 1891							
Phaethontidae Brandt, 1840							
Phaethon aethereus Linnaeus, 1758	Red-billed Tropicbird	LC	EN	—	MB	PL	S/B/T
Spheniscidae Sharpe, 1891							
Spheniscidae Bonaparte, 1831							
Spheniscus magellanicus (Forster, 1781)	Magellanic Penguin	LC	LC	LC	MC	CS	P/S/E/T/B/V
Procellariiformes Fürbringer, 1888							
Diomedeidae Gray, 1840							
Diomedea epomophora Lesson, 1825	Royal Albatross	VU	VU	LC	MS	PL	S
Diomedea exulans Linnaeus, 1758	Wandering Albatross	VU	CR	CR	MS	PL	P/S/B
Diomedea dabbenena Mathews, 1929	Tristan Albatross	CR	CR	CR	MS	PL	S
Phoebetria fusca (Hilsenberg, 1822)	Sooty Albatross	EN	LC	DD	MS	PL	P/S
Phoebetria palpebrata (Forster, 1785)	Light-mantled Albatross	NT	LC	—	MS	PL	P/S/E/T
Thalassarche chlororhynchos (Gmelin, 1789)	Yellow-nosed Albatross	EN	EN	EN	MS	PL	P/B/S/T/E/V
Thalassarche melanophris (Temminck, 1828)	Black-browed Albatross	LC	LC	EN	MS	PL	P/S/B/T/E/V
Thalassarche chrysostoma (Forster, 1785)	Gray-headed Albatross	EN	LC	DD	MS	PL	S/T
Oceanitidae Forbes, 1881							
Fregetta grallaria (Vieillot, 1818)	White-bellied Storm-Petrel	LC	LC	LC	MS	PL	P/T
Oceanites chilensis (Mathews, 1934)	Fuegian Storm-Petrel	—	—	—	MC	PL	P
Oceanites oceanicus (Kuhl, 1820)	Subantarctic Storm-Petrel	LC	LC	LC	MS	PL	P/S/T
Pelagodroma marina (Latham, 1790)	White-faced Storm-Petrel	LC	LC	—	MS	PL	P/S/T
Procellariidae Leach, 1820							
Macronectes giganteus (Gmelin, 1789)	Southern Giant-Petrel	LC	LC	LC	MS	PL	P/S/T/B/C

Taxon	Common name	Conservation			Status	Habitat	Documentation
		IUCN	MMA	SMA			
Macronectes halli Mathews, 1912	Northern Giant-Petrel	LC	LC	LC	MS	PL	P/C/S/B/T
Fulmarus glacialoides (Smith, 1840)	Southern Fulmar	LC	LC	LC	MS	PL	P/S/C/T
Daption capense (Linnaeus, 1758)	Cape Petrel	LC	LC	LC	MS	PL	P/B/E/C/S/T
Lugensa brevirostris (Lesson, 1831)	Kerguelen Petrel	LC	LC	—	MS	PL	P/T
Pterodroma deserta Mathews, 1934	Desertas Petrel	VU	VU	—	MN	PL	G
Pterodroma externa (Salvin, 1875)	Juan-Fernandez Petrel	VU	—	—	VA	PL	P/S/T
Pterodroma mollis (Gould, 1844)	Soft-plumaged Petrel	LC	LC	LC	MS	PL	P/S/C/T
Pterodroma incerta (Schlegel, 1863)	Atlantic Petrel	EN	EN	LC	MS	PL	P/S/C/E/T
Pterodroma arminjoniana (Giglioli & Salvadori, 1869)	Trindade Petrel	VU	CR	—	MB	PL	G
Pachyptila turtur (Kuhl, 1820)	Fairy Prion	LC	—	—	MS	PL	S
Pachyptila vittata (Forster, 1777)	Broad-billed Prion	LC	LC	—	MS	PL	P/S/T
Pachyptila desolata (Gmelin, 1789)	Antactic Prion	LC	LC	LC	MS	PL	P/S/E/T
Pachyptila belcheri (Mathews, 1912)	Slender-billed Prion	LC	LC	LC	MS	PL	P/S/E/T
Procellaria cinerea Gmelin, 1789	Gray Petrel	NT	LC	—	MS	PL	P/S/C
Procellaria aequinoctialis Linnaeus, 1758	White-chinned Petrel	VU	VU	LC	MS	PL	P/S/E/C/T
Procellaria conspicillata Gould, 1844	Spectacled Petrel	VU	VU	LC	MS	PL	P/S/C/T
Calonectris borealis (Cory, 1881)	Cory's Shearwater	LC	LC	LC	MN	PL	P/S/B/E/C/T
Calonectris edwardsii (Oustalet, 1883)	Cape Verde Shearwater	NT	LC	NT	MN	PL	P
Ardenna grisea (Gmelin, 1789)	Sooty Shearwater	NT	LC	LC	MS	PL	P/S/T
Ardenna gravis (O'Reilly, 1818)	Great Shearwater	LC	LC	LC	MS	PL	P/S/T/V
Puffinus puffinus (Brünnich, 1764)	Manx Shearwater	LC	LC	LC	MN	PL	P/S/B/T/E/C
Puffinus lherminieri Lesson, 1839	Audubon's Shearwater	LC	CR	—	MB	PL	S
Suliformes Sharpe, 1891							
Fregatidae Degland & Gerbe, 1867							
Fregata magnificens Mathews, 1914	Magnificent Frigatebird	LC	LC	LC	RE	CS	P/S/B/E/C/T
Sulidae Reichenbach, 1849							
Sula dactylatra Lesson, 1831	Masked Booby	LC	LC	DD	MB	PL	P/S/B
Sula sula (Linnaeus, 1766)	Red-footed Booby	LC	EN	—	MB	PL	P
Sula leucogaster (Boddaert, 1783)	Brown Booby	LC	LC	LC	RE	CS	P/S/B/E/C/T/V

ern South America, Subantarctic and Antarctic regions (*C. s. chilensis, C. s. lonnbergi, C. s. antarcticus,* and *C. s. maccormicki*), and the nominal subspecies (*C. s. skua*) breeding in islands of the North Atlantic (Sick, 1997). However, current taxonomic treatments recognize *C. chilensis, C. antarcticus,* and *C. maccormicki* as full species (Olsen & Larsson, 1997; Gill *et al.,* 2024; Clements *et al.,* 2024), all of which have documented records in São Paulo, while *C. skua* lacks verified occurrences in the state.

Presently, all Stercorariidae species are classified under the genus *Stercorarius* (Pacheco *et al.,* 2021). There is, however, no consensus among researchers regarding the phylogeny of this family (Ritz *et al.,* 2008; Chu *et al.,* 2009), and hybrids between species have been reported (Ritz *et al.,* 2006; Mota *et al.,* 2023), along with considerable individual variation and polymorphism, which complicate accurate identification and taxonomic resolution (Cohen *et al.,* 1997; Andersson, 1999; Jones, 2002; Carlos, 2016). *Stercorarius skua* is the rarest of the Stercorariidae species and is endemic to the northwestern North Atlantic, breeding in colonies from Scotland to Norway and wintering in the Northern Hemisphere, including the eastern coasts of North America, Europe, northwest Africa, and northern South America. Its presence in Brazil has been confirmed along the coasts of Maranhão, Piauí, Ceará, Rio Grande do Norte, Pernambuco, and Alagoas, based on band recovery data (Olmos, 2002a; Mestre *et al.,* 2010).

Roseate Tern *Sterna dougallii*

A banded individual (# 1172-92461) reportedly found inland São Paulo (Mestre *et al.,* 2010) raised doubts about potential miscommunication or misinterpretation of the recovery data. Further inquiry with the Bird Banding Laboratory (BBL) revealed that the bird had been banded in Friendship, Maine, USA, on 04 July 2005, and was later found dead on 29 May 2006 on the coast of Bahia, Brazil, specifically in Itacaré, at Praia das Conchas. However, the locality name was mistakenly interpreted as Itararé, an inland municipality in São Paulo. Although the occurrence and overwintering of this species in Brazil are mainly restricted to the northern and northeastern coasts (Hays *et al.,* 1997; Hays *et al.,* 1999; Lima *et al.,* 2004a), a confirmed sighting exists for the northern coast of Rio de Janeiro state, at Barrinha Beach in the municipality of Itabapoana, where a banded individual was found on 08 January 2012 (Tavares *et al.,* 2013). This remains the southernmost confirmed record of *S. dougallii* in Brazil.

Black Noddy *Anous minutus*

This species is found breeding in Brazil exclusively on oceanic islands, including the archipelagos of Fernando de Noronha, São Pedro and São Paulo, Martin Vaz, Trindade Island, and the Rocas Atoll (Mancini *et al.,* 2016). It was previously included in the São Paulo sea-

bird list based on the observation of two individuals on the southern coast, at Ilha Comprida (Barbieri *et al.,* 2010). However, subsequent analyses determined that the individuals in question were, in fact, representatives of a morphologically similar species, the Brown Noddy (*Anous stolidus*) (E. Barbieri pers. obs.).

Northern Royal Albatross *Diomedea sanfordi*

Species that breeds on several islands off New Zealand, including the Chatham Islands and Taiaroa Hea. In Brazil, the first documented record occurred off the coast of Rio Grande do Sul on 12 August 1999, when a female (CAFURG 357) was captured by a longline fishery (Carlos *et al.,* 2004). Subsequently, on 02 July 2001, an adult individual was photographed in flight over the continental shelf off the coast of Santa Catarina (Olmos, 2002b), with additional records later reported in both southeastern and southern Brazil (Canani *et al.,* 2020). *Diomedea sanfordi* was erroneously included in the most recent checklist of seabirds for São Paulo and Paraná (Valls *et al.,* 2023), as there are no records documenting the presence of this species along the coast of these states.

Cape Gannet *Morus capensis*

This species breeds along the coasts of South Africa and Namibia. During the non-breeding season, adults tend to remain relatively sedentary near their colonies, while immature individuals exhibit a greater tendency for dispersal and may overwinter along the African coast, from the Gulf of Guinea to the Nigerian shoreline (Nelson, 1978). *Morus capensis* was erroneously included in the most recent checklist of seabirds for São Paulo and Paraná (Valls *et al.,* 2023). A review of the primary source of this record, dated 29 March 1995 (Olmos, 1997), revealed that the individual, an immature bird, was observed flying above and around a research vessel at coordinates 27°04′S, 46°49′W. These coordinates correspond to the continental shelf off the coast of Santa Catarina (Somenzari *et al.,* 2018), approximately 170 km east of the municipality of Bombinhas. Therefore, confirmed occurrences of *M. capensis* in Brazil are restricted to the states of Santa Catarina and Rio Grande do Sul (Vooren, 2004).

New Records of Seabirds for the State of São Paulo

The revision and update of the São Paulo seabird checklist yielded information on eight species not previously been recorded in this region. These are considered new occurrences, defined as records that have not yet been formally published in peer-reviewed scientific journals. These records were obtained from different sources: the citizen science platform Wikiaves and eBird (four species), museum collections (three species), and data from the Santos Basin Beach Monitoring Project (PMP-BS; one species). For the three species documented through photographs on Wikiaves, the photographers were contacted and granted permission for the use and publication of the images and associated data. Detailed information on each of these species is presented below.

Sabine's Gull *Xema sabini*

This gull breeds in tundra habitats throughout the circumpolar Arctic, with major populations in Canada and Russia (Olsen & Larsson, 2004). It undertakes extensive trans-equatorial migrations, though its migration routes remain poorly understood. It is known to overwinter along the southwestern African coast and the Pacific coast of South America (Olsen & Larsson, 2004; Stenhouse *et al.,* 2012). In Brazil, the species was first documented on 16 November 2009, at Cassino Beach, on the southern coast of Rio Grande do Sul. At that time, a juvenile individual was photographed in association with other seabird species, including Brown-hooded Gull (*Chroicocephalus maculipennis*), Snowy-crowned Tern (*Sterna trudeaui*) and *R. niger* (Parrini & Carvalho, 2009). A second record was made on 24 August 2013 in Raposa, Maranhão, where a first-winter plumage individual was photographed (Lees *et al.,* 2014). Additional records were made later in Santa Catarina on 17 March 2017 and Rio Grande do Sul on 08 June 2017 (Prado *et al.,* 2021). For São Paulo, there is only one record so far, a first-summer individual photographed by Franciane S. Pereira on the beach of Peruíbe on 11 November 2019, alongside two *T. maximus* near the city aquarium (Wikiaves WA3569640) (Fig. 3).

Black Tern *Chlidonias niger*

This species comprises two distinct populations in the Northern Hemisphere: *C. n. niger,* which breeds in inland areas of Europe and primarily western Asia and winters along the West African coast; and *C. n. surinamensis,* which breeds in the interior regions of North America, with primary wintering grounds along the coasts of Central America and northern South America. Both are diagnosable (Hallam & Lewington, 2009; Heath *et al.,* 2020). In Brazil, it is recorded seasonally between October and April, particularly along the coasts of Maranhão, Ceará, and especially southern Rio Grande do Sul, as well as in neighboring countries such as Uruguay and Argentina. These records suggest that parts of the South American Atlantic coast serve as wintering areas during the boreal winter for certain populations of this species (Dias, R.A. *et al.,* 2010; Gonsioroski, 2014; Somenzari *et al.,* 2018; Wikiaves, 2025). Additional occurrences have been documented inland in Argentina and Brazil, particularly in the Pantanal region (Frota *et al.,* 2020).

In Rio de Janeiro, on 12 November 1987, a specimen (MN 35290) was collected at Lagoa de Maricá, representing the first documented record of the species in Brazil (Teixeira *et al.,* 1988). On 13 August 2019, in the munici-

pality of Guaratuba, Paraná, an adult-plumaged individual was photographed by Eduardo Carrano among a large group of Cabot's Terns (*Thalasseus acuflavidus*), marking the first confirmed record for that state (Scherer-Neto *et al.,* 2011; Wikiaves, 2025).

Although the subspecies expected to occur in Brazil is *C. n. surinamensis,* there is a notable record of an individual recovered in Macau, Rio Grande do Norte, in September 1986, which had been banded in Berlin, Germany, in 1984 (Sick, 1997). This, and Wikiaves records showing birds with purpoted diagnostic features of *niger* (see below) confirmthe nominal subspecies *C. n. niger* also occurs along the Brazilian coast, a pattern similar to that observed for Common Tern (*Sterna hirundo*) and *S. dougallii,* both of which have populations from Europe and North America wintering in Brazil (Hays *et al.,* 1999; Lima *et al.,* 2004a; Mestre *et al.,* 2010). Indeed, migratory routes for this species remain poorly known, and there are numerous reports of vagrant individuals worldwide (Heath *et al.,* 2020).

The first record for the state of São Paulo was made when an individual in non-breeding plumage was photographed resting on the beach in the municipality of Bertioga among a flock of *T. acuflavidus,* on 10 June 2023. A second record, this time of an individual in breeding plumage, was documented at the same location on 05 October 2024 (Fig. 4) (Wikiaves, 2025).

Nominate *niger* and *surinamensis* are supposed to be diagnosable in every plumage; non-breeding *surinamensis* has the black cap streaked white and a broader white frons (a solid black cap in *niger*) and broad, dark smudges on the sides of the breast (much reduced in *niger*), suggesting the June bird is *surinamensis* (Wikiaves, 2025).

One distinguishing feature of breeding birds is *surinamensis* has the black from the head bleeding onto the mantle, resulting in less contrast, and black chest, compared to *niger* with a more contrasting gray back and dark gray breast. These characters suggest the October 2024 bird may be *surinamensis* too.

White-winged Tern *Chlidonias leucopterus*

This is a migratory species that breeds in inland aquatic habitats across parts of Europe and, more prominently, in Asia, particularly Russia, Mongolia, and China (Gochfeld *et al.,* 2020). It winters primarily in Africa and is considered a rare vagrant in North America, the Caribbean, and South America. In Brazil, the first documented record occurred on 20 November 2008 at Lagoa do Peixe National Park, on the coast of Rio Grande do Sul, when an individual in breeding plumage was photographed (Aldabe *et al.,* 2010). At the same site, on 10 October 2010, another breeding-plumaged individual was photographed on the beach alongside other seabirds, including two *P. simplex* and a *S. trudeaui* (Silva *et al.,* 2012).

In the state of São Paulo, the only documented occurrence was recorded approximately 380 km inland from the coast, in the municipality of Novo Horizonte, on the right bank of the Tietê River. On 21 March 2022, between 13:59 and 15:38, an individual in breeding plumage was photographed on a beach at the Bela Vista do Tietê condominium (21°37'08.1"S, 49°16'07.3"W). The bird was observed in the company of various aquatic species: twenty-five *S. superciliaris,* five *P. simplex,* two Greater Yellowlegs (*Tringa melanoleuca*), two Lesser Yellowlegs (*Tringa flavipes*), nine White-backed Stilts (*Himantopus melanurus*), one Neotropical Cormorant (*Nannopterum brasilianus*), one Wood Stork (*Mycteria americana*), one Snowy Egret (*Egretta thula*), two Wattled Jacanas (*Jacana jacana*), and one Common Gallinule (*Gallinula galeata*) (Figs. 5 and 6).

Additional records of this species have been made in Lagoa do Peixe National Park, Tavares, Rio Grande do Sul, involving solitary individuals in association with other seabirds in February 2017, January 2018, May 2019, December 2022, and February 2023 (Wikiaves, 2025). These repeated observations suggest that this region, already known for its high diversity of migratory birds, may also serve as a wintering area for *C. leucopterus,* albeit with a low number of individuals. Furthermore, the similarity between immature or non-breeding individuals of *C. leucopterus* and *C. niger* must be considered, as it poses significant challenges for accurate field identification.

Red-billed Tropicbird *Phaethon aethereus*

This pelagic species ranges across tropical and subtropical regions of the Pacific, Atlantic, and Indian Oceans, breeding in small islands. Its largest populations are found in the Caribbean, Gulf of California, and Galápagos Islands (Orta *et al.,* 2020). The species is considered mostly sedentary; adult individuals remain near their breeding colonies throughout the year, whereas immatures and juveniles show greater dispersive tendencies (Orta *et al.,* 2020). In the Atlantic Ocean, besides the Caribbean, small breeding colonies have been documented along the coast of Senegal (Diop *et al.,* 2019), Cape Verde Islands (Martins *et al.,* 2017), Ascension Island (Stonehouse, 1962), and Saint Helena (Beard *et al.,* 2023).

In Brazil, breeding occurs only along the northeastern coast, with a small colony in Fernando de Noronha archipelago and a larger reproductive population in the Abrolhos Archipelago (Sick, 1997; Mancini *et al.,* 2016). Further south, in the state of Espírito Santo, there are seven documented cases of individuals found dead or in poor condition along the coast (SIMBA, 2025). Beyond this region, there is only one historical record, lacking detailed documentation, of an adult individual observed offshore at Cabo Frio, in the state of Rio de Janeiro, in March 1984 (Teixeira *et al.,* 1985).

The first confirmed record for the state of São Paulo occurred on 24 October 2013, when an adult individual was found dead on the beach in the municipality of Santos. The specimen was initially sent to the Santos Municipal Aquarium, later donated to Projeto Albatroz, and finally transferred to the Museum of Zoology of the University of São Paulo, where it is currently held

Figure 3. Individual of *Xema sabini* on the beach of Peruíbe, 11 November 2019. Photo: Franciane S. Pereira.

Figure 4. Adult individual of *Chlidonias niger* in Bertioga, 05 October 2024. Photo: Miguel Podas.

Figure 5. *Chlidonias leucopterus* on the Rio Tietê, Novo Horizonte, among other aquatic birds. Photo: Fátima Gonçalves Fernandes.

Figure 6. Detail of the *Chlidonias leucopterus* individual recorded in Novo Horizonte. Photo: Fátima Gonçalves Fernandes.

Figure 7. Specimen of *Phaethon aethereus* (MZUSP 114773), collected in Santos on 24 October 2013. Photo: Robson Silva e Silva.

(MZUSP 114773) (Fig. 7). The bird bore a metal band issued by CEMAVE (P-13314) showing it had been banded as a nestling on 17 July 2012 in the Abrolhos Archipelago, southern Bahia coast.

Another record was documented in southern Brazil, in the state of Paraná; a juvenile individual, with underdeveloped central rectrices, was found dead on 12 October 2021 at Praia Grande, municipality of Matinhos. This represents the first confirmed record of the species for Paraná (Scherer-Neto *et al.,* 2011; SIMBA, 2025).

An unusual record comes from Rio Grande do Sul; on 19 December 1998, an adult individual was found in the backyard of a house located in the center of the municipality of Cachoeira do Sul, approximately 200 km inland from the coast, along the Jacuí River. The bird was kept in captivity for two days before dying on the third day and was subsequently donated to the Museu de Ciências da Pontifícia Universidade Católica do Rio Grande do Sul (MCP 534). This record is not included in the primary bird list of the state and is considered hypothetical. It has been speculated the bird may have been a captive individual transported from northern Brazil; however, the possibility that it became disoriented and reached the area via inland waterways cannot be entirely ruled out (Bencke, 2001).

Fuegian Storm-Petrel *Oceanites chilensis*

A recent phylogeny of *Oceanites* spp. recognizes several subspecies as species-level taxa and describes a new one (Norambuena *et al.,* 2024). Among the newly recognized species is *O. chilensis,* formerly *Oceanites oceanicus chilensis,* breeding in southernmost South America in Chile and Argentina, and possibly the Falklands (Palma *et al.,* 2012a; Palma *et al.,* 2012b; Howell & Zufelt, 2019; Flood *et al.,* 2024). In the Atlantic *Oceanites chilensis* has been documented from northwestern and southwestern Europe, southern Africa, Canada, USA, Brazil, Argentina, Falklands, Drake Passage, South Georgia and Antarctica (Flood *et al.,* 2024). Fuegian Storm-Petrels can be identified in the field and from photographs of its variable white underwing coverts and white smudge on the lower belly (Flood *et al.,* 2024). In the São Paulo coast, birds with those characteristics have been photographed between Ilhabela and Alcatrazes island on 15 October 2016 (Fig. 8). A review of museum specimens in Brazilian collections is necessary to assess if there are specimens of *O. chilensis* and *O. exasperatus* among the ones identified as *O. oceanicus.*

White-faced Storm-Petrel *Pelagodroma marina*

A small pelagic seabird with a broad distribution across the Atlantic, Pacific, and Indian Oceans, *P. marina* is currently divided into six recognized subspecies, some likely representing full species (Silva *et al.,* 2011). Two occur in the North Atlantic: *P. m. hypoleuca,* which breeds on the Selvagens and Canary Islands, and *P. m. eadesi,* restricted to the Cape Verde Islands. In the South Atlantic, *P. m. marina* breeds on Tristan da Cunha (Inaccessible and Nightingale Islands) and Gough Island (Brooke, 2004; Flood & Fisher, 2011).

This species is considered rare along the Atlantic coast of South America. In Brazil, the first documented record comes from Bahia in 1996 and was identified as *P. m. hypoleuca* (Lima *et al.,* 2002; Lima *et al.,* 2004c); the specimen is currently housed in the ornithological collection of the Museum of Zoology of the University of São Paulo. Another was reported off the coast of Rio de Janeiro, approximately 250 km southeast of Arraial do Cabo (24°58′S, 40°44′W), on 23 July 2004, when a moribund individual was found on the deck of a vessel, photographed, and later released (Soto *et al.,* 2004).

More recently, on 20 and 25 July 2022, individuals presumed to be *P. m. marina* were photographed approximately 170 km off the coast of Uruguay (Muñoz *et al.,* 2023b), indicating a broader distribution of the species in the Southwest Atlantic.

For the state of São Paulo, the first confirmed record occurred on 03 November 2023, when a dead individual was found on Éden Beach, in the municipality of Guarujá (Fig. 9) (SIMBA, 2025). Its taxonomic affiliation remains to be assessed.

Soft-plumaged Petrel *Pterodroma mollis*

A pelagic species inhabiting cold southern seas, *P. mollis* is primarily found in Subantarctic waters between latitudes 30° and 60°S. It is currently recognized as comprising two subspecies: *P. m. mollis,* which breeds on Tristan da Cunha and Gough Islands, and *P. m. dubia,* which nests on the Prince Edward, Crozet, and Kerguelen

Figure 8. *Oceanites chilensis,* between Ilhabela and Alcatrazes island, 15 October 2016. Photo: Fábio Olmos.

Figure 9. Specimen of *Pelagodroma marina* subsp. found in Guarujá. Photo: PMP-BS.

Islands (Brooke, 2004). The species is polymorphic, exhibiting a range of plumage morphs from light to dark individuals (Graff *et al.,* 2015).

In Brazil, *P. mollis* mainly occurs south of the Tropic of Capricorn, with confirmed records in the states of Sergipe, Bahia, Rio de Janeiro, São Paulo, Santa Catarina, and Rio Grande do Sul (Lima *et al.,* 2004c; Somenzari *et al.,* 2018; Wikiaves, 2025). For the state of São Paulo, the species' presence has been noted by broad-scale marine studies encompassing the Santos Basin, covering the coastal waters of Rio de Janeiro, São Paulo, Paraná, and Santa Catarina (Olmos, 1997; Branco *et al.,* 2014; Valls *et al.,* 2023). However, no specific details were previously available.

The first documented record for São Paulo appears to have been in May 2007, when a weakened individual was found on the beach at Santos. The bird was taken to the Santos Municipal Orchidarium, where it died shortly after and was subsequently sent to the Museum of Zoology of the University of São Paulo (MZUSP 78724).

Data from the PMP-BS (Brazilian Marine Animals Monitoring Project) shows this species is relatively common along the São Paulo coast, with higher incidence during winter months. Nonetheless, individuals have been recorded throughout the year, but not for February and March. Between 2015 and 2024, a total of 52 individuals were found along the coast, across the municipalities of Ubatuba, Caraguatatuba, Ilhabela, São Sebastião, Bertioga, Guarujá (Fig. 10), Praia Grande, Mongaguá, Itanhaém, Peruíbe, and Ilha Comprida (SIMBA, 2025).

Fairy Prion *Pachyptila turtur*

In the South Atlantic, breeding colonies of *P. turtur* are found on the Falkland Islands (Strange, 1968) and South Georgia Islands (Prince & Croxall, 1983). An adult specimen (RAF 1451) (Fig. 11) was found dead on 25 July 1996 at Ilha Comprida during a large die-off event involving Antarctic Prion (*Pachyptila desolata*) and Slender-billed Prion (*Pachyptila belcheri*) along the southern coast of São Paulo and adjacent Paraná (Martuscelli *et al.,* 1997). This individual immediately attracted our attention due to its smaller size, compared to other specimens sent to MZUSP and RAF but, at the time, we were unable to further investigate the case. Only now were we able to confirm its identity based on its morphological features and measurements, with reference to specific literature (Cox, 1979; Harper, 1980). The specimen had the following measurements (in milimeters): total lenght 258; wing 176; tail 87,60; bill 24,20; and tarsus 29,80. This is the first documented record of the species for Brazil.

Annotated List of Seabirds in the State of São Paulo

Below are comments on other species recorded in the state of São Paulo. For each, we present information on distribution area, taxonomy, recorded sightings, and some photographs documenting its presence. This compilation brings together all the available information

Figure 10. *Pterodroma mollis* individual stranded on Pitangueiras Beach, Guarujá, 31 July 2024. Photo: Daniel Donadio.

Figure 11. The small spcecimen of Fairy Prion (left) together with *Pachyptila belcheri* at RAF Collection. Photo: Robson Silva e Silva.

about these species, previously scattered across various sources, including the literature, museum specimens, PMP-BS data, and Wikiaves.

Chilean Skua *Stercorarius chilensis*

Among all Stercorariidae species, *S. chilensis* is the most distinct, exhibiting diagnostic morphological features such as cinnamon or rusty-colored underparts and underwing coverts (Fig. 12), a bicolored bill, and a dark cap (Olsen & Larsson, 1997). It breeds along the southern coasts of Chile and Argentina and, unlike other Stercorariidae species, nests in large colonies, occasionally also in solitary pairs or small groups (Olsen & Larsson, 1997). In Brazil, *S. chilensis* has been recorded in Bahia, Espírito Santo, Rio de Janeiro, Santa Catarina, and Rio Grande do Sul (Silva e Silva *et al.,* 2002; Lima *et al.,* 2004c; Piacentini *et al.,* 2005; Tavares *et al.,* 2012). In São Paulo, the species was first recorded between 1999 and 2001 on Ilha Comprida (Barbieri & Paes, 2008). A specimen found with a wing injury (Fig. 13) on Ilha Comprida on 16 May 2016 was treated and released on 20 June 2016 (Mannina *et al.,* 2018a). Data from the PMP-BS indicate 10 individuals found along the São Paulo coast between 2015 and 2014 (SIMBA, 2025), with only one specimen held in a collection (IPC 1135).

Stercorarius chilensis is commonly recorded in pelagic trips off São Paulo, being a frequent feature of winter trips and the most easily seen large skua (17, mostly illustrated, checklists in eBird and 35 photos, some of the same bird, in Wikiaves). It is frequently seen following shrimp trawlers looking for discards.

South Polar Skua *Stercorarius maccormicki*

Another species of predatory seabird, it occurs in the Antarctic region, breeding on the continent and surrounding islands, and performs transequatorial migrations across the Indian, Pacific, and Atlantic Oceans

Figure 12. *Stercorarius chilensis,* Peruíbe, 24 July 2016. Photo: Silvia Faustino Linhares.

Figure 13. Injured *Stercorarius chilensis* individual found in Ilha Comprida, 15 May 2016. Photo: PMP-BS.

to its non-breeding areas in the Northern Hemisphere, (Kopp *et al.,* 2011; Weimerskirch *et al.,* 2015). This species exhibits three main plumage types, also referred to as morphs, ranging from light to dark (Olsen & Larsson, 1997). In Brazil, it is recorded along the coastline during the non-breeding season from Maranhão to Rio Grande do Sul (Lima *et al.,* 2004c; Daudt *et al.,* 2018; Somenzari *et al.,* 2018; Wikiaves, 2025).

The first documented record of the species in the state of São Paulo was an individual found dead on Boracéia Beach, Bertioga, on 19 May 1963 (MZUSP 102643). Additional records from São Paulo obtained through the PMP-BS total only five beached birds from Ilha Comprida (3) (Fig. 14), Itanhaém (1), and Guarujá (1); however, it is likely that some of these records may refer to other *Stercorarius* species. The low number can be explained by this species being mostly a passage migrant using offshore waters over a brief period.

On 24 July 2016, along the coast of Peruíbe near Queimada Grande Island, a banded female (A087) was photographed (Fig. 15) during a pelagic birding trip alongside *S. chilensis* (see https://ebird.org/checklist/S41172454) This individual had been previously banded on King George Island on 07 February 2013 (Wikiaves, 2025).

Brown Skua *Stercorarius antarcticus*

The species is recognized in the form of three subspecies: *S. a. antarcticus,* which breeds in the Falkland Islands and southern Argentina (Patagonia); *S. a. hamiltoni,* restricted to the islands of Tristan da Cunha and Gough; and *S. a. lonnbergi,* with a circumpolar distribution, breeding from South Georgia and the Antarctic Peninsula to southern New Zealand (Olsen & Larsson, 1997). In Brazil, there are band recoveries of *S. a. lonnbergi* from Ceará, Alagoas, Pernambuco, Santa Catarina, and Rio Grande do Sul (Olmos, 2002a), as well as other records from Maranhão, Bahia, and Paraná (Lima *et al.,* 2004c; Hurtado *et al.,* 2012; Wikiaves, 2025).

In São Paulo, the first record corresponds to a debilitated individual found on Embaré Beach, Santos, on 11 August 1993 (Olmos *et al.,* 1995; MZUSP 73519). There are additional records of birds observed at sea between the municipalities of Itanhaém and Peruíbe (Fig. 16) (Wikiaves, 2025).

Data from the PMP-BS program report seven occurrences in the state of São Paulo, with six from Ilha Comprida and one from Itanhaém (SIMBA, 2025). However, after a re-evaluation of the available photographic material, it was determined that only one specimen from Ilha Comprida (Fig. 17) (IPC 1137) and the one from Itanhaém can be confidently attributed to *S. antarcticus*. The remaining records refer to other species like Long-tailed Jaeger (*Stercorarius longicaudus*), Sooty Shearwater (*Ardenna grisea*), *S. chilensis,* and one case involving a skeletal specimen that does not allow for specific identification.

This is a rare species in pelagic birding trips, with a sole record from near Peruíbe (https://ebird.org/checklist/S36627847).

Pomarine Jaeger *Stercorarius pomarinus*

This species has an almost circumpolar distribution across the Arctic region, breeding in Alaska, Canada, and Russia, and subsequently undertaking a transequatorial migration to overwinter primarily in the southern hemisphere (Olsen & Larsson, 1997). In Brazil, the first documented record dates to 07 May 1960, from the interior of the Amazon region, approximately 800 km from the coastline, at the mouth of the Tapajós River, in the locality of Urucurituba, Pará (Escalante, 1972; MZUSP 61777). Additional records have been reported all along the Brazilian coast, from Pará to Rio Grande do Sul (Lima *et al.,* 2004c; Somenzari *et al.,* 2018; Wikiaves, 2025).

Along the coast of São Paulo, individuals of *S. pomarinus* were recorded during seabird observations conducted aboard bottom longline fishing vessels on the following dates: 25 November 1994, 30 March 1995 (Fig. 18), 27 May 1997, and 28 May 1997, with up to seven individuals observed, most of them immatures (Olmos, 2000c; Olmos, 2002c). Further south, within the Cananéia estuary, two individuals were photographed on the beach on 10 January 2012, one juvenile and one adult in non-breeding plumage (Fig. 19) (Barbieri & Bete, 2013). According to data from the PMP-BS program, only four occurrences of *S. pomarinus* have been documented along the São Paulo coast, in the municipalities of Ubatuba, Praia Grande, Peruíbe, and Ilha Comprida (SIMBA, 2025).

This rarity mirror's *S. maccormicki* and it seems *S. pomarinus* in São Paulo is mostly a transit migrant using waters further from the coast. The 10 records in eBird up to May 2025 reinforce this view.

Parasitic Jaeger *Stercorarius parasiticus*

This is a migratory species with a broad circumpolar distribution across the Arctic tundra, breeding in Greenland, Iceland, the Faroe Islands, Scotland, Sweden, Norway, Russia, Canada, and Alaska (Olsen & Larsson, 1997). Individuals from populations in Scotland, Norway, the Faroe Islands, and Svalbard, in the northern and eastern North Atlantic, have been tracked using geolocators and shown to migrate across vast regions of the Atlantic Ocean. Their non-breeding ranges include areas in both the Northern and Southern Hemispheres, with wintering sites along the coasts of South America, mostly the Subtropical Convergence, and Africa (O'Hanlon *et al.,* 2024).

In Brazil, *S. parasiticus* is regularly recorded along the entire coastline between September and May, with confirmed occurrences in the states of Pará, Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul (Olmos, 2002a; Lima *et al.,* 2004c; Somenzari *et al.,* 2018; Wikiaves, 2025).

In São Paulo, the first documented record of *S. parasiticus* was on 28 November 1956, in Peruíbe (MZUSP 38875). Additional observations were made during bottom longline fishing surveys off the coast of

Figure 14. Specimen of *Stercorarius maccormicki* in Ilha Comprida, 12 April 2019. Photo: PMP-BS.

Figure 15. Banded individual of *Stercorarius maccormicki,* Queimada Grande, 24 July 2016. Photo: Fábio Olmos.

Figure 16. Specimen of *Stercorarius antarcticus* on the coast of Peruíbe, 26 July 2016. Photo: Leonardo Casadei.

Figure 17. *Stercorarius antarcticus,* Ilha Comprida, 06 September 2022. Photo: PMP-BS.

Figure 18. *Stercorarius pomarinus,* off the coast of São Paulo, 30 March 1995. Photo: Fábio Olmos.

Figure 19. Individuals of *Stercorarius pomarinus* in Cananéia, 10 January 2012. Photo: Douglas Bete.

São Paulo, on 23 November 1994 and 30 March 1995, when three individuals, mostly immatures, were sighted in association with *S. pomarinus* (Olmos, 2000c; Olmos, 2002c). On 09 October 2008, a specimen was photographed on the beach at Ilha Comprida (Fig. 20) (Barbieri *et al.,* 2008). Another individual, found dead on 26 September 2016 at Ilha Comprida (Fig. 21), was initially misidentified by the PMP-BS team as *S. antarcticus* (SIMBA, 2025).

To date, the PMP-BS database reports a total of seven *S. parasiticus* records along the São Paulo coast, with strandings or observations occurring in the municipalities of Ubatuba, Bertioga, Itanhaém, Peruíbe, and Ilha Comprida (SIMBA, 2025).

This is a rare species in pelagic trips, with just five records in eBird made in April (with photos), July and October (with photos).

Long-tailed Jaeger *Stercorarius longicaudus*

The smallest representative of the Stercorariidae, *S. longicaudus* has a circumpolar breeding range across the Arctic region in the central areas of Scandinavia, Russia, Alaska, Canada, and Greenland (Olsen & Larsson, 1997). Another transequatorial migrant, in Brazil, this species occurs primarily from October to April, with confirmed records in the states of Ceará, Sergipe, Bahia, Rio de Janeiro, São Paulo, Santa Catarina, and Rio Grande do Sul (Lima *et al.,* 2004c, Somenzari *et al.,* 2018; Wikiaves, 2025).

In the state of São Paulo, one individual photographed on Ilha Comprida on 27 September 1994 (Fig. 22) was initially identified as *S. pomarinus* but was later reclassified as a juvenile *S. longicaudus* in third-summer plumage (Martuscelli *et al.,* 1995; Olmos, 2000c). Another juvenile was photographed alone on the beach of Bopiranga, Itanhaém, on 05 January 2013 (Cestari, 2013).

According to data from the PMP-BS, six records of *S. longicaudus* have been documented along the coast of São Paulo, with strandings or sightings in the municipalities of São Sebastião, Ilhabela, Bertioga, Guarujá, Peruíbe, and Ilha Comprida (Fig. 23) (SIMBA, 2025).

This species has yet to be recorded during pelagic trips. This is likely due to its pelagic habits and moving way offshore when on migration, with only the occasional bird coming to rest on the beach.

Brown-hooded Gull *Chroicocephalus maculipennis*

This species is restricted to South America and has two subspecies: *C. m. glaucodes,* which breeds primarily along the Pacific side of the continent, including Chile, Tierra del Fuego, southern Argentina, and the Falkland Islands; and *C. m. maculipennis,* which breeds in southern Brazil, Uruguay, and Argentina (Howell & Dunn, 2007). In Brazil, it is relatively common in the far south, particularly in the state of Rio Grande do Sul, where it nests in marshes, lakes, and along riverbanks. Outside the breeding season, it disperses along the Atlantic coast and has been recorded in the states of Santa Catarina, Paraná, São Paulo, Rio de Janeiro, and Espírito Santo (Sick, 1997; Wikiaves, 2025).

In the state of São Paulo, *C. maculipennis* is an uncommon visitor, generally recorded during the winter and summer months. Historical records include two museum specimens, one collected in Iguape on 04 June 1898 (MZUSP 2384) and another from São Sebastião on 04 June 1901 (AMNH 745489). More recent sightings come from Ilha Comprida, Peruíbe (Fig. 24), Itanhaém, Guarujá, and São Sebastião, with observations distributed across January, June, July, October, November, and December (Olmos *et al.,* 1995; Wikiaves, 2025).

Gray-hooded Gull *Chroicocephalus cirrocephalus*

This species is recognized in two subspecies: *C. c. poiocephalus,* widely distributed in Africa, and *C. c. cirrocephalus,* from South America, where it breeds along both the Pacific and Atlantic coasts, as well as in inland regions of Argentina (Howell & Dunn, 2007). In Brazil, *C. c. cirrocephalus* can be found along the entire coastline, with confirmed breeding in the states of Rio Grande do Norte, Rio de Janeiro, and Rio Grande do Sul (Frias *et al.,* 2020).

In São Paulo, the first documented record dates to 28 April 2009, when an adult individual was photographed (Fig. 25) on the beach at Ilha Comprida (Barbieri *et al.,* 2010). Subsequent records include an adult observed in Peruíbe on 07 September 2021; a group of four individuals recorded in São Sebastião on 12 October 2023; a juvenile observed in Ilhabela on 08 July 2020; and an adult seen on 04 July 2013 in Caraguatatuba, associated with a mixed flock of *R. niger, T. acuflavidus, T. maximus,* and Kelp Gull (*Larus dominicanus*) (Wikiaves, 2025).

Gray Gull *Leucophaeus modestus*

This species is native to the Pacific coast of South America and primarily breeds in the Atacama Desert of Chile (Howell & Dunn, 2007). In Brazil, *L. modestus* was recorded for the first time along the southern coast of São Paulo State, in Ilha Comprida, where a single individual was photographed (Fig. 26) on the beach on 21 April 2019 and observed for three consecutive days (Chupil *et al.,* 2019). Additional records were obtained in Balneário Piçarras, Santa Catarina, where an individual was observed and photographed by Clarisse Odebrecht on several occasions, 05 June, 26 June, 01 July, 04 July, and 23 July 2019, and may refer to the same bird seen in São Paulo (Wikiaves, 2025).

Laughing Gull *Leucophaeus atricilla*

This migratory species is native to North America, breeding along the eastern and western coasts, the Gulf

Figure 20. Specimen of *Stercorarius parasiticus* on Ilha Comprida, 09 October 2008. Photo: Edison Barbieri.

Figure 21. Specimen of *Stercorarius parasiticus,* Ilha Comprida, 26 September 2016. Photo: PMP-BS.

Figure 22. Individual of *Stercorarius longicaudus* on Ilha Comprida, 27 November 1994. Photo: Fábio Olmos.

Figure 23. *Stercorarius longicaudus* stranded on Ilha Comprida, 04 April 2021. Photo: PMP-BS.

Figure 24. Young specimen of *Chroicocephalus maculipennis* on the beach in Peruíbe, 03 July 2020. Photo: Franciane S. Pereira.

Figure 25. First record of *Chroicocephalus cirrocephalus* in São Paulo, Ilha Comprida, 28 April 2009. Photo: Edison Barbieri.

of Mexico, and the Caribbean (Howell & Dunn, 2007). In Brazil, it is a common visitor to the northern coast from Amapá to Maranhão, although there are records from both inland areas and along the coast up to Rio Grande do Sul, as well as an oceanic island (Trindade Island) (Somenzari *et al.,* 2018; Wikiaves, 2025).

In São Paulo, the species was first recorded outside the coastal area on a beach of the Guarapiranga Reservoir, São Paulo (23°44′S, 46°43′W), at an altitude of 750 m. On 11 November 2008, an individual in first-winter plumage was photographed by Fábio Schunck (Fig. 27) (Lima *et al.,* 2010; Wikiaves, 2025). Along the São Paulo coastline there is only one record, a single individual observed among a flock of 35 *L. dominicanus* photographed by Márcio C. Motta in the Paranapuã Beach of Xixová-Japuí State Park, São Vicente, on 12 December 2021 (Fig. 28). Additionally, another inland record was documented far from the coastline, in Paulicéia, near the border with Mato Grosso do Sul, where a juvenile was photographed on 08 November 2024 (Wikiaves, 2025).

Franklin's Gull *Leucophaeus pipixcan*

This species is native to North America, breeding in freshwater marshes across the interior of Canada and the United States. It undertakes long-distance migrations to its wintering grounds along the Pacific coast of South America, primarily to Peru and Chile. However, vagrant individuals have been recorded in Europe, West Africa, and across the Pacific Ocean as far as Japan and Australia (Howell & Dunn, 2007).

In Brazil, the species is most frequently recorded along the southeastern and southern coasts, although there are also occurrences in inland regions such as the Amazon and Pantanal, as well as oceanic islands like Trindade and Fernando de Noronha (Dias, R.A. *et al.,* 2010; Kantek & Onuma, 2013; Wikiaves, 2025). The first documented record for Brazil was made off the coast of São Paulo on 07 September 2002, when an individual was photographed in flight over open ocean waters (25°18′S, 45°16′W), approximately 200 km offshore from Peruíbe (Almeida, 2003).

Subsequent records from the São Paulo coast include a non-breeding plumaged individual photographed alone on the beach near Pedrinhas, Ilha Comprida, on 16 September 2015; on the same day, a second bird photographed at the northern tip of Ilha Comprida, in the Icapara Channel, within a flock of *T. maximus* and *T. acuflavidus* (Numao & Barbieri, 2011; Barbieri *et al.,* 2016). Another individual in breeding resting plumage was documented on 02 December 2015 at Praia do Forte dos Andradas, Guarujá (Wikiaves, 2025). On 01 July 2021, an adult was photographed (Fig. 29) roosting on the beach in Santos, alongside *T. maximus* and *T. acuflavidus* (Passos *et al.,* 2023; Wikiaves, 2025).

Away from the coast, there are two additional records for the state of São Paulo. On 28 February 2022, a breeding plumaged individual was photographed along the Tietê River in São Manuel, in association with other aquatic birds such as Black-bellied Whistling-Duck (*Dendrocygna autumnalis*) and *E. thula;* and on 20 May 2024, an adult was photographed in Salesópolis (Wikiaves, 2025).

Kelp Gull *Larus dominicanus*

With a wide distribution across the Southern Hemisphere, *L. dominicanus* is currently divided in up to five subspecies: *L. d. dominicanus,* occurring in Australia, New Zealand, and South America; *L. d. vetula* in southern Africa; *L. d. judithae* on the Kerguelen and Crozet Islands, and possibly on Heard, Marion, and Prince Edward Islands; *L. d. melisandae* in Madagascar; and *L. d. austrinus* on the Antarctic Peninsula and on the South Shetland, Falkland, and South Georgia Islands (Jiguet, 2002; Olsen & Larsson, 2004; Howell & Dunn, 2007). In South America, the species breeds from Tierra del Fuego (Chile) to the state of Rio de Janeiro, Brazil (Yorio *et al.,* 2016).

In Brazil, nominate *L. dominicanus* ranges along the coast from Espírito Santo to Rio Grande do Sul (with vagrants further north, Bahia, Lima *et al.,* 2004c), and breeds on coastal islands between Rio de Janeiro and Santa Catarina (Sick, 1997). The first documented record of this species in the state of São Paulo dates from 04 June 1898, in Iguape (MZUSP 2385). It is a common species (Fig. 30), inhabiting coastal environments year-round and frequently observed on beaches, including highly urbanized areas. Breeding has been recorded on several islands from Ubatuba to Cananéia (Olmos *et al.,* 1995; Campos *et al.,* 2004).

Its abundance along the São Paulo coast is shown by the number of occurrences reported by the PMP-BS between 2015 and 2024, totaling 605 records (Table 2) (SIMBA, 2025). In the southern coast, particularly within the Cananéia-Iguape-Ilha Comprida estuarine complex, *L. dominicanus* was observed year-round in 2005, with notably higher abundance during the summer (Barbieri, 2008).

Brown Noddy *Anous stolidus*

Anous stolidus is widely distributed across major tropical and subtropical islands of the Atlantic, Pacific, and Indian Oceans. In the Atlantic Ocean, it breeds in colonies from the southern United States (Florida), throughout the Caribbean, and on several oceanic islands, including Ascension, Saint Helena, Tristan da Cunha, Nightingale, Inaccessible, Gough, and along the African coast between the Gulf of Guinea and Cameroon (Mlodinow *et al.,* 2025). In Brazil, confirmed breeding sites include the oceanic islands of Rocas Atoll, São Pedro and São Paulo Archipelago, Fernando de Noronha, Abrolhos Archipelago, and the Trindade and Martin Vaz islands (Mancini *et al.,* 2016).

As a species with pelagic habits, its presence along the Brazilian coast and beaches is considered accidental. Nonetheless, sporadic records exist from Maranhão to Rio Grande do Sul (Carrano & Jablonski, 1997; Lima *et al.,* 2004c; Dias, R.A. *et al.,* 2010; Wikiaves, 2025). The

Figure 26. First record of *Leucophaeus modestus* in São Paulo, Ilha Comprida, 21 April 2019. Photo: Rafael Sardinha Murro.

Figure 27. First record of *Leucophaeus atricilla* in the state of São Paulo, Guarapiranga Reservoir, São Paulo, 11 November 2008. Photo: Fábio Schunck.

Figure 28. Specimen of *Leucophaeus atricilla,* São Vicente, 12 December 2021. Photo: Marcio C. Motta.

Figure 29. Individual of *Leucophaeus pipixcan* at Santos Beach, 01 July 2021. Photo: Rodrigo Passos.

first documented records in the state of São Paulo come from the southern coast, in Ilha Comprida, where a juvenile was found on 01 March 2009 and is now held at the Museum of Zoology of the University of São Paulo (MZUSP 82884), and another individual was photographed at the same location on 10 March 2009 (Fig. 31) (Barbieri *et al.,* 2010). These specimens were initially misidentified as *A. minutus,* but later analyses of photographs and the preserved specimen confirmed they were, in fact, *A. stolidus*.

Additional records of the species include a juvenile photographed at Praia do Cedro, Ubatuba, on 13 March 2010, with the same individual reportedly observed at the site on the two preceding days, appearing weak (Simpson & Simpson, 2010). Other occurrences of *A. stolidus* have been reported along the northern coast of São Paulo, particularly in the months of October, January, February, and March, in Ubatuba, Ilhabela (Fig. 32), Guarujá, and Peruíbe (Wikiaves, 2025).

Between 2015 and 2024, the PMP-BS documented 24 occurrences of debilitated *A. stolidus* individuals found on São Paulo beaches during the months of February and March. These were distributed across multiple municipalities: Ubatuba (4), Ilhabela (2), São Sebastião (1), Caraguatatuba (1), Bertioga (2), Santos (1), Praia Grande (3), Mongaguá (4), Itanhaém (2), Peruíbe (3), and Ilha Comprida (1) (SIMBA, 2025). Most individuals recorded in São Paulo were juveniles, supporting existing knowledge that young birds undertake longer dispersive movements in this species, while adults generally remain within approximately 100 km of their breeding colonies (Mlodinow *et al.,* 2025).

Black Skimmer *Rynchops niger*

Rynchops niger is typically associated with aquatic environments, such as large rivers, lakes, estuaries, and coastal beaches across the Americas, ranging from the United States to South America, including Brazil. In Brazil, it is distributed across all biomes; however, along the coast, it occurs only seasonally, particularly near beaches and estuarine-lagoonal systems, where it does not reproduce (Sick, 1997).

Currently, three subspecies are recognized: *R. n. niger,* which breeds in North America and Mexico; *R. n. cinerascens,* which breeds from the coast of Colombia and the mouth of the Amazon River southward to Ecuador and along major rivers in the Amazon Basin, Bolivia, and into northwestern Argentina; and *R. n. intercedens,* which occurs along major rivers from western Maranhão and eastern Mato Grosso, extending into eastern Paraguay, Uruguay, and northeastern Argentina (Sick, 1997).

The first documented record for the coast of São Paulo dates from 27 May 1901, in São Sebastião, when two specimens were collected (AMNH 747812, MZUSP 2196). On the southern coast, in the Cananéia-Iguape-Ilha Comprida estuary, the species has been recorded throughout the year, with seasonal peaks during summer, coinciding with the period of increased availability of the small clupeid Broadband anchovy (*Anchoviella lepidentostole*) (Barbieri, 2007).

Along the São Paulo coastline, the species is regularly observed in beaches (Fig. 33) and estuarine areas, with confirmed records in Ubatuba, Caraguatatuba, Ilhabela, São Sebastião, Bertioga, Guarujá, Santos, São Vicente, Praia Grande, Mongaguá, Itanhaém, Peruíbe, Iguape, Ilha Comprida, and Cananéia (Wikiaves, 2025). Data from the PMP-BS program report a total of 13 occurrences of *R. niger,* documented in the municipalities of Ubatuba, São Sebastião, Guarujá, São Vicente, Mongaguá, Itanhaém (Fig. 34), Iguape, Ilha Comprida, and Cananéia (SIMBA, 2025).

Sooty Tern *Onychoprion fuscatus*

Onychoprion fuscatus is a pelagic seabird with a wide distribution across tropical and subtropical seas and oceans. It breeds primarily on remote oceanic islands with minimal human disturbance (Sick, 1997). In Brazil, confirmed breeding colonies are found in the archipelagos of Fernando de Noronha, Abrolhos, and Martin Vaz, as well as on Trindade Island and Atol das Rocas (Mancini *et al.,* 2016).

The species is rarely observed along the continental coastline, with only sporadic records reported throughout Brazil, including the states of Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, São Paulo, and Paraná (Lima *et al.,* 2004c; SIMBA, 2025; Wikiaves, 2025). Some of these occurrences correspond to recoveries of banded individuals from breeding colonies in Florida, USA (Olmos, 2002a; Mestre *et al.,* 2010).

The only known and documented record of *O. fuscatus* for the state of São Paulo was made on 07 January 2022, when an adult individual (Fig. 35) in non-breeding plumage was found debilitated on the beach in Mongaguá (Cabral *et al.,* 2023; SIMBA, 2025).

Yellow-billed Tern *Sternula superciliaris*

A small species of Laridae, *S. superciliaris* has a broad distribution across South America, east of the Andes, ranging from Colombia, Venezuela, and the Guianas through Brazil and reaching as far south as Argentina. It inhabits major rivers and lakes, where it nests on sandy banks exposed during the dry season, often in association with *R. niger* and *P. simplex*. Occasionally, individuals reach the coastal regions during both migratory periods (Sick, 1997).

This species is morphologically like the Least Tern (*Sternula antillarum*), which is even smaller in size. However, subtle morphological and behavioral traits allow for differentiation between the two species (Hayes, 2001; Renaudier & Claessens, 2014).

The first documented record for the São Paulo coast dates to 20 November 1900, in São Sebastião (AMNH 746862). Within São Paulo's coastal region,

Figure 30. Group of *Larus dominicanus* at Alcatrazes Island, 27 October 2011. Photo: Fábio Olmos.

Figure 31. Second record of *Anous stolidus* for São Paulo, Ilha Comprida, 10 March 2009. Photo: Edison Barbieri.

Figure 32. *Anous stolidus* at sea off the coast of Ilha Vitória, 09 February 2019. Photo: Fábio Olmos.

Figure 33. Group of *Rynchops niger,* Cananéia, 09 October 2008. Photo: Edison Barbieri.

Figure 34. *Rynchops niger* individual stranded in Itanhaém, 15 January 2024. Photo: PMP-BS.

Figure 35. *Onychoprion fuscatus* individual found in Mongaguá, 07 January 2022. Photo: PMP-BS.

S. superciliaris is considered rare, occurring sporadically on beaches and in estuarine-lagoon systems such as Santos-Cubatão (Olmos *et al.,* 1995; Olmos & Silva e Silva, 2001) and Iguape-Cananéia-Ilha Comprida. Between 1999 and 2001, it was recorded exclusively during the winter and spring months in this southern estuarine region (Barbieri & Mendonça, 2008).

More recent records along the coast of São Paulo span from April to December, with higher frequency during winter, in the municipalities of Ubatuba, Caraguatatuba, Ilhabela, Bertioga, Itanhaém, Peruíbe, Ilha Comprida, and Cananéia (Wikiaves, 2025). No individuals of *S. superciliaris* have been recorded by the PMP-BS monitoring program along the São Paulo coastline (SIMBA, 2025).

Its presence along the São Paulo coast was likely affected by the destruction of nesting habitats by the damming of large rivers like the Tietê and Paraná, what has caused the decline of other riverine birds (Willis & Oniki, 1993a).

Large-billed Tern *Phaetusa simplex*

Like the previous species, *P. simplex* shows a broad distribution across South America, inhabiting major rivers and lakes east of the Andes in nearly all countries of the continent, except for Chile. It breeds in mixed colonies alongside *S. superciliaris* and *R. niger,* and outside of the breeding season, individuals may range along the coast and in estuarine environments (Sick, 1997).

The earliest recorded occurrence of *P. simplex* on the São Paulo coast dates to 05 July 1898, in Iguape (MZUSP 2383). The species is considered rare in coastal São Paulo, with sporadic records of both juvenile individuals (Fig. 36) and non-breeding adults in the Santos-Cubatão estuarine complex (Olmos *et al.,* 1995; Olmos & Silva e Silva, 2001). Additional observations have been reported from a few other coastal localities, such as Ubatuba, São Sebastião, and Peruíbe (Wikiaves, 2025).

Data from the PMP-BS monitoring program do not report any records of *P. simplex* along the São Paulo coastline (SIMBA, 2025).

Gull-billed Tern *Gelochelidon nilotica*

This unmistakable species, characterized by its black, robust, and relatively short bill, exhibits a cosmopolitan distribution and is currently divided into five recognized subspecies: *G. n. nilotica,* which breeds from southern Europe and southern Mauritania, across the Mediterranean, the Middle East, Kazakhstan, the northern Indian subcontinent, and northeastern China; *G. n. affinis,* which breeds in eastern Asia and southeastern China; *G. n. aranea,* found breeding in the eastern United States, northeastern Mexico, the Bahamas, Virgin Islands, Cuba, Puerto Rico, and northern Yucatán Peninsula; *G. n. vanrossemi,* from southern California to western Mexico; and *G. n. gronvoldi,* which breeds in the Caribbean, French Guiana, and as far south as Argentina (Molina *et al.,* 2023).

In Brazil, *G. nilotica* occurs in two disjunct populations. One is found along the entire coastline of northern and northeastern states, reaching as far south as northern Bahia (Wikiaves, 2025). This species also inhabits major Amazonian rivers in the states of Amazonas and Pará, occurring over 1,100 km inland from the coast, where breeding behavior has been observed on river beaches, in association with other species such as *R. niger* and *P. simplex* (Kirwan *et al.,* 2012). This inland population is likely derived from breeding colonies along the coast of Rio Grande do Norte, where *G. nilotica* nests in artificial saltpans in mixed colonies with *C. cirrocephalus,* and may also include individuals from migratory populations of the northern hemisphere (USA, Caribbean, and French Guiana) (Somenzari *et al.,* 2018; Sagot-Martin *et al.,* 2020).

The second population, rare in southeastern Brazil (Rio de Janeiro and São Paulo) but more frequent in Rio Grande do Sul, is believed to originate from breeding colonies in Uruguay and Argentina (Olmos *et al.,* 1995; Guido *et al.,* 2016; Somenzari *et al.,* 2018; Wikiaves, 2025). In Rio Grande do Sul, a nest with three eggs was recorded on 18 October 2011 in the coastal region between Tramandaí and Cidreira (Maurício *et al.,* 2013).

In São Paulo, the first documented record of *G. nilotica* dates back to 11 April 1952, in Peruíbe, where a juvenile specimen was collected (MZUSP 35357) (Olmos *et al.,* 1995). The species was only observed again on 29 September 1996 in the mangroves of Santos (Olmos & Silva e Silva, 2001), and these remain the only known records for the state.

Common Tern *Sterna hirundo*

Migratory species with a wide distribution across the Northern Hemisphere, *S. hirundo* breeds from the high Arctic, north of Norway, across eastern Siberia and China, as well as in parts of Europe, the Middle East, Micronesia, and North America. Three subspecies are currently recognized: *S. h. hirundo, S. h. tibetana,* and *S. h. longipennis,* with only the nominate subspecies (*S. h. hirundo*) occurring in Brazil (Olsen & Larsson, 1995).

Band recovery data confirm that most individuals of *S. hirundo* observed in Brazil originate from the east coast of the United States (notably from New York, Massachusetts, and Connecticut), with additional recoveries from Canada, Bermuda, and even the Canary Islands and the Azores, although in smaller numbers (Cordeiro *et al.,* 1996; Hays *et al.,* 1997; Hays *et al.,* 1999; Olmos, 2002a; Lima *et al.,* 2005; Mestre *et al.,* 2010).

In Brazil, the species is mostly recorded along the coastal zone, but there are also numerous inland occurrences, and *S. hirundo* has been documented in almost all Brazilian states (Mestre *et al.,* 2010; Wikiaves, 2025). The main wintering area for this species in the country is located in the state of Rio Grande do Sul, specifically in the Lagoa do Peixe National Park (Hays *et al.,* 1997; Hays *et al.,* 1999; Mestre *et al.,* 2010).

In the state of São Paulo, the first documented record of the species dates back to 11 October 1982, in the municipality of Santos (Willis & Oniki, 1985; MZUSP 104579). Between 1999 and 2001, *S. hirundo* was observed in the Ilha Comprida region during the austral summer months, suggesting that the area may serve as a stopover site for individuals recovering during their southward migration (Barbieri & Mendonça, 2008).

Two specimens held at the Museum of Zoology of the University of São Paulo were recovered along the São Paulo coast and bear leg bands indicating their origin from Great Gull Island, New York, USA. One of these was a melanistic female (MZUSP 73732) found in Praia do Perequê, Guarujá, on November 1993. This bird bore the band BBL 9802-64608, which had been applied on 30 June 1992. The second specimen (MZUSP 75460), found in Guarujá on 11 September 1997, carried the band BBL 9807-20305, which had been placed on the bird as a chick on 25 June 1987.

According to data from the PMP-BS, a total of 42 individuals of *S. hirundo* were recorded along the São Paulo coastline between July and January, with observations in Ubatuba, Ilhabela, São Sebastião, Bertioga, Guarujá, Santos, Praia Grande, Itanhaém, Peruíbe, Ilha Comprida, and Cananéia (SIMBA, 2025). However, some of the records from July and August may correspond to juveniles of the South American tern (*Sterna hirundinacea*).

Arctic Tern *Sterna paradisaea*

A pelagic species from the Northern Hemisphere with remarkable migratory capabilities, *S. paradisaea* is known to travel over 80,000 km annually between the Arctic and Antarctic regions (Egevang *et al.,* 2010). It breeds in tundra habitats surrounding the Arctic Ocean, including Greenland, Canada, the United States, Russia, and Scandinavia (Olsen & Larsson, 1995). Different populations share common migratory routes, including the Brazilian coast (Egevang *et al.,* 2010; Hromádková *et al.,* 2020; Wong *et al.,* 2021; Wong *et al.,* 2022), and may even cross the Andes from the Pacific to the Atlantic via Patagonia (Duffy *et al.,* 2013). While most birds tend to migrate offshore, with the occasional one resting on the beach (as most records from São Paulo), a few may follow inland routes.

In Brazil, the species has been recorded along the coasts of Amapá, Pará, Maranhão, Ceará, Rio Grande do Norte, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul. Inland records also exist from Amazonas, Mato Grosso, the Federal District, and Minas Gerais (Lima *et al.,* 2004c; Dias *et al.,* 2012; Wikiaves, 2025).

Only three band recovery records are known from Brazil, suggesting that *S. paradisaea* individuals reaching the country originate from different regions, such as Greenland, Canada, and the United States (Olmos, 2002a). In the state of São Paulo, the first documented record of the species occurred on 04 August 1954, between Praia Grande and Peruíbe (MZUSP 36657). Data from the PMP-BS report a single occurrence, involving an individual found on Ilha Comprida on 28 November 2022 (SIMBA, 2025), while eBird shows records (up to May 2025) from Bertioga made in June, August, and October, Queimada Grande island (November) (Fig. 37) and Ilha Comprida (October). There are also inland records from the Guarapiranga reservoir in São Paulo city (November-December).

South American Tern *Sterna hirundinacea*

A migratory species, *S. hirundinacea* is found in both the Pacific and Atlantic Oceans, ranging from Chile, Tierra del Fuego, and the Falkland Islands, to Argentina, Uruguay, and Brazil (Sick, 1997). Two distinct populations are currently recognized, a winter-breeding one nesting along the Brazilian coast, on islands in the states of Espírito Santo, Rio de Janeiro, São Paulo, Paraná, and Santa Catarina, and a summer-breeding population in Argentine Patagonia (Faria *et al.,* 2010).

In Brazil, the species has been recorded along beaches from southern Bahia to Rio Grande do Sul (Wikiaves, 2025). In the state of São Paulo, the first documented record dates to 02 October 1896, in São Sebastião (MZUSP 2382). Breeding areas in São Paulo are distributed across the northern (Fig. 38) and southern coasts but are restricted to just 10 small islands, where the species nests in mixed colonies with *T. maximus* and *T. acuflavidus* (Campos *et al.,* 2004; Campos *et al.,* 2007) (Table 4).

On the northern coast of São Paulo, in São Sebastião, the first study on the reproductive biology of the species in the state was recently conducted at an artificial site located at the Petrobras Marine Terminal (TEBAR) (Fonseca & Barbieri, 2024).

Data from the PMP-BS report 130 records of *S. hirundinacea* along the entire São Paulo coastline, between the months of April and November, with a noticeable increase in frequency during the winter months, particularly in July and August (SIMBA, 2025).

Snowy-crowned Tern *Sterna trudeaui*

Endemic to the southern region of South America, *S. trudeaui* breeds in inland aquatic environments ranging from southern Brazil to Patagonia and Chile, often forming mixed colonies with other aquatic and marine bird species such as *C. maculipennis, C. cirrocephalus,* and White-faced Ibis (*Plegadis chihi*) (Sick, 1997). In the state of Rio Grande do Sul, the only known breeding area for this species in Brazil, it is considered a resident. Outside the breeding season, however, individuals may be observed further north, reaching as far as the state of Rio de Janeiro (Somenzari *et al.,* 2018). The first documented record of *S. trudeaui* in the state of São Paulo dates back to 21 October 1901, in São Sebastião (MZUSP 2240). It is currently regarded as an uncommon winter visitor to the São Paulo coastline, likely originating from more southern regions. Occasional sightings have been recorded in

Figure 36. Juvenile specimen of *Phaetusa simplex,* Cubatão mangrove, 22 November 2007. Photo: Robson Silva e Silva.

Figure 37. *Sterna paradisaea,* Queimada Grande Island, Itanhaém, 17 November 2021. Photo: Fábio Olmos.

estuarine mangrove areas (Olmos *et al.,* 1995; Olmos & Silva e Silva, 2001).

Data from the PMP-BS report only three juvenile individuals of *S. trudeaui* along the São Paulo coast: one on 28 July 2018, at Praia do Itararé in São Vicente; another on 18 July 2024, at Praia do Guaraú in Peruíbe; and a third on 31 July 2024, at Praia da Enseada in Guarujá (SIMBA, 2025). Additional records, particularly during the winter months of July and August 2024 come from the municipalities of Ilha Comprida, Peruíbe, Mongaguá (Fig. 39), Praia Grande, São Vicente, Santos, Guarujá, Bertioga, and Ilhabela. These sightings involved both adult individuals in non-breeding plumage and juveniles, with groups of up to 10 individuals. Frequently, these birds were observed within mixed-species flocks comprising other seabirds such as *L. dominicanus, T. maximus, T. acuflavidus,* and *R. niger* at roosting sites on beaches farther from human activity, usually near freshwater creeks (Wikiaves, 2025).

Cabot's Tern *Thalasseus acuflavidus*

The taxonomic status of this species remains uncertain and has been the subject of ongoing debate among various authors (Efe *et al.,* 2009). Two subspecies are currently recognized: *T. a. acuflavidus,* which breeds in eastern North America down to the southern Caribbean and migrates during the non-breeding season to southern Peru and northern South America; and *T. a. eurygnathus,* which occurs on islands off the coast of Venezuela, the Guianas, and along the Brazilian coast extending south to Argentine Patagonia (Sick, 1997; Pacheco *et al.,* 2021). At present, the breeding range of *T. acuflavidus* includes coastal areas of Brazil (Espírito Santo, Rio de Janeiro, São Paulo, Paraná, and Santa Catarina), as well as Uruguay and Argentina (Yorio & Efe, 2008; Lenzi *et al.,* 2010).

The first confirmed breeding record in Brazil was made on 12 July 1963 at Papagaio Island, off the coast of Macaé, Rio de Janeiro, where a mixed-species colony with *S. hirundinacea* was discovered (Sick & Leão, 1965). Individuals banded at breeding colonies on islands in the state of Espírito Santo have been recovered along the coast of Maranhão, Paraíba, Pernambuco, Bahia and as far south as São Paulo and Argentina (Efe *et al.,* 2000; Lima *et al.,* 2004c). The earliest documented record of *T. acuflavidus* in the state of São Paulo dates back to 18 June 1901, in the municipality of Iguape (MZUSP 2146).

In São Paulo, breeding has been confirmed on only six coastal islands, all with mixed colonies alongside other seabirds such as *S. hirundinacea, T. maximus,* and *L. dominicanus* (Scherer-Neto, 1985; Martuscelli & Milanelo, 1992; Campos *et al.,* 2004). In the southern coast, particularly within the Cananéia-Iguape-Ilha Comprida estuarine complex, *T. acuflavidus* was observed year-round in 2005, being abundant during the summer (Fig. 40) and rare in winter (Barbieri & Pinna, 2007b). Data from the Santos Basin Beach Monitoring Project (PMP-BS) report 198 records of *T. acuflavidus* along the entire São Paulo coastline, with observations in every month of the year (SIMBA, 2025).

Royal Tern *Thalasseus maximus*

Until recently, two subspecies were recognized: *T. m. maximus,* which breeds in North America, and *T. m. albididorsalis,* which breeds along the western coast of Africa. However, genetic studies have revealed that these are, in fact, two distinct species, *T. maximus* and *T. albididorsalis,* the latter closer to *T. bengalensis* than *T. maximus* (Escalante, 1985; Collinson *et al.,* 2017). For many years, *T. maximus* was considered a migrant to South America, occurring along both the Pacific and Atlantic coasts, coming from breeding populations in southeastern and southwestern North America (Murphy, 1936).

The subsequent discovery of breeding colonies along the coasts of Argentina, Uruguay, and Brazil (Escalante, 1968; Neves, 1994; Lenzi *et al.,* 2010) led to the recognition of two distinct populations: one of boreal origin, which migrates to the Caribbean, Central America, northern South America, and the Pacific coast; and another that breeds along the South American Atlantic coast, from Argentina to Brazil (Yorio & Efe, 2008).

In Brazil, representatives of both populations are present. The boreal population, breeding in North America, is recorded as a rare visitor along the northern (Amapá and Pará) and northeastern (Maranhão, Piauí, and Ceará) coasts between August and March. In contrast, the austral population is more numerous and occurs regularly along the coast from Bahia to Rio Grande do Sul (Lima *et al.,* 2005; Wikiaves, 2025). The first confirmed breeding record in Brazil was on 24 October 1993, at Laje de Santos off the coast of São Paulo (Neves, 1994; Olmos *et al.,* 1995). Subsequently, additional nesting sites were identified on five more islands in São Paulo state: the Alcatrazes Archipelago, Ilha da Prainha, Laje da Noite Escura, and Laje da Conceição (Fig. 41) (Campos *et al.,* 2004). These remain the only known breeding sites for *T. maximus* in Brazil but not all are not used every year (Yorio & Efe, 2008).

The most recent data on breeding activity comes from 2005, when 139 active nests and 278 adult individuals were recorded at Laje de Santos on 03 July (Campos *et al.,* 2007). Studies along the southern coast of São Paulo, particularly in the Cananéia-Iguape-Ilha Comprida estuarine complex, show *T. maximus* is present year-round, with higher numbers during the winter months (Barbieri & Pinna, 2007a). A banded individual, ringed as a chick in Chubut Province, Argentina, was recovered in this same estuarine region (Chupil *et al.,* 2024a).

The winter-breeding population in São Paulo is reproductivelly isolated from the summer-breeding populations from Uruguay and Argentina, a pattern shared with *S. hirundincea* (Faria *et al.,* 2010), and shows genetic differences that deserve further research (Faria, 2005).

The earliest documented records of *T. maximus* in São Paulo date to 21 August 1910, when four individuals were collected in the mangrove area of Cubatão (MZUSP 7923-7925; AMNH 139919). Data from the Santos Basin Beach Monitoring Project (PMP-BS) indicate 77 records of *T. maximus* along the São Paulo coast, distributed throughout the year, with peak occurrences during winter, from June to October (Fig. 42) (SIMBA, 2025).

Figure 38. A breeding flock of *Sterna hirundinacea,* Vitória Island, 01 August 2014. Photo: Fábio Olmos.

Figure 39. *Sterna trudeaui,* Mongaguá, 17 July 2024. Photo: Leonardo Casadei.

Figure 40. Group of *Thalasseus acuflavidus,* Ilha Comprida, 08 August 2024. Photo: Edison Barbieri.

Figure 41. *Thalasseus maximus* chicks, Laje da Conceição, 29 October 1998. Photo: Robson Silva e Silva.

Magellanic Penguin *Spheniscus magellanicus*

This species breeds along the southern coast of South America, including Chile, Argentina, and the Falkland Islands, migrating northward during the austral winter (Sick, 1997). It is the most frequently observed penguin species along the Brazilian coast, with the highest abundance recorded in the southeastern and southern regions, particularly during the winter months (Brusius *et al.,* 2021). Mortality events are recorded annually along Brazilian beaches, predominantly involving juvenile individuals undertaking their first migratory journey (Lima *et al.,* 2004c). Occasionally, the species can be recorded as far north as the northeastern coast, reaching the state of Ceará (García-Borboroglu *et al.,* 2010; Dantas *et al.,* 2013).

In the state of São Paulo, the first documented record of *S. magellanicus* dates back to 1898, in São Sebastião (MZUSP 9837), and the species is considered a common winter visitor (Fig. 43) (Olmos *et al.,* 1995). Data from the Santos Basin Beach Monitoring Project (PMP-BS) indicate that the Magellanic Penguin is the most frequently encountered seabird along the entire coastline of São Paulo, with a total of 11,139 individuals recorded stranded on beaches, most of them dead (SIMBA, 2025). The highest concentration is from Ilha Comprida, where the survival rate of the few individuals found alive is extremely low (Barbosa, 2023).

Royal Albatross *Diomedea epomophora*

A large albatross species occurring in southern oceans, *D. epomophora* exhibits a circumpolar distribution across the Subantarctic region, breeding predominantly on Campbell Island, New Zealand (Brooke, 2004). After the breeding season, it undertakes long-distance migrations across the Pacific Ocean and around Cape Horn to forage on the Argentine continental shelf and occasionally along the southern coast of Brazil. However, records along the Brazilian coastline remain scarce (Somenzari *et al.,* 2018; Canani *et al.,* 2020).

In the state of São Paulo, there is only one confirmed record of this species: a mounted specimen (MZUSP 16098; Dénes *et al.,* 2007) originally collected near Alcatrazes Island, São Sebastião. The bird was reportedly captured by local fishermen and donated to the São Paulo Hunting and Fishing Service in 1933 for exhibition purposes (Pinto, 1938; Pinto, 1964).

Wandering Albatross *Diomedea exulans*

The largest albatross species in the world, *D. exulans* exhibits a circumpolar distribution in the Southern Ocean, occurring from approximately 68°S, near the Antarctic Circle, to 23°S, at the Tropic of Capricorn. It breeds primarily on Subantarctic islands, including South Georgia, Prince Edward, Marion, Crozet, Kerguelen, and Macquarie (Brooke, 2004). In Brazil, the species has been recorded in the southeastern and southern regions, with confirmed sightings in the states of Rio Grande do Sul and São Paulo, including banded individuals originating from Bird Island, South Georgia (Somenzari *et al.,* 2018; Canani *et al.,* 2020).

In São Paulo, one adult male (MZUSP 114801) was recorded at the São Sebastião Channel (Ilhabela) on 28 June 2015 (Fig. 44), and retrieved the following day, 29 June 2015, by the Environmental Police from a marina in São Sebastião where it stranded. It was subsequently transferred to the Instituto Argonauta in Ubatuba for recovery but died shortly after.

Tristan Albatross *Diomedea dabbenena*

A large albatross species currently known to breed exclusively on Gough Island, although it formerly nested on Tristan da Cunha and Inaccessible Islands (Tickell, 2000). In Brazilian waters, it occurs offshore along the coasts of São Paulo, Santa Catarina, and most frequently in Rio Grande do Sul (Neves & Olmos, 2001; Canani *et al.,* 2020). The first confirmed record for both São Paulo and Brazil dates to 20 August 1984, when a specimen was found dead on a beach in Santos (Grantsau, 1995).

Sooty Albatross *Phoebetria fusca*

A pelagic species widely distributed throughout the southern oceans, mostly found between 30° and 50°S. It breeds on several Subantarctic islands, including Tristan da Cunha, Amsterdam, Saint Paul, Gough, Crozet, Prince Edward, and Kerguelen, with sympatric nesting alongside the Light-mantled Albatross (*Phoebetria palpebrata*) on the latter three islands (Tickell, 2000). *P. fusca* can be distinguished from *P. palpebrata* primarily by its entirely dark plumage and the presence of a yellow longitudinal groove along each side of the mandible (Vooren & Fernandes, 1989; Brooke, 2004). Along the Brazilian coast, it is considered a rare vagrant, with scattered records from Bahia (Lima *et al.,* 2004c), Rio de Janeiro, and Rio Grande do Sul (Somenzari *et al.,* 2018).

In São Paulo, one specimen was found in Bertioga on 28 August 1954 (MZUSP 37153). Initially misidentified as *P. palpebrata* (Pinto, 1964), it was later reassigned to *P. fusca* (Willis & Oniki, 1985; Willis & Oniki, 1993a; Willis & Oniki, 1993b; Grantsau, 1995). Additionally, a live individual found in Ubatuba in 2008 by the Instituto Argonauta was photographed and successfully rehabilitated and released (Simpson *et al.,* 2012).

Light-mantled Albatross *Phoebetria palpebrata*

A pelagic species with a broad distribution in the southern oceans, commonly observed between 40° and 60°S, though it may occur as far south as 77°50′S in the Ross Sea. Breeding colonies are found on various Subantarctic islands, including South Georgia, Crozet, Prince Edward, Kerguelen, Antipodes, Auckland, Campbell, Heard,

Figure 42. Adult breeding *Thalasseus maximus,* Itaguaré beach, Bertioga, 19 June 2010. Photo: Fábio Olmos.

Figure 43. Immature *Spheniscus magellanicus,* Queimada Grande Island, 25 July 2020. Photo: Fábio Olmos.

and Macquarie (Tickell, 2000). Adult individuals may be distinguished from *P. fusca* by their paler dorsal coloration and the light blue longitudinal groove along each side of the mandible (Vooren & Fernandes, 1989; Brooke, 2004). In Brazil, the species is considered a rare vagrant (Somenzari *et al.,* 2018), with occasional strandings recorded along the coasts of Bahia (Sampaio & Castro, 1998; Lima *et al.,* 2004c), Rio de Janeiro (Corrêa & Pereira, 2016), Santa Catarina (Roos & Piacentini, 2003), and Rio Grande do Sul (Vooren & Fernandes, 1989).

In São Paulo, there is only a single confirmed record: an individual (specimen IPC 057) found dead (Fig. 45) on the beach of Ilha Comprida on 03 October 2016 (Chupil *et al.,* 2018; SIMBA, 2025).

Yellow-nosed Albatross *Thalassarche chlororhynchos*

This species is endemic to the Tristan da Cunha-Gough Archipelago, breeding exclusively on Tristan da Cunha, Gough, Nightingale, Inaccessible, Middle, and Stoltenhoff Islands (Brooke, 2004). In Brazilian waters, it is more frequently observed during the austral winter months, particularly along the coast between the states of Rio de Janeiro and Rio Grande do Sul. However, its occurrence has also been documented in northeastern and northern states, including Pará, Maranhão, Pernambuco, Alagoas, Sergipe, and Bahia (Lima *et al.,* 2004c; Somenzari *et al.,* 2018).

In the state of São Paulo, several banded individuals have been recovered; one adult, originally banded on Inaccessible Island on 04 December 1982, was found dead on the beach of Peruíbe on 07 September 1985 (Olmos, 2002a); another specimen, discovered dead on Ilha Comprida beach on 23 September 2019, had been banded (#885250) as a chick on Gough Island in February 2017 (Chupil *et al.,* 2024a). Additionally, a skull identified as belonging to this species was recovered on the Ponta do Perigo beach, Ilha do Cardoso, in August 1989 (Martuscelli, 1992).

Thalassarche chlororhynchos is regularly recorded along the coast of São Paulo during all months but is commonest during the winter (Fig. 46) (Olmos *et al.,* 1995; Olmos, 1997) eBird data shows it is the commonest albatross found during pelagic birding in São Paulo waters, with tens of photographic records virtually covering the entire coast and showing *T. chlororhynchos* readily associates to fishing boats operating close to the coast.

According to data from the Marine Animal Stranding Monitoring Program of the Southeast (PMP-BS), *T. chlororhynchos* is the most frequently encountered albatross species along the beaches of São Paulo, primarily represented by deceased individuals (Fig. 47), with a total of 644 records (SIMBA, 2025).

Black-browed Albatross *Thalassarche melanophris*

With a circumpolar distribution in the Subantarctic region, *T. melanophris* is the most common albatross species in this southern zone. Its largest breeding colonies are concentrated on islands in the South Atlantic sector: approximately 78% of the global population nests on the Falkland Islands, 14% on South Georgia, and 7% on islands off the coast of Chile. The remainder is distributed among smaller colonies on the Crozet, Kerguelen, Heard and McDonald, Macquarie, Bishop and Clerk, Snares, Campbell, and Antipodes Islands (Brooke, 2004).

In Brazilian waters, most records involve juvenile individuals that forage over the continental shelf, especially during the austral winter. These birds are often observed following fishing vessels, indicating potential interaction with fisheries (Olmos, 1997; Somenzari *et al.,* 2018). Band recovery data suggest that the majority of individuals observed along the Brazilian coast originate from breeding populations in the Falkland Islands (Olmos, 2002a) and South Georgia (Sladen *et al.,* 1968).

Along the Brazilian coast, *T. melanophris* is primarily recorded from Rio Grande do Sul to Rio de Janeiro, although occasional sightings have been reported as far north as Espírito Santo, Bahia, and Sergipe (Lima *et al.,* 2004c; Wikiaves, 2025). In the state of São Paulo, the first documented occurrence dates back to 18 July 1920, in the municipality of Santos (MZUSP 114321). The species is currently considered common along the São Paulo coastline (Fig. 48) (Olmos *et al.,* 1995).

Data from the Marine Animal Stranding Monitoring Program of the Southeast (PMP-BS) further support this pattern, with a total of 368 individuals of *T. melanophris* found on São Paulo beaches (Fig. 49), predominantly during the winter months (SIMBA, 2025).

Pelagic birding data suggest in São Paulo this species occurs mostly in the winter months and is associated to the inflow of cold water from the Falklands current over the continental shelf. Interestingly, virtually all birds documented from São Paulo are juveniles, suggesting different feeding grounds for adult birds.

Gray-headed Albatross *Thalassarche chrysostoma*

This species exhibits a circumpolar distribution across the Southern Ocean. Its nearest and principal breeding colony is located on South Georgia Island, though it also breeds on several other Subantarctic islands, including Diego Ramírez and Ildefonso (west of Cape Horn), Prince Edward, Marion, Kerguelen, Crozet, Macquarie, and Campbell Islands (Brooke, 2004).

The first records of *T. chrysostoma* in Brazilian waters, including São Paulo, were made by the Swedish ornithologist Claës Christian Olrog (1912-1985). He observed two adults and two juveniles on 03 May 1954, in association with *T. melanophris,* following a vessel off the southeastern coast between São Paulo and Santa Catarina (coordinates 25°S, 40°W), and later recorded one adult and two juveniles on 25 May 1958 (24°S, 38°W) (Sick, 1979). Without documentation it is uncertain if those records did not actually refer to the much more common *T. chlororhynchos*.

Figure 44. Adult *Diomedea exulans,* São Sebastião Channel, 28 June 2015. Photo: Marco Cruz.

Figure 45. Specimen of *Phoebetria palpebrata* found on Ilha Comprida. Photo: PMP-BS.

Figure 46. Group of *Thalassarche chlororhynchos* off the coast of Ilhabela, 24 June 2023. Photo: Silvia Faustino Linhares.

Figure 47. Juvenile *Thalassarche chlororhynchos* stranded on Juréia Beach, Iguape, 29 August 2023. Photo: PMP-BS.

Figure 48. Immature *Thalassarche melanophris,* near Ubatuba, 04 August 2012. Photo: Fábio Olmos.

Figure 49. Juvenile *Thalassarche melanophris* stranded on Ilha Comprida, 01 August 2024. Photo: PMP-BS.

The only confirmed specimen of this species from São Paulo was found on 23 June 1993, when an immature individual (MZUSP 73513) beached at Praia Grande. However, Olmos *et al.* (1995) reported the date as 23 September 1993, and indicated that the bird was collected at the mouth of Baía de São Vicente. Besides this São Paulo record, a single additional occurrence was documented in the state of Rio de Janeiro, where an individual was found at Barra da Tijuca in September 1983 (MN 33293) (Teixeira *et al.,* 1985). Field identification of *T. chrysostoma* can be challenging to inexperienced observers due to its similarity to *T. chlororhynchos,* both in at-sea observations and among stranded individuals (Somenzari *et al.,* 2018).

White-bellied Storm-Petrel *Fregetta grallaria*

A small procellariiform species with a broad distribution in the Southern Hemisphere, *F. grallaria* is currently recognized as comprising four subspecies or, rather, species (Robertson *et al.,* 2016): *F. g. grallaria,* which breeds on the Roach and Kermadec Islands; *F. g. leucogaster* on Tristan da Cunha, Gough, and St. Paul Islands; *F. g. segethi* on the Juan Fernández Islands; and *F. g. titan* on Rapa Island (Brooke, 2004). In Brazil, the species is rare and seldom documented.

However, observations conducted aboard a bottom longline fishing vessel between 26 May and 01 June 1997, yielded a few at-sea records of *F. grallaria* over the southeastern continental shelf, between São Paulo and Rio de Janeiro (Olmos, 2000a). The documentation does not allow separation from the similar Black-bellied Storm-Petrel (*Fregetta* [*tropica*] *melanoleuca*) (Robertson *et al.,* 2016, Santos *et al.,* 2024) but field notes recorded the feet did not extent beyond the tail tip, a character typical of *grallaria* (F. Olmos pers. obs.). A potential record from Maresias Beach, São Sebastião (São Paulo), on 27 May 2022, may represent the only specimen recorded in the state, although the available photographs do not permit definitive species-level identification (SIMBA, 2025).

Subantarctic Storm-Petrel *Oceanites oceanicus*

Among the smallest members of the order Procellariiformes, *O. oceanicus* has an extensive Antarctic and Subantarctic distribution breeding in Cape Horn, South Georgia, South Sandwich, South Shetland, South Orkney, Bouvetøya, Crozet, Kerguelen, Heard, Macquarie, Balleny, Scott, and Peter Islands, as well as on the Antarctic continent itself (Shirihai, 2002; Brooke, 2004). A recent taxonomic revision of the genus led to the elevation of several subspecies to full species status, including *O. oceanicus* from the Falklands, Scotia Arc islands and maybe Isla de Los Estados and *O. exasperatus* from Antarctica (Norambuena *et al.,* 2024).

Oceanites exasperatus is genetically distinctive (Norambuena *et al.,* 2024) but differs from *oceanicus* by its larger size (Marchant & Higgins, 1990), although identification criteria need to be properly worked. It is a known transequatorial migrant and the same seems true of *O. chilensis* (Flood *et al.,* 2024), the at-sea range of *O. oceanicus* being poorly understood.

Because of the current difficulty in telling *oceanicus* from *exasperatus,* here we consider all such birds as *oceanicus* with the provision that a significant proportion of birds recorded in Brazil may actually be *exasperatus. Oceanites oceanicus* (sensu latu) is observed from April to November along the coast, ranging from Rio Grande do Sul to Ceará (Lima *et al.,* 2004c; Somenzari *et al.,* 2018; Wikiaves, 2025). The earliest documented occurrence for São Paulo dates back to 27 May 1905, in Santos (MZUSP 5568). According to data from the PMP-BS, 30 individuals have been recorded stranded along São Paulo's coast (Fig. 50), between March and November. These records span several municipalities, including Cananéia, Ilha Comprida (Fig. 51), Iguape, Itanhaém, Praia Grande, Santos, Guarujá, Bertioga, São Sebastião, Ilhabela, and Ubatuba (SIMBA, 2025).

Southern Giant-Petrel *Macronectes giganteus*

The two *Macronectes* species are the biggest Procellariidae and their morphological similarity presents a challenge for identification, particularly at-sea. Nevertheless, accurate diagnosis is straightforward provided good views or photos, and in both species, males are larger than females (Carlos & Voisin, 2008).

Macronectes giganteus exhibits a circumpolar distribution, breeding on islands off the Antarctic Peninsula, the Antarctic mainland, and several Subantarctic islands: Gough, South Georgia, South Sandwich, South Orkneys, South Shetlands, Prince Edward, Crozet, Kerguelen, Heard and McDonald, and Macquarie. Although the species is commonest at higher latitudes, breeding colonies have also been documented further north, including Gough, the Falkland Islands, Noir Island, and Diego Ramírez Islands (Chile), as well as in the provinces of Chubut and Santa Cruz, in Argentine Patagonia (Brooke, 2004; Patterson *et al.,* 2008; Blanco *et al.,* 2017).

Sympatry with *M. halli* has been recorded on some of these islands, where hybridization may take place. However, viable offspring resulting from such hybrid pairs have been documented only in Bird Island, South Georgia (Brown *et al.,* 2015). Studies on *M. giganteus* breeding in Argentine Patagonia, involving individuals with GPS trackers, show immature birds tend to disperse further north, reaching latitudes as low as 25°S. In contrast, adults exhibit a stronger fidelity to areas close to their breeding colonies, even during the non-breeding season (Blanco *et al.,* 2017).

One juvenile *M. giganteus* was found in a debilitated state on 23 July 2016 in Iguape and was successfully rehabilitated and released on 31 August 2016 (Mannina *et al.,* 2018b). Additional records of this species have been documented along the coast of São Paulo state, all involving dark-plumaged juveniles observed in the months of June and July, in the municipalities of Ubatu-

Figure 50. *Oceanites oceanicus,* near Queimada Grande Island, 05 June 2017. Photo: Fábio Olmos.

Figure 51. Specimen of *Oceanites oceanicus* stranded on Ilha Comprida, 18 October 2020. Photo: PMP-BS.

ba (1), Ilhabela (2), Bertioga (Fig. 52) (1), Guarujá (1), Itanhaém (Fig. 53) (1), and Peruíbe (1) (Wikiaves, 2025).

It is rarely seen during pelagic trips, with eBird records, all of juveniles (Fig. 54), in June, July and September. Its presence in São Paulo seems linked to the inflow of colder waters of the Falklands Current over the continental shelf, what also tends to bring higher numbers of *T. melanophris* and White-chinned Petrel (*Procellaria aequinoctialis*) to São Paulo coast.

Northern Giant-Petrel *Macronectes halli*

The species exhibits a circumpolar distribution between latitudes 30° and 64°S, breeding on Subantarctic islands such as South Georgia, Prince Edward, Crozet, Kerguelen, Macquarie, Auckland, Campbell, Antipodes, and Chatham (Brooke, 2004; Somenzari *et al.,* 2018). The first confirmed record of the species in Brazil was made on 27 September 1994 when a juvenile specimen (MZUSP 73726) was found dead on Ilha Comprida beach (Martuscelli *et al.,* 1995). Another specimen (MZUSP 75483) was recovered on 15 October 1999 at Praia do Leste, in the municipality of Iguape (Bugoni *et al.,* 2003). Additional records for the coast of São Paulo were obtained through band recoveries of individuals originally ringed on Macquarie Island (Tasmania). The first individual (band #13230660), banded as a chick in its nest on 16 January 2008, was found dead on Guaraú Beach, Peruíbe, on 12 October 2008. The second (band #13247062), also banded as a nestling on 06 January 2018, was recovered dead (Fig. 55; IPC 294) on Ilha Comprida on 08 August 2018 (ABBBS pers. comm., 2024). This suggests young birds perform a circumantarctic displacement when dispersing from the natal colonies.

A debilitated subadult *M. halli* was rescued (Fig. 56) on 20 June 2016 at Marujá Beach, Ilha do Cardoso, in the municipality of Cananéia, São Paulo, and released after rehabilitation on 24 July 2016 (Mannina *et al.,* 2018b). Another individual was found dead on Ilha Comprida on 24 September 2020 (IPC 633) (SIMBA, 2025). Photographic records show the presence of *M. halli* along the Brazilian coast from June to October, with confirmed occurrences in the states of Rio de Janeiro, Paraná, Santa Catarina, and Rio Grande do Sul. Most individuals observed were juveniles; however, some adults have also been documented (Wikiaves, 2025).

Southern Fulmar *Fulmarus glacialoides*

Unmistakable due to its distinctive plumage, with a pale gray back and a white ventral surface (Shirihai, 2002). It displays a circumpolar Antarctic and Subantarctic distribution, breeding on islands off the Antarctic Peninsula, South Sandwich, South Orkney, South Shetland, and Bouvetøya (Brooke, 2004). In Brazil, *F. glacialoides* is primarily recorded along the southeastern and southern coasts between June and November, with confirmed occurrences in the states of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Bahia, and Rio Grande do Norte (Sick, 1997; Lima *et al.,* 2004c; Somenzari *et al.,* 2018; Daudt *et al.,* 2017; Wikiaves, 2025).

In the state of São Paulo, the first documented record was a live individual found on Pereirinha Beach, Ilha do Cardoso, in the municipality of Cananéia, in March 1986 (Martuscelli, 1992). However, the species remains uncommon along this stretch of coastline, with few records (Olmos *et al.,* 1995) and none during pelagic birding trips. During a beach monitoring effort conducted in November 1986 on the shores of Ilha Comprida, Marujá, and Deserta (Paraná), a total of 61 individuals of *F. glacialoides* were recorded, probably representing an one-off wreck (Schmiegelow & Paiva-Filho, 1989).

Data from the Marine Animal Monitoring Program (PMP-BS) document nine occurrences of this species on beaches of São Paulo state, between July and October, in the municipalities of Ilha Comprida (IPC 1197) (Fig. 57), Peruíbe, Itanhaém, Praia Grande, São Sebastião, and Ilhabela (SIMBA, 2025). The Museum of Zoology of the University of São Paulo (MZUSP) houses five specimens of this species, collected in the municipalities of Mongaguá, Praia Grande, Ilha Comprida, Bertioga, and Cananéia.

Cape Petrel *Daption capense*

This species exhibits a wide circumpolar distribution across the Antarctic and Subantarctic regions, occurring during the austral summer between latitudes 60° and 63°S. It breeds on several islands including South Georgia, South Sandwich, South Shetland, South Orkney, Bouvetøya, Crozet, Kerguelen, Heard, Macquarie, Balleny, Peter, Chatham, Snares, Auckland, Campbell, Antipodes, and Bounty, as well as in continental Antarctica (Brooke, 2004). Two subspecies are currently recognized: *D. c. australe,* which breeds on the Subantarctic islands of New Zealand, and *D. c. capense,* nesting in the remaining islands listed above and the only taxon recorded in Brazil (Shirihai, 2002).

In Brazil, *D. capense* is primarily recorded during the austral winter, with confirmed occurrences in the states of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Bahia, and Rio Grande do Norte (Lima *et al.,* 2004c; Somenzari *et al.,* 2018). The earliest documented record of *D. capense* in the state of São Paulo corresponds to two specimens (NHMW 13614 and 38643) collected by the Austrian naturalist Johann Natterer (1787-1843) in São Sebastião on 11 August 1821. These individuals remain in the collections of the Natural History Museum of Vienna (Figs. 58 and 59) and represents the oldest known seabird specimens from São Paulo.

A banded individual (ring number EC 49380), tagged as a chick on Signy Island, South Orkney, Antarctica, on 20 February 1968, was recovered approximately 70 nautical miles off the coast of Santos, São Paulo, on 13 September 1969, after landing on a vessel; the bird was released shortly thereafter (Olmos, 2002a). Recent data from the PMP-BS include 11 records of the species along São Paulo's coastline, between the months of June and

Figure 52. Juvenile *Macronectes giganteus* on the mudflat in the Bertioga Channel, 24 July 2024. Photo: Daniel Donadio.

Figure 53. Juvenile *Macronectes giganteus* found dead on the beach in Peruíbe, 06 August 2024. Photo: PMP-BS.

Figure 54. Juvenile individual of *Macronectes giganteus,* Queimada Grande, 24 July 2016. Photo: Fábio Olmos.

Figure 55. Immature banded *Macronectes halli* individual found dead on Ilha Comprida, 08 August 2018. Photo: PMP-BS.

Figure 56. Subadult *Macronectes halli* found on Ilha do Cardoso, 20 June 2016. Photo: PMP-BS.

Figure 57. Specimen of *Fulmarus glacialoides* stranded on Ilha Comprida, 16 October 2023. Photo: PMP-BS.

Figure 58. *Daption capense* specimen NHMW 38643, from São Sebastião, 11 August 1821. Photo: Luis Fábio Silveira.

Figure 59. *Daption capense* specimen NHMW 13614, from São Sebastião, 11 August 1821. Photo: Luis Fábio Silveira.

September, and in November, in the municipalities of Cananéia, Ilha Comprida, Itanhaém, Praia Grande, São Sebastião, and Ilhabela (Fig. 60) (SIMBA, 2025).

Kerguelen Petrel *Lugensa brevirostris*

A medium-sized pelagic species that breeds in the Tristan da Cunha and Gough archipelagos in the South Atlantic Ocean, and on the Marion, Prince Edward, Crozet, and Kerguelen Islands in the southern Indian Ocean (Brooke, 2004). In Brazil, the species is considered rare, with only four confirmed specimens: (MN 35237) collected in September 1985 in Salvador, Bahia; (Coleção de Aves da Universidade Federal do Rio Grande, Rio Grande (CAFURG) 311)) on 01 October 1986 at Cassino Beach, Rio Grande do Sul; (MZUSP 101821) on 15 July 1994 at Camaçari Beach, Bahia; and (CAFURG 450) on 28 Sep-

Figure 60. *Daption capense,* Praia Ponta do Pequeá, Ilhabela, 14 July 2024. Photo: PMP-BS.

tember 2012 in Arraial do Cabo, Rio de Janeiro (Teixeira *et al.,* 1988; Vooren & Fernandes, 1989; Lima *et al.,* 2004c; Maurício *et al.,* 2014).

In the state of São Paulo, one moribund individual was found on Ilha Comprida beach on 25 May 2016. Although the specimen was in excellent condition when collected, it survived only one day (Fig. 61), and no biological material was preserved (Chupil *et al.,* 2018). Another specimen was found on 06 May 2022 at Enseada Beach, Guarujá (Fig. 62), and is reportedly stored in a freezer at the GREMAR Institute (SIMBA, 2025; GREMAR pers. comm., 2024). On 27 July 2024, a dead individual was recovered at Indaiá Beach, Bertioga; however, its precise taxonomic identification remains to be confirmed (SIMBA, 2025).

Desertas Petrel *Pterodroma deserta*

This rare and threatened gadfly petrel species breeds exclusively in the eastern North Atlantic Ocean, on Bugio Island, part of the Madeira Archipelago, Portugal (Jesus *et al.,* 2009). Between 2007 and 2010, several individuals were tracked using geolocators, which showed the use of five distinct wintering areas, two located along the Brazilian coast (northeast and southeast), including São Paulo, near the Tropic of Capricorn (Ramírez *et al.,* 2013; Ramírez *et al.,* 2016; Ramos *et al.,* 2016; Somenzari *et al.,* 2018). This species remains to be documented by photos or specimens.

Juan Fernandez Petrel *Pterodroma externa*

This species is endemic to the Juan Fernández Archipelago (Chile), breeding only on Alejandro Selkirk Island in the Pacific Ocean. It migrates primarily to tropical regions of the Pacific, although vagrant individuals have been recorded in Australia, New Zealand, and the Chatham Islands (Brooke, 2004). In the Atlantic Ocean, the only known record was made near Gough Island (Speight, 2010).

On 18 February 2024, an adult individual was found in São José dos Campos (23°11′19.1″S, 45°53′25.6″W), at an elevation of 568 meters above sea level and approximately 63 km inland from the coast. The bird was transported to Ubatuba (Instituto Argonauta) two days later (Fig. 63), where it died on 06 May 2024. The specimen was sent to the ornithological collection of the Museum of Zoology of the University of São Paulo (MZUSP 116128) (Barbosa *et al.,* 2024). This is the first documented record of *P. externa* for both the state of São Paulo and Brazil.

Atlantic Petrel *Pterodroma incerta*

This oceanic species inhabits primarily the South Atlantic Ocean, ranging between latitudes 20° and 50°S, particularly within the Subtropical Convergence zone. It breeds in Tristan da Cunha and Gough Islands (Brooke, 2004). In Brazil, *P. incerta* has been recorded along the coasts of Bahia, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul (Lima *et al.,* 2004c; Somenzari *et al.,* 2018).

Unusual inland records include two individuals found in the Tucuruí Reservoir, Pará State, approximately 400 km from the coast, in September 1984 (Teixeira *et al.,* 1986; MPEG).

In São Paulo, the first known record appears to be from 03 September 1991, when a specimen was found dead on a beach on Ilha do Cardoso, Cananéia (MZUSP 70635; Olmos *et al.,* 1995). According to data from PMP-BS, a total of 24 individuals of *P. incerta* were found dead or debilitated on beaches in São Paulo between April and December, in the municipalities of Ubatuba, São Sebastião, Bertioga, Guarujá, Praia Grande (Fig. 64), Mongaguá, Peruíbe, Ilha Comprida, and Cananéia (SIMBA, 2025).

This is an offshore species very rarely recorded closer to shore, usually keeping to deeper waters at or beyond the continental shelf. Neverheless it mays be pushed inshore by strong storm fronts, as seen in the São Sebastião Channel between the mainland and Ilhabela on 21 July 2018 (F. Olmos pers. obs.) and the remarkable event following Hurricane Catarina in March 2004, when hundreds of Procellariiformes were found inland in Santa Catarina and Rio Grande do Sul, up to 420 km from the coast, most of them identified as *P. incerta* (Bugoni *et al.,* 2007).

Trindade Petrel *Pterodroma arminjoniana*

This pelagic species occurs in two distinct breeding populations: one on Trindade Island in the South Atlantic Ocean, and the other on Round Island in the Indian Ocean (Brooke, 2004). In Brazil, it is one of only two Procellariidae species known to breed on oceanic islands, the other being Audubon's Shearwater (*Puffinus lherminieri*) (Mancini *et al.,* 2016). The species exhibits plumage polymorphism (Leal *et al.,* 2019), which complicates its identification during at-sea observations.

Its presence off the coast of São Paulo has been confirmed by geolocator-equipped individuals, which revealed the use of coastal and oceanic areas during their movements (Krüger *et al.,* 2016; Leal & Bugoni, 2021).

Broad-billed Prion *Pachyptila vittata*

This species inhabits subtropical and Subantarctic waters of the southern Atlantic and Pacific Oceans. It breeds in the Subtropical Convergence zone, with colonies on Tristan da Cunha, Inaccessible, Nightingale, Gough, and South Georgia Islands in the South Atlantic, and on Chatham, Snares, and Antipodes Islands near New Zealand in the South Pacific (Cox, 1979).

Outside the breeding season, South Atlantic populations may disperse as far as southern Africa (Brooke, 2004), and along the Pacific coast of South America off Peru and Chile (Portflitt-Toro *et al.,* 2018). Among the prions, *P. vittata* has the broadest bill, although confusion

Figure 61. Specimen of *Lugensa brevirostris* from Ilha Comprida, 25 May 2016. Photo: PMP-BS.

Figure 62. Specimen of *Lugensa brevirostris* from Guarujá, 06 May 2022. Photo: PMP-BS.

Figure 63. Specimen of *Pterodroma externa* found in São José dos Campos, 18 February 2024. Photo: PMP-BS.

Figure 64. *Pterodroma incerta,* Praia Grande, 31 July 2024. Photo: PMP-BS.

is possible with the similar *P. macgillivrayi* also nesting in Gough Island (Klages & Cooper, 1992; Ryan *et al.,* 2014; Kirwan *et al.,* 2022) and likely to occur in Brazil.

Overall, the taxonomy of this genus remains unresolved and requires further clarification (Shirihai, 2002; Masello *et al.,* 2019; Masello *et al.,* 2022). In Brazil, records of *P. vittata* are rare and controversial, with some possibly referring to *P. desolata* (Somenzari *et al.,* 2018), and the only confirmed documentation appears to be from two specimens found in Rio Grande do Sul and Bahia (Lima *et al.,* 2004c; Carlos, 2005). In São Paulo, the presence of *P. vittata* was recently confirmed by a debilitated individual (Fig. 65) (IPC 929) found on the beach at Ilha Comprida on 10 December 2022 (Chupil *et al.,* 2024b).

Antarctic Prion *Pachyptila desolata*

This small migratory Procellariidae species inhabits the Subantarctic region, breeding in South Georgia, South Sandwich, South Orkney, South Shetland, Auckland, Scott, Macquarie, Heard, Crozet, and Kerguelen Islands (Brooke, 2004). Following the breeding season, *P. desolata* migrates northward, with records along the Brazilian coast primarily during the austral winter due to the stronger inflow of cold waters from the Falklands Current reaching further north and more frequent cold fronts from Antarctica; specimens come from Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Bahia, Pernambuco, and Pará (Lima *et al.,* 2004c; Somenzari *et al.,* 2018). In São Paulo, the first record of the species dates to 04 August 1904, when a specimen was found on the beach in Santos (MZUSP 4730; Olmos *et al.,* 1995).

A significant mortality event involving *P. desolata* and *P. belcheri* occurred during the winter of 1996 (Fig. 66), when hundreds of debilitated and dead individuals were recorded along beaches in the southeastern and northeastern regions of Brazil, particularly in Bahia, Rio de Janeiro, São Paulo, and Paraná (Martuscelli *et al.,* 1997). According to PMP-BS data, 23 individuals were found along the coast of São Paulo between 2015 and 2024 (SIMBA, 2025).

Slender-billed Prion *Pachyptila belcheri*

This pelagic species ranges throughout the Southern Oceans, occurring in Antarctic and Subantarctic regions of the Atlantic, Pacific, and Indian Oceans. Breeding colonies are known from the Falkland Islands, a few islands near Tierra del Fuego (Chile), and in Kerguelen, Crozet, and Macquarie islands (Brooke, 2004). *P. belcheri* is easily confused with the morphologically similar *P. desolata,* the most consistent diagnostic feature distinguishing the two species is bill width (Fig. 66), with *P. desolata* averaging 14.3 mm and *P. belcheri* 11.2 mm (Masello *et al.,* 2019). In Brazil, the species is recorded predominantly during the austral winter, with confirmed occurrences in the states of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Bahia and Marajó Island in Pará (Martuscelli *et al.,* 1997; Lima *et al.,* 2004c; Daudt *et al.,* 2017; Somenzari *et al.,* 2018).

Mass mortality events involving *P. belcheri,* and to a lesser extent *P. desolata,* have been documented along the Brazilian coast, resulting in thousands of individuals found dead or in weakened condition on beaches (Sick, 1997). In São Paulo, such mortality events were reported during July and August in the years 1954, 1976, 1982, 1984, and 1996 (Fig. 67) (Argel-de-Oliveira & Carrasco, 1987; Martuscelli *et al.,* 1997). The first documented record of *P. belcheri* for the state of São Paulo was on 30 June 1903, represented by a specimen collected in Iguape (MZUSP 4271). Recent data from the PMP-BS indicate that 14 individuals were recorded along the coast of São Paulo between 2015 and 2024 (SIMBA, 2025).

All prion species are generally uncommon in inshore waters and, up to now, have not been recorded during pelagic birding trips off São Paulo, which mostly take place in waters shallower than 200 m.

Gray Petrel *Procellaria cinerea*

This is a strictly pelagic species with a circumpolar distribution between latitudes 32° and 58°S, breeding in a limited number of Subantarctic islands including Tristan da Cunha, Gough, Prince Edward, Crozets, Kerguelen, Amsterdam, Campbell, Antipodes, and Macquarie (Brooke, 2004). In Brazil, the species is regarded as a vagrant (Somenzari *et al.,* 2018). The first country record came from Rio Grande do Sul, where an individual was found dead on the beach on 07 November 1982 (Vooren & Fernandes, 1989). Another specimen was recovered in Solidão, also in Rio Grande do Sul, by Herculano Alvarenga on 01 August 1994 (MHNT 3092 and partial skeleton MHNT 1342). A further record from Mangue Seco, Bahia, in 1996, involved a dead individual from which only skeletal elements and a few feathers were preserved (Lima *et al.,* 2004c). In São Paulo, *P. cinerea* was reportedly observed on Ilha Comprida between 1998 and 2016 (Brusius, 2019), although no physical documentation is available.

Thus, the first confirmed and documented record for São Paulo occurred on 10 December 2023, when an adult female (IPC 1285) was found in a debilitated condition on Praia da Juréia, in the municipality of Iguape (Fig. 68) (Chupil *et al.,* 2024b).

White-chinned Petrel *Procellaria aequinoctialis*

This migratory species has a circumpolar distribution across the Subantarctic region, breeding on South Georgia, Falkland, Prince Edward, Marion, Crozet, Kerguelen, Auckland, Campbell, and Antipodes Islands (Brooke, 2004). In Brazil, it is more frequently observed along the southeastern and southern coasts during the austral winter, with confirmed records in the states of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, and Rio

Figure 65. *Pachyptila vittata* found on Ilha Comprida, 10 December 2022. Photo: PMP-BS.

Figure 66. Comparison of bill width between *Pachyptila desolata* (A) and *Pachyptila belcheri* (B), Peruíbe, 23 July 1996. Photos: Robson Silva e Silva.

Figure 67. Specimen of *Pachyptila belcheri* stranded on Ilha Comprida, 24 July 1996. Photo: Robson Silva e Silva.

Figure 68. Specimen of *Procellaria cinerea* found in Iguape, 10 December 2023. Photo: PMP-BS.

de Janeiro, and occasional sightings further north in Bahia and Pará (Lima *et al.,* 2004c; Somenzari *et al.,* 2018; Wikiaves, 2025).

The first documented record from São Paulo dates back to June 1915, when a specimen was collected on the beach of Iguape (MZUSP 9779). During the winter, *P. aequinoctialis* is among the most abundant tubenoses offshore (Fig. 69), frequently observed following fishing vessels (Olmos, 1997), and is also the most frequently encountered species stranded along São Paulo's coastline. Data from the PMP-BS program report 419 individuals found between 2015 and 2024 (Fig. 70) (SIMBA, 2025).

Spectacled Petrel *Procellaria conspicillata*

This oceanic species, until recently regarded as a subspecies of *P. aequinoctialis,* is currently recognized as a distinct taxon and breeds exclusively on Inaccessible Island, in the Tristan da Cunha Archipelago (Ryan, 1998).

It occurs throughout both the austral summer and winter within the Exclusive Economic Zone (EEZ) and continental shelf of Brazil, particularly along the coasts of São Paulo to Rio Grande do Sul, and occasionally further north, between the states of Bahia and Rio de Janeiro (Olmos, 1997; Olmos, 2001; Lima *et al.,* 2004c; Bugoni *et al.,* 2009; Somenzari *et al.,* 2018). In the state of São Paulo, the first record was documented in May 1994 on Grajaúna Beach, Peruíbe, where an adult individual was found, photographed, and released (Olmos *et al.,* 1995). Only three individuals have been reported by the PMP-BS along the São Paulo coast: two in Ilha Comprida in November 2021 (Fig. 71), and one found dead on Figueira Beach, São Sebastião, on 19 May 2017 (Fig. 72) (SIMBA, 2025), reflecting a greater abundance during the summer months when there are fewer cold fronts bringing birds inshore (Olmos, 1997). Nevertheless, at-sea observations conducted aboard fishing vessels have confirmed that *P. conspicillata* is among the most frequently encountered Procellariiformes in deeper waters off the São Paulo coast (Olmos, 2001).

Cory's Shearwater *Calonectris borealis*

A transequatorial migrant nesting on islands in the North Atlantic (Macaronesia), such as Berlengas, Azores, Madeira, Selvagens, and the Canary Islands (Flood & Fisher, 2020). One of its main wintering areas is located in the Subtropical Convergence off the Atlantic coast of South America, spanning the southeastern and southern Brazilian coastline to Uruguay (Dias, M.P. *et al.,* 2010; Reyes-González *et al.,* 2017).

In Brazil, it is the most frequently recorded species of the genus *Calonectris* (Pacheco *et al.,* 2021), with consistent records, some associated to mass strandings, along the coasts of Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul reflecting its migratory path (Olmos *et al.,* 1995; Pacheco & Maciel, 1995; Lima *et al.,* 2004c; Sousa *et al.,* 2005; SIMBA, 2025; Wikiaves, 2025).

In São Paulo, the species was first reported in Peruíbe (Olmos *et al.,* 1995). According to data from the PMP-BS, 332 individuals have been recorded along São Paulo's beaches, most of them found dead (Fig. 73), with the highest incidence of strandings occurring in April and May during the northbound migration to the breeding grounds (SIMBA, 2025).

Cape Verde Shearwater *Calonectris edwardsii*

Coming from the North Atlantic and a breeding endemic to the Cape Verde islands, *C. edwardsii* was formerly treated as a subspecies of *C. diomedea.* It is a transequatorial migrant; however, its migratory routes and wintering areas remain poorly understood. There is strong evidence suggesting that a significant portion of the population may remain along the southeastern and southern Brazilian continental shelf (Flood & Fisher, 2020).

In Brazil, available information is scarce. The first records were made in Bahia, where two specimens were documented: one found dead at Praia do Forte in May 1995, and another in 1998 (Lima *et al.,* 2002; Lima *et al.,* 2004c). In Rio Grande do Sul, three individuals were found dead on the beach on 20 May 1998 (MZU 563, 586, and 587), and an additional specimen (CAFURG 693) was also recovered (Petry *et al.,* 2000). Furthermore, at least 47 individuals, divided into three groups, were observed and photographed approximately 75 km off the coast of Pelotas by Martin Gottschling (Flood & Fisher, 2020). In São Paulo, the first records of *C. edwardsii* were obtained during seabird surveys aboard demersal longline fishing vessels over the continental shelf, between 116 km and 153 km east and southeast of Ilhabela (24°47′S, 44°32′W and 24°07′S, 43°48′W, respectively), on 28 May 1997, when the species was photographed (Fig. 74) (see https://ebird.org/checklist/S51336781) (Olmos, 2002d). More recently, on 18 May 2024, one individual was found in a debilitated state on Guaratuba Beach, Bertioga, and died shortly thereafter (Fig. 75) (SIMBA, 2025).

Sooty Shearwater *Ardenna grisea*

One of the most abundant Procellariidae species worldwide, *A. grisea* has an estimated population exceeding 20 million individuals. It breeds on Subantarctic islands, as well as on some oceanic islands in the southern tip of South America, including the Falkland Islands, Tristan da Cunha, Chatham, Antipodes, Campbell, Auckland, Snares, Tasmania, and Macquarie (Brooke, 2004). A study involving GPS-tagged individuals from Kidney Island (Falklands) during the non-breeding season proved this species performs transequatorial migrations to its main wintering grounds are located in the far northwestern Atlantic. and during the return phase travels along the eastern coast of South America, including Brazilian

Figure 69. Specimen of *Procellaria aequinoctialis* on the coast of São Sebastião, 11 July 2021. Photo: Silvia Faustino Linhares.

Figure 70. Individual of *Procellaria aequinoctialis* stranded on Ilha Comprida, 03 August 2024. Photo: PMP-BS.

Figure 71. Individual of *Procellaria conspicillata* on Ilha Comprida, 16 November 2021. Photo: PMP-BS.

Figure 72. Specimen of *Procellaria conspicillata* stranded in São Sebastião, 19 May 2017. Photo: PMP-BS.

Figure 73. Individual of *Calonectris borealis* found in Peruíbe, 15 June 2020. Photo: PMP-BS.

Figure 74. *Calonectris edwardsii* off the coast of São Paulo, 28 May 1997. Photo: Fábio Olmos.

coast from the Northeast to the South, (Hedd *et al.,* 2012). In Brazil, it has been recorded in the states of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Bahia, Sergipe, Alagoas, Rio Grande do Norte, and Ceará, again reflecting its migratory path (Sick, 1997; Lima *et al.,* 2004a; Daudt *et al.,* 2017; Somenzari *et al.,* 2018; Wikiaves, 2025).

In São Paulo, the first documented record occurred on 07 August 1925 in Guarujá, where a specimen was collected (MZUSP 11118). One specimen found dead on Ilha Comprida on 30 May 2016 (Fig. 76) was incorrectly identified by PMP-BS as *S. antarcticus* (SIMBA, 2025). Additional PMP-BS data report a total of 51 individuals found along São Paulo's beaches between June and November (SIMBA, 2025).

The distinguished ornithologist Olivério Mário de Oliveira Pinto (1896-1981), a researcher at the Museu Paulista (now the Museum of Zoology of the University of São Paulo), conducted pioneering work in the identification of Brazilian seabirds, including those from São Paulo. In his published volumes, only one seabird species from São Paulo, *A. grisea,* was initially misidentified due to confusion with other dark-plumaged Procellariidae species, such as the Dark-faced Petrel (*Pterodroma macroptera*) (Pinto, 1938), or *L. brevirostris* (Pinto, 1964). However, following re-examination of the two specimens from Guarujá, the correct identity was later confirmed (Escalante, 1980).

Great Shearwater *Ardenna gravis*

A migratory species with pelagic habits, *A. gravis* breeds in the South Atlantic Ocean, primarily on the Falkland Islands and especially on Tristan da Cunha, Gough, Nightingale, and Inaccessible Islands (Brooke, 2004). After the breeding season, it undertakes one of the longest known transequatorial migrations among birds, crossing the Atlantic Ocean from the Southern Hemisphere to the Arctic Circle, reaching latitudes as far north as 65°N off Greenland (Shirihai, 2002; Brooke, 2004). Its migratory routes follow the eastern coast of South America, both in south-to-north and north-to-south directions, extensively utilizing Brazilian territorial waters and the Exclusive Economic Zone (Powers *et al.,* 2022).

In Brazil, the species has been recorded in the states of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Espírito Santo, Bahia, Rio Grande do Norte, Ceará, and Maranhão (Sick, 1997; Lima *et al.,* 2004a; Daudt *et al.,* 2017; Somenzari *et al.,* 2018; Wikiaves, 2025). In São Paulo, the first documented record occurred on 17 December 1987, when a specimen was found at Ilha do Cardoso, Cananéia (FMNH 343732). Another specimen was found on 20 May 1990 at Pereirinha Beach, also on Ilha do Cardoso (Martuscelli & Antonelli-Filho, 1992). According to PMP-BS data, *A. gravis* is a commonly occurring species, with 164 individuals recorded on São Paulo beaches throughout the year between 2015 and 2024 (Fig. 77) (SIMBA, 2025).

Additional observations have been reported in the northern coastal region of São Paulo, between São Sebastião and Ilhabela, during the months of May, June, July, September, and October (Fig. 78) (Wikiaves, 2025). It is commonly seen during pelagic trips off São Paulo, winter records probably referring to birds overwintering off southeast Brazil rather than reaching the North Atlantic.

Manx Shearwater *Puffinus puffinus*

A medium-sized species of the family Procellariidae, *P. puffinus* breeds on islands in the northeastern North Atlantic, with the largest colonies located in Great Britain and Ireland, with smaller colonies in the Faroe Islands, France, the Azores, Madeira, and the Canaries. Additionally, small breeding populations are found in the northwestern North Atlantic in islands off Newfoundland (Canada) and Massachusetts (USA) (Flood & Fisher, 2020).

Following the breeding season, the species undertakes a long transequatorial and transatlantic migration, wintering along the Atlantic coast of South America along the Subtropical Convergence, particularly between latitudes 20° and 40° South, from Brazil to Argentina, during the boreal winter (Brooke, 2004). Migratory routes, stopover sites, and wintering areas have been identified through individuals equipped with geolocators, which have highlighted the critical role of the southeastern and southern Brazilian coastal zones for the conservation of this species (Guilford *et al.,* 2009).

In Brazil, ringed *P. puffinus* individuals from Wales, Ireland, and Scotland have been recovered in 13 different states, with a higher concentration of records in the Southeast and South regions, particularly in the states of Rio de Janeiro, São Paulo (Fig. 79), Santa Catarina, and Rio Grande do Sul, between September and December (Olmos, 2002a; Mestre *et al.,* 2010). The species has been recorded along the entire Brazilian coast, from Ceará to Rio Grande do Sul (Lima *et al.,* 2004c; Wikiaves, 2025).

In the state of São Paulo, the first documented record of *P. puffinus* dates back to 21 September 1901, when a specimen was collected in Iguape (MZUSP 2148). Data from the PMP-BS confirm that *P. puffinus* is a very common species in São Paulo, reflecting most of the world population must fly past its coast, with 3,045 individuals found stranded along the coastline (SIMBA, 2025).

Audubon's Shearwater *Puffinus lherminieri*

In Brazil, this species was discovered breeding in small colonies in several islets of the Fernando de Noronha Archipelago and on the Itatiaia Islands off the coast of Espírito Santo (Silva e Silva & Olmos, 2010).

In 1995, *P. lherminieri* was observed on three occasions following bottom longline fishing vessels operating over the continental shelf along the coasts of São Paulo and Paraná (Olmos, 1997). The records were obtained in March (25°06'S, 45°15'W), approximately 125 km south of Ilhabela, and later in July on two occasions: around 155 km east of Iguape (25°31'S, 46°04'W), and off the coast of Paraná. Each sighting involved a single individu-

Figure 75. *Calonectris edwardsii* found in Guaratuba, Bertioga, 18 May 2024. Photo: PMP-BS.

Figure 76. *Ardenna grisea* specimen at Ilha Comprida, 30 May 2016. Photo: PMP-BS.

Figure 77. *Ardenna gravis* specimen stranded at Ilha Comprida, 03 January 2024. Photo: PMP-BS.

Figure 78. *Ardenna gravis* near Alcatrazes Island, 30 June 2012. Photo: Fábio Olmos.

al, and on one occasion it was accompanied by two Manx Shearwaters, enabling a direct comparison of morphological differences. *Puffinus lherminieri* was noticeably smaller, with a distinct flight pattern characterized by faster wingbeats.

A review of the seabird collection at the Museum of Zoology of the University of São Paulo found a specimen (MZUSP 101856), initially identified as *P. puffinus* and collected in Santos on 15 November 1984, that drew attention due to its smaller size. Based on its morphological characteristics the specimen was reclassified as *P. lherminieri,* thereby being the first documented record of the species for São Paulo.

The possibility of additional *P. lherminieri* populations in other coastal regions of Brazil has been suggested based on potential distribution modeling and the fact that many islands remain poorly surveyed (Lopes *et al.,* 2014). The sightings off the São Paulo coast may indicate the presence of a small breeding colony, similar in scale to those already known in Brazil, on one of the nearby islands between the southeastern and southern coastlines, what can be checked through automated sound monitoring.

Magnificent Frigatebird *Fregata magnificens*

This species is distributed throughout tropical regions of the Pacific and Atlantic Oceans and is currently recognized in four subspecies: *F. m. magnificens,* found in the Galápagos Islands; *F. m. rothschildi,* occurring from islands in the Gulf of Mexico eastward to the Dry Tortugas, the Bahamas, the Caribbean Sea, Trinidad and Tobago, the Guianas, and along the Pacific coast of Central and South America from Mexico to Ecuador; *F. m. januaria,* restricted to the Brazilian coast, from Moleques do Sul Islands (Santa Catarina) to the Abrolhos and Fernando de Noronha archipelagos; and the extinct *F. m. lowei,* endemic to Cape Verde; several of these likely represent phylogenetical, if not biological, species (Nuss *et al.,* 2016; Martins *et al.,* 2022; Croxall, 2023).

In Brazil, the species is found along the entire coastline, but breeding is limited to a small number of coastal islands in the states of Santa Catarina, Paraná, São Paulo, and Rio de Janeiro, as well as on three oceanic islands, one in Abrolhos and two in Fernando de Noronha (Sick, 1997). In São Paulo, breeding occurs in only two islands, Alcatrazes (Fig. 80), off the northern coast and recognized as the largest breeding colony of the species in the South Atlantic, and Castilho Island on the southern coast (Lüederwaldt & Fonseca, 1922; Olmos *et al.,* 1995; Campos *et al.,* 2004).

The earliest documented records for São Paulo comprise two specimens from São Sebastião, dated 18 April 1898 and 23 April 1898 (MZUSP 56 and 57, respectively). On the southern coast of São Paulo, particularly in Ilha Comprida, the highest abundance of *F. magnificens* has been observed during the winter months of July and August, a period marked by increased availability of fishery discards from shrimp trawlers (Barbieri, 2010). A ringed individual from the Abrolhos Archipelago was recovered in Ilha Comprida (Chupil *et al.,* 2024a).

Data from the PMP-BS program for the São Paulo coast show a total of 743 records of *F. magnificens,* distributed throughout all months of the year (SIMBA, 2025). Although essentially a marine species that inhabits coastal areas, there are a few documented inland occurrences in the São Paulo metropolitan region (Schunck *et al.,* 2023).

Masked Booby *Sula dactylatra*

Among the Sulidae, this species, along with Red-footed Booby (*Sula sula*), shows the most pelagic behavior, with a broad distribution across all tropical and subtropical oceans (Nelson, 1978). In Brazil, it breeds in colonies located at Atol das Rocas, and in the archipelagos of Fernando de Noronha, Abrolhos, Martin Vaz, and on Trindade Island (Sick, 1997).

The first records for São Paulo were of individuals found debilitated or dead, including a live subadult in São Vicente on 21 March 2001 (Fig. 81) (MZUSP 80055); a live immature individual in Santos on 02 January 2002; and two others found dead at Laje de Santos on 01 October 2005 (Silva e Silva & Campos, 2006). Additionally, a specimen from Iguape, collected in 2006, is held at the Museum of Zoology of the University of São Paulo (MZUSP 80802).

New records of *S. dactylatra* in the state of São Paulo were obtained by the PMP-BS, totaling four occurrences between 2015 and 2024. These include a juvenile found alive in Mongaguá on 25 October 2016; an adult found dead on Praia da Juréia, Iguape, on 01 January 2020 (Fig. 82); a live immature individual on Ilha Comprida (IPC 698) on 21 February 2021; and another live immature recorded in Praia Grande on 29 February 2024 (SIMBA, 2025).

Additionally, a photographic record of an immature individual was obtained near the Mexilhão offshore platform (Petrobras – PMXL-1), approximately 145 km off the coast of Caraguatatuba, on 31 January 2024 (Wikiaves, 2025).

Among all documented records for the state of São Paulo, three individuals, two from Laje de Santos (U-38683 and U-38533) and one from Ilha Comprida (U-38773) (Fig. 83), had bands issued by CEMAVE (Brazilian National Center for Bird Conservation Research), and came from the Abrolhos Archipelago (Silva e Silva & Campos, 2006; Chupil *et al.,* 2024a). The same locality was the origin of two additional immature *S. dactylatra* individuals recovered in Rio Grande do Sul, one in Capão da Canoa on 07 February 2006 (U-17616), and another in Mostardas on 28 February 2006 (U-18628) (Franz *et al.,* 2008). Indeed, several records exist of long-distance movements by *S. dactylatra* banded in Abrolhos, particularly juveniles, which were later recovered in northeastern states such as Pernambuco, Ceará and Bahia, and in southern Brazil, including Santa Catarina (Lima *et al.,* 2004c; Efe *et al.,* 2006).

Another individual banded in Abrolhos was recovered in oceanic waters (32°20'S, 36°00'W), approximately

Figure 79. *Puffinus puffinus* off the coast of Ilhabela, 19 October 2019. Photo: Silvia Faustino Linhares.

Figure 80. Part of the breeding colony of *Fregata magnificens* on Alcatrazes Island, 06 July 1998. Photo: Robson Silva e Silva.

Figure 81. First record of *Sula dactylatra* for São Paulo, São Vicente, 21 March 2001. Photo: Robson Silva e Silva.

Figure 82. Individual of *Sula dactylatra* found dead at Praia da Juréia, Iguape, 01 January 2020. Photo: PMP-BS.

Figure 83. Immature specimen of *Sula dactylatra* found banded, on the beach of Ilha Comprida, 21 February 2021. Photo: PMP-BS.

1,400 km off the coast of Rio Grande do Sul, on 31 December 1996; this record was previously attributed to Uruguay, as the individual was found dead aboard a Uruguayan fishing vessel (Efe *et al.,* 2006; Jiménez & Domingo, 2009). In Uruguay, an adult individual was photographed from a fishing vessel approximately 210 km offshore (36°14′S, 52°48′W), representing the first documented occurrence of the species in that country and the southernmost record in the southwestern Atlantic Ocean (Jiménez & Domingo, 2009).

Red-footed Booby *Sula sula*

This pelagic species has a wide pantropical distribution, breeding on oceanic islands throughout the Caribbean and in the Atlantic, Pacific and Indian Oceans, as well as off northern Australia (Nelson, 1978). In Brazil, the species currently breeds exclusively in the Fernando de Noronha Archipelago (Mancini *et al.,* 2016). On Trindade Island, where *S. sula* was once abundant, it no longer breeds due to the degradation of the island's arboreal-shrub vegetation caused by the introduction of feral goats; today, the species is only rarely recorded in the island itself (Port & Fisch, 2020).

The first confirmed record of *S. sula* for the state of São Paulo was obtained on 05 May 2022, when a juvenile individual was photographed (Fig. 84) in flight over open ocean, approximately 230 km southwest of Ilhabela (26°00.4′S, 43°56.9′W), in waters 2,245 meters deep, during at-sea observations aboard a seismic survey vessel (Relvas *et al.,* 2024). The same authors reported an additional sighting from the same vessel on 03 December 2022, this time in a more offshore region approximately 530 km from the coast, now oriented toward the coast of Santa Catarina (27°21.5′S, 41°33.4′W). There is also a record from the coast of Paraná, where an adult individual was found dead at Pontal do Sul Beach, in Pontal do Paraná, on 29 October 2021 (SIMBA, 2025). Off the coasts of Espírito Santo and Rio de Janeiro, a few rare records of juvenile individuals have been made, all from pelagic waters far from the shore (Wikiaves, 2025). Additionally, the GREMAR Institute, based in Guarujá, houses a taxidermized specimen reportedly found aboard a cargo ship in the Port of Santos, although no further details are available (pers. obs. by RSS, 2024).

Brown Booby *Sula leucogaster*

Sulidae species with broad distribution across tropical and subtropical oceanic regions (Nelson, 1978). In Brazil, *S. leucogaster* is the commonest member of the family, breeding on oceanic islands such as the São Pedro and São Paulo Archipelago, Fernando de Noronha, Abrolhos, and the Rocas Atoll (Mancini *et al.,* 2016), as well as on numerous coastal islands along the states of Rio de Janeiro, São Paulo, Paraná, and Santa Catarina (Sick, 1997; Campos *et al.,* 2004; Efe *et al.,* 2006). In Rio Grande do Sul, the species is considered an occasional visitor,

Figure 84. Young specimen of *Sula sula* recorded in the ocean, 05 May 2022. Photo: Carolina Iozzi Relvas.

Figure 85. Pair of *Sula leucogaster* in the nest, Laje de Santos, 15 November 1998. Photo: Robson Silva e Silva.

occurring seasonally in low densities and classified as a pseudo-vagrant (Franz *et al.,* 2011). In São Paulo, it is a common resident species, breeding year-round (Fig. 85) on at least ten coastal islands (Olmos *et al.,* 1995; Campos *et al.,* 2004). According to data from the PMP-BS, a total of 2,321 individuals of *S. leucogaster* have been found either debilitated or dead along the coast of São Paulo, making it the third most frequently recorded species overall and the most frequently encountered resident species (SIMBA, 2025).

Seabird Species Likely to Occur in the State of São Paulo

Seabird occurrences along the Brazilian coastline continue to increase, resulting in the addition of numerous species to state-level bird lists (Lima *et al.,* 2002; Lima *et al.,* 2004c; Dias, R.A. *et al.,* 2010; Gonsioroski, 2014; SIMBA, 2025) and to the national checklist (Nunes *et al.,* 2023). These records contribute significantly to our understanding of seabird distribution in Brazil. Based on confirmed occurrences in neighboring states and documented migratory routes that include São Paulo's marine territory, it is possible to predict additional species likely to occur in this region. All species listed below are non-breeding in Brazil, originating either from the Northern Hemisphere or the far south of the Atlantic Ocean.

Least Tern *Sternula antillarum* (Lesson, 1847): Recorded in the state of Santa Catarina (Souza *et al.,* 2024). In Rio de Janeiro, one specimen (MN 18846) was collected in Angra dos Reis (Teixeira *et al.,* 1986). This species is morphologically similar to the more common *S. superciliaris,* which is slightly larger and frequently observed along Brazilian beaches (Atwood, 2023).

Snowy Sheathbill *Chionis albus* (Gmelin, 1789): A migratory species that breeds on the Antarctic Peninsula and winters mainly in the Falkland Islands, Tierra del Fuego, and southern Patagonia, occasionally reaching Uruguay and southern Brazil (Dias, R.A. *et al.,* 2010; Somenzari *et al.,* 2018). In Brazil, it is considered a vagrant, probably ship-assisted, with a few records from the coasts of Rio Grande do Sul, Santa Catarina, Paraná, Rio de Janeiro, Bahia, and Pernambuco (Dias, R.A. *et al.,* 2010; Pereira *et al.,* 2016; Daudt *et al.,* 2017).

White-capped Albatross *Thalassarche steadi* (Gould, 1841)/*Thalassarche cauta* (Falla, 1933): These two taxa, part of a cryptic species complex (also including *T. eremita* and *T. salvini*), are phenotypically difficult to tell apart and require molecular analysis for accurate identification (Abbott & Double, 2003; Pereira *et al.,* 2016). In Paraná, an individual was found alive on the beach at Pontal do Sul on 03 December 2005, but species-level identification was not possible (Daudt *et al.,* 2017). In Brazil, records exist from Bahia (Lima *et al.,* 2004b), Santa Catarina, and Rio Grande do Sul (Gianuca *et al.,* 2011), but only in Rio Grande do Sul has *T. steadi* been confirmed (Pereira *et al.,* 2016). In Uruguay and Argentina, molecular analyses have confirmed the presence of *T. steadi* in bycatch and beach-cast specimens, while the rarer *T. cauta* may also occur in this region (Jiménez *et al.,* 2015; Seco Pon *et al.,* 2022).

Blue Petrel *Halobaena caerulea* (Gmelin, 1789): Rare in Brazil, with records from Rio de Janeiro, where two specimens (MN 33355 and MN 33356) were found on the beach in Búzios, Cabo Frio, in July 1984 (Teixeira *et al.,* 1985), and another from Angra dos Reis on 03 August 2018 (SIMBA, 2025). Further south, a record from Praia do Ervino, São Francisco do Sul, Santa Catarina, on 27 July 2018 (SIMBA, 2025), and one from Tavares, Rio Grande do Sul, in July 1999 (Fonseca *et al.,* 2001). Several recent records exist from Uruguay (Muñoz *et al.,* 2023a).

Black-bellied Storm-Petrel *Fregetta tropica* (Gould, 1844): Recorded along the coasts of Rio Grande do Sul, Rio de Janeiro, Bahia, and Fernando de Noronha in Pernambuco (Olmos, 2000b; Lima *et al.,* 2004c; Petry *et al.,* 2016; Santos *et al.,* 2024). As pointed under *F. grallaria,* some records of the latter may refer to white-bellied *F.* [*tropica*] *melanoleuca* nesting in Gough and the Tristan Group (Howell & Zufelt, 2019).

Bulwer's Petrel *Bulweria bulwerii* (Jardine & Selby, 1828): One individual was photographed on 22 December 2011, approximately 176 nautical miles off Cabo de São Tomé, Rio de Janeiro state (Klein *et al.,* 2012).

Scopoli's Shearwater *Calonectris diomedea* (Scopoli, 1769): One specimen recorded for Rio Grande do Sul (Oliveira *et al.,* 2019); it is likely individuals of this species mix with the much more common *C. borealis* off Brazil.

Seabird Diversity Documented by PMP-BS (2015-2024)

Data compiled by the PMP-BS program (Projeto de Monitoramento de Praias da Bacia de Santos) resulted in a list of 45 seabird species identified along the coast of São Paulo state. Between August 2015 and December 2024, a total of 21,971 individuals were recorded (Table 2). The most frequently encountered species were *S. magellanicus,* a migrant from the Southern Cone, and *P. puffinus,* originating from the Northern Hemisphere. *S. leucogaster,* a resident species that breeds in São Paulo, ranked third in abundance.

A significant number of individuals (1,031; 5%) could not be identified to the species level. Ilha Comprida, located in the extreme south of São Paulo state, exhibited the highest species richness (38 species) and the greatest number of individuals (8,430) (Table 3). The primary source of new records for São Paulo has been the discovery of debilitated or dead seabirds on beaches, primarily through PMP-BS, which conducts daily monitoring of coastal areas in search of marine fauna, including cetaceans, pinnipeds, and sea turtles.

Table 2. Seabird species found along the São Paulo coast by the PMP-BS program, between 2015 and 2024. The list is ordered by the number of individuals recorded. Some scientific names have been updated in accordance with the most recent CBRO list (Pacheco *et al.,* 2021), except for *Oceanites* spp. (see bellow).

SPECIES	YEAR										TOTAL
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Spheniscus magellanicus	363	91	30	2144	920	1759	877	2576	1570	997	11328
Puffinus puffinus	1036	653	115	182	193	230	165	290	100	80	3045
Sula leucogaster	178	294	237	400	216	241	199	265	109	181	2321
Unidentified sp	175	226	55	159	120	93	47	48	51	56	1031
Fregata magnificens	47	69	54	101	77	73	70	74	77	101	743
Thalassarche chlororhynchos	43	164	26	162	41	75	22	44	34	33	644
Larus dominicanus	36	75	60	73	70	72	60	69	58	54	627
Procellaria aequinoctialis	10	139	3	67	42	39	21	48	18	65	419
Thalassarche melanophris	33	170	7	47	31	16	23	19	8	14	368
Calonectris borealis	5	35	25	16	69	8	30	3	5	136	332
Thalasseus acuflavidus	23	2	8	10	4	36	10	17	82	16	205
Ardenna gravis	2	11	7	13	26	12	13	30	22	31	167
Sterna hirundinacea	14	5	7	9	17	9	25	2	11	45	144
Macronectes giganteus	0	45	5	4	15	6	10	16	1	18	120
Thalasseus maximus	3	1	3	5	1	2	3	7	51	2	78
Ardenna grisea	2	3	1	20	3	5	4	5	3	5	54
Pterodroma mollis	1	1	4	3	3	11	5	5	12	7	52
Sterna hirundo	2	3	2	7	5	5	3	3	9	4	43
Oceanites oceanicus	1	0	1	2	5	7	5	3	4	3	31
Pterodroma incerta	4	1	1	2	3	2	0	3	5	5	26
Anous stolidus	0	1	1	1	5	4	7	0	5	0	24
Pachyptila desolata	0	9	0	7	6	4	4	0	1	2	23
Pachyptila belcheri	0	1	0	9	0	1	0	0	3	0	14
Rynchops niger	1	5	0	0	2	3	0	1	0	1	13
Daption capense	0	3	0	3	1	0	1	0	1	2	11
Stercorarius chilensis	0	1	0	2	0	1	4	1	0	1	10
Fulmarus glacialoides	0	0	0	0	4	1	1	1	0	1	8
Stercorarius antarcticus	0	5	0	1	0	0	0	1	0	0	7
Stercorarius parasiticus	0	0	0	1	1	0	1	2	0	1	6
Stercorarius longicaudus	0	0	1	1	1	0	3	0	0	0	6
Stercorarius maccormicki	1	0	1	1	1	0	1	0	0	0	5
Stercorarius pomarinus	0	1	0	1	1	0	0	1	0	0	4
Sula dactylatra	0	1	0	0	0	1	1	0	0	1	4
Macronectes halli	0	1	0	1	0	1	0	0	0	0	3
Procellaria conspicillata	0	0	1	0	0	0	2	0	0	0	3
Lugensa brevirostris	0	1	0	0	0	0	0	1	0	1	3
Sterna trudeaui	0	0	0	1	0	0	0	0	0	2	3
Phoebetria palpebrata	0	1	0	0	0	0	0	0	0	0	1
Fregetta grallaria	0	0	0	0	0	0	0	1	0	0	1
Onychoprion fuscatus	0	0	0	0	0	0	0	1	0	0	1
Pelagodroma marina	0	0	0	0	0	0	0	0	1	0	1
Procellaria cinerea	0	0	0	0	0	0	0	0	1	0	1
Sterna paradisaea	0	0	0	0	0	0	0	0	1	0	1
Pachyptila vittata	0	0	0	0	0	0	0	0	1	0	1
Pterodroma externa	0	0	0	0	0	0	0	0	0	1	1
Calonectris edwardsii	0	0	0	0	0	0	0	0	0	1	1
TOTAL	**1979**	**2018**	**655**	**3455**	**1883**	**2717**	**1616**	**3537**	**2244**	**1867**	**21971**

Established in 2015 as an environmental requirement imposed by IBAMA on PETROBRAS, the program has collected thousands of marine animals from São Paulo's coast, mostly deceased. However, it has produced a limited number of scientific publications, contributing primarily with short notes on new occurrences and veterinary reports. Fortunately, IBAMA mandates that the data be made publicly available online, allowing the scientific community to access and utilize them in further studies essential to the understanding of seabirds and other marine fauna.

Regrettably, virtually none of the thousands of dead birds have been saved for scientific collections kept by research institutions or museums. Some species newly recorded in São Paulo have been documented in publications but in most cases the specimens were discarded or kept in precarious, unofficial collections. Due to lack of interest or insufficient knowledge, many birds are de-

stroyed during necropsies without preserving the skin for taxidermy and museum deposition. Such losses undermine future research opportunities, like isoyopic and genetic analysis, and go against the understanding that historical museum collections have been instrumental in enriching our understanding and directly contributed to the development of the present study.

Ilha Comprida

Located on the southern coast of São Paulo State, Brazil, is an extensive Quaternary sandy barrier island approximately 70 km long and 3 km wide on average. Its formation is associated with recent Holocene sedimentary processes driven by the combined action of marine currents, tides, and waves, which have accumulated and redistributed fluvial sandy sediments along the coast (Barbieri & Mendonça, 2005). It is separated from the Cananéia-Iguape estuarine-lagoon complex by channels, swamps, and extensive mangrove areas (Fontes *et al.,* 2019). Its geomorphological composition is characterized by unconsolidated sandy coastal ridges interspersed with restinga vegetation (sand-coastal scrub), mobile dunes, floodplains, and mangroves. This configuration renders the island highly vulnerable to erosive processes, storm surges, and extreme climatic events, particularly in the context of rising sea levels (Barbieri & Delchiaro, 2017).

From an ecological perspective, Ilha Comprida is part of Lagamar, one of Brazil's most critical regions for biodiversity conservation, featuring a mosaic of coastal, lagoon, and estuarine ecosystems. The island harbors typical restinga plant communities, vast mangroves, and lagoon environments that serve as refuges and nurseries for diverse fish, crustaceans, migratory birds, and aquatic mammals. It lies within the Ilha Comprida Environmental Protection Area (APA), established to balance human development with natural resource conservation. A scientifically notable feature is its long, continuous Atlantic-facing beach, spanning approximately 70 km, making it exceptionally suited for systematic monitoring of stranded marine animals, particularly tide-driven seabirds, sea turtles, and small cetaceans (Barbieri *et al.,* 2013). The shoreline's linearity and accessibility position the island as a strategic site for studies on marine fauna mortality, organism health assessments, and environmental impact evaluations (*e.g.,* plastic pollution, oil contamination, or mass mortality events). Despite urban expansion and tourism pressure in its northern sector, much of the island remains relatively preserved, solidifying Ilha Comprida as a natural and scientific asset of great value to Brazil, especially for research in coastal ecology, zoology, and marine biodiversity conservation.

Status of Seabirds Recorded in the State of São Paulo

The marine avifauna found across the continental, coastal, and pelagic regions of São Paulo State include 68 species, most from distant regions of the globe or other parts of Brazil, while a smaller set is resident along the São Paulo coastline. As is the case of all of Brazil's marine avifauna, predominantly composed of migratory species originating from the Northern and Southern Hemispheres (Carlos, 2009), the same pattern is evident in São Paulo (Fig. 86). These seabirds can be grouped into the following categories:

Residents (RE): These species are present year-round along the coast of São Paulo and breed on coastal islands. Six species are included in this category: *Larus*

Table 3. List of seabirds recorded on Ilha Comprida beach between 1998 and 2016 (Brusius, 2019) and between 2015 and 2023 (SIMBA, 2025).

SPECIES	YEAR		TOTAL
	1998-2016	2015-2023	
Stercorarius chilensis	32	3	36
Stercorarius maccormicki	4	3	7
Stercorarius antarcticus	8	6	14
Stercorarius pomarinus	4	1	5
Stercorarius parasiticus	2	0	2
Stercorarius longicaudus	1	1	2
Larus dominicanus	24	60	84
Anous stolidus	1	1	2
Rynchops niger	1	2	3
Sterna hirundo	5	7	12
Sterna paradisaea	0	1	1
Sterna hirundinacea	7	17	24
Thalasseus acuflavidus	6	18	24
Thalasseus maximus	8	2	10
Spheniscus magellanicus	1905	5627	7532
Diomedea epomophora	1	0	1
Diomedea exulans	7	0	7
Phoebetria palpebrata	1	1	2
Thalassarche chlororhynchos	74	324	398
Thalassarche melanophris	72	186	258
Oceanites oceanicus	2	7	9
Macronectes giganteus	18	68	86
Macronectes halli	2	2	4
Fulmarus glacialoides	1	4	5
Daption capense	19	5	24
Lugensa brevirostris	0	1	1
Pterodroma mollis	0	5	5
Pterodroma incerta	22	9	31
Pachyptila vittata	0	1	1
Pachyptila desolata	0	4	4
Pachyptila belcheri	7	2	9
Procellaria cinerea	1	1	2
Procellaria aequinoctialis	1	188	189
Procellaria conspicillata	13	2	15
Calonectris borealis	0	137	137
Ardenna grisea	33	18	51
Ardenna gravis	49	63	112
Puffinus puffinus	17	1030	1047
Fregata magnificens	10	219	229
Sula dactylatra	0	1	1
Sula leucogaster	27	417	444
TOTAL	**2363**	**8430**	**10830**

dominicanus, Sterna hirundinacea, Thalasseus acuflavidus, Thalasseus maximus, Fregata magnificens, and *Sula leucogaster* (Olmos *et al.,* 1995). Even among resident species, some individuals undertake migratory movements to southern or northern Brazil, as shown by recoveries of banded individuals (Efe *et al.,* 2006; Chupil *et al.,* 2024a).

Vagrants (VA): These species have been recorded only once in São Paulo, often far from their known distributional range. In this study, two such species were identified: *Leucophaeus modestus* and *Pterodroma externa,* both native to the Pacific Ocean.

The remaining 60 species (88%) are classified as migratory, that is, species that naturally undertake seasonal movements from various regions. These can be subdivided into four groups:

Brazilian Migrants (MB): These species occur in other parts of Brazil, from inland regions to coastal and oceanic islands, and are occasionally recorded along the coast of São Paulo. Three species nesting inland along major river systems have been documented: *Rynchops niger, Sternula superciliaris,* and *Phaetusa simplex,* all of which breed on sandy river beaches and islands. Three additional year-long marine species are recorded: *Anous stolidus* and *Sula dactylatra,* both from the Abrolhos region, and *Pterodroma arminjoniana,* which breeds on Trindade Island. Other four species: *Puffinus lherminieri* and *Sula sula,* which breed in the Fernando de Noronha Archipelago and not known to show migratory behavior; *Onychoprion fuscatus,* which breeds in Fernando de Noronha, Atol das Rocas, Trindade Island, and Abrolhos; and *Phaethon aethereus,* also breeding in Fernando de Noronha and Abrolhos.

Southern Cone Migrants (MC): This group comprises seven species that breed in southern South America, including the extreme south of Brazil (Rio Grande do Sul), and use the coast during their non-breeding season. These are *Stercorarius chilensis, Chroicocephalus maculipennis, Chroicocephalus cirrocephalus, Gelochelidon nilotica, Sterna trudeaui, Spheniscus magellanicus* and *Oceanites chilensis.* Some Petrels *Macronectes giganteus* and *Stercorarius antarcticus* nesting in Patagonia (Chubut) are also likely to reach São Paulo.

Northern Hemisphere Migrants (MN): These are long-distance migrants originating from Arctic regions, North America, Eurasia, and several islands in the North Atlantic, with most wintering in the Subtropical Convergence Zone off southern Brazil, Uruguay, and Argentina. These 14 species include *Stercorarius pomarinus, Stercorarius parasiticus, Stercorarius longicaudus, Xema sabini, Leucophaeus atricilla, Leucophaeus pipixcan, Chlidonias niger, Chlidonias leucopterus, Sterna hirundo, Sterna paradisaea, Pterodroma deserta, Calonectris borealis, Calonectris edwardsii,* and *Puffinus puffinus.*

Southern Hemisphere Migrants (MS): These species breed in Antarctic and Subantarctic islands like the Falklands, Gough, Inaccessible, Tristan da Cunha, South Georgia, South Orkneys, South Sandwich, Cambell, Aucklands, Chatham (Fig. 87), and represent most seabirds recorded in São Paulo, particularly among the Procellariiformes. A total of 29 species are included in this diverse group: *Stercorarius maccormicki, Stercorarius antarcticus, Diomedea epomophora, Diomedea sanfordi, Diomedea exulans,Diomedeadabbenena,Phoebetriafusca,Phoebetria palpebrata, Thalassarche chlororhynchos, Thalassarche melanophris, Thalassarche chrysostoma, Fregetta grallaria, Oceanites oceanicus, Pelagodroma marina, Macronectes giganteus, Macronectes halli, Fulmarus glacialoides, Daption capense, Lugensa brevirostris, Pterodroma mollis, Pterodroma incerta, Pachyptila turtur, Pachyptila vittata, Pachyptila desolata, Pachyptila belcheri, Procellaria cinerea, Procellaria aequinoctialis, Procellaria conspicillata, Ardenna grisea,* and *Ardenna gravis.*

Some perform circum-antarctic migrations, like both royal albatrosses nesting in New Zealand, while others, like both *Ardenna* spp., *Oceanites oceanicus* and *Stercorarius maccormicki* are trans-equatorial migrants.

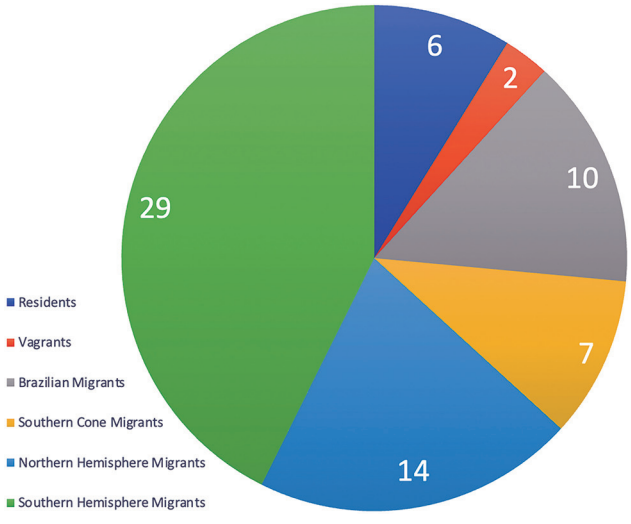

Figure 86. The provenance of seabird species from São Paulo.

Resident Seabirds of São Paulo and Their Breeding Sites

Along the coast of São Paulo State, only six species of seabirds are currently known to form breeding colonies: *L. dominicanus, S. hirundinacea, T. acuflavidus, T. maximus, F. magnificens,* and *S. leucogaster* (Olmos *et al.,* 1995; Campos *et al.,* 2004). These species are known to breed on only 27 islands, islets, and rocky outcrops (Table 4), whose distances from the mainland vary between 100 meters and 36 kilometers (Fig. 88). Most of these breeding sites fall within the boundaries of legally protected areas, such as Environmental Protection Areas (APAs), cultural heritage sites under CONDEPHAAT-SP designation, Ecological Stations, State Marine Parks, and Areas of Relevant Ecological Interest (ARIE) (Campos *et al.,* 2004; Oliveira *et al.,* 2011). More recently, the establishment of the Alcatrazes Wildlife Refuge has further contributed to

seabird conservation. This refuge hosts the largest breeding colony of *F. magnificens* in the South Atlantic, in addition to nesting populations of other seabird species (Olmos *et al.,* 1995; Campos *et al.,* 2004; Muscat *et al.,* 2014). An additional and notable breeding site is an artificial structure, the Petrobras Maritime Terminal (TEBAR), located within the São Sebastião Channel, which supports an annually recurring nesting colony of *S. hirundinacea* (Campos *et al.,* 2004; Fonseca & Barbieri, 2024).

Seabird Conservation in the State of São Paulo

The primary objective of this study is to contribute to the conservation of seabirds along the coast of São Paulo. Achieving this goal requires first establishing a comprehensive understanding of which species are present in the region, whether in coastal or pelagic zones, through a regularly updated checklist of seabird records for the state. This list has experienced continuous additions over time (Olmos *et al.,* 1995; Willis & Oniki, 2003; Silveira & Uezu, 2011; Figueiredo, 2019; Barbieri & Esparza, 2023; Valls *et al.,* 2023; SIMBA, 2025). Currently, 100 seabird species are officially recognized in Brazil (Pacheco *et al.,* 2021; Nunes *et al.,* 2023), the majority of which originate from outside national borders, particularly from the Northern Hemisphere and Subantarctic regions in the far south (Carlos, 2009; Mancini *et al.,* 2016).

The main threats facing seabird species in Brazil today include bycatch in fisheries, marine pollution (especially plastics and oil), habitat degradation, predation by invasive species, human encroachment and disturbance at breeding and roosting sites, the planned installation of offshore wind turbines, and climate change (Nunes *et al.,* 2023). All of these threats are anthropogenic in origin and contribute to significant population declines among numerous seabird species that inhabit oceans worldwide. Effective conservation measures are urgently required not only at breeding sites but also throughout their entire range, which encompasses various habitats used during different phases of their life cycle.

Institutional international agreements, supported and implemented by national governments, are essential for ensuring the long-term conservation of seabirds, especially in international waters, which constitute over 70% of the world's oceans. In this context, conservation

Figure 87. Location of the main islands in the Antarctic and Subantarctic region.

Table 4. Islands along the coast of São Paulo known to support breeding seabird populations, listed from north to south. Species codes: FM = *Fregata magnificens,* LD = *Larus dominicanus,* SH = *Sterna hirundinacea,* SL = *Sula leucogaster,* TA = *Thalasseus acuflavidus,* TM = *Thalasseus maximus.*

Island	Coordinates (S/W)	Size (ha)	Municipality	Distance from mainland (km)	Species
Ilha da Rapada	23°25′/44°53′	8,2	Ubatuba	7,38	LD
Ilha dos Pescadores	23°44′/45°01′	17,6	Ilhabela	37,20	SL
Ilha das Cabras	23°44′/45°01′	6,2	Ilhabela	36,92	LD/SL
Ilha da Serraria	23°48′/45°13′	7,2	Ilhabela	17,40	LD
Ilha da Prainha	23°51′/45°25′	0,2	Ilhabela	2,23	SH/TA/TM
Ilha da Figueira	23°55′/45°18′	1,4	Ilhabela	15,54	SH
Ilhote do Codó	23°55′/45°18′	0,6	Ilhabela	15,47	SH/LD
Ilha Itacucê	23°50′/45°27′	0,5	São Sebastião	0,10	SH/LD
Ilha do Apara	23°50′/45°33′	1,0	São Sebastião	0,12	SH/TA/LD
Ilha de Alcatrazes	24°06′/45°41′	170	São Sebastião	33,40	SH/LD/SL/FM
Ilha da Sapata	24°04′/45°39′	3,8	São Sebastião	30,30	SH/TM/LD/SL
Ilha do Paredão	24°04′/45°43′	1,9	São Sebastião	32,40	SH/LD/SL
Laje do Trinta-réis	24°04′/45°43′	0,5	São Sebastião	32,70	TM
Ilha do Farol	24°05′/45°42′	0,7	São Sebastião	34,40	LD/SL
Ilha Rasa	24°06′/45°42′	1,6	São Sebastião	36,00	LD/SL
Ilha do Oratório	24°06′/45°42′	7,2	São Sebastião	36,00	LD/SL
Ilhote da Caranha	24°06′/45°42′	0,4	São Sebastião	36,00	LD/SL
Laje de Santos	24°19′/46°10′	10	Santos	33,30	SH/TA/TM/LD/SL
Ilha da Queimada Grande	24°29′/46°41′	78	Itanhaém	34,80	LD/SL
Ilha da Queimada Pequena	24°22′/46°48′	12	Itanhaém	17,00	LD
Laje da Noite Escura	24°22′/46°48′	0,8	Itanhaém	17,00	TM/LD
Laje da Conceição	24°14′/46°41′	1,0	Itanhaém	9,82	TM/TA/LD
Ilha de Peruíbe	24°21′/46°58′	2,1	Peruíbe	2,15	LD
Ilha do Abrigo	24°22′/46°59′	9,3	Peruíbe	2,42	LD
Ilha Guararitama	24°23′/46°59′	1,2	Peruíbe	1,90	LD
Ilha do Castilho	25°16′/47°57′	6,0	Cananéia	5,10	SH/TA/LD/SL/FM
Ilha da Figueira	25°21′/48°02′	3,6	Cananéia	7,82	TA/LD/SL/FM

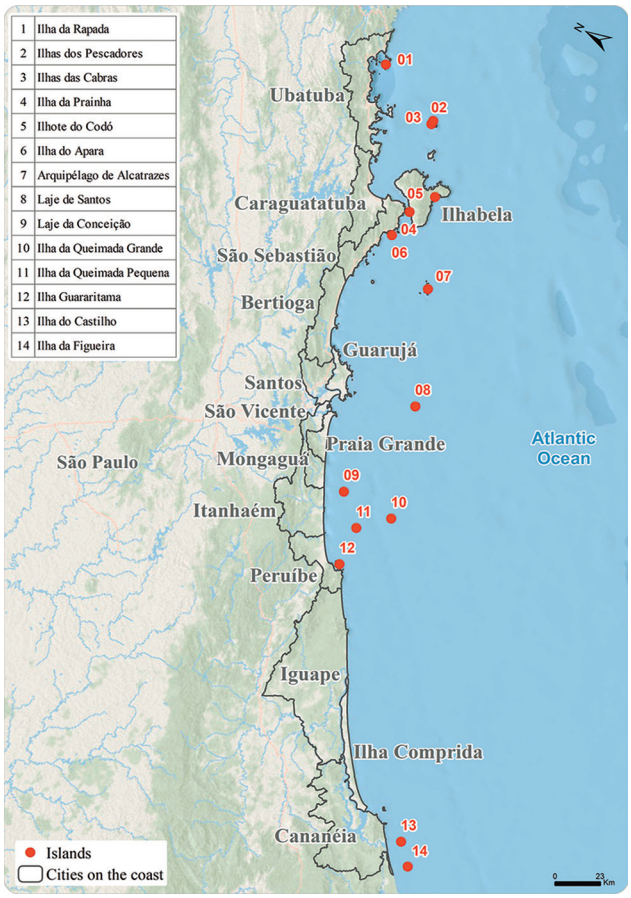

Figure 88. Location of the main islands with seabird breeding in São Paulo.

efforts within the marine territory of São Paulo State are critical for both resident and migratory seabird species. To date, 68 seabird species have been documented in São Paulo, 24 of which (35%) are listed as threatened at either the global (IUCN) or national levels (Brazilian Ministry of Environment – MMA, and São Paulo State Environmental Secretariat – SMA). Among the six resident species known to breed along the São Paulo coastline, three (50%) are currently categorized as threatened.

Avian Influenza (H5N1) and Its Impact on the Seabird Populations of São Paulo

Highly pathogenic avian influenza (HPAI), subtype H5N1, is caused by a virus inducing severe disease in birds, with high mortality rates and substantial transmission potential (Ferreira *et al.,* 2024). Its introduction into South America began in 2022, spreading along the Pacific coast through major migratory bird routes. It initially affected seabirds and marine mammals in that region and was subsequently reported along the Atlantic coast in Argentina and Uruguay (MAPA, 2023). In Uruguay, H5N1 was detected in four individuals of *S. hirundinacea* (Tomás *et al.,* 2024).

In Brazil, the virus was first confirmed in seabirds on 15 May 2023, when a dead *T. acuflavidus* was found on a beach in Espírito Santo (Reischak *et al.,* 2023). Subsequently, in June 2023, two additional *T. acuflavidus* and two *T. maximus* tested positive for the virus (Araújo *et al.,*

Table 5. Distribution of confirmed H5N1 avian influenza cases in seabirds across Brazilian states (Brasil, 2024). State abbreviations: BA = Bahia; ES = Espírito Santo; RJ = Rio de Janeiro; SP = São Paulo; PR = Paraná; SC = Santa Catarina; RS = Rio Grande do Sul.

SPECIES	STATE							TOTAL
	BA	ES	RJ	SP	PR	SC	RS	
Chroicocephalus maculipennis	0	0	0	0	1	0	0	1
Chroicocephalus cirrocephalus	0	1	1	0	0	0	0	2
Sterna hirundo	0	6	6	1	0	1	0	14
Sterna hirundinacea	0	2	1	1	0	5	0	9
Thalasseus acuflavidus	1	19	10	21	8	3	0	62
Thalasseus maximus	3	7	12	20	4	7	1	54
Pachyptila desolata	0	0	0	1	0	0	0	1
Procellaria aequinoctialis	0	0	0	2	0	0	0	2
Puffinus puffinus	0	0	0	4	0	0	0	4
Fregata magnificens	0	0	1	0	0	0	0	1
Sula leucogaster	0	1	0	0	0	2	0	3
TOTAL	**4**	**36**	**31**	**50**	**13**	**18**	**1**	**153**

2024). The infection rapidly spread along the Brazilian coastline, affecting seabirds from southern Bahia to Rio Grande do Sul (MAPA, 2023). Updated data from the Brazilian Ministry of Agriculture and Livestock (Brasil, 2024) confirm the presence of H5N1 in 153 individuals belonging to eleven seabird species (Table 5) (Fig. 89).

The H5N1 virus has already been detected in regions that host breeding colonies of other migratory seabird species, such as the South Georgia and Falkland Islands (Banyard *et al.,* 2024). These authors confirmed the presence of the H5N1 virus in multiple seabird species, including three that undertake regular migratory movements encompassing Brazilian oceanic waters: *S. antarcticus, T. melanophris,* and *F. glacialoides*.

In the State of São Paulo, the first confirmed case of H5N1 occurred in a *T. maximus,* collected on 05 June 2023 in Ubatuba (MAPA, 2023). Since then, outbreaks have been reported in nearly all coastal municipalities of São Paulo, including Caraguatatuba, São Sebastião, Ilhabela, Bertioga, Guarujá, Santos, São Vicente, Praia Grande, Mongaguá, Itanhaém, Peruíbe, and Ilha Comprida. Additionally, one case was recorded in the municipality of São Paulo itself (Fig. 90).

The most affected seabird species in the state of São Paulo are *T. acuflavidus* and *T. maximus,* accounting for a total of 41 confirmed H5N1 cases. Additional cases were recorded in other Laridae species, specifically *S. hirundo* and *S. hirundinacea,* with one case each. Except for *S. hirundo,* which breeds in the Northern Hemisphere, the other three species occur and reproduce on several islands along the Brazilian coastline, precisely where all reported H5N1 infections have been concentrated.

The impact of the avian influenza outbreak on these breeding populations remains largely unknown, as there is currently no updated information available regarding the status of their reproductive colonies due to a lack of regular censuses. However, data from the Marine Animal Monitoring Program of the Southeastern Coast (*Programa de Monitoramento de Praias da Bacia de Santos* – PMP-BS) for the year 2023 reveal a significant increase in the number of seabirds found weakened or dead along São Paulo's shoreline, particularly for *T. acuflavidus* and *T. maximus,* with 82 and 51 records, respectively (Table 2).

DISCUSSION

Challenges in the Accurate Identification of Seabird Species

Globally, seabirds are represented by approximately 346 species. The identification of certain taxa, particularly within some genera, may become challenging during at-sea observations or even when a specimen is available for examination. Several species can only be accurately identified through morphometric analyses, while others require genetic approaches to distinguish them. In some cases, species identity can be determined from high-quality photographs of live individuals, provided that diagnostic traits are clearly visible and the images are obtained under favorable lighting and focus conditions. However, the most reliable method for precise identification remains the preservation of voucher specimens, skins, skeletons, skulls, and tissue samples, within scientific collections.

Species within the family Stercorariidae, currently grouped under the genus *Stercorarius,* are notoriously difficult to identify outside the breeding season when nuptial plumage shown by northern hemisphere species is absent. These occur in São Paulo during their non-breeding season and exhibit extensive plumage polymorphism, with juveniles and adults presenting a range of intermediate stages or morphs. Additionally, hybridization among some species further complicates identification (Olsen & Larsson, 1997; Olmos, 2000c; Ritz *et al.,* 2006).

Similar difficulties are encountered within the Laridae family, especially among juvenile or non-breeding individuals of genera such as *Leucophaeus* and *Chroicocephalus* (Olsen & Larsson, 1995; Howell & Dunn, 2007). The genus *Chlidonias* also presents identification challenges between *C. niger* and *C. leucopterus* during non-breeding stages. For *A. stolidus* and *A. minutus,* juvenile individuals are particularly hard to distinguish (Barbieri *et al.,* 2010). Species within *Sterna,* especially migratory ones, often arrive in Brazil with juvenile or non-breeding plumage. The closely related *S. superciliaris* and *S. antillarum* are also difficult to differentiate; while the former is widespread along the Brazilian coast, the latter is a migratory species and slightly smaller, which may lead to misidentification. Other terns, such as *S. dougallii, S. hirundo, S. paradisaea,* and *S. hirundinacea,* are frequently confused, particularly when the migratory species arrives without breeding plumage or as juveniles displaying similar features (Dias *et al.,* 2012).

The identification of large albatrosses (*Diomedea* spp.) also poses significant challenges, particularly during pelagic observations (Tickell, 2000). Species such as *D. exulans, D. dabbenena,* and *D. epomophora* exhibit successive plumage stages until reaching maturity, and even adult individuals present unique features (Tick-

Figure 89. Distribution of H5N1 outbreaks in birds in Brazil (between May and July 2023). (MAPA, 2023).

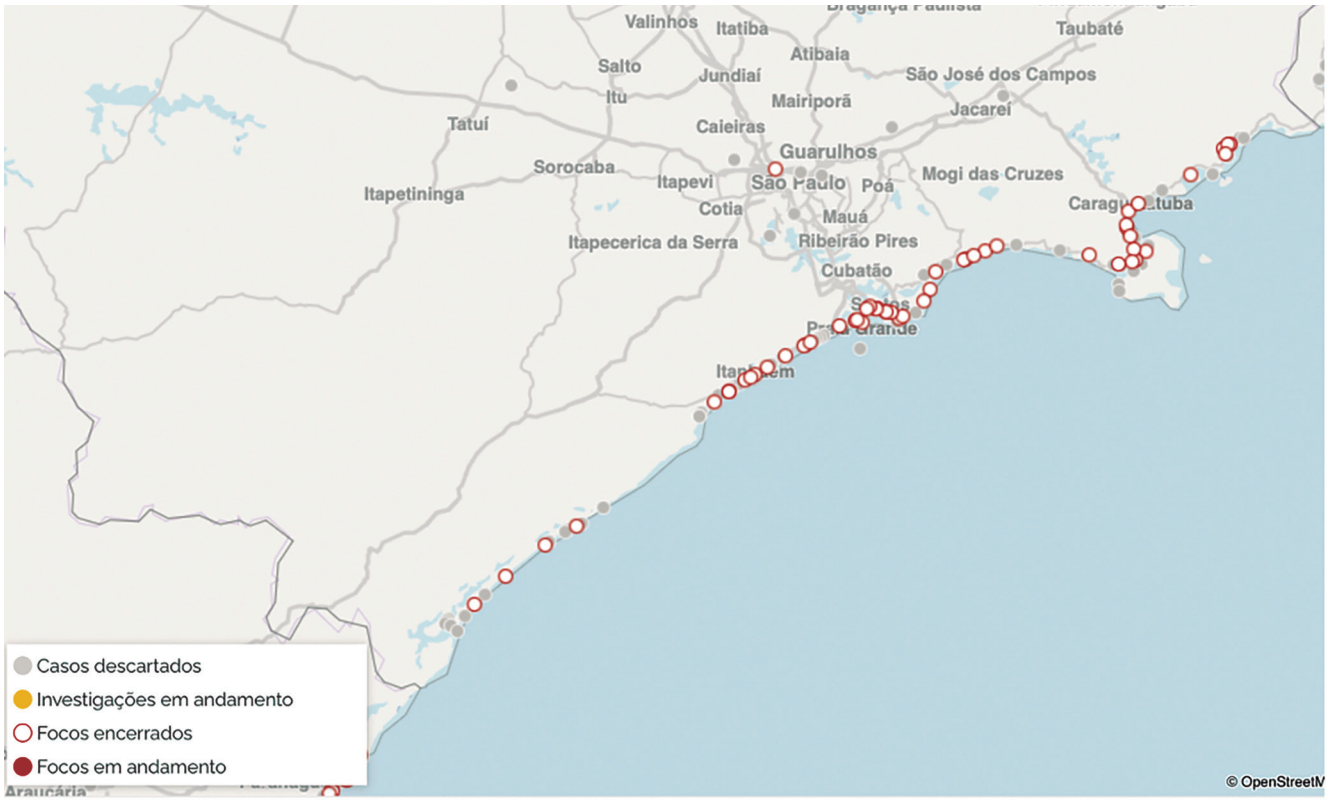

Figure 90. Distribution of H5N1 outbreaks in the state of São Paulo. (MAPA, 2023).

ell, 2000; Brooke, 2004). At sea, most identifications are limited to the genus level unless individuals approach vessels or are photographed in high resolution, while telling *D. exulans* and *D. dabbenena* requires attention to details in jizz, proportion of the bill, shape of the head and plumage. Even so, *D. dabbenena* and both taxa under *D. antipodensis,* recorded more than once in the Atlantic, can not safely be told apart in the field (Savigny, 2021) andaccurate identification requires morphometric or genetic analysis (Dénes *et al.,* 2007; Canani *et al.,* 2020).

The most complex group for identification at sea comprises Procellariidae of the genera *Pterodroma* collectively referred to as "Gadfly Petrels" and with subtle differences among the species nesting in the northern hemisphere (Shirihai, 2002). These pelagic species exhibit rapid flight, strong resemblance among taxa, and, in *P. mollis,* plumage polymorphism ranging from pale to entirely dark forms (Howell & Zufelt, 2019). Also, it must be noticed dark morphs of *P. arminjoniana* have been mistaken for *P. macroptera* or even *A. grisea* (Valls *et al.,* 2021).

Species of *Pachyptila* (Procellariidae) represent the main taxonomic and identification challenge, with unresolved classification issues (Bretagnolle *et al.,* 1990; Masello *et al.,* 2019; Masello *et al.,* 2022). This group, comprising up to eight species, is even more difficult to identify and even experienced observers struggle to distinguish them at sea. Juvenile individuals of wide-billed species exhibit narrower bills, closely resembling narrow-billed adults. Moreover, bill shrinkage and color changes postmortem contribute to discrepancies between measurements of live and preserved specimens (Harper, 1980). Currently, genetic analysis is the most accurate method for identifying *Pachyptila* species, as demonstrated by the identification of *P. vittata* from Ilha Comprida through DNA sequencing and comparison with GenBank data (Chupil *et al.,* 2024b). Recent sightings of presumed *P. macgillivrayi* in Argentine and Uruguayan waters (Muñoz *et al.,* 2023c), should be interpreted with caution due to taxonomic complexities and similarities among wide-billed species (Masello *et al.,* 2022).

Another member of Procellariidae, *A. grisea,* has a history of misidentification (Pinto, 1938, 1964; Escalante, 1980) and can be confused with *A. tenuirostris,* as when a specimen of the latter was found dead in Bahia on 28 May 2005. It was identified through morphometrics and plumage characteristics (Souto *et al.,* 2008). Although the record was outside São Paulo, it highlights the necessity of specimen preservation to ensure accurate identification and permit future reassessments. This case provided the first record of *A. tenuirostris* in the Atlantic Ocean, which could have been misclassified as *A. grisea* if not for the preserved specimen, now housed in the MZUSP collection.

CONCLUSIONS

Seabirds are important bioindicators, helping to assess the health of both local and regional environments. However, the persistence of threats such as pollution, habitat loss, and climate change underscores the need for immediate conservation measures.

Conservation efforts should focus on protecting critical habitats, such as breeding colonies and feeding areas, as well as reducing human impacts on marine ecosystems. Additionally, research should continue to investigate the effects of climate change on seabird migration patterns and population dynamics. Enhanced monitoring programs, improved management of marine protected areas, and increased public awareness are vital components of these efforts.

Priority Actions

To effectively safeguard seabird populations in São Paulo, the following actions are recommended:

Monitoring and Research: Increase efforts to monitor seabird populations, particularly migratory species, and conduct further research into their behavior, ecology, and conservation needs. This includes tracking migration routes and assessing habitat use throughout the year.

Habitat Protection: Strengthen the protection of critical coastal and marine habitats, including nesting sites, feeding grounds, and migration corridors. This can be achieved through the designation of additional marine protected areas and stricter enforcement of existing regulations.

Pollution Reduction: Address the issue of marine pollution, including plastic debris and chemical contaminants, which pose direct and indirect threats to seabirds. Efforts should focus on reducing pollution at the source and implementing effective waste management practices.

Public Engagement: Raise awareness about the importance of seabirds and marine conservation, particularly among local communities, fishers, and tourists. Public education campaigns and citizen science initiatives can foster greater involvement in seabird conservation efforts.

Collaboration and Partnerships: Strengthen collaborations between governmental agencies, conservation organizations, and research institutions to enhance conservation efforts. Regional cooperation is essential, as seabirds often migrate across national boundaries.

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APPENDIX 1

Seabird specimens from São Paulo, preserved on scientific collections.

Taxon	Colection / Nº	Date	Locality / Municipality	Sex	Material
CHARADRIIFORMES					
STERCORARIIDAE					
Stercorarius chilensis	IPC 1135	04/09/2022	Ilha Comprida	M	Skin
Stercorarius maccormicki	MZUSP 102643	19/05/1963	Boracéia / Bertioga	M	Skin
	IPC 064	01/04/2017	Ilha Comprida	M	Skin
	IPC 339	12/04/2019	Ilha Comprida	F	Skin
Stercorarius antarcticus	MZUSP 73519	11/08/1993	Praia do Embaré / Santos	F	Skin
	IPC 1137	06/09/2022	Ilha Comprida	M	Skin
Stercorarius parasiticus	MZUSP 38875	28/11/1956	Peruíbe	M	Skin
	MZUSP 89212	15/09/1994	Ilha Comprida	?	Incomplete skeleton
	MZUSP 114485	15/09/1994	Ilha Comprida	?	Incomplete skeleton
LARIDAE					
Chroicocephalus maculipennis	MZUSP 2384	04/06/1898	Iguape	M	Skin
	AMNH 745489	04/06/1901	São Sebastião	F	Skin
	MZUSP 6582	20/11/1906	?	F	Skin
Larus dominicanus	MZUSP 2385	04/06/1898	Iguape	?	Skin
	MZUSP 4014	05/1903	Santos	?	Skin
	MZUSP 31469	16/10/1945	Peruíbe	M	Skin
	MZUSP 31470	16/10/1945	Peruíbe	F	Skin
	MZUSP 31471	16/10/1945	Peruíbe	F	Skin
	MZUSP 31472	16/10/1945	Peruíbe	F	Skin
	MZUSP 31473	16/10/1945	Peruíbe	M	Skin
	MZUSP 31474	16/10/1945	Peruíbe	M	Skin
	MZUSP 31475	16/10/1945	Peruíbe	M	Skin
	MZUSP 31780	25/10/1946	Itanhaém	F	Skin
	MZUSP 35404	19/09/1952	between Praia Grande and Peruíbe	F	Skin
	MZUSP 35426	11/1952	Peruíbe	?	Skin
	MZUSP 35426	11/1952	Peruíbe	M	Skin
	MZUSP 35426	11/1952	Peruíbe	M	Skin
	MHNT 2426	19/07/1972	Praia do Poruba / Ubatuba	M	Skin
	MZUSP 73512	21/04/1991	Laje de Santos / Santos	?	Skin
	MZUSP 114245	02/10/1993	Santos	?	Complete skeleton
	MHNT 1476	08/1995	Santos	M	Complete skeleton
	ZUEC 2043	01/04/1996	Ilha Anchieta / Ubatuba	F	Skin
	MZUSP 74956	01/08/1998	Ilhote do Codó / Ilhabela	?	Skin
	MZUSP 81179	03/1999	Ubatuba	?	Skin
	MZUSP 80057	12/12/2000	Ponta do Monduba / Guarujá	?	Skin
	MZUSP 91840	07/08/2011	Praia Itaguá / Ubatuba	M	Skin
	MZUSP 114792	29/10/2015	Canto do Forte / Praia Grande	M	Skin
	IPC 067	07/04/2017	Ilha do Cardoso / Cananéia	M	Skin
	IPC 125	22/09/2017	Ilha Comprida	?	Sternum + Cranium
	IPC 126	21/11/2017	Ilha Comprida	?	Sternum + Cranium
	IPC 293	16/02/2018	Ilha Comprida	M	Sternum + Cranium
	IPC 142	20/03/2018	Ilha Comprida	M	Skin
	IPC 190	21/03/2018	Ilha Comprida	?	Sternum + Cranium
	IPC 264	25/12/2018	Ilha Comprida	?	Sternum + Cranium
	ZUEC 2027	?	Ilhabela	?	Skin
Anous stolidus	MZUSP 82884	31/03/2009	Ilha Comprida	?	Skin
	IPC 731	03/03/2021	Ilha Comprida	F	Skin
Rynchops niger	MZUSP 2196	27/05/1901	São Sebastião	M	Skin
	AMNH 747812	27/05/1901	São Sebastião	M	Skin
	AMNH 747810	03/06/1901	São Sebastião	M	Skin
	AMNH 747811	03/06/1901	São Sebastião	M	Skin
	AMNH 747813	09/12/1902	São Sebastião	M	Skin
	MZUSP 75486	07/2001	Largo do Caneu / Cubatão	F	Skin
	MHNT 4436	08/05/2002	Cubatão	F	Skin
	MHNT 4437	08/05/2002	Cubatão	M	Skin
	MHNT 4438	08/05/2002	Cubatão	M	Skin

Taxon	Colection / Nº	Date	Locality / Municipality	Sex	Material
	MZUSP 79459	07/2007	Iguape	?	Skin
	MZUSP 79460	07/2007	Iguape	?	Skin
	MZUSP 100570	28/01/2016	Canal de Piaçaguera / Santos	F	Skin
	MZUSP 100571	28/01/2016	Canal de Piaçaguera / Santos	F	Skin
	IPC 009	27/11/2016	Iguape	F	Skin, Sternum, Cranium
	IPC 868	14/05/2022	Ilha Comprida	F	Sternum + Cranium
Sternula superciliaris	AMNH 746862	20/11/1900	São Sebastião	F	Skin
	MZUSP 7928	29/06/1910	Casqueirinho / Cubatão	F	Skin
	MZUSP 7927	20/09/1910	Piaçaguera / Cubatão	M	Skin
	MZUSP 14965	03/10/1934	Tabatinguara / Cananéia	F	Skin
	MZUSP 75457	25/08/2000	Largo do Caneu / Santos	M	Skin
Phaetusa simplex	MZUSP 2383	05/07/1898	Iguape	F	Skin
	MZUSP 2239	16/12/1901	São Sebastião	F	Skin
	MZUSP 7926	29/08/1910	Casqueirinho / Cubatão	M	Skin
Gelochelidon nilotica	MZUSP 35357	11/04/1952	Peruíbe	F	Skin
Sterna hirundo	MZUSP 104579	11/10/1982	Santos	?	Skin
	MZUSP 73732	30/06/1992	Praia do Perequê / Guarujá	F	Skin
	MZUSP 75460	11/09/1997	Guarujá	?	Skin
	IPC 275	11/07/2016	Ilha Comprida	F	Skin
	IPC 034	19/11/2016	Ilha Comprida	F	Sternum + Cranium
	IPC 276	16/09/2018	Ilha Comprida	F	Skin
Sterna paradisaea	MZUSP 36657	04/08/1954	between Praia Grande and Peruíbe	M	Skin
	MZUSP 70510	03/07/1969	Iguape	M	Skin
Sterna hirundinacea	MZUSP 2382	02/10/1896	São Sebastião	F	Skin
	MZUSP 1936	20/08/1900	Iguape	M	Skin
	AMNH 746203	21/05/1901	São Sebastião	M	Skin
	MZUSP 6571	24/07/1906	Santos	M	Skin
	MZUSP 35389	22/07/1952	Peruíbe	F	Skin
	MZUSP 36662	29/07/1954	between Praia Grande and Peruíbe	F	Skin
	MZUSP 36658	04/08/1954	between Praia Grande and Peruíbe	M	Skin
	MZUSP 36659	04/08/1954	between Praia Grande and Peruíbe	M	Skin
	MZUSP 36660	04/08/1954	between Praia Grande and Peruíbe	F	Skin
	MZUSP 36661	04/08/1954	between Praia Grande and Peruíbe	F	Skin
	MZUSP 37148	31/08/1954	between Praia Grande and Peruíbe	F	Skin
	MZUSP 37149	31/08/1954	between Praia Grande and Peruíbe	F	Skin
	MZUSP 43608	18/09/1961	Santos	M	Skin
	MZUSP 68053	26/07/1966	Barra do Ribeira / Iguape	F	Skin
	ZUEC 1333	23/07/1984	São Sebastião	M	Skin
	ZUEC 1334	23/07/1984	São Sebastião	F	Skin
	MZUSP 102305	26/07/1984	Santos	F	Skin
	MZUSP 102306	26/07/1984	Santos	?	Skin
	MZUSP 102307	26/07/1984	Santos	?	Skin
	MZUSP 102308	26/07/1984	São Lourenço / Bertioga	F	Skin
	MZUSP 102309	26/07/1984	Santos	F	Skin
	MZUSP 102733	26/07/1984	Santos	F	Skin
	MHNT 2735	29/07/1984	Praia do Cruzeiro / Ubatuba	F	Skin
	MHNT 2736	29/07/1984	Praia do Cruzeiro / Ubatuba	F	Skin
	MHNT 2737	29/07/1984	Praia do Cruzeiro / Ubatuba	F	Skin
	ZUEC 1339	17/08/1984	Praia do Rio Verde / Iguape	?	Skin
	MZUSP 89206	28/06/1993	Santos	M	Incomplete skeleton
	MZUSP 73710	19/07/1994	Praia do Gonzaga / Santos	F	Skin
	MZUSP 89205	09/1996	Praia Grande / Ilhabela	?	Complete skeleton
	MZUSP 75459	10/09/1997	Praia do José Menino / Santos	F	Skin
	MZUSP 89204	02/08/1998	Ilhota da Praia Grande / Ilhabela	?	Complete skeleton
	MZUSP 80316	2000	Santos	?	Skin
	MZUSP 80441	15/07/2001	Ilha da Prainha / Ilhabela	M	Skin
	MZUSP 80065	08/2001	São Sebastião	F	Skin
	MZUSP 80440	08/2001	Santos	M	Skin
	MZUSP 93037	21/04/2010	Guarujá	?	Skin
	MZUSP 94495	11/07/2012	Laje de Santos / Santos	?	Skin
	IPC 427	04/08/2019	Ilha Comprida	?	Sternum + cranium
	IPC 751	12/07/2021	Iguape	F	Skin
	MZUSP 85635	?	Santos	?	Anatomical collection

Taxon	Colection / Nº	Date	Locality / Municipality	Sex	Material
	MZUSP 85636	?	Santos	?	Anatomical collection
Sterna trudeaui	MZUSP 2240	15/10/1901	São Sebastião	M	Skin
	AMNH 746431	21/10/1902	São Sebastião	F	Skin
	MZUSP 9152	11/1915	Ilhabela	?	Skin
Thalasseus acuflavidus	MZUSP 2146	18/06/1901	Iguape	M	Skin
	MZUSP 2147	18/06/1901	Iguape	F	Skin
	MZUSP 2195	09/08/1901	São Sebastião	F	Skin
	MZUSP 35388	29/09/1952	Itanhaém	M	Skin
	MZUSP 102317	1968	Praia da Juréia / Iguape	?	Skin
	SMF 11404	09/1993	Santos	?	Complete skeleton
	MZUSP 73704	20/02/1994	Praia do Itararé / São Vicente	F	Skin
	MHNT 4766	07/1996	Southern coast of São Paulo	F	Skin
	MZUSP 75458	25/08/2000	Largo do Caneu / Santos	?	Skin
	MHNT 4439	08/05/2002	Cubatão	M	Skin
	MZUSP 80310	14/09/2005	Santos	M	Skin
	IPC 202	23/04/2018	Ilha do Cardoso / Cananéia	M	Skin
	IPC 277	01/12/2018	Iguape	F	Skin
	IPC 656	22/09/2020	Ilha Comprida	F	Skin
	IPC 648	27/09/2020	Ilha Comprida	?	Sternum + cranium
	MZUSP 85637	?	?	?	Anatomical collection
Thalasseus maximus	AMNH 139919	21/08/1910	Casqueirinho, Piaçaguera / Cubatão	M	Skin
	MZUSP 7923	21/08/1910	Casqueirinho, Piaçaguera / Cubatão	M	Skin
	MZUSP 7924	21/08/1910	Casqueirinho, Piaçaguera / Cubatão	F	Skin
	MZUSP 7925	21/08/1910	Casqueirinho / Cubatão	M	Skin
	MZUSP 31476	16/10/1945	between Itanhaém and Peruíbe	M	Skin
	MZUSP 31477	18/10/1945	between Itanhaém and Peruíbe	M	Skin
	MZUSP 35391	08/07/1952	between Praia Grande and Peruíbe	F	Skin
	MZUSP 36663	04/08/1954	between Praia Grande and Peruíbe	M	Skin
	MZUSP 36664	04/08/1954	between Praia Grande and Peruíbe	M	Skin
	MZUSP 36665	04/08/1954	between Praia Grande and Peruíbe	F	Skin
	MZUSP 36666	04/08/1954	between Praia Grande and Peruíbe	F	Skin
	MZUSP 37150	31/08/1954	between Praia Grande and Peruíbe	M	Skin
	MZUSP 37151	31/08/1954	between Praia Grande and Peruíbe	M	Skin
	MZUSP 37152	31/08/1954	between Praia Grande and Peruíbe	M	Skin
	MZUSP 89211	31/08/1954	Peruíbe	F	Complete skeleton
	MZUSP 68054	26/08/1966	Barra de Icapara / Ilha Comprida	M	Skin
	MZUSP 73727	26/10/1993	Laje de Santos / Santos	F	Skin
	MZUSP 113521	17/08/1997	Mongaguá	?	Complete skeleton
	MZUSP 80058	25/08/2000	Largo do Caneu / Santos	M	Skin
	IPC 191	30/03/2018	Ilha Comprida	F	Sternum + cranium
	IPC 146	16/05/2018	Ilha do Cardoso / Cananéia	M	Skin
	IPC 807	30/03/2022	Cananéia	?	Skin
	MZUSP 85638	?	Santos	?	Anatomical collection
PHAETHONTIFORMES					
PHAETHONTIDAE					
Phaethon aethereus	MZUSP 114773	24/10/2013	Santos	M	Skin
SPHENISCIFORMES					
SPHENISCIDAE					
Spheniscus magellanicus	MZUSP 9637	1898	São Sebastião	?	Skin
	MZUSP 4509	11/1903	Santos	?	Skin
	MZUSP 7835	1909	Santos	?	Skin
	MZUSP 113945	08/1919	Santos	?	Cranium
	MZUSP 15903	30/07/1935	Praia Grande	F	Skin
	MZUSP 35393	27/07/1952	between Praia Grande and Itanhaém	?	Skin
	MZUSP 36646	29/07/1954	between Praia Grande and Peruíbe	?	Skin
	MZUSP 88418	31/08/1954	between Praia Grande and Peruíbe	?	Incomplete skeleton
	MZUSP 88425	31/08/1954	between Praia Grande and Peruíbe	?	Complete skeleton
	MZUSP 37770	26/10/1954	between Praia Grande and Itanhaém	?	Skin
	MZUSP 43550	14/07/1961	Praia de São Lourenço / Bertioga	?	Skin
	MZUSP 88420	30/08/1961	Praia da Enseada / Bertioga	F	Complete skeleton
	MZUSP 58012	07/1965	Barra do Rio Itaguaré / Bertioga	?	Skin
	MZUSP 100439	29/07/1971	Guarujá	F	Skin
	MZUSP 102175	07/08/1971	Praia Grande	?	Skin

Taxon	Colection / Nº	Date	Locality / Municipality	Sex	Material
	MHNT 2823	28/08/1988	Praia Grande / Ubatuba	F	Skin
	MHNT 521	10/1988	Ubatuba	?	Complete skeleton
	MHNT 10163	1990	Ilha do Cardoso / Cananéia	?	Complete skeleton
	MZUSP 113841	19/02/1990	Ilha Montão de Trigo / São Sebastião	M	Incomplete skeleton
	MHNT 10155	1991	São Sebastião	M	Complete skeleton
	MZUSP 88423	19/08/1991	Ipanema, Ilha do Cardoso / Cananéia	?	Cranium
	MZUSP 88424	19/08/1991	Itacurussá, Ilha do Cardoso / Cananéia	?	Cranium
	MZUSP 88413	05/09/1993	Ilha do Cardoso / Cananéia	M	Complete skeleton
	MZUSP 88422	25/08/1994	Ilha Comprida	?	Cranium
	MZUSP 73740	25/08/1994	Ilha Comprida	?	Skin
	MZUSP 88414	15/09/1994	Ilha Comprida	?	Complete skeleton
	MZUSP 88415	16/09/1994	Ilha Comprida	?	Complete skeleton
	MZUSP 88416	16/09/1994	Ilha Comprida	?	Cranium
	MHNT 4465	08/1997	Southern coast of São Paulo	F	Skin
	ZUEC 2034	25/08/1998	Perto da Ponte da Vila / Ilhabela	M	Skin
	MZUSP 99250	20/07/2000	Praia Grande	?	Complete skeleton
	MZUSP 88428	23/07/2000	Guarujá	?	Complete skeleton
	MZUSP 113664	08/2002	Canal de São Sebastião / São Sebastião	F	Complete skeleton
	MZUSP 113665	08/2002	Canal de São Sebastião / São Sebastião	?	Complete skeleton
	MZUSP 113666	08/2002	Canal de São Sebastião / São Sebastião	?	Complete skeleton
	MZUSP 113753	30/08/2002	Ilhabela	F	Complete skeleton
	MZUSP 90441	09/08/2004	Coast	?	Complete skeleton
	MZUSP 94494	05/2010	Itanhaém	?	Skin
	IPC 075	25/06/2017	Ilha Comprida	F	Sternum + cranium
	IPC 043	13/07/2017	Ilha Comprida	F	Skin
	IPC 071	15/07/2017	Ilha Comprida	?	Sternum + cranium
	IPC 087	09/07/2017	Ilha Comprida	M	Sternum + cranium
	IPC 086	07/08/2017	Ilha Comprida	?	Sternum + cranium
	IPC 197	27/07/2018	Ilha do Cardoso / Cananéia	F	Skin + Sternum
	IPC 167	31/07/2018	Ilha Comprida	M	Sternum + cranium
	IPC 174	31/07/2018	Ilha Comprida	M	Sternum + cranium
	IPC 301	31/07/2018	Ilha Comprida	M	Skin
	IPC 306	31/07/2018	Ilha Comprida	F	Skin
	IPC 278	03/08/2018	Ilha Comprida	M	Skin
	IPC 196	04/08/2018	Ilha Comprida	?	Skin
	IPC 393	02/07/2019	Ilha Comprida	F	Skin
	IPC 402	16/07/2019	Ilha Comprida	F	Sternum + cranium
	IPC 445	17/08/2019	Ilha Comprida	?	Sternum + cranium
	IPC 428	26/08/2019	Ilha Comprida	?	Sternum + cranium
	IPC 430	26/08/2019	Ilha Comprida	?	Sternum + cranium
	IPC 890	30/08/2020	Ilha Comprida	?	Sternum + cranium
	IPC 1462	23/07/2023	Ilha Comprida	?	Skin
	MZUSP 88426	?	Guarujá	?	Complete skeleton
	MZUSP 88427	?	Santos	M	Complete skeleton
	MZUSP 113578	?	?	?	Cranium
PROCELLARIIFORMES					
DIOMEDEIDAE					
Diomedea epomophora	MZUSP 16098	1933	Ilha de Alcatrazes / São Sebastião	?	Skin
Diomedea exulans	MZUSP 114801	04/09/2015	Ubatuba	?	Skin
	MZUSP 114802	25/10/2018	São Vicente	?	Skin
Diomedea dabbenena	MZUSP 113797	20/08/1984	Santos	?	Cranium
Phoebetria fusca	MZUSP 37153	28/08/1954	Enseada / Bertioga	M	Skin
Phoebetria palpebrata	IPC 057	04/10/2016	Ilha Comprida	M	Skin + Sternum
Thalassarche chlororhynchos	MZUSP 113702	12/1915	Caraguatatuba	?	Cranium
	MZUSP 70633	01/09/1991	Praia Ipanema, Ilha do Cardoso / Cananéia	M	Skin
	MZUSP 113871	03/11/1991	Ilha Comprida	?	Complete skeleton
	MZUSP 99297	04/10/1993	Praia do Engenho d'Água / Ilhabela	M	Cranium
	MZUSP 87918	27/09/1994	Ilha Comprida	?	Cranium
	MZUSP 99272	27/09/1994	Ilha Comprida	?	Cranium
	MZUSP 87917	15/10/1995	Ilha Comprida	?	Cranium
	RAF 1409	29/12/1995	Ilha Comprida	M	Skin
	MZUSP 87916	12/08/1998	Ilha Comprida	?	Cranium
	MZUSP 85553	29/07/2000	Coast	?	Anatomical collection

Taxon	Colection / Nº	Date	Locality / Municipality	Sex	Material
	MZUSP 85554	29/07/2000	Coast	?	Anatomical collection
	MZUSP 85555	29/07/2000	Coast	?	Anatomical collection
	MZUSP 85556	29/07/2000	Coast	?	Anatomical collection
	MZUSP 85557	29/07/2000	Coast	?	Anatomical collection
	MZUSP 85558	29/07/2000	Coast	?	Anatomical collection
	MZUSP 85559	29/07/2000	Coast	?	Anatomical collection
	MZUSP 85560	29/07/2000	Coast	?	Anatomical collection
	MZUSP 75752	13/08/2000	Praia do Itararé / São Vicente	?	Skin
	MZUSP 75492	24/08/2000	Coast	?	Skin
	MZUSP 85548	24/08/2000	Coast	?	Anatomical collection
	MZUSP 85549	24/08/2000	Coast	?	Anatomical collection
	MZUSP 85550	24/08/2000	Coast	?	Anatomical collection
	MZUSP 85551	24/08/2000	Coast	?	Anatomical collection
	MZUSP 85552	24/08/2000	Coast	?	Anatomical collection
	MHNT 1786	27/08/2000	Caraguatatuba	?	Complete skeleton
	MZUSP 114795	17/11/2012	Coast	F	Skin
	MZUSP 114797	03/06/2015	Coast	?	Skin
	MZUSP 114798	03/06/2015	Coast	?	Skin
	MZUSP 114796	17/06/2016	Coast	?	Skin
	IPC 056	22/09/2016	Ilha Comprida	?	Sternum + cranium
	IPC 055	28/09/2016	Ilha Comprida	?	Sternum + cranium
	IPC 122	22/09/2017	Ilha Comprida	F	Sternum + cranium
	IPC 107	25/09/2017	Ilha Comprida	?	Sternum + cranium
	IPC 106	26/09/2017	Ilha Comprida	?	Sternum + cranium
	IPC 124	26/09/2017	Ilha Comprida	?	Sternum + cranium
	IPC 112	29/09/2017	Ilha Comprida	?	Sternum + cranium
	IPC 123	15/10/2017	Ilha Comprida	?	Sternum + cranium
	IPC 119	23/11/2017	Ilha Comprida	?	Sternum + cranium
	IPC 131	02/12/2017	Ilha Comprida	?	Sternum + cranium
	IPC 166	09/05/2018	Ilha Comprida	?	Sternum + cranium
	IPC 261	10/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 263	10/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 189	11/07/2018	Ilha Comprida	M	Sternum + cranium
	IPC 217	13/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 216	19/07/2018	Ilha Comprida	F	Sternum + cranium
	IPC 262	19/07/2018	Ilha Comprida	M	Sternum + cranium
	IPC 215	23/07/2018	Ilha Comprida	M	Sternum + cranium
	IPC 296	27/07/2018	Ilha Comprida	M	Skin
	IPC 362	18/05/2019	Ilha Comprida	F	Skin
	IPC 855	31/08/2022	Ilha Comprida	?	Sternum + cranium
	IPC 880	31/08/2022	Ilha Comprida	?	Sternum + cranium
	IPC 1161	29/08/2023	Iguape	M	Skin
	MZUSP 99345	?	?	?	Complete skeleton
	MZUSP 113595	?	?	?	Complete skeleton
Thalassarche melanophris	MZUSP 114321	18/07/1920	Santos	?	Cranium
	MZUSP 16177	05/09/1930	Santos	M	Skin
	MZUSP 34901	09/09/1951	Peruíbe	F	Skin
	MZUSP 87912	09/07/1952	Praia Grande		Complete skeleton
	MZUSP 36645	29/07/1954	Praia Grande	M	Skin
	MZUSP 37154	31/08/1954	between Praia Grande and Peruíbe	M	Skin
	MZUSP 56309	01/06/1964	Peruíbe	F	Skin
	MZUSP 90445	06/1964	Peruíbe	F	Incomplete skeleton
	MZUSP 113866	03/09/1991	Ilha Comprida	?	Complete skeleton
	MZUSP 99268	04/09/1991	Itanhaém	M	Cranium
	MZUSP 99271	04/09/1991	Praia do Marujá, Ilha do Cardoso / Cananéia	?	Cranium
	MZUSP 87813	06/01/1992	Mongaguá	?	Cranium
	RAF 1408	22/06/1992	Ilha do Cardoso / Cananéia	M	Skin
	MZUSP 87914	05/09/1993	Ilha do Cardoso / Cananéia	?	Complete skeleton
	MZUSP 99287	04/10/1993	Praia do Julião / Ilhabela	?	Cranium
	MZUSP 99289	25/08/1994	Ilha Comprida	?	Cranium
	MHNT 4464	09/1996	At sea, near Santos	M	Skin
	MZUSP 85541	29/08/2000	?	?	Anatomical collection
	MZUSP 85542	29/08/2000	?	?	Anatomical collection

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	MZUSP 85543	29/08/2000	?	?	Anatomical collection
	MZUSP 85544	29/08/2000	?	?	Anatomical collection
	MZUSP 85545	29/08/2000	?	?	Anatomical collection
	MZUSP 85546	29/08/2000	?	?	Anatomical collection
	MZUSP 85547	29/08/2000	?	?	Anatomical collection
	MZUSP 85561	08/09/2000	?	?	Anatomical collection
	MZUSP 85562	08/09/2000	?	?	Anatomical collection
	MZUSP 85563	08/09/2000	?	?	Anatomical collection
	MZUSP 85564	08/09/2000	?	?	Anatomical collection
	MZUSP 85565	08/09/2000	?	?	Anatomical collection
	MZUSP 85566	08/09/2000	?	?	Anatomical collection
	MZUSP 85567	08/09/2000	?	?	Anatomical collection
	MZUSP 85568	08/09/2000	?	?	Anatomical collection
	MZUSP 85569	08/09/2000	?	?	Anatomical collection
	MZUSP 85570	08/09/2000	?	?	Anatomical collection
	MZUSP 79466	29/08/2007	Santos	F	Skin
	IPC 48	07/08/2016	Ilha Comprida	?	Sternum + cranium
	IPC 347	18/05/2017	Ilha do Cardoso / Cananéia	F	Skin
	IPC 73	26/06/2017	Ilha Comprida	?	Sternum + cranium
	IPC 83	21/08/2017	Ilha Comprida	F	Sternum + cranium
	IPC 171	07/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 168	10/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 149	11/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 169	18/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 170	18/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 180	27/07/2018	Ilha Comprida	F	Sternum + cranium
	IPC 177	01/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 290	19/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 172	22/08/2018	Ilha Comprida	M	Sternum + cranium
	IPC 181	27/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 316	09/09/2018	Ilha Comprida	?	Sternum + cranium
	MZUSP 114799	2018	Coast	?	Skin
	MZUSP 114800	2018	Coast	?	Skin
	IPC 347	18/05/2019	Ilha do Cardoso / Cananéia	F	Skin
	IPC 781	27/09/2021	Ilha Comprida	?	Cranium
	IPC 1123	07/04/2023	Ilha Comprida	?	Skin
	IPC 1201	05/11/2023	Ilha Comprida	M	Skin
Thalassarche chrysostoma	MZUSP 73513	23/06/1993	Praia Grande	?	Skin
OCEANITIDAE					
Oceanites oceanicus	MZUSP 5568	27/05/1905	Santos	?	Skin
	MZUSP 8104	15/07/1910	Praia Grande	?	Skin
	MZUSP 64214	03/06/1984	Praia de Barequeçaba / São Sebastião	?	Skin
	MZUSP 79885	14/04/2005	Ilha Comprida	F	Skin
	MZUSP 114769	18/06/2018	Ubatuba	?	Skin
	IPC 360	18/05/2019	Ilha Comprida	M	Skin
	IPC 408	26/08/2019	Iguape	M	Cranium
	IPC 703	28/04/2021	Cananéia	?	Skin
	IPC 865	06/09/2022	Ilha Comprida	F	Sternum + cranium
	MZUSP 85631	?	Santos	?	Anatomical collection
PROCELLARIIDAE					
Macronectes giganteus	MZUSP 75787	06/1995	Guarujá	M	Skin
	IPC 49	26/07/2016	Ilha Comprida	F	Cranium
	IPC 68	25/06/2017	Ilha Comprida	?	Sternum + cranium
	IPC 85	03/07/2017	Ilha Comprida	?	Sternum + cranium
	IPC 313	30/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 591	22/08/2019	Ilha Comprida	?	Sternum + cranium
	IPC 450	28/08/2019	Ilha Comprida	?	Sternum + cranium
	IPC 629	12/09/2019	Ilha Comprida	?	Sternum + cranium
	IPC 645	02/09/2020	Ilha Comprida	F	Skin
	IPC 634	24/09/2020	Ilha Comprida	?	Sternum + cranium
	IPC 783	14/08/2021	Ilha Comprida	?	Sternum + cranium
	IPC 786	02/10/2021	Iguape	M	Skin
	IPC 835	28/07/2022	Ilha Comprida	?	Sternum + cranium

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	IPC 849	07/08/ 2022	Ilha Comprida	F	Sternum + cranium
	IPC 859	01/09/2022	Iguape	?	Sternum + cranium
Macronectes halli	MZUSP 73726	27/09/1994	Ilha Comprida	?	Skin
	MZUSP 75483	15/10/1999	Praia do Leste, Iguape	?	Skin
	IPC 294	08/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 633	24/09/2020	Ilha Comprida	?	Sternum + cranium
Fulmarus glacialoides	MZUSP 74772	11/08/1997	Mongaguá	?	Skin
	MZUSP 75456	07/02/2000	Praia Grande	?	Skin
	MZUSP 75756	17/09/2000	Pedrinhas / Ilha Comprida	?	Skin
	MZUSP 113765	05/11/2003	Praia de Boracéia / Bertioga	?	Complete skeleton
	IPC 1197	16/10/2023	Ilha Comprida	F	Cranium
	MZUSP 76326	?	Cananéia	F	Skin
Daption capense	NHMW 13614	11/08/1821	São Sebastião	F	Mounted Skin
	NHMW 38643	11/08/1821	São Sebastião	F	Skin
	MZUSP 5321	1905	Iguape	?	Skin
	MZUSP 37145	31/08/1954	between Praia Grande and Peruíbe	M	Skin
	MHNT E-211	07/09/1984	Praia de Itamambuca / Ubatuba	?	Complete skeleton
	MZUSP 73725	16/08/1994	Ilha Comprida	?	Skin
	MZUSP 87958	15/09/1994	Ilha Comprida	?	Incomplete skeleton
	MZUSP 87999	15/09/1994	Ilha Comprida	?	Incomplete skeleton
	MHNT 4764	07/1996	Southern coast of São Paulo	M	Skin
	MZUSP 82885	07/2007	Iguape	?	Skin
	IPC 159	03/08/2018	Ilha Comprida	?	Skin
	IPC 308	06/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 410	28/08/2019	Ilha Comprida	M	Cranium
	IPC 1148	14/08/2023	Ilha Comprida	M	Skin
	MZUSP 80793	?	Iguape	F	Skin
	MZUSP 87959	?	Ilha Comprida	?	Incomplete skeleton
	MZUSP 103853	?	Coast	?	Skin
Pterodroma externa	MZUSP 116128	18/02/2024	São José dos Campos	F	Skin
Pterodroma mollis	MZUSP 78724	05/2007	Santos	F	Skin
	IPC 109	28/07/2017	Ilha Comprida	?	Sternum + cranium
	IPC 635	11/09/2020	Ilha Comprida	?	Sternum + cranium
Pterodroma incerta	MZUSP 70635	03/09/1991	Ilha do Cardoso / Cananéia	?	Skin (head + wing)
	MZUSP 74153	03/01/1996	Ilha Comprida	M	Skin
	MZUSP 75461	06/11/1996	Bertioga	?	Skin
	IPC 27	04/01/2016	Cananéia	F	Skin
	IPC 286	08/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 415	17/05/2019	Ilha Comprida	?	Sternum + cranium
	IPC 798	09/01/2022	Ilha Comprida	M	Sternum + cranium
	IPC 916	12/11/2022	Ilha Comprida	M	Sternum + cranium
	IPC 1461	23/01/2024	Ilha Comprida	?	Skin
Pachyptila turtur	RAF 1451	25/07/1996	Ilha Comprida	?	Skin
Pachyptila vittata	IPC 929	10/12/2022	Ilha Comprida	M	Skin
Pachyptila desolata	MZUSP 4730	04/08/1904	Santos	M	Skin
	MZUSP 8105	15/07/1910	Santos	M	Skin
	MZUSP 70636	20/07/1991	Praia Ipanema, Ilha do Cardoso / Cananéia	F	Skin
	MZUSP 74312	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74313	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74314	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74315	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74316	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74317	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74318	24/07/1996	Ilha Comprida	?	Skin
	RAF 1462	25/07/1996	Ilha Comprida	F	Skin
	RAF 1463	25/07/1996	Ilha Comprida	M	Skin
	RAF 1464	25/07/1996	Ilha Comprida	F	Skin
	RAF 1465	25/07/1996	Ilha Comprida	F	Skin
	RAF 1466	25/07/1996	Ilha Comprida	M	Skin
	RAF 1467	25/07/1996	Ilha Comprida	M	Skin
	RAF 1468	25/07/1996	Ilha Comprida	M	Skin
	RAF 1469	25/07/1996	Ilha Comprida	?	Skin
	RAF 1470	25/07/1996	Ilha Comprida	M	Skin

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	RAF 1471	25/07/1996	Ilha Comprida	F	Skin
	RAF 1472	25/07/1996	Ilha Comprida	F	Skin
	RAF 1473	25/07/1996	Ilha Comprida	F	Skin
	RAF 1955	25/07/1996	Ilha Comprida	F	Complete skeleton
	RAF 1956	25/07/1996	Ilha Comprida	M	Complete skeleton
	MHNT 3541	26/07/1996	Ilha Comprida	F	Skin
	MHNT 1459	03/08/1996	Praia de Itamambuca / Ubatuba	M	Complete skeleton
	MHNT 1461	03/08/1996	Praia de Itamambuca / Ubatuba	M	Complete skeleton
	MZUSP 114788	20/06/2015	Canto do Forte / Praia Grande	?	Skin
	MZUSP 114789	30/06/2015	Canto do Forte / Praia Grande	?	Skin
	MZUSP 114790	01/05/2016	Canto do Forte / Praia Grande	?	Skin
	IPC 1	13/05/2016	Ilha Comprida	M	Skin
	MZUSP 114791	07/06/2016	Canto do Forte / Praia Grande	?	Skin
	IPC 745	16/05/2021	Ilha Comprida	?	Sternum + cranium
Pachyptila belcheri	MZUSP 4271	30/06/1903	Iguape	F	Skin
	MZUSP 5322	1905	Iguape	?	Skin
	MZUSP 11119	07/08/1925	Ilha de Santo Amaro / Guarujá	F	Skin
	MZUSP 11120	1925?	Ilha de Santo Amaro / Guarujá	F	Skin
	MZUSP 11121	12/1925	Ilha de Santo Amaro / Guarujá	?	Skin
	MZUSP 11122	12/1925	Ilha de Santo Amaro / Guarujá	?	Skin
	MZUSP 36629	15/07/1954	Praia Grande	M	Skin
	MZUSP 36630	15/07/1954	Praia Grande	M	Skin
	MZUSP 36631	15/07/1954	Praia Grande	M	Skin
	MZUSP 36632	15/07/1954	Praia Grande	M	Skin
	MZUSP 36633	15/07/1954	Praia do Itararé / São Vicente	M	Skin
	MZUSP 36634	15/07/1954	Praia Grande	M	Skin
	MZUSP 36635	15/07/1954	Praia Grande	M	Skin
	MZUSP 36636	15/07/1954	Praia Grande	M	Skin
	MZUSP 36637	15/07/1954	Praia Grande	M	Skin
	MZUSP 36638	15/07/1954	Praia Grande	M	Skin
	MZUSP 36639	15/07/1954	Praia Grande	M	Skin
	MZUSP 36640	15/07/1954	Praia Grande	M	Skin
	LACM 28424	16/05/1956	Praia Grande	?	Skin
	LACM 28425	16/05/1956	Praia Grande	?	Skin
	FMNH 344286	26/07/1969	Iguape	?	Skin
	MZUSP 101841	07/07/1973	Santos	F	Skin
	MZUSP 101824	19/07/1976	Guaratuba / Bertioga	F	Skin
	MZUSP 101825	19/07/1976	Guaratuba / Bertioga	F	Skin
	MZUSP 101828	19/07/1976	Guaratuba / Bertioga	F	Skin
	MZUSP 101830	19/07/1976	Guaratuba / Bertioga	F	Skin
	MZUSP 101831	19/07/1976	Guaratuba / Bertioga	F	Skin
	MZUSP 101832	19/07/1976	Guaratuba / Bertioga	F	Skin
	MZUSP 101833	19/07/1976	Guaratuba / Bertioga	M	Skin
	MZUSP 101834	19/07/1976	Guaratuba / Bertioga	M	Skin
	MZUSP 101835	19/07/1976	Guaratuba / Bertioga	?	Skin
	MZUSP 101836	19/07/1976	Guaratuba / Bertioga	F	Skin
	MZUSP 101837	19/07/1976	Guaratuba / Bertioga	M	Skin
	MZUSP 101824	19/07/1976	Praia Grande	F	Skin
	MZUSP 101840	22/07/ 1976	Praia Grande	M	Skin
	MZUSP 101903	22/07/1976	Praia Grande	F	Skin
	ZUEC 570	29/06/1978	Ilha Comprida	?	Skin
	MZUSP 87963	02/07/1982	Praia de Barequeçaba / São Sebastião	?	Complete skeleton
	MZUSP 87964	02/07/1982	Praia de Barequeçaba / São Sebastião	?	Complete skeleton
	MZUSP 87965	02/07/1982	Praia de Barequeçaba / São Sebastião	?	Complete skeleton
	MZUSP 101843	11/10/1982	Santos	?	Skin
	MZUSP 64225	07/1984	Balneário Paquetá / Praia Grande	?	Skin
	ZUEC 1348	01/07/1984	Maresias / São Sebastião	?	Skin
	MZUSP 64213	15/07/1984	Praia de Barequeçaba / São Sebastião	?	Skin
	MZUSP 87930	16/07/1984	Praia de Barequeçaba / São Sebastião	?	Complete skeleton
	MZUSP 87931	16/07/1984	Praia de Barequeçaba / São Sebastião	?	Complete skeleton
	MZUSP 87932	16/07/1984	Praia de Barequeçaba / São Sebastião	?	Complete skeleton
	MHNT 2733	24/07/1984	Praia Grande / Ubatuba	?	Skin
	MZUSP 101827	26/07/1984	São Lourenço / Bertioga	F	Skin

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	MZUSP 101838	26/07/1984	São Lourenço / Bertioga	F	Skin
	MZUSP 101902	26/07/1984	São Lourenço / Bertioga	M	Skin
	LACM 101693	29/07/1984	Praia de Itamambuca / Ubatuba		Complete skeleton
	ZUEC 1340	17/08/1984	Praia do Rio Verde / Iguape	?	Skin
	ZUEC 1332	23/08/1984	São Sebastião	?	Skin
	LACM 101694	07/09/1984	Praia de Itamambuca / Ubatuba		Complete skeleton
	MHNT 18	07/09/1984	Praia de Itamambuca / Ubatuba	?	Complete skeleton
	MHNT 233	07/09/1984	Praia de Itamambuca / Ubatuba	?	Complete skeleton
	USNM 560066	07/09/1984	Praia de Itamambuca / Ubatuba	?	Complete skeleton
	USNM 560077	07/09/1984	Praia de Itamambuca / Ubatuba	?	Complete skeleton
	ZUEC 1825	23/08/1992	Picinguaba / Ubatuba	?	Skin
	MZUSP 80049	18/07/1993	Praia do Gonzaga / Santos	?	Skin
	MZUSP 113780	23/07/1993	Ilha Comprida	?	Cranium
	MZUSP 73711	14/07/1994	Praia do José Menino / Santos	M	Skin
	MHNT 9589	24/07/1996	São Sebastião	M	Skin
	MZUSP 74307	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74308	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74309	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74310	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74311	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74341	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74342	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74343	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74344	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 74345	24/07/1996	Ilha Comprida	?	Skin
	MZUSP 87933	24/07/1996	Ilha Comprida	?	Cranium
	MPEG 54129	25/07/1996	Ilha Comprida	?	Skin
	MPEG 54130	25/07/1996	Ilha Comprida	?	Skin
	MPEG 54131	25/07/1996	Ilha Comprida	?	Skin
	MPEG 54132	25/07/1996	Ilha Comprida	?	Skin
	MPEG 54133	25/07/1996	Ilha Comprida	?	Skin
	MPEG 54134	25/07/1996	Ilha Comprida	?	Skin
	MPEG 54135	25/07/1996	Ilha Comprida	?	Skin
	MPEG 54136	25/07/1996	Ilha Comprida	?	Skin
	RAF 1452	25/07/1996	Ilha Comprida	M	Skin
	RAF 1453	25/07/1996	Ilha Comprida	M	Skin
	RAF 1454	25/07/1996	Ilha Comprida	F	Skin
	RAF 1455	25/07/1996	Ilha Comprida	M	Skin
	RAF 1456	25/07/1996	Ilha Comprida	M	Skin
	RAF 1457	25/07/1996	Ilha Comprida	F	Skin
	RAF 1458	25/07/1996	Ilha Comprida	F	Skin
	RAF 1459	25/07/1996	Ilha Comprida	M	Skin
	RAF 1460	25/07/1996	Ilha Comprida	F	Skin
	RAF 1461	25/07/1996	Ilha Comprida	F	Skin
	RAF 1951	25/07/1996	Ilha Comprida	M	Complete skeleton
	RAF 1952	25/07/1996	Ilha Comprida	M	Complete skeleton
	RAF 1853	25/07/1996	Ilha Comprida	F	Complete skeleton
	RAF 1954	25/07/1996	Ilha Comprida	F	Complete skeleton
	MHNT 354	25/07/1996	Ilha Comprida	M	Skin
	MHNT 5712	25/07/1996	Ilha Comprida	M	Skin
	MHNT 3516	03/08/1996	Praia de Itamambuca / Ubatuba	M	Skin
	IPC 1177	28/08/2023	Ilha Comprida	?	Sternum + cranium
	MZUSP 76316	?	Cananéia	F	Skin
	MZUSP 76317	?	Cananéia	?	Skin
	MZUSP 76318	?	Cananéia	M	Skin
	MZUSP 76319	?	Cananéia	F	Skin
	MZUSP 76320	?	Cananéia	?	Skin
Procellaria cinerea	IPC 1286	14/12/2023	Iguape	F	Skin + cranium
Procellaria aequinoctialis	MZUSP 2387	?	Iguape	M	Skin
	MZUSP 9779	06/1915	Iguape	?	Skin
	MZUSP 35390	08/07/1952	São Vicente – Praia Grande	M	Skin
	MZUSP 36647	29/07/1954	between Praia Grande and Peruíbe	F	Skin
	MZUSP 36648	29/07/1954	between Praia Grande and Peruíbe	F	Skin

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	MZUSP 36651	29/07/1954	Peruíbe – Santos	F	Skin
	MZUSP 102021	10/06/1977	Bertioga	M	Skin
	MZUSP 102017	20/08/1984	Santos	F	Skin
	MZUSP 73717	09/08/1994	Peruíbe	F	Skin
	MZUSP 87934	25/08/1994	Ilha Comprida	?	Cranium
	MZUSP 87935	25/08/1994	Ilha Comprida	?	Cranium
	MZUSP 87935	25/08/1994	Ilha Comprida	?	Cranium
	MZUSP 87937	25/08/1994	Ilha Comprida	?	Complete skeleton
	MZUSP 87938	25/08/1994	Ilha Comprida	?	Cranium
	MZUSP 87968	15/09/1994	Ilha Comprida	?	Incomplete skeleton
	MZUSP 87971	15/09/1994	Ilha Comprida	?	Incomplete skeleton
	MZUSP 87979	16/09/1994	Ilha Comprida	?	Complete skeleton
	MZUSP 87939	04/10/1994	Ilha Comprida	?	Cranium
	RAF 1620	09/10/1995	Mongaguá	F	Complete skeleton
	MHNT 4763	07/1996	Southern coast of São Paulo	F	Skin
	MZUSP 74948	12/08/1998	Ilha Comprida	?	Skin
	MZUSP 75484	04/06/2000	?	M	Skin
	MZUSP 85571	29/07/2000	?	?	Anatomical collection
	MZUSP 85572	29/07/2000	?	?	Anatomical collection
	MZUSP 85573	29/07/2000	?	?	Anatomical collection
	MZUSP 85574	29/07/2000	?	?	Anatomical collection
	MZUSP 85575	29/07/2000	?	?	Anatomical collection
	MZUSP 85576	29/07/2000	?	?	Anatomical collection
	MZUSP 85577	29/07/2000	?	?	Anatomical collection
	MZUSP 85578	29/07/2000	?	?	Anatomical collection
	MZUSP 85579	29/07/2000	?	?	Anatomical collection
	MZUSP 85580	29/07/2000	?	?	Anatomical collection
	MZUSP 85581	29/07/2000	?	?	Anatomical collection
	MZUSP 85582	29/07/2000	?	?	Anatomical collection
	MZUSP 85583	29/07/2000	?	?	Anatomical collection
	MZUSP 85584	29/07/2000	?	?	Anatomical collection
	MZUSP 85585	29/07/2000	?	?	Anatomical collection
	MZUSP 85586	29/07/2000	?	?	Anatomical collection
	MZUSP 85587	29/07/2000	?	?	Anatomical collection
	MZUSP 85588	29/07/2000	?	?	Anatomical collection
	MZUSP 85589	29/07/2000	?	?	Anatomical collection
	MZUSP 85590	29/07/2000	?	?	Anatomical collection
	MZUSP 85591	29/07/2000	?	?	Anatomical collection
	MZUSP 85592	29/07/2000	?	?	Anatomical collection
	MZUSP 85593	29/07/2000	?	?	Anatomical collection
	MZUSP 85596	31/07/2000	?	?	Anatomical collection
	MZUSP 85597	31/07/2000	?	?	Anatomical collection
	MZUSP 85598	31/07/2000	?	?	Anatomical collection
	MZUSP 85599	31/07/2000	?	?	Anatomical collection
	MZUSP 85600	31/07/2000	?	?	Anatomical collection
	MZUSP 85601	31/07/2000	?	?	Anatomical collection
	MZUSP 85602	31/07/2000	?	?	Anatomical collection
	MZUSP 85603	31/07/2000	?	?	Anatomical collection
	MZUSP 85604	31/07/2000	?	?	Anatomical collection
	MZUSP 85605	31/07/2000	?	?	Anatomical collection
	MZUSP 85606	31/07/2000	?	?	Anatomical collection
	MZUSP 85607	31/07/2000	?	?	Anatomical collection
	MZUSP 85608	31/07/2000	?	?	Anatomical collection
	MZUSP 85609	31/07/2000	?	?	Anatomical collection
	MZUSP 85610	31/07/2000	?	?	Anatomical collection
	MZUSP 85611	31/07/2000	?	?	Anatomical collection
	MZUSP 85612	31/07/2000	?	?	Anatomical collection
	MZUSP 85613	31/07/2000	?	?	Anatomical collection
	MZUSP 85614	31/07/2000	?	?	Anatomical collection
	MZUSP 85615	31/07/2000	?	?	Anatomical collection
	MZUSP 85616	31/07/2000	?	?	Anatomical collection
	MZUSP 85617	31/07/2000	?	?	Anatomical collection
	MZUSP 85618	31/07/2000	?	?	Anatomical collection

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	MZUSP 85619	31/07/2000	?	?	Anatomical collection
	MZUSP 85594	08/09/2000	?	?	Anatomical collection
	MZUSP 85595	08/09/2000	?	?	Anatomical collection
	IPC 51	23/07/2016	Ilha Comprida	?	Cranium
	MZUSP 114803	12/09/2016	Coast	?	Skin
	IPC 63	18/05/2017	Iguape	F	Skin
	IPC 389	10/07/2018	Ilha Comprida	F	Sternum + cranium
	IPC 292	11/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 312	12/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 188	18/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 255	24/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 283	25/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 193	26/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 280	27/07/2018	Ilha Comprida	F	Sternum + cranium
	IPC 165	31/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 287	31/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 153	03/08/2018	Ilha Comprida	F	Sternum + cranium
	IPC 285	08/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 178	09/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 314	01/09/2018	Ilha Comprida	?	Sternum + cranium
	MZUSP 114804	2018	Coast	?	Skin
	MZUSP 114805	2018	Coast	?	Skin
	IPC 351	15/05/2019	Ilha Comprida	F	Skin
	IPC 392	16/05/2019	Ilha Comprida	?	Sternum + cranium
	IPC 397	16/05/2019	Ilha Comprida	?	Sternum + cranium
	IPC 352	17/05/2019	Ilha Comprida	M	Skin
	IPC 354	17/05/2019	Ilha Comprida	M	Skin
	IPC 345	18/05/2019	Ilha Comprida	M	Skin
	IPC 373	19/05/2019	Ilha Comprida	M	Sternum + cranium
	MZUSP 85633	?	?	?	Anatomical collection
	MZUSP 87956	?	Ilha do Cardoso / Cananéia	?	Incomplete skeleton
	MZUSP 87968	?	Ilha Comprida	?	Incomplete skeleton
	MZUSP 99252	?	Praia Grande	?	Complete skeleton
	MZUSP 99254	?	Praia Grande	?	Complete skeleton
	MZUSP 99404	?	?	?	Cranium
	MZUSP 113533	?	São Vicente	?	Incomplete skeleton
Procellaria conspicillata	MZUSP 85620	31/07/2000	?	?	Anatomical collection
	MZUSP 85621	31/07/2000	?	?	Anatomical collection
	MZUSP 85622	31/07/2000	?	?	Anatomical collection
	MZUSP 85623	31/07/2000	?	?	Anatomical collection
	MZUSP 85624	31/07/2000	?	?	Anatomical collection
	MZUSP 85625	24/08/2000	?	?	Anatomical collection
	MZUSP 85626	24/08/2000	?	?	Anatomical collection
	MZUSP 85627	24/08/2000	?	?	Anatomical collection
	MZUSP 91113	23/10/2006	?	?	Skin
	MZUSP 114806	2018	Litoral	?	Skin
	IPC 782	14/11/2021	Ilha Comprida	M	Sternum + cranium
Calonectris borealis	MZUSP 70380	14/05/1991	Peruíbe	?	Skin (head)
	MZUSP 73514	27/04/1993	20 mi off coast, Praia de Guaratuba / Bertioga	M	Skin
	MZUSP 73722	29/05/1994	Praia do Perequê / Ilhabela	M	Skin
	MZUSP 73720	30/05/1994	Praia do Itaguasú / Ilhabela	M	Skin
	MZUSP 73721	30/05/1994	Praia da Vila / Ilhabela	F	Skin
	MHNT 1363	04/06/1994	Praia Grande / Ubatuba	?	Complete skeleton
	MZUSP 87940	02/09/1994	Ilha Comprida	?	Complete skeleton
	MZUSP 87975	02/09/1994	Ilha Comprida	?	Incomplete skeleton
	MZUSP 87987	02/09/1994	Ilha Comprida	?	Complete skeleton
	MZUSP 87941	17/05/1995	Ilha Comprida	?	Cranium
	MZUSP 113711	02/1998	?	?	Cranium
	MZUSP 85630	04/01/2000	Praia Grande	?	Anatomical collection
	IPC 7	06/03/2016	Ilha Comprida	F	Skin
	IPC 28	29/05/2016	Ilha Comprida	?	Sternum + cranium
	IPC 65	21/03/2017	Ilha Comprida	F	Skin

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	IPC 38	23/05/2017	Ilha Comprida	?	Sternum + cranium
	IPC 74	29/06/2017	Ilha Comprida	?	Sternum + cranium
	IPC 82	04/07/2017	Ilha Comprida	?	Skin, Sternum + cranium
	IPC 138	22/03/2018	Ilha Comprida	M	Sternum + cranium
	IPC 203	16/04/2018	Ilha Comprida	M	Skin
	IPC 295	17/04/2018	Ilha Comprida	F	Sternum + cranium
	IPC 176	03/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 356	23/03/2019	Ilha Comprida	?	Sternum + cranium
	IPC 317	29/03/2019	Ilha Comprida	?	Sternum + cranium
	IPC 382	14/04/2019	Ilha Comprida	F	Skin
	IPC 388	16/05/2019	Ilha Comprida	?	Sternum + cranium
	IPC 357	17/05/2019	Ilha Comprida	F	Sternum + cranium
	IPC 358	17/05/2019	Ilha Comprida	F	Sternum + cranium
	IPC 371	17/05/2019	Ilha Comprida	M	Sternum + cranium
	IPC 375	18/05/2019	Ilha Comprida	F	Sternum + cranium
	IPC 379	18/05/2019	Ilha Comprida	M	Sternum + cranium
	IPC 380	18/05/2019	Ilha Comprida	F	Sternum + cranium
	IPC 381	18/05/2019	Ilha Comprida	M	Sternum + cranium
	IPC 385	18/05/2019	Ilha Comprida	M	Sternum + cranium
	IPC 386	18/05/2019	Ilha Comprida	M	Sternum + cranium
	IPC 387	18/05/2019	Ilha Comprida	F	Sternum + cranium
	IPC 365	19/05/2019	Ilha Comprida	M	Sternum + cranium
	IPC 693	12.iii.2021	Ilha Comprida	M	Skin
	MZUSP 113568	12/09/?	Ilha Comprida	?	Incomplete skeleton
	MN 1897	?	Praia Grande / São Sebastião	?	Skin
Ardenna grisea	MZUSP 11118	07/08/1925	Ilha de Santo Amaro / Guarujá	F	Skin
	MZUSP 13003	1931	Guarujá		Skin
	MZUSP 36649	29/07/1954	Peruíbe	M	Skin
	MZUSP 36650	29/07/1954	Peruíbe	M	Skin
	MHNT 2734	29/07/1984	Praia do Cruzeiro / Ubatuba	M	Skin
	MHNT	07/09/1984	Praia de Itamambuca / Ubatuba	?	Complete skeleton
	MZUSP 76325	?	Cananéia	?	Skin
	IPC 52	23/07/2016	Ilha Comprida	F	Sternum + cranium
	IPC 108	19/09/2017	Ilha Comprida	?	Sternum + cranium
	IPC 156	29/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 291	18/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 451	16/08/2019	Ilha Comprida	?	Sternum + cranium
	IPC 864	06/09/2022	Ilha Comprida	F	Sternum + cranium
Ardenna gravis	FMNH 343732	17/12/1987	Ilha do Cardoso / Cananéia	?	Skin
	MZUSP 70634	22/05/1990	Ponta do Perigo, Ilha do Cardoso / Cananéia	M	Skin
	MZUSP 70379	14/05/1991	Peruíbe	?	Skin (head)
	MZUSP 73719	28/05/1994	Praia do Engenho d'Água / Ilhabela	M	Skin
	MZUSP 73718	30/05/1994	Praia da Vila / Ilhabela	F	Skin
	MZUSP 73988	02/05/1995	c. 85 nm from the coast	?	Skin
	MZUSP 73985	09/05/1995	c. 85 nm from the coast	?	Skin
	MZUSP 73986	09/05/1995	c. 85 nm from the coast	?	Skin
	MZUSP 73987	09/05/1995	c. 85 nm from the coast	?	Skin
	RAF 1621	09/10/1995	Praia Grande / Mongaguá	M	Skin
	MZUSP 87995	24/10/2002	Ilha Comprida	?	Complete skeleton
	IPC 8	17/03/2016	Ilha Comprida	F	Skin
	IPC 50	10/09/2016	Ilha Comprida	?	Sternum + cranium
	IPC 69	05/07/2017	Ilha Comprida	?	Sternum + cranium
	IPC 163	10/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 192	20/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 254	31/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 282	01/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 288	01/08/2018	Ilha Comprida	?	Sternum + cranium
	IPC 266	06/01/2019	Ilha Comprida	F	Skin
	IPC 340	16/02/2019	Ilha Comprida	?	Sternum + cranium
	IPC 337	12/03/2019	Ilha Comprida	F	Skin
	IPC 342	17/05/2019	Ilha Comprida	F	Skin
	IPC 390	17/05/2019	Ilha Comprida	?	Sternum + cranium
	IPC 384	18/05/2019	Ilha Comprida	F	Sternum + cranium

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	IPC 391	21/05/2019	Ilha Comprida	?	Sternum + cranium
	IPC 417	28/07/2019	Ilha Comprida	?	Sternum + cranium
	IPC 466	18/10/2019	Ilha Comprida	?	Sternum + cranium
	IPC 695	13/03/2021	Ilha Comprida	F	Skin
	IPC 812	14/04/2022	Ilha Comprida	M	Skin
	MCNA 6742	22/07/2023	Praia das Toninhas / Ubatuba	?	Skin (wings)
	IPC 1367	06/01/2024	Ilha do Cardoso / Cananéia	M	Skin
Puffinus puffinus	MZUSP 2148	21/09/1901	Iguape	F	Skin
	MZUSP 9153	10/1915	Ilhabela	F	Skin
	MZUSP 62648	28/10/1974	Praia de Barequeçaba / São Sebastião	M	Skin
	MHNT E215	27/12/1984	Praia de Ubatumirim / Ubatuba	?	Complete skeleton
	MZUSP 70756	28/10/1991	Praia de Barequeçaba / São Sebastião	F	Skin
	MZUSP 73702	26/09/1993	Santos	M	Skin
	MZUSP 87928	28/09/1994	Ilha Comprida	?	Cranium
	MZUSP 73737	29/09/1994	Peruíbe	F	Skin
	MZUSP 73738	29/09/1994	Peruíbe	?	Skin
	MZUSP 73742	27/10/1994	Ilha Comprida	?	Skin
	MZUSP 87927	27/10/1994	Ilha Comprida	?	Cranium
	MHNT 4765	07/1996	Ilha Comprida	F	Skin
	MHNT 4943	10/1998	Ubatuba	M	Skin
	ZUEC 2033	05/01/1999	Ubatuba	F	Skin
	IPC 66	04/11/2012	Ilha Comprida	?	Skin
	MZUSP 114786	07/11/2015	Canto do Forte / Praia Grande	M	Skin
	MZUSP 114787	07/11/2015	Canto do Forte / Praia Grande	F	Skin
	IPC 21	22/09/2016	Ilha Comprida	M	Sternum + cranium
	IPC 20	27/09/2016	Ilha do Cardoso / Cananéia	M	Sternum + cranium
	IPC 54	27/09/2016	Ilha Comprida	F	Sternum + cranium
	IPC 60	08/11/2016	Ilha Comprida	?	Cranium
	IPC 111	25/09/2017	Ilha Comprida	?	Sternum + cranium
	IPC 110	26/09/2017	Ilha Comprida	?	Sternum + cranium
	IPC 93	16/10/2017	Ilha do Cardoso / Cananéia	M	Skin
	IPC 104	17/10/2017	Ilha Comprida	?	Sternum + cranium
	IPC 90	23/10/2017	Ilha Comprida	F	Cranium
	IPC 136	24/10/2017	Ilha Comprida	M	Skin
	IPC 102	26/10/2017	Ilha Comprida	M	Sternum + cranium
	IPC 113	26/10/2017	Ilha Comprida	?	Sternum + cranium
	IPC 105	02/11/2017	Ilha Comprida	?	Sternum + cranium
	IPC 129	28/12/2017	Ilha Comprida	?	Sternum + cranium
	IPC 446	28/09/2019	Ilha Comprida	M	Sternum + cranium
	IPC 869	27/08/2022	Ilha Comprida	?	Sternum + cranium
	MZUSP 73703	?	Santos	M	Skin
	MZUSP 75482	?	?	?	Skin
	MZUSP 75788	?	?	?	Skin
	MZUSP 76321	?	Cananéia	F	Skin
	MZUSP 76322	?	Cananéia	?	Skin
	MZUSP 76323	?	Cananéia	?	Skin
	MZUSP 76324	?	Cananéia	M	Skin
	MZUSP 85628	?	Santos	?	Anatomical collection
	MZUSP 99251	?	Praia Grande	?	Complete skeleton
	MZUSP 114785	?	Canto do Forte / Praia Grande	F	Skin
Puffinus lherminieri	MZUSP 101856	15/11/1984	Santos	?	Skin
SULIFORMES					
FREGATIDAE					
Fregata magnificens	MZUSP 56	18/04/1898	São Sebastião	M	Skin
	MZUSP 57	23/04/1898	São Sebastião	F	Skin
	MZUSP 4842	24/09/1904	Piaçaguera, Raiz da Serra / Cubatão	F	Skin
	MZUSP 9156	10/1915	Ilhabela	M	Skin
	MZUSP 9157	10/1915	Ilhabela	F	Skin
	MZUSP 9159	10/1915	São Sebastião	F	Skin
	MZUSP 9158	12/1915	São Sebastião	F	Skin
	MZUSP 10503	30/10/1920	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 10504	30/10/1920	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 10505	30/10/1920	Ilha de Alcatrazes / São Sebastião	F	Skin

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	MZUSP 10506	30/10/1920	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 10507	30/10/1920	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 114320	11/1925	São Sebastião	?	Cranium
	MZUSP 31941	17/04/1947	Ilha Queimada Grande / Itanhaém	F	Skin
	MZUSP 31942	17/04/1947	Ilha Queimada Grande / Itanhaém	F	Skin
	MZUSP 38793	24/08/1956	Cananéia	M	Skin
	MZUSP 63862	24/03/1964	Ilha Vitória / Ilhabela	M	Skin
	MZUSP 63861	31/03/1965	Ilha Vitória / Ilhabela	F	Skin
	MZUSP 59893	26/08/1966	Barra de Icapara / Ilha Comprida	M	Skin
	MZUSP 61764	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61765	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61766	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61767	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61768	20/01/1971	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 61769	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61770	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61771	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61772	20/01/1971	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 61773	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61774	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MHNT 2377	29/12/1971	Ubatuba	M	Skin
	MHNT 2378	29/12/1971	Perto do porto / Ubatuba	F	Skin
	MZUSP 74305	1996	Cubatão	?	Skin
	MZUSP 113569	12/1997	Mongaguá	?	Cranium
	MZUSP 74972	04/07/1998	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 74973	06/07/1998	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 88431	04/02/2002	Praia Grande	?	Complete skeleton
	IPC 81	23/03/2017	Ilha Comprida	F	Sternum + cranium
	IPC 72	20/06/2017	Ilha Comprida	?	Sternum + cranium
	IPC 78	24/07/2017	Iguape	M	Skin
	IPC 84	23/08/2017	Ilha Comprida	M	Cranium
	IPC 91	12/10/2017	Ilha Comprida	M	Skin
	IPC 137	25/10/2017	Ilha Comprida	M	Skin
	IPC 289	04/06/2018	Ilha Comprida	F	Sternum + cranium
	IPC 252	14/09/2018	Ilha Comprida	F	Sternum + cranium
	IPC 310	06/10/2018	Ilha Comprida	M	Sternum + cranium
	IPC 570	04/07/2019	Ilha Comprida	M	Skin
	IPC 413	26/07/2019	Ilha Comprida	M	Sternum + cranium
	IPC 401	08/08/2019	Ilha Comprida	M	Sternum + cranium
	IPC 448	10/09/2019	Ilha Comprida	F	Sternum + cranium
	IPC 447	18/09/2019	Ilha Comprida	F	Sternum + cranium
	IPC 689	01/01/2021	Iguape	M	Cranium
	MZUSP 88433	?	Santos	M	Complete skeleton
	MZUSP 88434	?	Santos	M	Complete skeleton
	MM 511	?	Ilha de Alcatrazes / São Sebastião		Skin
	SMF 9572	?	Ilha Comprida	?	Complete skeleton
SULIDAE					
Sula dactylatra	MZUSP 80055	20/03/2001	São Vicente	?	Skin
	MZUSP 80802	2006	Iguape	?	Skin
	IPC 698	21/02/2021	Ilha Comprida	F	Skin + Sternum
Sula leucogaster	MZUSP 54	24/04/1898	São Sebastião	F	Skin
	MZUSP 997	24/04/1898	São Sebastião	M	Skin
	MZUSP 9155	10/1915	Ilhabela	?	Skin
	MZUSP 10497	07/10/1920	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 10496	15/10/1920	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 10500	16/10/1920	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 10498	25/10/1920	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 10499	26/10/1920	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 88014	28/08/1927	?	?	Complete skeleton
	MZUSP 31615	13/03/1946	Ilha Queimada Grande / Itanhaém	M?	Skin
	MZUSP 31937	15/04/1947	Ilha Queimada Grande / Itanhaém	M	Skin
	MZUSP 31938	15/04/1947	Ilha Queimada Grande / Itanhaém	M?	Skin
	MZUSP 31939	15/04/1947	Ilha Queimada Grande / Itanhaém	F	Skin

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	MZUSP 31940	20/04/1947	Ilha Queimada Grande / Itanhaém	M	Skin
	MZUSP 113812	07/09/1959	Praia de Iporanga / Guarujá	?	Incomplete skeleton
	MZUSP 61763	18/01/1971	São Sebastião	F	Skin
	MZUSP 61751	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61752	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61753	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61754	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61755	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61756	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61757	20/01/1971	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 61758	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61759	20/01/1971	Ilha de Alcatrazes / São Sebastião	M	Skin
	MZUSP 61760	20/01/1971	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 61761	20/01/1971	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 61762	20/01/1971	Ilha de Alcatrazes / São Sebastião	F	Skin
	MHNT 313	31/07/1971	Ubatuba	M	Complete skeleton
	MZUSP 88007	1973	Canal / Ilhabela	?	Cranium
	MZUSP 102484	18/07/1978	Ilhabela	F	Skin
	MHNT 9885	10/1987	Santos	?	Complete skeleton
	MHNT 23	29/12/1988	Ubatuba	F	Complete skeleton
	MZUSP 88008	01/08/1990	Ilha Comprida	F	Cranium
	ZUEC 1811	19/08/1990	Ilha Comprida	?	Skin
	MHNT 10156	23/09/1991	São Sebastião	M	Complete skeleton
	MZUSP 88010	25/02/1992	Enseada de Bertioga / Bertioga	?	Complete skeleton
	SMF 9574	10/01/1993	Santos	?	Complete skeleton
	MZUSP 88004	16/09/1994	Ilha Comprida	?	Complete skeleton
	MZUSP 74297	11/04/1996	Ilha Queimada Grande / Itanhaém	?	Skin
	MZUSP 74298	11/04/1996	Ilha Queimada Grande / Itanhaém	?	Skin
	MHNT 6950	24/02/1997	Itanhaém	M	Skin
	MZUSP 88001	01/1999	Bertioga	?	Complete skeleton
	MZUSP 74977	01/05/1999	Ilha da Figueira / Cananéia	F	Skin
	MHNT 4421	21/03/2002	Ilha de Alcatrazes / São Sebastião	F	Skin
	MZUSP 88005	07/10/2002	Santos	?	Complete skeleton
	GNM 17439	19/12/2004	Ilha Queimada Grande / Itanhaém	?	Anatomical collection
	MZUSP 82931	22/07/2008	Laje de Santos / Santos	F	Skin
	IPC 58	07/11/2016	Ilha Comprida	F	Sternum + cranium
	IPC 88	03/07/2017	Ilha Comprida	?	Sternum + cranium
	IPC 77	19/07/2017	Ilha Comprida	M	Skin
	IPC 95	22/08/2017	Ilha Comprida	?	Sternum + cranium
	IPC 96	23/08/2017	Ilha Comprida	?	Sternum + cranium
	IPC 128	23/10/2017	Ilha Comprida	?	Cranium
	IPC 115	09/11/2017	Ilha Comprida	?	Sternum + cranium
	IPC 120	20/11/2017	Ilha Comprida	?	Sternum + cranium
	IPC 284	06/02/2018	Ilha Comprida	?	Sternum + cranium
	IPC 121	15/02/2018	Ilha Comprida	M	Sternum + cranium
	IPC 144	15/02/2018	Ilha Comprida	M	Skin
	IPC 279	04/06/2018	Ilha Comprida	?	Sternum + cranium
	IPC 179	22/07/2018	Ilha Comprida	?	Sternum + cranium
	IPC 361	30/07/2018	Ilha do Cardoso / Cananéia	M	Skin
	IPC 363	28/08/2018	Ilha Comprida	M	Skin
	IPC 403	08/07/2019	Ilha Comprida	M	Sternum + cranium
	IPC 449	16/07/2019	Ilha Comprida	M	Sternum + cranium
	IPC 467	30/07/2019	Ilha Comprida	?	Sternum + cranium
	IPC 412	15/08/2019	Ilha Comprida	?	Sternum + cranium
	MZUSP 85892	?	Iguape	?	Skin
	MZUSP 88003	?	Ilha Comprida	?	Incomplete skeleton
	MZUSP 88009	?	Santos	?	Incomplete skeleton

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