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## Charles Darwin's bird collection and ornithological knowledge during the voyage of H.M.S. "Beagle", 1831–1836

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**Abstract** This paper analyses Charles Darwin's bird collection and the ornithological knowledge he derived from it during the voyage of H.M.S. "Beagle". Darwin collected 468 bird skins, 10 detached parts of the lesser rhea, and the nests and eggs of 16 different taxa as well as 14 whole birds and 4 parts of birds which he preserved in spirit. He labelled these specimens with a number tag only, cross-referring the number to a notebook entry. Partly because of his limited ornithological knowledge and partly because he was confronted at times with entirely unknown birds, Darwin was often unable to apply the correct generic designations and gave his South American specimens English and Spanish names from literature and the local tongues, as well as the scientific generic names of European birds. Back home, it was John Gould, the prominent ornithologist of the Zoological Society of London, who made sense of Darwin's collection, among his many other scientific achievements correctly identifying the Galápagos finches as a group of closely related birds. Darwin's bird collection did not receive much attention in the latter part of the 19th century. Most of the specimens had their original labels removed and replaced by ones of the custodian institution. Today, original Darwin specimens stemming from the "Beagle" voyage are to be found in at least eight different institutions, but almost half of the bird

specimens Darwin collected on the "Beagle" voyage are not accounted for. The appendix to this paper lists for the first time all the birds which Darwin collected during the voyage. Darwin's famous book *On the origin of species* hardly draws upon any ornithological examples from his voyage on the "Beagle". Nevertheless, Darwin contributed much to ornithology. His collection contained 39 new species and subspecies of birds, mainly described by Gould, and some birds from populations now extinct, and he also made a few very good field observations, published in the sections of *The Zoology of the Voyage of H.M.S. Beagle* dedicated to birds.

**Keywords** Bird collection · Charles Darwin · Ornithology · Voyage of the "Beagle"

### Introduction

Charles Darwin (1809–1882) is often seen as an experienced ornithologist with an expert knowledge of birds. In particular, his discovery of a group of 'finches' (Family Emberizidae) on the Galápagos Islands in September and October 1835, now commonly named 'Darwin's finches',<sup>1</sup> cemented his reputation as a field ornithologist par excellence (inter alia Heberer 1959, pp. 33–35; Lack 1961, pp. 9–10; Barlow 1963, p. 261 (footnote 1); de Beer 1963, p. 132; Moorehead 1969, pp. 196–205; Grinnell 1974, pp. 260–261; Schmitz 1983, pp. 56–60; Wehner and Gehring 1990, p. 559; Curio 1993,

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<sup>1</sup>The term 'Darwin's finches' was first used by Lowe 1936 (cited in Sulloway 1982b, p. 45) and established by Lack (1961, p. 14), with the argument that "the term 'Galapagos finch' is less satisfactory, since one species, namely *Pinaroloxias inornata*, occurs not in the Galapagos, but on Cocos Island [...]" In fact, Darwin himself had only encountered some of the finch species. In this paper, both Galápagos finches and Darwin's finches are used, according to prevailing usage.



p. 344; cf. Sulloway 1982b, pp. 6–7). This is reflected in passages such as the following by Lack (1961, p. V), who wrote in the preface to *Darwin's Finches*: "...in 1835, Charles Darwin collected some dull-looking finches on the Galapagos Islands. They proved to be a new group of birds and, together with the giant tortoises and other Galapagos animals, they started a train of thought which culminated in the *Origin of Species*, and shook the world." Moorehead (1969, p. 202) added: "...it was the number of different species of finch, and the variety of their beaks, that so amazed Darwin."

The general public still sees birds as Darwin's major clue to evolution. Rediscoveries in museum collections of original 'finches' from Darwin's collection made headline news 160 years after the voyage (Anonymous 1996; Clausen 1996; Field 2003), while Darwin's own Galápagos finches were the biggest visitor attraction at a recent touring exhibition (1999–2002) on the early voyages of discovery (Rice 1999).

However, since Kottler (1978) and Sulloway (1979, 1982a, 1982b), the myth of 'Darwin and his finches' has been shown to be just that. We now know that in the field Darwin did not appreciate the close relationship between the different species of finches on the Galápagos Islands. In fact, he actually believed he had collected specimens of five different (sub-) families: finches, grosbeaks, American blackbirds, wrens and warblers – although he did not rule out that the first three at least might be closely related. Darwin did not discuss evolution during his visit to the Galápagos Islands, nor did he subsequently use 'Galápagos finches' in his book (Darwin 1859) *On the Origin of Species* (Kottler 1978; Sulloway 1979, 1982a, 1982b; Futuyma 1990; Mayr 1994; Quammen 1997; Larson 2001; Keynes 2002, 2003). To him, these birds remained even in latter years "undistinguishable from each other in habits" (Darwin in Gould et al. 1841, p. 99).

Therefore, the question as to what Darwin actually knew about, and contributed to, ornithology seems to be justified (cf. Bourne 1992). Moreover, how much did Darwin actually draw on ornithology from the "Beagle" voyage in developing his theory of evolution?

While undertaking a database project for the Natural History Museum, London/Tring, the author had the opportunity to assemble data on Darwin's entire avian collection. The information which this brought to light on the taxa involved, combined with Darwin's ornithological notes (Barlow 1963; Keynes 2000), permitted a thorough evaluation of Darwin's ornithological knowledge during the voyage of H.M.S.<sup>2</sup> "Beagle" in 1831–1836. More than half of Darwin's bird specimens were

traced during this research; data for additional birds were added from literature, since all of Darwin's ornithological notes have survived as well. "Lucky we are that Darwin kept up [...] collecting throughout his life. If he had not collected and saved specimens, notes, manuscripts, letters, and annotated books, our understanding of his life and motivations would be close to nil" (Porter 1985, p. 974).

### Darwin and ornithology before the voyage

No Darwinian bird collection of any kind which pre-dates the voyage of the "Beagle" has survived. In all likelihood there never was one, except for a few eggs and perhaps nests. One can only surmise what ornithological knowledge Darwin would have acquired during his teens and subsequent studies in Britain by looking at his notes and collections made during the early stages of the voyage, and from autobiographical sources (Barlow 1958; Burkhardt and Smith 1985, 1986). Darwin started collecting natural history objects, including birds' eggs, as a young boy (Steinmüller and Steinmüller 1987, p. 29). He apparently read Gilbert White's (1789) *The natural history and antiquities of Selborne* and wondered why every gentleman did not become an ornithologist (Barlow 1958, p. 45). During his studies, he certainly collected plants, beetles, fossils and geological objects (Junker 2001), focussing, from when he attended Cambridge, on beetles and plants (Porter 1985). He was also a keen hunter and kept a record book on what he had seen and shot (Steinmüller and Steinmüller 1987, pp. 31, 47).

Darwin learned how to prepare bird specimens at the museum in Edinburgh (Desmond and Moore 1995, pp. 42, 58). His teacher there was the former travel servant of Charles Waterton (1782–1865), a famous British collector, ornithologist and taxidermist. Darwin spent some time studying the bird galleries of the Edinburgh, Cambridge and London museums. He wrote retrospectively that he also read bird books housed in the university library of Edinburgh during this period (Steinmüller and Steinmüller 1987, p. 45). While at Edinburgh University in 1825–1827, Darwin attended lectures given by John James Laforest Audubon (1785–1851) on the habits of North American birds (Keynes 1997, p. 461). One can therefore assume that Darwin had all the tools needed in the field by an ornithologist of his day, most importantly being able to shoot a bird and preserve its skin. However, Darwin was never taught, not even by his great mentor Prof. John Stevens Henslow (1796–1861) in Cambridge, what data should be noted down on bird specimen labels. This lack was later to prove a problem.

By the time of his departure a few weeks short of his 23rd birthday, Darwin would probably have known most common British and some exotic birds. He had not, however, acquired thorough identification skills for all British birds, nor would he have encountered all

<sup>2</sup>H.M.S. stands for His Majesty's Ship (more exactly Surveying Sloop; cf. Bourne 1992). The "Beagle" was built in 1820 and named after the dog. The ship had already been used for a previous voyage to Tierra del Fuego and Patagonia in 1826–1830 before Darwin's famous 'Voyage of H.M.S. "Beagle"'. Any use of the term 'Voyage of H.M.S. "Beagle"' in this paper always refers to this latter, second journey of the "Beagle".



British species, especially those not commonly shot on hunts and offered at markets, such as nocturnal birds and rare passerines. For example, Darwin was unable to identify a short-eared owl (*Asio flammeus*) when confronted with the taxon on East Falkland Island. Even worse were Darwin's identification skills for the different plumages of seabirds and waders, which he sometimes attributed to the wrong genus. He did not know the scientific names of all British birds and had no special knowledge of the scientific names of exotic species, lacking the necessary years of training in the field as well as in reference collections.

Generally, one can say that during his youth and student years Darwin's naturalist's eyes were turned more often to the soil than to the sky (cf. Desmond and Moore 1995). Nevertheless, he was well equipped to record, but not to identify, the avifauna of the regions to be visited during the voyage of H.M.S. "Beagle". Henslow commented in a letter to Reverend George Peacock (1791 1858) that Darwin is not "a finished Naturalist, but as amply qualified for collecting, observing, & noting anything new to be noted in Natural History" (Barlow 1967, p. 30). Or as Porter (1985, p. 977) phrased it: "Charles Darwin was as prepared to be the naturalist of the "Beagle" as any contemporary university graduate could have been." Darwin, however, had two further advantages: from his youth onwards he had been an avid collector of any kind of object, and his lack of specialization meant that he was not narrowly-mindedly interested in only one single subject. Secondly, Darwin had learned Spanish in his enthusiasm to follow Alexander von Humboldt's (1769 1859) example and explore Tenerife (Steinmüller and Steinmüller 1987). Thus he was probably able to understand at least parts of the stories told to him by locals in South America regarding the native bird life, although his recourse to interpreters during the voyage (Barlow 1933, p. 30) suggests that his Spanish may not have been particularly good.

When Darwin accepted a place on H.M.S. "Beagle" "more as a companion [of the Captain] than a mere collector" (Barlow 1967, p. 30), he nevertheless busily assembled and acquired the books, tools and material for preparation which he believed he might need for the long journey (Keynes 2002). While Captain Robert FitzRoy (1805 1865) might have viewed Darwin more as the accompanying gentleman, his former Cambridge professors were keen to stress "the importance of his collections [...]" (Porter 1985, p. 977). The ship's library contained a wonderful set of the most modern travel guides and natural history books of the time. The following (partly) ornithological works would have been most useful for identifying birds in the field (cited from Burkhardt and Smith 1985, pp. 553 566; some books were subsequently sent out to the "Beagle" during the voyage): Blainville et al. (1834); Burchell (1822, 1824); Cuvier (1817, 1829); Griffith et al. (1828); Forster (1778); King (1827, MS to King et al. 1839); Labillardière (1799 1800); Lesson (1828); von Wied-Neuwied

(1820); Quoy and Gaimard (1824); Saint-Vincent et al. (1822 1831); and Spix and Martius (1824). Darwin also had access to Molina (1809)<sup>3</sup> not listed in Burkhardt and Smith (1985), since there are references to the work in his zoology notes (Barlow 1963; Keynes 2000). Unfortunately, the library lacked the book of Azara (1802 1805), which would have been of much help for identifying some birds of the Rio Plata region (cf. Darwin 1870; Sulloway 1982c).<sup>4</sup> Darwin was also missing some additional publications on the avifauna of South America such as Lichtenstein (1823), Vieillot (1816) and Wagler (1827), but their implication for field ornithology would have been small.

### Darwin's ornithology during the voyage of H.M.S. "Beagle"

I am spending September in Patagonia, much in the same manner as I should in England, viz. shooting (Darwin in Barlow 1933, p. 100).

H.M.S. "Beagle" set off on 27 December 1831 and returned nearly 5 years later on 2 October 1836 after having charted the coast of South America and circumnavigated the globe. Darwin's interest in birds during the voyage was marginal (Bourne 1992). A letter home to his distant cousin William Darwin Fox (1805 1880) on 23 May 1833 reveals his attitude towards ornithology: "You ask me about Ornithology; my labours in it are very simple.- I have taught my servant to shoot & skin birds, & I give him money.- I have only taken one bird which has much interested me [...]" (Burkhardt and Smith 1985, p. 316, cited in Bourne 1992). The bird Darwin was referring to was the least seed-snipe *Thinocorus rumicivorus*<sup>5</sup>; Barlow 1963, pp. 211, 278; Bourne 1992). While in the vicinity of Rio de Janeiro on 4 June 1832, Darwin wrote in his diary of the local hunters, whom he joined in shooting deer and other mammals, that "they shoot parrots & Toucans &c. [between hunting mammals]. I soon found this very stupid & began to hunt my own peculiar game" (Barlow 1933, pp. 66 67). Darwin prepared only eight birds for his collection, and there was not a parrot or a toucan among them.

Darwin himself wrote in his autobiography (Sobol 1959, p. 71) that his love for hunting diminished after the first 2 years of the journey, and he began more and more often to entrust his gun to his servant Syms Covington

<sup>3</sup>The version Darwin consulted was the English translation of the Italian original (cf. Sulloway 1982b). The taxonomically important first descriptions of birds are found in Molina (1782).

<sup>4</sup>The references to Azara (1802–1805) in Darwin's notebooks and Gould and Darwin (1838, 1839a, 1839b, 1839c) and Gould et al. (1841) were added after the voyage (Sulloway 1982c).

<sup>5</sup>See Appendix: 'Charles Darwin's bird collection from the voyage of the H.M.S. "Beagle"' at <http://www.do-g.de>, 'journals' – Supplementary information to published papers.



(c. 1816–1861; cf. Armstrong 1992, p. 135). Darwin believed that shooting would take too much of his attention away from investigating the geology of the countries visited. While Darwin concentrated on geology, invertebrates and plants, Covington collected only vertebrates. Covington's birds were entered into Darwin's specimen lists without any indication as to who the actual collector was. It is probable that from mid May–1833 onwards Syms Covington shot most of the birds.

Darwin's *Zoology Notes* (published by Keynes 2000) show the same bias. While much space is dedicated to ornithology in the first two-thirds of the journey (especially during his stay in Uruguay and Argentina), later notebook entries speak much more about marine invertebrate life such as corals, crustaceans and molluscs. However, Darwin's real love, despite his zoological background, was geology: "Geology & invertebrate animals will be my chief object of pursuit through the whole voyage" (Barlow 1967, p. 54; cf. Darwin 1851, 1890a, 1890b). Except in 1832, he wrote from two to eleven and a half times as many pages of geological notes per year as biological notes (Porter 1985, p. 984).

Darwin and Covington collected 327 dry specimens (mainly skins) on the outward journey to South America and along its east coast to the southern tip between 1832 and May 1834 (Cape Verde Islands: 5 bird specimens; St. Paul Rocks: 2; Brazil: 8; Uruguay: 115<sup>6</sup>; Argentina: 115; Tierra del Fuego: 49; and Falkland Islands: 33), but only 167 specimens during the second half of the journey from June 1834 to 1836 (Chile: 92 bird specimens; Peru: 4; Galápagos Islands: 65; New Zealand: 1; Cocos Island: 1; Ascension Island: 1; and Cape Verde Island: 3), not collecting any bird specimens from such locations as Tahiti, where the "Beagle" stopped for 11 days, Australia, where it anchored 28 days in Sydney and 11 days at St. George's Sound, Tasmania, where the "Beagle" crew stayed 15 days, Mauritius (10 days), and St. Helena (7 days). Apparently, Darwin hardly had the chance to get on shore in some places (Darwin cited in Barlow 1967, p. 114): "In our passage across the Pacific [sic], we only touched at Tahiti & New Zealand: at neither of these places, or at sea had I much opportunity of working." Nevertheless, comparisons of Darwin's "Beagle" notes on entomology (and to some extent on mammalogy) show that, as regards zoology, Darwin "was possibly even fonder of birds than of the beetles generally regarded as his favourites" (Keynes 1997, p. 462).

#### Darwin's nomenclature

Darwin designated new birds he found in three different ways. He used their correct English generic/family

names when he knew them or could learn them from others, e.g. grebe, petrel, cormorant, hawk, caracara, oven bird, wren, sparrow. In some cases, however, Darwin also cited the local Spanish names, such as carpintero for woodpeckers of the genus *Dendrocopos*, or avestruz(s) petise for the lesser rhea (*Pterocnemia pennata*). Darwin sometimes mixed up the names of closely related birds or misspelled the name slightly. He made just one real error, labelling the rufous horned *Furnarius rufus* with the name for its nest, which is 'casita', meaning little house.

Most errors occurred when Darwin applied scientific (genus) names. Keynes (2002, p. 147) summarizes the problems involved in this approach as follows: "In some cases this was fine an owl is an owl both in England and in Patagonia but for many of the passerines [...] there was no directly equivalent South American family, although there were many species that, as he [Darwin] was careful to point out, occupied an ecological niche very similar to those of their European cousins." One may add that some of the species which Darwin encountered were not known to science at the time.

Darwin hardly made any use of the literature on board the "Beagle" in identifying or learning more about birds. Had he done so, he would have found Cuvier (1817, 1829), Griffith et al. (1828), Forster (1778), King (1827, MS to King et al. 1839) and Lesson (1828) most useful. Lesson (1828) is cited just six times in Darwin's ornithological notes, in connection with the correct name for *Thinocorus rumicivorus* Eschscholtz, 1829 (Barlow 1963, p. 211), when Darwin correctly criticized Lesson's views on the feeding behaviour of the black skimmer *Rynchops nigra* (Barlow 1963, p. 223), when referring to the nest of *Furnarius rufus* (Keynes 2000, p. 158), when writing about the different species of penguins in the region (Barlow 1963, p. 246; Keynes 2000, p. 212) and twice in connection with the tameness of birds, especially of the dark-bellied cinclodes *Cinclodes patagonicus* (Barlow 1963, pp. 232, 266). However, in Chile Darwin referred frequently to Molina (1809), which increased his ornithological understanding considerably.

Darwin used the following names in his *Zoology Notes and Specimen Lists from H.M.S. Beagle* (ed. Barlow 1963; Keynes 2000). The names and sequence follow Peters et al. (1934–1987). The term 'in errore' has been added wherever an obvious misidentification is present. A question-mark indicates that a cross-reference between Darwin's note and a current taxon is uncertain.

RHEIDAE: ostrich, *Struthio rhea* (for *Rhea*); ostrich petise, petise, avestruz petise [sic: Esp. Avestruz petizo = dwarf ostrich] (for *Pterocnemia*).

TINAMIDAE: *Perdrix* [sic: *Perdix*; in errore], partridge [in errore] (for *Rhynchotus*, *Nothoprocta*, *Nothura*).

PROCELLARIIDAE: *Procellaria gigantea*, nelly, quebranta huesos [sic: Esp. quebrantahuesos] (for *Macronectes*);

<sup>6</sup>Darwin noted about Maldonado: "My collection of the birds [...] of this place is becoming very perfect" (Darwin in Barlow 1933, p. 153).



*Procellaria* (for *Fulmarus*, *Procellaria*); *Puffinus* [in errore] (for *Procellaria cinerea*); petrel (for *Puffinus*).  
 HYDROBATIDAE: *Thalassidromus* (for *Oceanites*).  
 PELECANOIDIDAE: petrel (for *Pelecanoides*).  
 SPHENISCIDAE: penguin (for *Spheniscus*).  
 PODICIPEDIDAE: fresh water grebe, grebe (for *Rollandia*); fresh water grebe, *Podiceps* (for *Podiceps*).  
 FREGATIDAE: frigate bird (for *Fregata*) (not collected).  
 PHALACROCORACIDAE: cormorant (for *Phalacrocorax*).  
 SULIDAE: booby (for *Sula*).  
 ARDEIDAE: heron, *Ardea* (for *Ardea*); bittern (for *Nyctanassa*, *Nycticorax*).  
 THRESKIORNITHIDAE: ibis (for *Plegadis*, *Theristicus*).  
 PHOENICOPTERIDAE: flamingo (for *Phoenicopterus*).  
 CATHARTIDAE: *Vultur aura* (for *Cathartes aura*); condor (for *Vultur*) (not collected).  
 ACCIPITRIDAE: hawk, *Falco* [in errore] (for *Circus*); hawk, caracara [in errore] (for *Buteo*).  
 FALCONIDAE: caracara, hawk (for *Phalcoboenus*); chimango, vulture [in errore], *Caracara chimango*, *Falco*, P. [= *Phalcoboenus*] *Pezoporus*<sup>7</sup> (for *Milvago*); *Falco* (for *Polyborus*); hawk [in errore] (for *Falco*).  
 ANATIDAE: duck (for *Anas*, *Amazonetta*, *Chloephaga*, *Tachyeres*).  
 RALLIDAE: land rail (for *Rallus*), "bird from summit of barren arid mountain of Ascension" (? for *Porphyrylla*).  
 HAEMATOPODIDAE: *Ostralogus* [sic: *Ostralegus*] (for *Haematopus*).  
 ROSTRATULIDAE: [?] *Limosa* [in errore] (for *Nycticryphes*).  
 CHARADRIIDAE: *Vanellus* (for *Belonopterus*); *Charadrius* (for *Pluvialis*, *Oreopholus*, *Charadrius*); *Arenaria* [in errore] (for *Charadrius*); plover (for *Oreopholus*); *Tringa* [in errore] (for *Zonibyx*).  
 SCOLOPACIDAE: *Numenius*, curlew (for *Numenius*); *Scolopax*, godwit, [?] *Tringa* (for *Limosa*); *Tringa* (for *Tringa*, *Heteroscelus*, *Tryngites*); plover [in errore], *Charadrius* [in errore] (for *Arenaria*); *Scolopax*, snipe (for *Capella*); *Tringa*, *Pelidna minutilla*<sup>8</sup> (for *Erolia*).  
 RECURVIROSTRIDAE: *Himantopus*, [?] *Charadrius* [in errore] (for *Himantopus*).  
 THINOCORIDAE: ptarmigan [in errore], partridge [in errore] (for *Attagis*); *Scolopax-Perdix* [sic: *Perdix*; in errore], *Perdix-Scolopax* [sic: *Perdix*; in errore], [?] *vaginalis*, *Tinocorus* [sic] *Eschscholtzii*<sup>9</sup> (for *Thinocorus*).  
 LARIDAE: gull, *Larus* (for *Larus*); *Larus* (for *Gabianus*); *Sterna* (for *Gelochelidon*); tern (for *Sterna*, *Anous*); noddy (for *Anous*).  
 RHYNCHOPIDAE: *Rhyncops* [sic; ? error in Barlow 1963, p. 221 or Darwin's notes; taxon not in Keynes 2000, p. 387] (for *Rynchops*).

COLUMBIDAE: palomba [sic: palomo, paloma = Chilean Esp./Esp. dove] (for *Columba*, *Zenaidura*, *Columbina*); dove (for *Columba*, *Zenaidura*, *Columbina*, *Nesopelia*, *Metriopelia*); pigeon (for *Columba*).  
 PSITTACIDAE: *Psittacus* (for *Cyanoliseus*, *Myiopsitta*).  
 CUCULIDAE: "small flocks, very noisy chattering bird" (for *Guira*).  
 TYTONIDAE: owl (for *Tyto*).  
 STRIGIDAE: owl (for *Speotyto*, *Strix*, *Asio*).  
 CAPRIMULGIDAE: *Caprimulgus* (for *Caprimulgus*).  
 APODIDAE: swallow [in errore] (for *Apus*).  
 TROCHILIDAE: *Trochilus* (for *Chlorostilbon*, *Patagona*, *Sephanoides*); humming bird (for *Patagona*).  
 ALCEDINIDAE: *Alcedo* (for *Ceryle*, *Chloroceryle*, *Halcyon*); kingfisher, *Alcido* [sic; ? error in Barlow 1963, p. 249 or Darwin's notes] (for *Ceryle*).  
 PICIDAE: woodpecker, pitu [old Chilean Esp. for pit-ío], *Picus* (for *Colaptes*); woodpecker, carpintero [Chilean Esp. = carpenter] (for *Dendrocopos*).  
 FURNARIIDAE: *Furnarius* (for *Geositta*, *Upucerthia*, *Eremobius*, *Cinclodes*, *Furnarius*<sup>10</sup>); long-billed casaia (for *Upucerthia*); oven bird, casita [sic: Esp. little house = nest; casaro = house-builder in Gould and Darwin 1839c], house maker (for *Furnarius*); *Certhia* [in errore] (for *Limnornis*, *Aphrastura*, [?] *Phleocryptes*, *Limnornis*, *Spartonicoa*, *Synallaxis*, *Asthenes*, *Phacellodomus*); creeper [in errore] (for *Aphrastura*, *Asthenes*, *Pygarrhichas*); *Furnarius-Certhia* (for *Anumbius*); long-tailed creeper (for *Leptasthenura*); red-throated creeper (for *Asthenes anthoides*), *Turdus* [in errore] (for *Cinclodes*).  
 FORMICARIIDAE: *Lanius* [in errore] (for *Thammodon*).  
 RHINOCRYPTIDAE: *Myothera*,<sup>11</sup> turco [Chilean Esp. = turca] (for *Pteroptochos megapodius*); guid-guid [sic: Esp. huet-huet],<sup>12</sup> barking bird<sup>13</sup> (for *Pteroptochos tarnii*); *Myothera*, tapacola [sic: tapaculo] (for *Pteroptochos albicollis*); *Myothera* [in errore], cheucau [sic: Esp. chucao] (for *Scelorchilus*); [unidentified] bird (for *Rhinocrypta*); [unidentified] bird, wren [in errore] (for *Scytalopus*); *Myothera* [in errore], cheuqui [sic: Esp. churrin] (for *Eugralla*).  
 TYRANNIDAE: [unidentified] bird (for *Suiriri*, *Xolmis*, *Pyrocephalus*); *Parus* [in errore] (for *Serophaga*, *Anairetes*, *Tachuris*); long-tailed tit [in errore] (for *Anairetes*); *Muscicapa* [in errore] (for *Polystictus*, ? *Myiophobus*, *Ochthocea*, *Hymenops*, *Xolmis*, *Neoxolmis*, *Muscisaxicola*); *Motacilla* [in errore] (for *Lessonia*); scarlet-breasted *Tyrannus* (for *Pyrocephalus*).

<sup>10</sup>Darwin correctly identified *Furnarius rufus* to species level.

<sup>11</sup>*Myothera* is normally synonymised with *Pteroptochos albicollis* (in Wytsman 1905–1914, fide J. Torres-Mura, personal communication, April 2004), but Sulloway (1982c) synonymized *Myothera* with all species of *Pteroptochos*.

<sup>12</sup>Today the Chilean people call *Pteroptochos tarnii* 'huez-huez.'

<sup>13</sup>The call of this species could be seen as similar to the 'barking' of a very small dog in a high voice; another Chilean bird, the black-necked stilt *Himantopus mexicanus* has also a 'barking' call, as already noted by Darwin as well (Barlow 1963, p. 217).

<sup>7</sup>See Barlow 1963, p. 278: added after the journey.

<sup>8</sup>Added after the voyage.

<sup>9</sup>See Barlow 1963, p. 211: added after 7th September 1835, during or after the voyage.



*rubinus nanus*); *Tyrannus* (for *Pyrocephalus*, *Ochthocea*); scissor tail (for *Tyrannus savana*); *Lanius* [*in errore*] (for *Xolmis*, *Agriornis*); *Alectrurus* (for *Alec-trurus*); yellow-breasted *Tyrannus* (for *Myiarchus magnirostris*); *Sylvia* (for ? *Muscisaxicola*, ? *Satrapa*); “habits resembling our field-fares” (for *Neoxolmis*); “like the Butcher bird [...] resembles a hawk [...] & [...] like a kingfisher”, bien te veo [Esp.: I see you well] (for *Pitangus*); “little bird with crest” (for *Elaenia*); [Darwin’s name not traced for *Platyrinchus*].

PHYTOTOMIDAE: finch, *Phytotoma rara* (for *Phytotoma rara*).

ALAUDIDAE: [unidentified] bird (for *Eremopterix*, *Ammomanes*).

HIRUNDINIDAE: swallow (for *Tachycineta*, *Progne*, *Notiochelidon*); *Hirundo* (for *Progne*).

MOTACILLIDAE: *Anthus*, *Alauda* [*in errore*], lark [*in errore*] (for *Anthus*).

TROGLODYTIDAE: *Sylvia* [*in errore*], “bird lives near the beach” (for *Cistothorus*); wren (for *Troglodytes*).

MIMIDAE: *Lanius*, thenca [Esp.], callandra [*sic*: Esp. calandria] (for *Mimus*); thenca [Esp.] (for *Nesomimus*).

TURDIDAE: thrush, *Turdus* (for *Turdus*).

EMBERIZIDAE: *Fringilla* [*in errore*] (for *Ammodramus*, *Zonotrichia*, *Phrygilus*, *Diuca*, *Poospiza*, *Embernagra*, *Geospiza*, *Camarhynchus*, *Thraupis*); sparrow [*sensu* American sparrows] (for *Zonotrichia*); blue sparrow (for *Phrygilus alaudinus*); *Emberiza* (for *Melanodera*, *Sicalis*); *Icterus* [*in errore*] (for *Geospiza*); grosbeak [*in errore*] (for ? *Camarhynchus*); *Sylvia* [*in errore*], wren [*in errore*] (for *Certhidea*); [Darwin’s names not traced for *Aimophila*, *Donacospiza*, *Sporophila*, *Gubernatrix*, *Volatinia*, *Salpator* and *Pipraeidea*].

PARULIDAE: *Sylvia* [*in errore*] (for *Dendroica*, *Geothlypis*).

VIREONIDAE: *Lanius* (for *Cyclarhis*).

ICTERIDAE: *Xanthornus* (for *Xanthopsar*); *Icterus* (for *Agelaius*, *Pezites*, *Pseudoleistes*, *Amblyramphus*, *Curaeus*, *Molothrus*); thili, chili [from Molina 1809, Chilean Esp. trile] (for *Agelaius*);<sup>14</sup> *Sturnus ruber* [*in errore*] (for *Pezites militaris* [*nec* *Sturnella rubra* = *Amblyramphus holsericeus*]); *Anthus* [*in errore*] (for *Dolichonyx*); [unidentified] egg (for egg of *Molothrus*).

FRINGILLIDAE: *Fringilla*, siu [from Molina 1809, Esp. jilguero] (for *Carduelis*).

PLOCEIDAE: sparrow (for *Passer*).

## Identification problems

However close an observer a naturalist may be, it is not possible for him to know much of a species from seeing perhaps one or two individuals in the course of

a rapid ride across the pampas. (Hudson 1870a, about Darwin).

Waders posed the biggest challenge to Darwin’s identification skills. He misidentified, for example, the common turnstone *Arenaria interpres* as a plover of the genus *Charadrius*, and vice-versa. Darwin lacked any real interest in waders, and barely mentioned their behaviour, habitat or geographical range. Accordingly, the chapters on species of Charadriiformes in the *Zoology of the Voyage of H.M.S. Beagle* (Gould et al. 1841) are quite poor and contain very little data beyond the collecting localities.

Furthermore, Darwin had immense problems in applying any sensible name to species of bird confined to America, such as Tinamidae,<sup>15</sup> Furnariidae, Tyrannidae and Rhinocryptidae.

A notebook entry from the Patagonian coast near Santa Cruz in April 1834 reveals the problems Darwin faced when writing about undescribed bird species (Barlow 1963, p. 247): “[No.] 2011 *Callandra*.- see *supra*. No ? (1216).- S. Cruz / [No.] 2012 *Lanius*; rare (unless ?) [del.] both on coast & in the interior plains; chases insects very quickly half flying, half running.- do [S. Cruz] / [No.] 2013 *Lanius*.- rare.- female.- Hab. do. [S. Cruz] N. B. [added about a year later in summer 1835] One of these birds is brownish with a white tail; I saw it in the lofty & arid valleys on the Eastern slope of the Cordillera at Chili.- The other of these, or one shot at P. Desire or St Julians, is brown all over & with a broad [sic: broader] bill like true *Lanius*, this bird is found also in Chili as far North as Copiapó. I am assured that it commonly kills young birds.” The first species Darwin was referring to is the Patagonian mockingbird *Mimus patagonicus*, described by Lafresnaye and d’Orbigny in 1837. The other birds are shrike-tyrants, *Agriornis montana leucura* (Gould, 1839) and *Agriornis microptera microptera* (Gould, 1839) both described by Gould on the basis of Darwin’s material, and the species that kills young birds is *Agriornis livida livida* (Kittlitz, 1835) (cf. Darwin in Gould and Darwin 1839c: p. 56: *Agriornis gutturalis*). Darwin used the substitute name *Lanius* (genus of old world shrikes) for the shrike-tyrants.

## Labelling of specimens

Trust nothing to the memory; for the memory becomes a fickle guardian when one interesting object is succeeded by another still more interesting. (Darwin 1839, p. 598).

Darwin recorded the important information regarding each specimen, such as locality, date and habitat, in his notebook only, not on the specimen label. Even after

<sup>14</sup>Darwin wrote in Gould et al. 1841, p. 106 that the name of the country would derive from the song of *Agelaius thilius*, which is indeed one of the theories as to where Chile got its name from (J. Torres-Mura, personal communication, April 2004).

<sup>15</sup>Subsequent authors (Steinmüller and Steinmüller 1987, p. 153) still referred to the tinamous in Darwin’s words, as grey partridges.



**Fig. 1** Original field label by Darwin on a specimen of *Gallinago paraguayae* (BMNH 1860.1.16.74). The species name is in Gould's hand, the number "1203" is written by Darwin. Photo: Harry Taylor, Natural History Museum, London/Tring



the voyage he still considered this the most reliable method of recording data (Darwin 1839, pp. 598–600). His specimen labels were made out of scrap paper, tied with a cord to the foot or neck of the bird (birds in alcohol got a metal tag; Figs. 1, 2). These bird labels contained nothing except for a number ranging from 185 to 3907 (all dried zoological items were numbered in the same sequence), cross-referring the individual specimen to the corresponding notebook entry. Darwin kept separate notebooks for geological (cf. Herbert 1980) and biological specimens (plants and animals: *Zoology Notes*, Keynes 1997), the latter numbered in two different sequences for dry and wet collections (Porter 1985, p. 979; cf. Darwin 1839). During the last months of the voyage, separate lists of the mammals, birds,<sup>16</sup> insects, shells, plants, reptiles and amphibians, crustaceans, and fishes, were copied out by Darwin and Covington for the benefit of the specialists to whom they were to be given for classification. During this procedure, Darwin marked each original 'bird entry' with a capital 'B' (Chancellor et al. 1988). Some original bird entries, though, were missed out, so that one has to consult the original *Zoology Notes* (ed. Keynes 2000) rather than the bird notes (ed. Barlow 1963) when completeness is important. The numbers on the skin labels were mainly written in pencil, and to a lesser extent in Indian ink. Only one label is known to have survived on which the locality is also cited. It belongs to a Spanish sparrow *Passer hispaniolensis* (BMNH<sup>17</sup> 1881.5.1.2117) collected

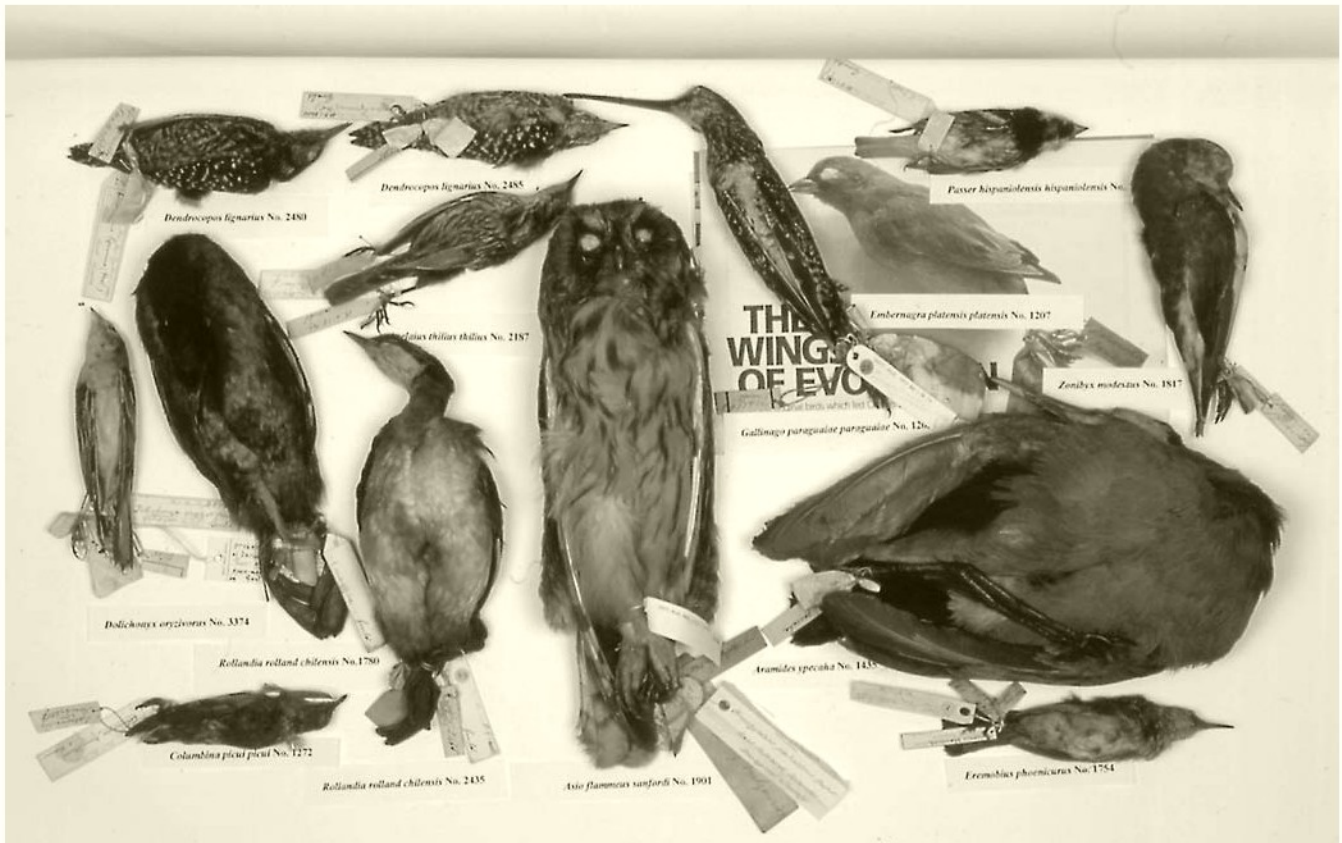
on the Cape Verde Islands, collection number 189, and reads "loc S Jago" [in pencil; collected at Praia (14°55'N, 23°31'W) on the island of São Tiago]. Later, John Gould (1804–1881), who worked on these specimens, sometimes added a species name to the original label. All Darwin's birds would have carried these labels originally, but later owners of the bird collection did not appreciate the importance of these reference numbers, replacing Darwin's labels with proper museum labels after the sale of the Zoological Society Museum in 1855.<sup>18</sup> Thus, most of Darwin's data was used only once, in the writing of the section of the *Zoology of the Voyage of H.M.S. Beagle* which deals with birds (Gould and Darwin 1838, 1839a, 1839b, 1839c; Gould et al. 1841). Most subsequent museum labels do not quote any actual collecting locality and rarely make reference to Darwin's notebook numbers. Unfortunately, just 16 original labels have survived (Sulloway 1982a knew only one; see Appendix). The numbers of 499 bird items were entered into the notebooks of Darwin published by Barlow (1963) and Keynes (2000), but, as comparisons with the text of Gould and Darwin (1838, 1839a, 1839b, 1839c) and Gould et al. (1841) have now revealed, a total of 512, perhaps even 515, items had probably been collected. Two notebook numbers are shared by two and, respectively, three different egg clutches. The birds not traced in the notebooks are two specimens in alcohol, five skins from Rio de Janeiro (April to July 1832) and

<sup>16</sup>The ornithological notes had been compiled between 12 April–19 July 1836 (Sulloway 1982c).

<sup>17</sup>For any museum's abbreviation see Appendix.

<sup>18</sup>The Zoological Society labels recorded the donor's name, the acquisition date and Darwin's specimen numbers: front "C. Darwin Esq. Jan 4 1837", back (number); but most of these labels were also replaced.





**Fig. 2** A set of all but one specimen of Darwin's collection with original field labels attached. Photo: Harry Taylor, Natural History Museum, London/Tring

one skin each from Tierra del Fuego (southern summer 1832/1833 or 1834), Buenos Aires (October 1833) and East Falkland Island (March 1833 or 1834).

Darwin used a method for recording data known to geologists and palaeontologists. It is difficult to tie a label to a stone, and writing a number on the specimen cross-referring the item to a notebook entry is the only practicable solution. However, most bird collectors would put any important information directly on the specimen labels, entering additional data into a notebook only if space were short. Darwin's contemporaries Johann Natterer (1787–1843), Alfred Russel Wallace (1823–1913) and Eduard Rüppell (1794–1884), to name but a few, used minute paper labels, but still wrote down collecting locality, date, sex and a reference number.

#### Observations and investigations

I do not doubt that every traveller must remember the glowing sense of happiness he experienced, from the simple consciousness of breathing in a foreign clime, where the civilized man has seldom or never trod. (Darwin 1839, p. 606).

Despite the foregoing criticism of the view that Darwin was a good field ornithologist, he did make some excellent

ornithological observations and carried out innovative experiments, noting down every minute detail of his research. His ornithological notes run for 86 numbered and 10 additional pages. Darwin's real strength was that he never took anything for granted and was aware that either he or other scientists might have made errors in certain observations. Darwin was also good at asking the right questions, many of which he could then answer himself during the voyage through his own field studies.

Take for example his investigations into the olfactory abilities of the Andean condor *Vultur gryphus*, which had been triggered by a report by Audubon that vultures can smell (Darwin in Gould and Darwin 1838, pp. 3–6; cf. Barlow 1963, pp. 240–245):

I tried [...] the following experiment. The condors were tied, each by a rope, in a long row at the bottom of a wall. Having folded a piece of meat in white paper, I walked backwards and forwards, carrying it in my hand at the distance of about three yards from them; but no notice whatever was taken of it. I then threw it on the ground within one yard of an old cock bird; he looked at it for a moment with attention, but then regarded it no more. With a stick I pushed it closer and closer, until at last he touched it with his beak: the paper was then instantly torn off with fury, and at the same moment every bird in the long row began struggling and flapping its wings. Under the same circumstances, it would have been quite impossible to have deceived a dog.



What Darwin observed ties in what we know about these birds today: while the *Cathartes* species studied by Audubon have a superb olfactory sense, condors find their food optically (Houston 1994).

Darwin also gave a vivid account of the lesser rhea *Pterocnemia pennata* (Keynes 2000, pp. 188–189):

There is some notice about a second species of Rhea, which is very rarely found N of the R. Negro [Patagonia]. Mr Martens [Conrad Martens (1801–1878), the official artist on board] shot one at Port Desire, which I looking slightly at it pronounced to be a young one of the common sort, that is it appeared to be 2/3 in size of the common one. I also [saw] some live ones of the same size, but entirely forgot the Petises. I have since reclaimed the Head, Legs & several feathers [...]. The scales on legs are of a different shape, & is feathered below the knees, this accounts for their being said to be shorter in the legs & perhaps for being feathered to the claws. (it is a bird which the R. Negro Gauchos have only seen once or twice in their lives). [...] Whatever Naturalists may say, I shall be convinced from such testimony as Indians & Gauchos that there are two species of Rhea in S. America.

Darwin was correct. Two species of rheas inhabit South America. These parts of several different individuals of rhea were later mounted to form a nearly perfect composite specimen, now considered lost, for the museum of the Zoological Society of London (Rice 1999). John Gould, the curator of the Society's museum, described Darwin's, or, as it is called today, the lesser rhea as *Rhea darwini* in 1837 (Gould 1837d). The famous French traveller Alcide Dessalines d'Orbigny (1802–1857), however, got the credit for the discovery and naming of the bird, which he described as *Rhea pennata* in 1834, the same year in which Darwin wrote the above note, away from civilisation and out of contact with the scientific community (cf. Herbert 1980, pp. 107–110).

Darwin was excellent in his observations when it came to game birds. His account of tinamous, for example, reads like a hunting manual:

Does not live in covies [pl. of covey = flock of partridges], but generally in pairs, runs more & does not lie so close as the English Partridge; not a high shrill[,] chirp or whistle. When riding through the country great numbers, (generally in pairs) may be seen, as when at a short distance they take no pains to conceal themselves. They are silly birds; a man on horse-back by riding in a circle or rather in a spire, round & round, each time closer & closer, so bothers the bird, that it may be knocked on the head, or noosed by running knot, at the end of a long stick, with the greatest ease. Flesh most delicately white, when cooked more so than of Pheasant, but rather dry & flavourless (Barlow 1963, p. 218).

Darwin gave some hints that where he indicated the sex of a bird, these had in fact been sexed internally by

dissection. He did not believe that birds could always be sexed on size or plumage characters, which was common practice among the naturalists of the day. In his discussion of the different colour morphs and sizes of striated caracara *Phalcoboenus australis* from the Falklands, Darwin checked for the first time during the voyage the reproductive organs (Darwin in Gould and Darwin 1838, p. 16). It is unclear whether somebody influenced Darwin, and subsequently Covington, to adopt internal sexing as a normal procedure when preparing bird skins. Neither do we know whether Darwin was taught the differences in the sexual organs of birds or if he found out how testes differ in appearance from ovaries himself (cf. nothing is mentioned in Armstrong 1992). From March 1834 on, though, Darwin and Covington consistently dissected birds to sex them. In a notebook entry for birds collected around Valparaíso (Chile) Darwin stated (in Barlow 1963, pp. 253–254): "The following birds were shot at Valparaíso, during months of August & September [1834].- The sexes were distinguished by S. Covington by opening their bodies, & judging chiefly from the granulated state of the Ovarium: it being the Spring [of the Southern hemisphere], probably this means is correct." Darwin, an amateur ornithologist, would not have had the necessary knowledge of sex-related plumages, and therefore had to dissect.

Careful investigations were made into the geographical range of each species and its general habitat. Furthermore, Darwin was interested in what the birds ate, frequently dissecting the stomachs of birds and reporting on the contents. Most of his thorough bird accounts close with a passage on the bird's calls and songs. Where Darwin was able to gather information on breeding, this information has also been added. The following is a good example of a detailed notebook entry:

[No.] 1222 *Furnarius* [i.e. common miner *Geositta cunicularia cunicularia* (Vieillot, 1816)].- This bird has a considerable distribution. On the east coast, it occurs from 30° (& perhaps in this & many other cases those bird[s] which frequent plains, reach much further to the North, to the extreme limit of the great central plains) to 40°. I never saw a specimen further South than this. On the west coast, it occurs from Concepción (where open country commences) 37°, to as far (at least) as Lima in 12°.- It constantly haunts the driest plain parts, away from bushes & trees. Sand dunes, near the sea coast afford a very favourite resort. At Maldonado [Uruguay] & at Bahía Blanca [Patagonia] it is very abundant, it is very tame, most quiet solitary little bird; being disturbed only flies to a very short distance. Is active early in the mornings & late in the evenings (like Robin): is fond of dusting itself in a road: walks, but cannot run very quickly; in stomach small Coleoptera [beetles], chiefly Carabidous insects. At certain times it frequently utters a peculiar shrill, but gentle, quickly reiterated cry (so quickly reiterated as to make one running sound). In



this respect resembles the Oven bird [*Furnarius rufus*], but as widely differs in its quietness, from that active bird.- It builds its nest at the bottom of a narrow cylindrical hole, which is said to extend horizontally to nearly six feet long. Several country men, told me, that when boys they had attempted to dig out the nests, but from their depth had nearly always failed.- The bird chooses any low little bank of firm sandy soil, by the side of a road or stream. (Barlow 1963, pp. 217–218).

Without the personal anecdotes, this species description could not be beaten by any in a modern handbook (cf. e.g. Ridgely and Tudor 1994, pp. 26–27). Most unusual for the time, but extremely helpful, were Darwin's reports on the pedal locomotion of birds, which is sometimes characteristic for the whole family or genus. He very often noted down if a bird hopped, walked or ran on the ground. Even the geographical range of the species is given more or less correctly,<sup>19</sup> which is astonishing when one takes into account that this would entail Darwin having to check for the bird in all the places he visited. Darwin was intrigued by the isolation factor constituted by the Andes and, probably towards the end of the voyage, compiled a list of birds occurring on both sides of the mountain range (Keynes 1997, p. 466).

Some notes, however, were extremely poor. Sulloway (1982a, 1982b) has already explored this fact with regard to the Galápagos finches. No attention was paid to which island which specimen came from. During the Galápagos visit itself, Darwin showed no great interest in this group of birds, nor in any other bird from the Galápagos Islands, perhaps with the exception of the mockingbirds (Keynes 2003). The same is apparently true for his visit to Isla de Chiloé (Willson and Armesto 1996).

A letter from Darwin to George Robert Gray written in the summer of 1839 (Burkhardt and Smith 1986, vol. 2, p. 196) witnesses the problems faced by the scientists who worked on Darwin's collection when confronted with Darwin's scanty notes: "With respect to the Falkland *Emberiza*, I can give little assistance 1919, 1920, 1922 female 'Shot in same large scattered flock on the hills'[,] But 1920 & 1923 & 1879 'I think more commonly occur on the plains' I put mark of ? to 1923 whether different species or not.- In another part of my catalogue I say I saw 1046 & 1047 together[,] My specimens were shot in March, corresponding to September, & this is all the very little inform[ation] I can tell you[.]" Gray (in Gould and Darwin 1839c, Gould et al. 1841) nevertheless managed to correctly identify one group of birds as the black-throated finch *Melanodera melanodera* (Fig. 3) and described the other taxon as a new species, the yellow-bridled finch *Melanodera xanthogramma*.

<sup>19</sup>The species does, however, occur along the east coast to the top of Tierra del Fuego.

## Darwin's contribution to ornithology

I shall relate [...] the few facts, which I have been enabled to collect together; and these, if not new, may at least tend to confirm former accounts. (Darwin's preface of Gould and Darwin 1838).

There is no question that of all Darwin's works, his evolution theory has had the biggest impact on ornithology (cf. Stresemann 1951). However, Darwin also kept important notes and collected a small number of very significant birds, among them birds new to science at the time or from nowadays extinct populations. Just how important were Darwin's bird collection and notes for the ornithology of the countries he visited?

Essentially, Darwin's bird collection only became ornithologically significant through the involvement of other people. Luckily, acknowledging that he was no expert in ornithology, Darwin donated his collection to the most senior experts in the field, to the anatomically interested Thomas Campbell Eyton (1809–1880), to George Robert Gray (1808–1872) and to John Gould (cf. Sauer 1998). The latter busily went about describing Darwin's new bird species in lectures given to the Zoological Society of London between January 1837 and January 1838 (Gould 1837a, 1837b, 1837c, 1837d, 1837e, 1837f, 1838), while Darwin added some comments during two of these meetings (Darwin 1837a, 1837b). Eyton compiled the anatomical appendix for the *Zoology of the Voyage of H.M.S. Beagle* (Gould et al. 1841), but also used some data gathered by Darwin in his *Synopsis on the Anatidae* (Eyton 1869, pp. 29, 31–32).

John Gould later summarized the ornithological knowledge which had been accumulated by Darwin during his journey in part 3 (Birds) of the *Zoology of the Voyage of H.M.S. Beagle* (Gould and Darwin 1838, 1839a, 1839b, 1839c; Gould et al. 1841), a book mainly financed by the government (Lords Commissioners of Her Majesty's Treasury; cf. Darwin in Owen and Darwin 1840, pp. II–III). Gould left a draft of the manuscript and the lithographs of Elizabeth Gould (1804–1841) with Darwin when he and his wife left for their own expedition to Australia on 16 May 1838. Some doubts remained with regard to certain birds and their taxonomy, so Darwin consulted George Robert Gray for advice. Gray was asked to work over Gould's manuscript, and he apparently double checked each name in issues 2–5, which had not yet been published (cf. e.g. Burkhardt and Smith 1986, vol. 2, p. 280).<sup>20</sup> It took Gray so long to finish issue 5 that Darwin was forced to ask him in 1840 if he would "oblige [him] by kindly finishing the remaining

<sup>20</sup>The first issue (pp. 1–16, pls. 1–10) of the bird section of *Zoology of the Voyage of H.M.S. "Beagle"* was apparently published in July 1838, the second (pp. 17–32, pls. 11–20) in January 1839, the third (pp. 33–56, pls. 21–30) in July 1839, the fourth (pp. 57–96, pls. 31–40) in November 1839, the fifth (pp. 97–164, pls. 41–50) in March 1841 (Burkhardt and Smith 1986, vol. 2, pp. 432–437; Zimmer 1926, p. 159).





**Fig. 3** Darwin's specimens of the black-throated finch *Melanodera melanodera* (BMNH 1855.12.19.50, BMNH 1885.12.14.806) in comparison to Gould and Darwin (1839c): plate 32. Photo: Harry Taylor, Natural History Museum, London/Tring

MS" (Darwin cited in Porter 1985, p. 1003). Darwin was not very pleased to see that Gray had added his name to any new combination of names, disregarding 'Strickland's laws'<sup>21</sup> (letter to Leonard Jenyns, cited in Burkhardt and Smith 1986, vol. 2, p. 317), but Gray's name nevertheless appears in the printed version, which was published from July 1838 to March 1841, heavily edited by Darwin himself. For this task Darwin had worked on both his bird collection and that of the BMNH from mid 1837 onwards (Brandon-Jones 1996, p. 504). His notes are in fact equally important as Gould's and Gray's descriptions as they add much on habitat, behaviour and even ecology for some species not found elsewhere at the time. Furthermore, the expert work on avian taxonomy by Gould and Gray provided Darwin with some raw material for his thoughts on evolution (see below; cf. Sulloway 1982 b, 1982c).

Darwin twice resumed his ornithological notes in later life (Darwin 1870, 1881). In 1870, Darwin wrote a paper

on the habit of the campo flicker *Colaptes campestris*, of which he once collected two specimens in Uruguay and Argentina (cf. Barlow 1963, p. 219, Nos. 1238; and p. 225, No. 1428). When Darwin studied the campo flicker in the field near Maldonado, Uruguay, he wrote in his notebook that it "alights horizontally, like any common bird, on the branch of a tree: but occasionally I have seen it clinging to a post vertically [...] frequent the open plains." (Barlow 1963, p. 219). Darwin explored the example also in *On the Origin of Species*:

On the plains of La Plata, where hardly a tree grows, there is a woodpecker (*Colaptes campestris*) which has two toes before and two behind, a long pointed tongue, pointed tail-feathers, sufficiently stiff to support the bird in a vertical position on a post [...], and a straight long beak. [...] Hence this *Colaptes* in all the essential parts of its structure is a woodpecker [...], yet, as I can assert, not only from my own observations but from those of the accurate Azara [1802–1805], in certain large districts it does not climb trees, and it makes its nests in holes in banks! (Darwin 1872, p. 183).

Darwin's paper from 1870 was triggered by the accusation of William Henry Hudson (1841–1922) that these woodpeckers, as published by Darwin in the *Origin of Species*, do not breed in mud banks, but in tree holes like other woodpeckers (Hudson 1870a, 1870b). It is now common knowledge that the campo flicker does both (Winkler et al. 1995, p. 326).

Eleven years later Darwin published on the parasitic behaviour of the cowbirds *Molothrus*, four specimens

<sup>21</sup>Strickland et al.: Report of a committee appointed "to consider of the rules by which the nomenclature of zoology may be established on a uniform and permanent basis." Report of the 12th meeting of the British Association for the Advancement of Science held at Manchester 1842:105–121 (cited in Burkhardt and Smith 1986, vol. 2, p. 500). Darwin was much in favour of referring the species name to the first author, but not to the author of any new combination.



of two species of which were to be found in his collection.

John Gould described a total of 37 new bird species on the basis of Darwin's collection. G.R. Gray added one further species.<sup>22</sup> Darwin collected another 12 birds previously described by Molina (1782), 10 which had been described from d'Orbigny's collection in 1837 and 1838, 7 birds already named by Lesson in 1826 1839, 8 described by King in 1828 1831 and 13 described by Kittlitz mainly in his 1830 publication (see Appendix for type specimens in Darwin's collection).

Darwin's contribution to the avifauna of Chile has already been discussed (Jaksic and Lazo 1994; Willson and Armesto 1996). He followed Giovanni Ignazio Molina (1740 1829), René Primevère Lesson (1794 1849), Prosper Garnot (1794 1838), Philip Parker King (1791 1856), Baron Friedrich Heinrich von Kittlitz (1799 1874), Jeremiah Reynolds (1799 1859) and Alcide Charles Victor Marie d'Orbigny (1802 1857) as a collector of birds in Chile (cf. Steinheimer 2002, p. 35). Hardly any new (sub-)species were left to discover,<sup>23</sup> though Darwin contributed many useful ornithological observations and range extensions.<sup>24</sup> The same is true for the greater part of the east coast of South America. In the plains of Patagonia, however, Darwin encountered 11 undescribed taxa,<sup>25</sup> despite the fact that d'Orbigny and Captain Philip Parker King had also collected there.<sup>26</sup> Other new species came from Maldonado in Uruguay<sup>27</sup> and from the Cape Verde Islands.<sup>28</sup>

<sup>22</sup>G.R. Gray also described *Tyto alba punctatissima* (G.R. Gray in Gould and Darwin 1839b, pp. 34–35), but the description had been based on a specimen of Captain FitzRoy's collection.

<sup>23</sup>Three new Chilean taxa are based on Darwin's collection: *Caprimulgus longirostris bifasciatus* Gould 1837c: Valparaíso; *Melanoderes xanthogramma xanthogramma* (Gray in Gould and Darwin 1839c): Tierra del Fuego and on Falkland Islands; *Ochthoeca parvirostris* (Gould in Gould and Darwin 1839b): Valparaíso and Santa Cruz, Argentina.

<sup>24</sup>Following Jaksic and Lazo (1994), Darwin made notes of about 40 Chilean species out of 440, and added 11 new country records.

<sup>25</sup>*Aimophila strigiceps strigiceps* (Gould in Gould and Darwin 1839c): Santa Fé; *Agriornis microptera microptera* Gould in Gould and Darwin 1839c: Patagonia; *Agriornis montana leucura* Gould in Gould and Darwin 1839c: Port Desire; *Asthenes pyrrholeuca flavogularis* (Gould in Gould and Darwin 1839c): Patagonia; *Buteo ventralis* Gould 1837b: Santa Cruz; *Caprimulgus parvulus parvulus* Gould 1837c: Santa Fé; *Coturnicops notata notata* (Gould in Gould et al. 1841): Río de la Plata; *Eremobius phoenicurus* Gould in Gould and Darwin 1839c: Patagonia; *Myiophobus fasciatus auriceps* (Gould in Gould and Darwin 1839b): Buenos Ayres; *Ochthoeca parvirostris* (Gould in Gould and Darwin 1839b): Santa Cruz and Valparaíso, Chile; *Phalcoboenus megalopterus albogularis* Gould 1837b: Santa Cruz.

<sup>26</sup>King's birds are mainly housed in the BMNH collection. See d'Orbigny and Gervais (1835–1847) for details of d'Orbigny's collection.

<sup>27</sup>*Ammodramus humeralis xanthornus* Gould, 1839; *Limnortites rectirostris* (Gould, 1839); *Limnortites curvirostris* Gould, 1839.

<sup>28</sup>*Ammomanes cincturus cincturus* (Gould, 1839); *Eremopterix nigriceps nigriceps* (Gould, 1839); *Passer iagoensis iagoensis* (Gould, 1837).

Ornithologically the most fruitful was Darwin's visit to the Galápagos Islands, where no proper collection-based survey of birds had ever taken place before the "Beagle" crew came ashore. Twenty-two new (sub-)species were among the birds which Darwin brought back to Britain. They were all described immediately by John Gould, who also, as discussed in Sulloway (1982a, 1982b), was the first to recognize the close relationship among the Galápagos finches. Gould received Darwin's specimens on 4 January 1837 (see below), and had already presented the Galápagos finches as new to science 6 days later at a meeting of the Zoological Society (10 January 1837). At that time, Darwin had not yet given Gould the necessary notebook data so he was forced to rely on descriptions only, even in sexing the birds (cf. Gould 1837a). It was only later that Gould placed the genus *Certhidea* within the group (probably during March 1837), but this was covered up by the fact that before the proceedings of the meetings of the Zoological Society were published later the same year, Gould had corrected his paper (1837a) of the 10 January meeting accordingly (Sulloway 1982b, pp. 21–22).<sup>29</sup> What Gould (1837a), unlike most 19th century ornithologists, understood after several months of research (cf. Sulloway 1982b, pp. 21–22) was that within this group of birds, the different beaks, which for continental birds were believed to be one of the stable family characters, were highly modified whereas the plumage, otherwise most variable, remained almost identical.

One can therefore say that it was mainly John Gould who made Darwin's collection and notes into a significant contribution to ornithology. The Galápagos finches subsequently proved to be more interesting than any other specimens in Darwin's collection. Swarth (1929, 1931), followed inter alia by Lack (1947, cited 1961), Steadman (1982) and Rosemary and Peter Grant (e.g.

<sup>29</sup>Although contested by Warren and Harrison (1971) and Sulloway (1982a, 1982b, 1982c), only Darwin's specimens were used in Gould's first descriptions, and therefore only these specimens can be considered types of the Geospizinae (Galápagos finches). If birds collected by such a high-ranking person as a Captain of the Royal Navy had been available, this would have been mentioned in Gould's publication. Darwin travelled as private and self-financed naturalist on the "Beagle" and was free to dispose of his specimens as he liked. FitzRoy, an employee of the Navy, was more restricted. He gave, probably on order by Sir William Burnett (1779–1861), the physician-general of the navy, his bird collection to the BMNH on 21 February 1837, where they did not get the same attention accorded to Darwin's at the Zoological Society. Sulloway (1982a) claims that Gould also used a *Geospiza* specimen from Fuller's collection, which was given to him by Eyton. However, there is no correspondence to corroborate this, and it is therefore believed that the missing taxon was not in Eyton's collection, but was among those of Darwin's *Geospiza* specimens not traced. Darwin later communicated the locality data relating to the collections of FitzRoy and other shipmates to John Gould, and it is even assumed that Gould later saw FitzRoy's birds in the BMNH, but as there is no reference to FitzRoy in Gould's first description, any other Galápagos finches than those of Darwin can be at best seen as Paratypes (cf. Gould 1837a).



Grant et al. 1985; Grant 1986), showed their adaptive radiation and on-going evolution, similar to that of the Hawaiian honeycreepers, which make them one of the best examples of Darwin's evolutionary theory (cf. Weiner 1994).

Five bird populations encountered by Darwin are today believed to be extinct. His specimens count among the few remaining records we have of the existence of these populations, which comprise the large-beaked population of the large ground-finch *Geospiza magnirostris magnirostris* (cf. Fuller 2001, p. 297), believed by Darwin to occur on Santa María (Charles) and San Cristóbal (Chatham) Islands,<sup>30</sup> the Santa María (Charles) Island population of the sharp-beaked ground-finch *Geospiza nebulosa* (cf. Lack 1961, p. 23; Sulloway 1982b, p. 30), the population of the Charles mockingbird *Nesomimus trifasciatus trifasciatus* from Santa María (Charles) Island, though the same subspecies still occurs on neighbouring islands (Mayr and Greenway 1960, p. 447), the yellow-bellied finch *Melanodera xanthogramma xanthogramma* from the Falkland Islands<sup>31</sup> and the Andean tapaculo *Scytalopus magellanicus magellanicus*, also from the Falklands.<sup>32</sup> Last but not least, Darwin recorded a "gull" in the "neighbourhood of Porto Praya [i.e. São Tiago] from 16th of January to 7th of Feb. [1832]" (Keynes 2000, p. 371; Darwin No. 185). There is hardly any other record of any gull species from the Cape Verde Islands (Hazevoet 1995). Unfortunately, the gull specimen, which Darwin shot on the Cape Verde islands and which he entered under number "185" in his specimen list, has not been traced. A specimen of rail from the Ascension Islands, also of unknown whereabouts, might also have proved interesting. Taylor (1998, p. 478) listed the record under the species of Allen's gallinule *Porphyrio alleni*.

### Darwin's bird collection

Let [the collector] work hard from morning to night, for every day and every hour is precious, in a foreign

clime; and then most assuredly his own satisfaction will one day well repay him. (Darwin 1839, pp. 601 602).

Darwin's comprehensive geographical notes on certain birds' distributions were only possible because he would, at least during the first 3 years of the voyage, always collect any bird, when time permitted, regardless of whether he already had a specimen of the same species in his collection or not. This might have been due to the fact that he was not actually able to tell the difference in the field, but it may more charitably be believed that his collection of small series<sup>33</sup> of the same species was actually inspired by his intense interest in biogeography and geographic variation. Darwin may often have been thwarted, though, by the space problem in the tiny cabins and store rooms of H.M.S. "Beagle",<sup>34</sup> which probably did not permit constant access to his collection when he wanted to make comparisons.

Obviously, contemporary field collectors of the likes of Alcide Dessalines d'Orbigny in 1826 1833 and the early Alfred Russel Wallace in 1848 1852 did more comprehensive collecting in South America than Darwin. Johann Natterer brought back more than 12,000 bird specimens from his exploration of Brazil in 1817 1835. Even Captain Robert FitzRoy assembled a collection of 188 birds, not bad when one considers that he was in command of the "Beagle" and chiefly occupied with meteorology, hydrography and charting the coast line of the South American continent (Sharpe 1906, p. 323).

Darwin's 468 bird skins, 10 parts of the lesser rhea, the nests and eggs of 16 taxa, and his 14 whole birds and 4 parts of specimens in alcohol from the voyage of H.M.S. "Beagle" seem nothing in comparison (cf. Appendix; Eyton in Gould et al. 1841).<sup>35,36</sup> "But it must be borne in mind how large a proportion of time, during a long voyage, is spent on the water, as compared with the days in harbour [...besides] other losses [...] are the want of room, of seclusion, of rest; the jading feeling of constant hurry [...]" (Darwin 1890a, pp. 532, 533).

It is fairer, then, to compare Darwin's collection with those of other travellers on national circumnavigations, such as Baron Friedrich Heinrich von Kittlitz (1799 1874) during the voyage of the "Senjavin" in 1826 1829 and Andrew Bloxam (1801 1878) on H.M.S. "Blonde" in 1824 1825, whose bird collections are indeed of a

<sup>30</sup>Sulloway (1982b) raises the possibility that Darwin's birds did not come from these two islands at all, but from San Salvador (James) Island. Still, there is no bird with such an enlarged beak anywhere in the Galápagos Islands today.

<sup>31</sup>On 6–8 July 1998, a resident of the Falkland Islands, Lynda Anderson, probably saw two birds of this species on San Carlos, East Falkland (R. Woods, personal communication, April 2004, cited from a fax to Hay Miller, July 1998). However, there is no evidence that the species is still resident in the Falklands (Woods 1988; R. Woods, personal communication, April 2004).

<sup>32</sup>It seems conclusive that Darwin indeed collected a specimen of that species on the Falkland Islands (Keynes 2000, p. 385, Darwin No. 1144, see Appendix). However, the bird was more likely to be a rare vagrant from mainland South America than a breeding bird on the Falklands, which was what Darwin first believed (in Gould and Darwin 1839c, p. 74; cf. Woods 1988, p. 213). Darwin might have confused the nests of *Cistothorus platensis* (W.R.P. Bourne, personal communication, February 2000; R. Woods, personal communication, April 2004).

<sup>33</sup>It has to be stated, though, that the largest series of any one and the same species numbers just six individuals (cf. also Sulloway 1982c).

<sup>34</sup>Darwin had a very small cabin under the forecabin at his disposal for storing specimens (Porter 1985, p. 986).

<sup>35</sup>Darwin made some additional field notes on birds not collected (cf. Darwin 1839; Jaksic and Lazo 1994).

<sup>36</sup>Corrections of the total number of Darwin's avian specimens have been made since Steinheimer (2003).



similar size to Darwin's. Nevertheless, most voyages and most field collectors collected many more birds than Darwin.

Nonetheless, as shown above, Darwin's contribution to ornithology was not insignificant. Many of the specimens collected by Darwin are now the types for new names proposed by John Gould. Furthermore, "there has probably been more published on Darwin's ornithological collections than on all the other groups combined" (Porter 1985, p. 1002). One might therefore wonder why we do not actually know much more about Darwin and his bird collection, other than those from the Galápagos Islands. Nobody has ever comprehensively listed, for example, which birds Darwin collected or encountered during the voyage of the "Beagle". There are several explanations for this. One is the subsequent dispersal of Darwin's bird collection. When Darwin was still out in South America, he would send back bird specimens to Prof. John Stevens Henslow at Cambridge, who was paid by Charles' father, Dr. Robert Waring Darwin (1766–1848), to store the boxes until Darwin's return.<sup>37</sup> Henslow received four boxes and eight casks sent from Montevideo and the Río de la Plata in August 1832, November 1832, July 1833 and November 1833, one box from Buenos Aires sent in May 1834 and four boxes from Valparaíso sent in January and June 1835 (Porter 1985). All additional specimens collected later than June 1835, such as birds from Lima and the Galápagos Islands, were stored in the "Beagle" until her return to England.

Once Darwin was back in Britain, he and Covington spent some time in Cambridge sorting out the birds from the rest of Darwin's natural history collection in late December 1836 and early January 1837 (Sobol 1959, p. 126). Darwin had already been concerned before the journey as to whom he would present the zoological specimens he was going to collect during the circumnavigation. He had originally tended towards the British Museum, but could "not feel [...] any great respect even for the present state of that establishment", while the Zoological Society Museum was considered "nearly full" (Porter 1985, pp. 979, 991). Upon his return Darwin learned that his bird collection was neither welcomed with open arms nor much valued. "I am out of patience with the Zoologists, not because they are overworked, but for their mean quarrelsome spirit" (Darwin cited in Barlow 1967, p. 121).

<sup>37</sup>During the voyage, Darwin prepared rough bird skins, just like the ones known as study skins in modern museum collections. He always applied arsenical soap on the skins, and a corrosive sublimate on the beaks and legs (Darwin 1839, pp. 600–601). Darwin stuffed the specimens with dry grass or moss and left the incision un-sewn. Back home, the larger proportion of the birds presented to the Zoological Society Museum and all of those given to the BMNH before 1857 (see below) were immediately mounted for display purposes. Nevertheless, several dozen original skins of Darwin have survived.

In the end, the 14 birds in alcohol, more than a dozen skins and probably four anatomical specimens were forwarded to Darwin's friend and Cambridge colleague, Thomas Campbell Eyton,<sup>38</sup> among them birds later found in the BMNH and, in the case of one steamerduck *Tachyeres patachonicus* (CUMZ 12/Ana/60/a/5),<sup>39</sup> in Cambridge. Eyton wrote the appendix "anatomical description" in Gould et al. 1841. The remainder of the bird skins<sup>40</sup> was presented to the Zoological Society of London on 4 January 1837, the same day as Darwin delivered a talk to the Geological Society entitled *Observations of proofs of recent elevation on the coast of Chili* (Darwin 1838).<sup>41</sup> These Zoological Society skins attracted much interest among Darwin's contemporaries, as shown above. Darwin subsequently withdrew some, mainly duplicate, skins from the Society museum to forward them on loan to George Robert Gray at the BMNH. In a letter dated between June and early August 1839,<sup>42</sup> Darwin wrote that he would try to negotiate with the Zoological Society for the donation of a specimen of the scale-throated earthcreeper *Upucerthia dumetaria* to the BMNH. The bird was subsequently given to the BMNH in early August 1839, and is now registered as BMNH 1839.8.4.1 (see Appendix).

In total, about 34–39 skin specimens from the "Beagle" voyage were subsequently given by the Zoological Society to the BMNH in 1839, 1841 and 1856, on Darwin's initiative, which got him entered into BMNH registers as a donor. It seems certain that the

<sup>38</sup>Since his return Darwin would have met Eyton personally at the latest towards the end of 1837 (Burkhardt and Smith 1986, vol. 2, pp. 54, 64), but it is believed that by then he had already sent the skin specimens to Shropshire, where Eyton lived. It is equally possible that the two met during the previous winter (December 1836 to March 1837) in Cambridge. Later, in November 1839, Darwin forwarded the specimens in spirit, numbered 388, 630, 650, 707, 721, 722, 728, 1037, 1043, 1050, 1157, 1309 ('Specimens in spirits of wine') and two unnumbered items, altogether 14 whole birds (cf. Keynes 2000; Burkhardt and Smith 1986, vol. 2, pp. 243–244). It is likely that Darwin had also sent the four parts of birds to Eyton numbered 620 (tongue of woodpecker), 576 and 577 (tracheae of ducks, 'specimens in spirits of wine') and 3362 (stomach contents of flamingo, 'specimens not in spirits').

<sup>39</sup>It was always believed that this duck came from the Falkland Islands, but Darwin did not collect any duck during his two visits to East Falkland (cf. Barlow 1963; Keynes 2000). The anatomical specimens might have been forwarded to the Royal College of Surgeons as suggested by Darwin in a letter to Eyton on 6 January 1840 (Burkhardt and Smith 1986, vol. 2, pp. 249–250).

<sup>40</sup>The Morning Herald, London, from 12 January 1837, p. 5, reported that Darwin presented 450 bird specimens to the Zoological Society of London on 4 January 1837. The number might be correct considering that Eyton received at least 12, but perhaps even 18, specimens of Darwin's 468 bird skins.

<sup>41</sup>Sulloway (1982b, p. 20) cited an unpublished minute of the Council of the Zoological Society, which recorded that the Society had received Darwin's "Beagle" birds on that date, accompanied by a letter in which Darwin asked the Society to dispose of any duplicate specimens, and to mount and describe the rest.

<sup>42</sup>In Burkhardt and Smith (1986, vol. 2, p. 196) the letter is dated from June–October 1839, but the BMNH had already received the specimen in question in early August.



1839 and 1841 donations of at least nine birds were mainly triggered by Darwin asking George Robert Gray of the BMNH for help in finishing the bird chapters of the *Zoology of H.M.S. Beagle* (Gould and Darwin 1838, p. IX). Gray re-classified three of these birds for the book. In 1855, the Zoological Society Museum was broken up. The BMNH had the first choice of specimens. George Robert Gray, then the assistant curator of zoology, was entrusted with the selection of important material for the BMNH (Sharpe 1906, p. 251). Many type specimens, though, were overlooked by Gray, or possibly not shown to him by John Gould. Whatever the case, some of the remaining skins not chosen by Gray were subsequently sold to other bidders, such as the private collectors John Henry Gurney (1819 1890; cf. Gurney 1884, 1894) and Henry Baker Tristram (1822 1906). Most of the Zoological Society bird skins from the voyage of the "Beagle", however, went into the private collection of John Gould, and from there to Philip Lutley Sclater (1829 1913), Osbert Salvin (1835 1898), Frederick Du Cane Godman (1834 1919) and Gustav Adolph Frank (1808 1880).<sup>43</sup> Confirmed Darwinian bird specimens are now housed at the BMNH, LIVCM, MANCH, CUMZ, NMSE, RMNH, USNM and VMM (cf. Appendix; Steinheimer 1999, 2000, 2001, 2003). John Gould was not only a good ornithologist, natural history artist and museum curator, but an even more successful businessman. Gould used bird skins as a 'special gift' for those subscribing to his bird books (Güntert et al. 2004), shipping Darwin's bird specimens to institutions all over the world.

When the second lot of specimens was transferred at Darwin's request from the Zoological Society to the BMNH, the museum was just about to move its natural history collections from the old Montagu House at Bloomsbury to the department of zoology in Robert Smirke's new British Museum building. John Edward Gray (1800 1875), the older brother of George Robert Gray and curator of zoology at the BMNH, was busy keeping the collection in some kind of order, and therefore unable to cope effectively with the new specimens arriving at the museum, with correspondence, or with the maintenance of collections (Gunther 1975, 1980; see also Brandon-Jones 1996). The registration of Darwin's birds in the collection registers was therefore very poor, and mainly at genus level only. Moreover, Gray and his brother replaced all the original Darwin labels with the BMNH 'Handlist' labels (Sharpe 1906, p. 85). The collection therefore lost some of its authenticity and value. Its importance diminished

further when new, larger and better dated collections from the same regions arrived.<sup>44</sup> Other institutions holding Darwin specimens, perhaps with the exception of Gurney's Norwich Castle Museum and Tristram's specimens at Liverpool, also lost track of the fact that these birds had been collected by Darwin. By the time the remaining collection of the Zoological Society of London had been sold, most of the specimens were just referred to the Society, not to Darwin. This all happened before Darwin made his name with the publication of *On the Origin of Species* (Darwin 1859), and we must remember that, in those days, Darwin was neither as famous as he is today, nor did his collection enjoy such a good scientific reputation (cf. Sharpe 1906).

It is therefore no wonder that the whereabouts of at least 243 bird skins from Darwin's collection are now not known, despite intensive research. It is possible that authentic Darwin birds could yet come to light, but their provenance will of course most likely no longer be evidenced by their labels. Nevertheless it is hoped that the Appendix, which gives for the first time a comprehensive list of all the birds collected by Darwin, might help future researchers to locate missing birds from the voyage of the "Beagle".

#### Darwin's ornithological notes and the *Origin of species*

Sulloway (1982b) has already shown that the mocking-birds from the Galápagos Islands rather than the finches were used in Darwin's *On the Origin of Species*, though some later authors have still succumbed to confusion on this matter (Strathern 1999, pp. 43 44; Riedl 2003, p. 59).<sup>45</sup>

In a chapter entitled 'Geographical distribution', Darwin (1872, p. 414, pagination from Odhams Press reprint edition)<sup>46</sup> noted:

But we often take, I think, an erroneous view of the probability of closely-allied species invading each other's territory, when put into free intercommunication. Undoubtedly, if one species has any advantage over another, it will in a very brief time wholly or in part supplant it; but if both are equally well fitted for their own places, both will probably hold their separate places for almost any length of time.

In short, Darwin recognized the importance of building different ecological niches ("own places") for the

<sup>43</sup>Specimens of Baron Guillaume Michel Jerome Meiffren-Laugier de Chartrouse (1772–1843), cited on the BMNH labels and in the BMNH registers as deriving from Darwin (cf. Steinheimer 2003), are more likely birds from the collections of René Primevère Lesson, Prosper Garnot or Alcide Charles Victor Marie d'Orbigny, which tends to be confirmed by matching Darwin's field numbers and the number of available specimens.

<sup>44</sup>E.g., Sulloway (1982b, p. 40) reported that the next person to collect on the Galápagos Islands was Dr. A. Habel, shooting 460 specimens in 1868, followed by many others.

<sup>45</sup>Confusion occurred mainly because Darwin referred to the Galápagos finches in the second edition of his *Journal of Research* (Darwin 1845).

<sup>46</sup>This and all further quotations are also found in the 1859 edition, though differently worded (cf. Darwin 1859, pp. 402, 48, 390, 183, 184, 184–185, 243, 349).





**Fig. 4** Four specimens of captive-bred pigeons from Darwin's collection. Photo: Harry Taylor, Natural History Museum, London/Tring

establishment of two very similar species in the same geographical region (cf. Gause 1934, pp. 19–20). As an example he used the Galápagos mockingbird *Nesomimus parvulus*, the Charles mockingbird *Nesomimus trifasciatus*, and the San Cristóbal mockingbird *Nesomimus melanotis* (cf. Barlow 1963, p. 262; Keynes 1997, p. 466), of which he collected one and, respectively, two specimens of each (Darwin's numbers 2206, 3307, 3349, 3350). In his *Transmutation Notebooks* (Notebook B from 1837–1838; Barrett et al. 1987, p. 195) he goes on to say that: "It may be argued representative species [such as the South American and Galápagos mockingbirds] [are] chiefly found where barriers [...] interrupt[ed...] communication," stressing the importance of geographical isolation for speciation processes. The birds of the Galápagos Islands are also cited, albeit in general terms, as an example of how vague the distinction is between what one sees as a species and what scientists refer to as subspecies (Darwin 1872, p. 69). The mockingbirds of the Galápagos Islands collected by Darwin have been classified both as subspecies of a single species (Mayr and Greenway 1960, pp. 447–448), and as three different (allo-)species (Dickinson 2003, p. 649).

Darwin turned again to the Galápagos birds when explaining endemism. Darwin showed that of the 26 land birds known at the time, 21, or perhaps even 23, were believed to be endemic to the Galápagos Islands,

whereas of 11 marine birds only 2 were considered endemic (Darwin 1872, pp. 405–406).

However, Darwin (1872) also drew upon several additional ornithological observations from mainland South America for his book *On the Origin of Species*. As example of both diversified and changed habits, what would now be termed intraspecific variation in behaviour, Darwin (1872, p. 183) mentioned the great kiskadee *Pitangus (Saurophagus) sulphuratus*, which apparently both hovers and moves like a kestrel, and perches on twigs and darts into water like the kingfisher (cf. Ridgely and Tudor 1994). Geographical separation, different hunting preferences of divided populations and availability of food might modify this behaviour to either extreme. Darwin saw this as evidence that behaviour can be variable within one population, allowing diversification and the building of different behavioural niches after geographical separation. He encountered these birds near Maldonado in May and June 1833, and shot one specimen, numbered in his collection 1216 (cf. Keynes 2000, p. 153). Darwin (1872, p. 183) continued exploring different behaviour, moving on to the 'atypical' behaviour of one species within a genus as shown by the campo flicker *Colaptes campestris* (see above).

Darwin (1872, p. 184) went on in his investigation of behavioural differences on the family level by turning to the order of Procellariiformes: "Petrels are the most aerial and oceanic of birds, but in the quiet sounds of Tierra del Fuego, the *Puffinuria berardi* [i.e. *Pelecanoides urinator berardi*], in its general habits, in its astonishing



power of diving, in its manner of swimming and of flying when made to take flight, would be mistaken by any one for an auk or a grebe." What Darwin noted was that the diving petrels, Family *Pelecanoididae*, catch most of their food by diving under water, either from the surface or by plunging in directly from the air, which contrasts with the feeding behaviour of most other members of the *Procellariiformes*, though some albatrosses, and of course shearwaters, can dive short distances. Darwin's field notes read: "This bird in its habits is a complete diver [...], drops from the air like a stone, & as quickly dives to a long distance." In February 1834, after having seen these birds on the open sea between the Falkland Islands and Tierra del Fuego, and off Patagonia, Darwin obtained one specimen of the common diving petrel for his collection (Barlow 1963, p. 230, No. 1782).

A major part of the ornithology drawn upon in *On the Origin of Species* concerned cuckoo behaviour (see below). Darwin's first hand experience was of the bay-winged cowbird *Molothrus badius* and the shiny cowbird *M. bonariensis*. He encountered both species several times around Maldonado and Montevideo in Uruguay. Of the latter species Darwin even possessed a single egg numbered 1592 in his notebooks, which was found within a clutch of the rufous-collared sparrow *Zonotrichia capensis* (Darwin in Gould et al. 1841, pp. 108–109; Barlow 1963, p. 227). Darwin did not discover the bird's brood parasitic behaviour himself. It was Syms Covington who obtained the mixed egg clutch and came up with the theory about its cause. Darwin learned more about the brood parasitism of the cowbirds by speaking to local people, however, and finally consulted Azara (1802–1805) who confirmed his and Covington's suspicions. For Darwin, brood parasitism was one of the major problems to be tackled in his theory, and the cowbirds showed how such behaviour might have evolved. Cowbirds show all stages of graduation from a fully developed brood parasite to self-breeding.

The next reference to birds from the voyage of H.M.S. "Beagle" in Darwin's *On the Origin of Species* concerns nest building behaviour (Darwin 1872, p. 282). Darwin aimed to explain inborn behaviour in closely related but ecologically separated species, such as the song thrush *Turdus philomelos* and the austral thrush *Turdus falcklandii*. Darwin saw the American thrush on the Falkland Islands, in Tierra del Fuego and Isla de Chiloé, which are quite different habitats than those occupied by the song thrush in Britain, yet both build similar nests. Darwin had already noted in the field (Barlow 1963, p. 250): "Is said to have its nest smoothly lined with mud. I presume like our thrush." He collected at least two specimens of the austral thrush, one on East Falkland Island (Barlow 1963, p. 233, No. 1900), the other one at Chiloé (p. 250, No. 2125).

When Darwin (1872, p. 373) explained parapatric species he also made use of his own observations on the two forms of Rheidae, the greater rhea *Rhea americana* and the lesser rhea *Pterocnemia pennata*, which are, in Darwin's view, two 'successive' populations living in the

plains near the Strait of Magellan, and northwards of the plains of La Plata, with an overlap in North Patagonia. Darwin went on to elaborate that, in modern words, although the Rheidae have built themselves a similar niche to ostriches and emus, they are still their own family, thus evolving in some respects also convergently.

## Discussion

Many authentic sources from the "Beagle" voyage and much secondary literature (cf. Kohn 1985) has not been consulted for this work, and it must be borne in mind that the impact on ornithology of the "Beagle" circumnavigation as a whole is slightly greater than Darwin's contribution alone. Benjamin Bynoe (1804–1865) was initially the assistant and from April 1832 the acting surgeon of the "Beagle", also carried out the duties of the ship's naturalist. He kept detailed notes on the natural history of all the places they visited. Even more detailed was the work of Captain Robert FitzRoy, who, as mentioned above, had his own small bird collection. He also entered notes on birds in his log books. Syms Covington wrote a diary, including comments on natural history, and had a small private bird collection of a dozen birds or so. FitzRoy's personal steward, Harry Fuller (dates unknown), collected some birds (Porter 1985), now at CUMZ, and his Galápagos finches were apparently used by Darwin for his talk on 10 May 1837 (Barrett 1977, p. 40) and by John Gould for the 1841 publication. A "Beagle" mate named Charles Masters, classified as 1st Class volunteer, died of a fever "caught whilst snipe-shooting" (Barlow 1933, p. XXIII). Last but not least, the ship's clerk Edward Hellyer (? 1833) drowned on the shores of the Falkland Islands attempting to retrieve a bird he had shot (Sulloway 1982a).

The important steps towards Darwin's theory of evolution have already been discussed and summarized by much greater authorities (i.a. Herbert 1974; Sulloway 1979; Mayr 1991, cited 1994; Keynes 1997), and therefore this paper remains with the simple conclusion that birds were not Darwin's first love, and that the ornithological knowledge gained on the "Beagle" voyage do not seem to have been indispensable for his evolution theory, although he did use many examples from captive birds<sup>47</sup> (Fig. 4; cf. Darwin 1872, pp. 37–38, 45–51, 58–59, 61, 101, 167, 256–258, 288–289, 452–453) and

<sup>47</sup>For example, the observation on hybrids of his distinguished friend Eytton, that: "amongst birds, species originally coming from distant parts of the world, are more likely to breed together, than those from nearer countries" (Burkhardt and Smith 1986, vol. 2, p. 181; Eytton 1837, p. 359; cited *ibid.* 182, footnote 5) made clear to Darwin that, in general terms, hybrids are less well adapted than the parent species, so that, where the overlapping of species occurs, natural selection avoids hybrids, whereas bird populations at a geographical distance from each other and which do not overlap have no need to avoid hybrids and are thus not able to distinguish between their own and different species when brought together artificially.



cuckoos (pp. 251, 258–261, 282).<sup>48 49</sup> Ten and a half percent of the index of the 1872 edition of *On the Origin of Species* was taken up by subjects related to (palaeo-) ornithology. This is probably not representative of the proportion of ornithological knowledge as opposed to other sciences held by Victorian society. For Darwin, then, ornithology, especially of captive breeds, provided essential evidence for his theory of evolution.

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<sup>48</sup>Other ornithological examples in *On the Origin of Species* (Darwin 1872) are a discussion on bird races versus species with the example of the red grouse of Britain being perhaps a subspecies of the willow grouse (p. 69), survival rates of eggs and nestlings (pp. 82, 84–85), mortality rate of birds in Darwin's garden during the winter of 1854–55 (p. 86), the range extension of bird species such as mistle thrush and swallow, causing the decline of other species (p. 92), the natural selection of camouflage colours in grouse (p. 100), the hatching of birds (p. 101), sexual selection in birds, especially in birds of paradise, rock-thrushes, peacocks and turkeys (pp. 103–104), a separate subspecies of guillemot (*Uria aalge spiloptera*) on the Færoe Islands (p. 106), plumage colours (p. 145), constraints of construction in bird morphology explained by the variety of kidney forms in adaptation to different pelvis-bones (p. 154), flightless and rarely flying birds (pp. 146–147, 181, 224), bird flight (p. 182), differences in the behaviour of the great tit (pp. 183, 275), the diving ability of the white-throated dipper, which is seen in relation to hardly any visible adaptation (p. 184), the webbed feet of some birds, such as waterfowl, frigate birds and grebes, compared to the long toes of some waders (p. 184), the green colour of the green woodpecker, discussed in the light of natural versus sexual selection (pp. 200–201), the naked head of the vulture as an adaptation to scavenging versus the naked head of the turkey for display purposes (p. 201), the beauty of plumages and songs (p. 205), beaks of northern shoveler and Egyptian goose (pp. 227–229), bird nests, including those of swiftlets (pp. 254, 275), differences in and reasons for the timidity and tameness of birds (pp. 255, 257–258), the breeding behaviour of ostriches and pheasants (p. 262), the similarities in nest construction between closely related but geographically separated species such as wrens, thrushes and hornbills (p. 282), fossil birds (pp. 336, 356, 365), birds as vectors for plant seeds and fresh-water shells (pp. 382–384, 402–404), a seed-eating heron (p. 403), birds from certain islands like the Bemnudas, Madeira and the Canary Islands as an example of the means of geographical distribution (p. 406), birds replacing large mammals in certain regions shown by the moas on New Zealand (p. 406), near world-wide ranges of some avian genera (p. 416), and the parallel embryological development of different vertebrates, including birds, as well as the similarity of nestlings and juveniles of the same genus, such as those of different thrush species (p. 447). The glossary (pp. 493–525) explains the following ornithological terms: Furcula (bone), Gallinaeceous Birds, Gallus, Grallatores, Primaries, and Scutellae (scales on bird feet). In the concordance of Darwin (1859), 180 entries are for bird(s), 63 entries for mammal(s), 58 for fish(es), 12 for reptile(s), none for amphibian(s), 117 entries for insect(s), 58 for fossil(s), 160 for terms on geology & mineralogy and 364 entries for plant(s), giving birds quite a prominent place (Barrett et al. 1981).

<sup>49</sup>In addition to the "Beagle" birds, the following items of Darwin's collection can be found at the BMNH: 60 domestic pigeon skins, 6 domestic duck skins, 11 skeletons of ducks, 46 skeletons of pigeons and 28 skeletons of chickens, and 26 (25 still at the BMNH) skins of Persian birds from Teheran, which were previously in Sir John Murray's (1841–1914) possession (Steinheimer 2003).

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- Zimmer JT (1926) *Catalogue of the Edward E. Ayer ornithological library, part 1*. Field Museum of Natural History, Chicago, Illinois



## Appendix: Charles Darwin's bird collection from the voyage of the H.M.S. Beagle

Similar lists of Darwin's specimens have already been published for other animals than birds, e.g. invertebrates at Oxford University Museum (Chancellor et al. 1988). The following list, however, does not follow the general procedure in giving the entries in Darwin's number sequence, but in a taxonomical sequence.

Squared parentheses indicate comments and references added by the author. Sex and age, when given, are as on the label, in Darwin's notes or in the 'Catalogue of Birds' (Sharpe et al. 1874-1895). The determination of subspecies are mainly based on collecting locality, cited from Peters et al. (1934-1987), except for the Geospizinae, which follow Sulloway (1982). The total number of specimens slightly differs to Sulloway (1982) and Steinheimer (2003).

The taxonomy and nomenclature of Peters et al. (1934-1987) is followed throughout the document. No nomenclatural issues are discussed here and have to remain the subject of a separate paper. The authorship of new names has mainly been attributed to John Gould; and to George Robert Gray only in the few cases when the accompanying text refers to him. However, this might prove to be incorrect when further investigations take place on the history of the publication of *The Zoology of the voyage of H. M. S. Beagle*. The names and authors cited from *The Zoology of the voyage of H. M. S. Beagle* (Gould & Darwin 1838, 1839a-c, Gould et al. 1841; indicated by "Z.") may sometimes differ from what modern nomenclature would regard as correct. If a name on a plate has been published earlier than its accompanying text according to Sherborn (1897) then the name on the plate is given when referring to type status followed by the plate number in squared parentheses. Differences in the plate sequence between a facsimile copy and two originals sets of *The Zoology of the voyage of H. M. S. Beagle*, now housed at The Natural History Museum, Tring, and the University College, London, are addressed for each case.

Loc. = collecting locality as on label and/or in CD.

Leg. = Lat. legit; collected by.

ZSL = Zoological Society of London.

Z. = 'The Zoology of the voyage of H. M. S. Beagle, Part 3 - Birds' (Gould & Darwin 1838, 1839a-c, Gould et al. 1841).

CD = Darwin's Ornithological Notes (Barlow 1963), Specimen Lists (Keynes 2000)

Cat. = 'Catalogue of Birds in the British Museum' (Sharpe et al. 1874-1895).

BMNH = British Museum (Natural History), now The Natural History Museum, Tring.

MANCH = Manchester Museum – University of Manchester, Manchester.

LIVCM = Liverpool Museum – National Museums & Galleries on Merseyside, Liverpool.

NMSE = National Museums of Scotland, Edinburgh.

ZMD = The Zoology Museum, University of Dundee, Dundee.

CUMZ = Cambridge University Museum of Zoology, Cambridge.

USNM = United States National Museum, The Smithsonian Institution, Washington.

VMM = Victoria Museum, Melbourne.

MNHN = Muséum National d'Histoire Naturelle, Paris.

RMNH = Rijks Museum van Natuurlijke Historie, now Naturalis Nationaal Natuurhistorisch Museum, Leiden.

### RHEIDAE:

**\**Rhea americana americana* (Linnaeus, 1758).** [CD 814]. Z. pp. 120-123: *Rhea americana* Lath. Loc.: Argentina: Bahia Blanca. October 1832. Material: single egg. Status: missing.



**\**Pterocnemia pennata pennata* (d'Orbigny, 1834).** [CD 1832-1838, 2004, 2147, 2148]. Z. pp. 123-125: *Rhea darwinii* Gould. Holotype *Rhea Darwinii* Gould, 1837 [based on a composite specimen]. Loc.: Argentina: Port Desire, Port Famine, Port St Julian, Santa Cruz. February – July 1834. Ex.coll. ZSL. Material: mount. Status: missing.

**\**Pterocnemia pennata pennata* (d'Orbigny, 1834).** [CD 1814]. Z. pp. 123-125: *Rhea darwinii* Gould. Paratype *Rhea darwinii* Gould, 1837. Loc.: Argentina: Port Desire. January – February 1834. Remark: BMNH possesses one data-less egg, BMNH 1859.3.25.31, from "*Rhea darwinii*" = *Pterocnemia p.pennata*, which is registered as from John Gould's collection, see also Keynes 2000: 189 for detailed description of the egg. Material: single egg. Status: probably missing.

#### TINAMIDAE:

**\**Rhynchotus rufescens rufescens* (Temminck, 1815).** [CD 1382]. Z. p. 120: *Rhynchotus rufescens* Wagl. Loc.: Uruguay: Maldonado. July 1833. Remark: perhaps a second bird of this species had been collected; cf. Z. p. 120: "my specimeng were procured at Maldonado". Material: skin/mount. Status: missing.

**\**Nothoprocta perdicaria perdicaria* (Kittlitz, 1830).** [CD 2159]. Z. pp. 119-120: *Nothura perdicaria* G.R.Gray. Loc.: Chile: Valparaíso. August 1834. Material: skin/mount. Status: missing.

**\**Nothoprocta perdicaria perdicaria* (Kittlitz, 1830).** [CD 2427]. Z. pp. 119-120: *Nothura perdicaria* G.R.Gray. Loc.: Chile: Valparaíso. August-November 1834. Material: single egg. Status: missing.

**\**Nothura darwinii darwinii* Gray, 1867.** [CD 1447]. Z. p. 119: *Northura* [sic] *minor* Wagl. Holotype *Nothura darwinii* Gray, 1867. Loc.: Argentina: Bahia Blanca. 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.107. Cat. XXVII: 563: a.

**\**Nothura maculosa maculosa* (Temminck, 1815).** CD 1223. Z. p. 119: *Northura* [sic] *major* Wagl. Loc.: Uruguay: Maldonado: northern shores of the Plata. 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.18.34. Cat. XXVII: 560: e.

**\**Nothura maculosa maculosa* (Temminck, 1815).** [CD 1378]. Z. p. 119: *Northura* [sic] *major* Wagl. Loc.: Uruguay: Maldonado: northern shores of the Plata. 1833. Material: single egg. Status: missing.

#### PROCELLARIIDAE:

**\**Macronectes giganteus* (Gmelin, 1789).** [CD 2080]. Z. pp. 139-140: *Procellaria gigantea* Gmel. Loc.: Chile: Port Famine. June 1834. Material: skin/ex mount, imm. Status: missing.

**\**Fulmarus glacialisoides* (Smith, 1840).** [CD 1335]. Z. p. 140: *Procellaria glacialisoides* A. Smith. Loc.: Argentina: Bay of St Mathias [Golf S. Matias]. [? April] 1833. Material: skin/ex mount. Status: missing.

**\**Daption capense australe* Mathews, 1913.** [? CD 3413]. Z. pp. 140-141: *Daption capensis* Steph. Loc.: New Zealand: Bay of Islands. December 1835. Remark: probably listed as "bird" in CD. Keynes 2000 accidentally referred to CD No. 3189, which is *Puffinus griseus*. Material: skin/mount. Status: missing.

**\**Pachyptila desolata* ? *banksi* Smith, 1840.** [CD n/a]. Z. p. 141: *Prion vittatus* Cuv. Loc.: South America and off shore islands. Remark: Ranges suggests *P. desolata* versus *vittata*. Material & Status: not collected.

**\**Procellaria cinerea* Gmelin, 1789.** [CD 1624]. Z. pp. 137-138: *Puffinus cinereus* Steph. Loc.: Argentina: little south of the mouth of the Plata. November 1833. Remark: species attribution uncertain, could also be *P. griseus*. Material: skin/mount. Status: missing.

**\**Procellaria cinerea* Gmelin, 1789.** [CD 1816]. Z. pp. 137-138: *Puffinus cinereus* Steph. Loc.: Chile: Tierra del Fuego: Port Famine in the Straits of Magellan. January – February



1834. Remark: species attribution uncertain, could also be *P. griseus*. Material: skin/mount. Status: missing.

**\**Puffinus griseus* (Gmelin, 1789).** CD 3189. Z. pp. 137-138: *Puffinus cinereus* Steph. Loc.: Peru: Lima: Callao Bay. August 1835. Ex.coll. ZSL. Remark: accidentally referred to as *Daption capensis* in Keynes 2000. Material: ex mount, ad. Status: BMNH 1855.12.19.133. Cat. XXV: 388: o.

#### HYDROBATIDAE:

**\**Oceanites oceanicus* ssp. (Kuhl, 1820).** [CD 1349]. Z. p. 141: *Thalassidroma oceanica* Bonap. Loc.: Uruguay: Maldonado. July 1833. Material: skin/mount. Status: missing.

#### PELECANOIDIDAE:

**\**Pelecanoides garnotii* (Lesson, 1828).** [CD 3190]. Z. p. 139: *Pelecanoides garnotii* G. R. Gray. Loc.: Peru: Callao Bay [on label], Iquique [Z.], 12-15 July 1835. Ex.coll. Salvin & Godman, ex. Eyton. Remark: On label as Calao [Callao Bay], which is near Iquique. Very likely one of Darwin's birds. Material: skin, ad. Status: probably BMNH 1888.5.18.167. Cat. XXV: 439: g.

**\**Pelecanoides urinator berard* (Gaimard, 1823).** [CD 1782]. Z. pp. 138-139: *Pelecanoides berardi* G. R. Gray. 'Holotype' [fide Cat.] *Haladroma tenuirostris* Eyton MS [not valid]. Loc.: Chile: Straits of Magellan. January – February 1834. Ex.coll. Gould, ex. ZSL. Remark: no indication of Darwin on label. Material: skin, imm. Status: probably BMNH 1881.5.1.6015. Cat. XXV: 438: r.

#### SPHENISCIDAE:

**\**Spheniscus humboldti* Meyen, 1834.** [CD 2321]. Z. p. 137: *Spheniscus humboldtii* [sic] Meyen. Loc.: Chile: coast near Valparaíso. September-November 1834. Material: skin/mount. Status: missing.

#### PODICIPEDIDAE:

**\**Rollandia rolland chilensis* (Lesson, 1828).** [CD 1429]. Z. p. 137: *Podiceps chilensis* Garnot. Loc.: Argentina: near Buenos Aires. October 1833. Ex.coll. Gould, ex. ZSL. Remark: Preparation style and stuffing would speak for a Darwin bird, though locality 'Chile' on label. Material: skin, imm. Status: possible BMNH 1867.3.16.78. Cat. XXVI: 526: h.

**\**Rollandia rolland chilensis* (Lesson, 1828).** CD 2435 [original field label]. Z. p. 137: *Podiceps rollandii* Quoy et Gaim. Loc.: Chile: eastern coast of Isla de Chiloé. December 1834. Ex.coll. Gould, ex. ZSL. Material: skin, imm. Status: BMNH 1881.5.1.6001. Cat. XXVI: 526: a'.

**\**Rollandia rolland chilensis* (Lesson, 1828).** CD 1780 [original field label]. Z. p. 137: *Podiceps rollandii* Quoy et Gaim. Loc.: Chile: eastern coast of Isla de Chiloé [on label], Straits of Magellan [CD]. February 1834. Ex.coll. Gould, ex. ZSL. Material: skin, ad. Status: BMNH 1881.5.1.5999. Cat. XXVI: 526: z' [in errore: z].

**\**Rollandia rolland rolland* (Quoy & Gaimard, 1824).** [CD 1917]. Z. p. 137: *Podiceps rollandii* Quoy et Gaim. Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1834. Material: skin/mount. Status: missing.

**\**Podiceps occipitalis occipitalis* Garnot, 1826.** [CD 1918]. Z. p. 136: *Podiceps kalipareus* Quoy & Gaim. Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1834.



Ex.coll. Gould, ex. ZSL. Remark: the specimen listed would fit to Darwin's specimen style. Material: skin, ad. Status: perhaps 1860.1.16.89. Cat. XXVI: 537: p/q.

**\**Podiceps occipitalis occipitalis* Garnot, 1826.** [CD 713]. Z. p. 136: *Podiceps kalipareus* Quoy & Gaim. Loc.: Argentina: Bahia Blanca. September 1832. Material: skin/mount. Status: missing.

#### FREGATIDAE:

**\**Fregata aquila* (Linnaeus, 1758).** [CD n/a]. Z. p. 146: *Fregata aquila* Cuv. Loc.: United Kingdom: Atlantic Ocean: Ascension Island. July 1836. Material & Status: not collected.

**\**Fregata magnificens / minor ridgwayi* Mathews, 1914.** [CD n/a]. Z. p. 146: *Fregata aquila* Cuv. Loc.: Ecuador: Galápagos Archipelago. September-October 1835. Material & Status: not collected.

#### PHALACROCORACIDAE:

**\**Phalacrocorax atriceps atriceps* King, 1828.** [CD 1756]. Z. p. 145: *Phalacrocorax carunculatus* Stephens. Loc.: Argentina: Port St. Julian. January 1834. Material: skin/mount. Status: missing.

#### SULIDAE:

**\**Sula leucogaster leucogaster* (Boddaert, 1783).** [CD 413, shared with an egg of *Anous*]. Z. n/a. Loc.: Brazil: St. Paul Rocks [= Sao Paulo Island, Atlantic Ocean]. April 1832. Material: several eggs. Status: missing.

#### ARDEIDAE:

**\**Ardea herodias cognata* Bangs, 1903.** [CD 3296]. Z. p. 128: *Ardea herodias* Linn. Loc.: Ecuador: Galápagos Archipelago. October 1835. Material: skin/mount, fem. Status: missing.

**\**Ardea alba egretta* Gmelin, 1789.** [CD 1269]. Z. p. 128: *Egretta leuce* Bonap. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.

**\**Nyctanassa violacea pauper* (Sclater & Salvin, 1870).** [CD 3300]. Z. p. 128: *Nycticorax violaceus* Bonap. Loc.: Ecuador: Galápagos Archipelago. October 1835. Material: skin/mount, female/imm. Status: missing.

**\**Nyctanassa violacea pauper* (Sclater & Salvin, 1870).** [CD 3301]. Z. p. 128: *Nycticorax violaceus* Bonap. Loc.: Ecuador: Galápagos Archipelago. October 1835. Remark: Z. speaks only of one specimen, though two are entered in CD. Material: skin/mount, female/imm. Status: missing.

**\**Nycticorax nycticorax obscurus* Bonaparte, 1855.** [CD 2184]. Z. p. 128: *Nycticorax americanus* Bonap. Loc.: Chile: Valparaíso. August-September 1834. Material: skin/mount, female/imm. Status: missing.

#### THRESKIONITHIDAE:

**\**Plegadis chihi* (Vieillot, 1817).** [CD 1458]. Z. p. 129: *Ibis (falcinellus) ordi* Bonap. Loc.: Argentina: Rio Negro. August 1833. Material: skin/ mount. Status: missing.

**\**Theristicus melanopis melanopis* (Gmelin, 1789).** [CD 1773]. Z. pp. 128-129: *Theristicus melanops* Wagl. Loc.: Argentina: Port Desire: desert gravel plains. 23 December 1833 – 4 January 1834. Remark: Z. mentions at least two specimens, but only one in CD. Material: skin/mount. Status: missing.



#### PHOENICOPTERIDAE:

**\**Phoenicopterus ruber ruber* Linnaeus, 1758.** [CD 3362]. Z. n/a. Loc.: Ecuador: Galápagos Archipelago. October 1835. Material: stomach contents in spirit. Status: missing.

#### CARTHARTIDAE:

**\**Coragyps atratus* (Bechstein, 1793).** [CD n/a]. Z. p. 7: *Cathartes atratus* Rich. & Swain. Loc.: Argentina: Rio Negro: Colorado. Material & Status: not collected.

**\**Cathartes aura falklandicus* (Sharpe, 1873).** [CD 1915]. Z. pp. 8-9: *Cathartes aura* Illi. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1834. Material: skin/mount, female. Status: Not yet looked for by author.

**\**Vultur gryphus* Linnaeus, 1758.** [CD n/a]. Z. pp. 3-6: *Sarcoramphus gryphus* Bonap. Loc.: Chile, Argentina. Material & Status: not collected.

#### ACCIPITRIDAE:

**\**Circus cinereus* Vieillot, 1816.** [CD 2822]. Z. pp. 30-31: *Circus cinerius* [sic] Vieill. Loc.: Chile: Concepción or Coquimbo. 1835. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. S. G. Buxton, ex. ZSL. Material: ex mount, male [CD], ad. [label]. Status: Probably BMNH 1955.6.N20.3488.

**\**Circus cinereus* Vieillot, 1816.** CD 1881. Z. pp. 30-31: *Circus cinerius* [sic] Vieill. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1834. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. S. G. Buxton, ex. ZSL. Material: skin, female/imm. Status: BMNH 1955.6.N20.3497.

**\**Circus cinereus* Vieillot, 1816.** [CD 1160]. Z. pp. 30-31: *Circus cinerius* [sic] Vieill. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833. Material: skin/mount, male. Status: missing.

**\**Circus cinereus* Vieillot, 1816.** [CD 1054]. Z. pp. 30-31: *Circus cinerius* [sic] Vieill. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. ZSL. Material: ex mount, female / imm. Status: BMNH 1955.6.N20.3487.

**\**Circus buffoni* (Gmelin, 1788).** [CD 1396]. Z. pp. 29-30: *Circus megaspilus* Gould. Holotype *Circus megaspilus* Gould, 1837. Loc.: Uruguay: Maldonado: La Plata. July 1833. Ex.coll. ZSL. Material: ex mount, imm. Status: BMNH 1855.12.19.258. Cat. I: 63: a.

**\**Buteo galapagoensis* (Gould, 1837).** [CD 3297]. Z. pp. 23-25: *Craxirex galapagoensis* Gould. Syntype *Polyborus galapagoensis* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.202. Cat. I: 171: a.

**\**Buteo galapagoensis* (Gould, 1837).** [CD 3298]. Z. pp. 23-25: *Craxirex galapagoensis* Gould. Syntype *Polyborus galapagoensis* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, female/imm. Status: BMNH 1855.12.19.203. Cat. I: 171: b.

**\**Buteo polyosoma polyosoma* (Quoy & Gaimard, 1824).** [CD 1781]. Z. pp. 26-27: *Buteo varius* Gould. Holotype [fide Warren 1966] *Buteo varius* Gould, 1837. Loc.: Chile: Straits of Magellan: Cape Negro, 20 km NNE of Punta Arenas. February 1834. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. ZSL. Remark: Type designation uncertain. Material: ex mount, imm. Status: BMNH 1955.6.N20.2410.

**\**Buteo polyosoma polyosoma* (Quoy & Gaimard, 1824).** [CD 1758]. Z. pp. 26-27: *Buteo varius* Gould. Loc.: Argentina: Port St. Julian. January 1834. Ex.coll. ZSL. Remark: In



Gould's first description only one bird is mentioned; but two birds are referred to in Z. The bird listed here is not the BMNH specimen collected by King. Material: ex mount, female/imm. Status: BMNH 1855.12.19.208. Cat. I: 173: m.

**\**Buteo polyosoma polyosoma* (Quoy & Gaimard, 1824).** [CD 2136]. Z. pp. 26: *Buteo erythronotus* [King]. Loc.: Chile: Isla de Chiloé. July 1834. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. ZSL. Material: ex mount, female, ad. Status: probably BMNH 1955.6.N20.2412.

**\**Buteo polyosoma polyosoma* (Quoy & Gaimard, 1824).** [CD 1916]. Z. p. 26: *Buteo erythronotus* [King]. Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1834. Ex.coll. "old collection". Remark: This specimen can only derive from three collections, FitzRoy, King or Darwin. Material: ex mount, male, ad. Status: perhaps BMNH unregistered specimen. Cat. I: 163: a.

**\**Buteo ventralis* Gould, 1837.** [CD 2030]. Z. pp. 27-28: *Buteo ventralis* Gould. Holotype *Buteo ventralis* Gould, 1837. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, imm. Status: BMNH 1855.12.19.204. Cat. I: 190: p.

#### FALCONIDAE:

**\**Phalcoboenus megalopterus megalopterus* (Meyen, 1834).** [CD n/a]. Z. p. 21: *Milvago megalopterus* [Meyen]. Loc.: Chile: Copiapó. 1835. Material & Status: not collected.

**\**Phalcoboenus megalopterus albogularis* Gould, 1837.** [CD 2029]. Z. pp. 18-21: *Milvago albogularis* [Gould]. Holotype *Polyborus albogularis* Gould, 1837. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.405. Cat. I: 38: a.

**\**Phalcoboenus australis* (Gmelin, 1788).** CD 1882. Z. pp. 15-18: *Milvago leucurus* [Forster]. Syntype *Milvago leucurus* Darwin & Gray, 1838.<sup>1</sup> Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1834. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. ZSL. Material: ex mount, male, imm. Status: BMNH 1955.6.N20.46.

**\**Phalcoboenus australis* (Gmelin, 1788).** [CD 1926]. Z. pp. 15-18: *Milvago leucurus* [Forster]. Syntype *Milvago leucurus* Darwin & Gray, 1838.<sup>1</sup> Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1834. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. ZSL. Material: ex mount, female. Status: BMNH 1955.6.N20.47.

**\**Phalcoboenus australis* (Gmelin, 1788).** [CD 1932]. Z. pp. 15-18: *Milvago leucurus* [Forster]. Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1834. Material & Status: lost [cf. Keynes 2000: 399].

**\**Phalcoboenus australis* (Gmelin, 1788).** [CD 1933]. Z. pp. 15-18: *Milvago leucurus* [Forster]. Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1834. Material & Status: lost [cf. Keynes 2000: 399].

**\**Polyborus plancus plancus* (Miller, 1777).** [? CD 2028]. Z. pp. 9-12: *Polyborus brasiliensis* Swains. Loc.: Argentina: plains of Santa Cruz. April - May 1834. Remark: The BMNH possesses a specimen from the Norwich Castle Museum (ex.ZSL), which has not the "pale rusty brown" on head [cf. Z.: 11]. Material: skin/mount, male, imm. Status: missing.

**\**Polyborus plancus plancus* (Miller, 1777).** [? CD 1456]. Z. pp. 9-12: *Polyborus brasiliensis* Swains. Loc.: Argentina: [? Bahia Blanca]: plains of Santa Cruz. July-August 1833. Material: skin/mount. Status: missing.

**\**Milvago chimango chimango* (Vieillot, 1816).** CD 1294 [on label accidentally 1204D]. Z. pp. 14-15: *Milvago chimango* [Vieill.]. Loc.: Uruguay: Maldonado. May 1833. Material: ex mount, ad. Status: BMNH unregistered specimen. Cat. I: 42: c.

<sup>1</sup> Authorship here given as Darwin and Gray, 1838, on preliminary conclusion. Authorships of the species accounts of the *Zoology of H.M.S. Beagle* need further studies.



- \**Milvago chimango temucoensis* Sclater, 1918. [CD 1772]. Z. pp. 13-14: *Milvago pezoporos* [Meyen]. 'Holotype' *Polyborus hyperstictus* Giebel MS [not valid]. Loc.: Argentina: Port Desire. January 1834. Material: ex mount, ad. Status: perhaps BMNH unregistered specimen. Cat. I: 42: d.
- \**Milvago chimango temucoensis* Sclater, 1918. [CD 1028]. Z. pp. 13-14: *Milvago pezoporos* [Meyen]. Loc.: Chile: extreme Southern Tierra del Fuego: Hardy Peninsula. February 1833. Material: skin/mount. Status: missing.
- \**Falco sparverius cinnamominus* Swaison, 1837. [CD 2014]. Z. p. 29: *Tinnunculus sparverius* Vieill. Loc.: Argentina: Santa Cruz. April 1834. Material: skin/mount. Status: missing.
- \**Falco sparverius cinnamominus* Swaison, 1837. [CD 1464]. Z. p. 29: *Tinnunculus sparverius* Vieill. Loc.: Argentina: Rio Negro. August 1833. Material: skin/mount. Status: missing.
- \**Falco femoralis femoralis* Temminck, 1817. [CD 1706]. Z. p. 28: *Falco femoralis* Temm. Loc.: Argentina: small valley on the plains at Port Desire. January 1834. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. ZSL. Material: ex mount, female, ad. Status: probably BMNH 1955.6.N20.1796.
- \**Falco femoralis femoralis* Temminck, 1817. [CD 1710, number shared with egg(s) of *Zonotrichia capensis*, see below]. Z. p. 28: *Falco femoralis* Temm. Loc.: Argentina: Port Desire. January 1834. Material: egg clutch. Status: missing.

#### ANATIDAE:

- \**Chloephaga melanoptera* (Eyton, 1838). [CD n/a]. Z. p. 134: *Anser melanopterus* Eyton. Loc.: Chile: Valparaíso. Remark: bird mentioned in Z. was bought by FitzRoy on a local market at Valparaíso. Material & Status: not collected by Darwin.
- \**Chloephaga picta leucoptera* (Gmelin, 1789). [CD 576 specimens in spirit]. Z. p. 134: *Chloephaga magellanica* Eyton. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833. Ex.coll. Eyton. Material: trachea in spirit. Status: missing.
- \**Chloephaga hybrida malvinarum* Phillips, 1916. [CD 577 specimens in spirit]. Z. pp. 134-135: *Bernicla antarctica* Steph. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833. Ex.coll. Eyton. Material: trachea in spirit. Status: missing.
- \**Tachyeres patachonicus* (King, 1828). [CD 1661]. Z. p. 136: *Micropterus brachypterus* Eyton. Loc.: Argentina: Port Desire, 20 miles up the creek. January 1834. Remark: no authentic locality data on label, was always believed to come from the Falklands, but Darwin did not collect any duck there. If locality is correct, then the duck was shot by Fuller or Covington. Material: mount. Status: probably CUMZ 12/Ana/60/a/5.
- \**Amazonetta brasiliensis ipecutiri* (Vieillot, 1816). [? CD 1419/1421/1436, see also below]. Z. p. 135: *Querquedula erythrorhyncha* Eyton. Loc.: Argentina: Buenos Aires. October 1833. Material: skin/mount. Status: missing.
- \*? *Amazonetta brasiliensis* ssp. (Gmelin, 1789). [? CD 1778/1779, see below]. Z. p. 135: *Querquedula erythrorhyncha* Eyton. Loc.: Chile: Straits of Magellan: Cape Negro (fresh water). February 1834. Remark: Z. claims this species to occur near Straits of Magellan – either very rare vagrant or different species. Material: skin/mount. Status: missing.
- \**Anas flavirostris flavirostris* Vieillot, 1816. [? CD 1419/1421/1436, see above/below]. Z. pp. 135-136: *Querquedula creccoïdes* Eyton. Loc.: Argentina: Rio Plata near Buenos Aires. 1833. Material: skin/mount. Status: missing.
- \**Anas flavirostris flavirostris* Vieillot, 1816. [? CD 1778/1779, see above]. Z. pp. 135-136: *Querquedula creccoïdes* Eyton. Loc.: Chile: Straits of Magellan: Cape Negro (fresh water). February 1834. Material: skin/mount. Status: missing.



\**Anas georgica spinicauda* Vieillot, 1816. [CD 1454]. Z. p. 135: *Dafila urophasianus* Eyton. Loc.: Argentina: Bahia Blanca. 1833. Remark: Cat. (Salvadori 1895: 282) listed *D. urophasianus* under *P. bahamensis*, which does not fit with the locality of the specimen. Therefore it is more likely that the taxon of Z. is *Anas spinicauda*. Material: skin/mount. Status: missing.

\**Anas bahamensis galapagensis* (Ridgway, 1889). [CD 3299]. Z. p. 135: *Paecilonitta bahamensis* Eyton. Loc.: Ecuador: Galápagos Archipelago. October 1835. Material: skin/mount, male. Status: missing.

\**Anas platalea* Vieillot, 1816. [? CD 1419/1421/1436, see above]. Z. p. 135: *Rhynchaspis maculatus* Gould. Loc.: Argentina: Rio Plata near Buenos Aires. October 1833. Material: skin/mount. Status: missing.

#### RALLIDAE:

\**Rallus philippensis andrewsi* (Mathews, 1911). [CD 3591]. Z. p. 133: *Rallus philippensis* [sic] Linn. Loc.: Australia: Cocos / Keeling Islands. April 1836. Material: skin/mount. Status: missing.

\**Ortygonax rytirhynchos landbecki* (Hellmayr, 1932). [CD 2183]. Z. p. 133: *Rallus sanguinolentus* Swains. Loc.: Chile: Valparaíso. August-September 1834. Material: skin/mount, male. Status: missing.

\**Aramides ypecaha* (Vieillot, 1819). CD 1435 [original field label]. Z. p. 133: *Rallus ypecaha* Vieill. Loc.: Argentina: Buenos Aires. 1833. Remark: Darwin added the species name on his label. Material: skin. Status: BMNH unregistered specimen.

\**Laterallus spilonotus* (Gould, 1841). [? CD 3353 / 3351, see below]. Z. pp. 132-133: *Zapornia spilonota* Gould. Syntype *Zapornia spilonota* Gould, 1841. Loc.: Ecuador: Galápagos Archipelago [James Isl. fide Rothschild/Hartert Nov.Zool.VI, 1899: 185]. October 1835. Material: skin/mount. Status: missing [unless the specimen of FitzRoy is the bird listed in CD: BMNH 1837.2.21.404. Cat. XXIII: 113: b. Vell. Cat. 40: 180 a, cf. Warren 1966].

\**Laterallus spilonotus* (Gould, 1841). [CD 3352]. Z. pp. 132-133: *Zapornia spilonota* Gould. Syntype *Zapornia spilonota* Gould, 1841 & Syntype *Porzana galapagoensis* Sharpe, 1894. Loc.: Ecuador: Galápagos Archipelago [James Isl. fide Rothschild/Hartert Nov.Zool.VI, 1899: 185]. October 1835. Material: skin, female, ad. Status: BMNH 1964.45.1. Cat. XXIII: 113: a.

\**Laterallus spilonotus* (Gould, 1841). [? CD 3351 / 3353, see above]. Z. pp. 132-133: *Zapornia spilonota* Gould. Syntype *Zapornia spilonota* Gould, 1841. Loc.: Ecuador: Galápagos Archipelago [James Isl. fide Rothschild/Hartert Nov.Zool.VI, 1899: 185]. October 1835. Remark: This specimen is not a syntype of *Porzana galapagoensis*. The second syntype of this name is a FitzRoy specimen. Material: skin, female, imm. Status: BMNH 1964.46.1. Cat. XXIII: 138: e.

\**Laterallus melanophaius melanophaius* (Vieillot, 1819). [? CD 1235 / 1295, see below]. Z. p. 132: *Crex lateralis* Licht. Loc.: Uruguay: Maldonado near Rio Plata. May-June 1833. Material: skin/mount. Status: missing.

\**Laterallus melanophaius melanophaius* (Vieillot, 1819). [? CD 1295 / 1235, see above]. Z. p. 132: *Crex lateralis* Licht. Loc.: Uruguay: Maldonado near Rio Plata. May-June 1833. Material: skin/mount. Status: missing.

\**Coturnicops notata notata* (Gould, 1841). [? CD 1453 / 1424, see below]. Z. p. 132: *Zapornia notata* Gould. Holotype *Zapornia notata* Gould, 1841. Loc.: Argentina: Rio Plata: shot on board of the Beagle near Buenos Aires. 1833. Material: skin, ad. Status: BMNH 1964.44.1. Cat. XXIII: 129: a.



**\**Porphyriops melanops melanops* (Vieillot, 1819).** [? CD 1424 / 1453, see above]. Z. p. 133: *Gallinula crassirostris* J. E. Gray. Loc.: Argentina: Buenos Aires: banks of the Plata. 1833. Material: skin/mount. Status: missing.

**\**Porphyriops melanops crassirostris* (J. E. Gray, 1829).** [CD 2164]. Z. p. 133: *Gallinula crassirostris* J. E. Gray. Loc.: Chile: Valparaíso. August-September 1834. Material: skin/mount, male. Status: missing.

**\**Porphyriops melanops crassirostris* (J. E. Gray, 1829).** [CD 2165]. Z. p. 133: *Gallinula crassirostris* J. E. Gray. Loc.: Chile: Valparaíso. August-September 1834. Material: skin/mount, female. Status: missing.

**\**Gallinula chloropus garmani* Allen, 1876.** [CD 2821]. Z. p. 133: *Fulica galeata* G. R. Gray. Loc.: Chile: Concepción. 1835. Material: skin/mount. Status: missing.

**\**Porphyro alleni* (Thomson, 1842).** [CD 3900]. Z. pp. 133-134: *Porphyrio simplex* Gould. Holotype *Porphyrio simplex* Gould, 1841. Loc.: United Kingdom: Atlantic Ocean: Ascension Island. July 1836. Remark: Barlow 1833: 413-415 gives no further details. Taylor 1998: 478 added Darwin's record with questionmark. One other record than Darwin's is known for Ascension Island. The nomenclature and taxonomy of this taxon would need further studies. Material: skin/mount, female/imm. Status: missing.

#### ROSTRATULIDAE:

**\**Nycticryphes semicollaris* (Vieillot, 1816).** [? CD 1214]. Z. p. 131: *Rhynchaea semicollaris* G. R. Gray. Loc.: Uruguay: Montevideo or Maldonado. November 1833. Material: skin/mount. Status: missing.

#### HAEMATOPODIDAE:

**\**Haematopus ostralegus durnfordi* Sharpe, 1896.** [CD 1383]. Z. p. 128: *Haematopus palliatus* Temm. Loc.: Argentina/Uruguay: Guritti Island: Rio de la Plata or Maldonado. July 1833. Material: skin/mount. Status: missing.

**\**Haematopus ostralegus durnfordi* Sharpe, 1896.** [? CD 1420]. Z. p. 128: *Haematopus palliatus* Temm. Loc.: Argentina: Rio de la Plata near Buenos Aires. July 1833. Material: skin/mount. Status: missing.

#### CHARADRIIDAE:

**\**Belonopterus chilensis lampronotus* (Wagler, 1827).** [CD 1602]. Z. p. 127: *Philomachus cayanus* G. R. Gray. Loc.: Uruguay: Rio de la Plata near Montevideo. November 1833. Material: skin/mount. Status: missing.

**\**Pluvialis dominica dominica* (P. L. S. Müller, 1776).** [CD 1606]. Z. p. 126: *Charadrius virgininus* Borkh. Loc.: Uruguay: banks of the Plata. November 1833. Material: skin/mount. Status: missing.

**\**Charadrius hiaticula semipalmatus* Bonaparte, 1825.** [CD 3357]. Z. p. 128: *Hiaticula semipalmata* G. R. Gray. Loc.: Ecuador: Galápagos Archipelago. September - October 1835. Material: skin/mount, female. Status: missing.

**\**Charadrius alexandrinus occidentalis* (Cabanis, 1872).** CD 2188. Z. p. 127: *Hiaticula azarae* G. R. Gray. Loc.: Chile: Valparaíso [not on label]. August-September 1834. Ex.coll. Salvin & Godman, ex. Gould, ex. ZSL. Material: skin, ad. Status: BMNH 1891.10.20.337. Cat. XXIV: 292; w'.

**\**Charadrius falklandicus* Latham, 1790.** [CD 1449; versus Keynes 2000]. Z. p. 127: *Hiaticula trifasciatus* G. R. Gray. Loc.: Argentina: Bahia Blanca. 1833. Material: skin/mount. Status: missing.



- \**Charadrius falklandicus* Latham, 1790. [CD 1433]. Z. p. 127: *Hiaticula trifasciatus* G. R. Gray. Loc.: Argentina: Bahia Blanca. 1833. Material: skin/mount. Status: missing.
- \**Charadrius collaris* Vieillot, 1818. [CD 1208]. Z. p. 127: *Hiaticula azarae* G. R. Gray. Loc.: Uruguay: banks of the Plata. 1833. Material: skin/mount. Status: missing.
- \**Charadrius collaris* Vieillot, 1818. [? CD 1435]. Z. p. 127: *Hiaticula azarae* G. R. Gray. Loc.: Argentina: banks of the Plata near Buenos Aires. October 1833. Material: skin/mount. Status: missing.
- \**Charadrius collaris* Vieillot, 1818. [CD 712]. Z. p. 127: *Hiaticula azarae* G. R. Gray. Loc.: Argentina: Bahia Blanca. September 1832. Material: skin/mount. Status: missing.
- \**Oreopholus ruficollis* (Wagler, 1829). [CD 1263]. Z. pp. 125-126: *Oreophilus totanirostris* Jard. & Selby. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.
- \**Oreopholus ruficollis* (Wagler, 1829). [CD 2166]. Z. pp. 125-126: *Oreophilus totanirostris* Jard. & Selby. Loc.: Chile: Valparaíso. August-September 1834. Material: skin/mount. Status: missing.
- \**Zonibyx modestus* (Lichtenstein, 1823). CD 901. Z. p. 126: *Squatarola cincta* Jard. & Selby. Loc.: Chile: Tierra del Fuego: summits of highest mountains of Good Success Bay. 20 December 1832. Ex.coll. Gould, ex. ZSL. Material: skin, ad. Status: BMNH 1857.10.16.69. Cat. XXIV: 239: i.
- \**Zonibyx modestus* (Lichtenstein, 1823). CD 1817 [original field label]. Z. p. 126: *Squatarola cincta* Jard. & Selby. Loc.: Chile: Tierra del Fuego: Port Famine. Early February 1834. Ex.coll. Gould, ex. ZSL. Material: skin, ad. Status: BMNH 1857.10.16.68. Cat. XXIV: 239: k.
- \**Zonibyx modestus* (Lichtenstein, 1823). [CD 1145]. Z. p. 126: *Squatarola cincta* Jard. & Selby. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833. Ex.coll. Gould, ex. ZSL. Material: skin, ad. Status: probably BMNH 1859.3.25.84.
- \**Zonibyx modestus* (Lichtenstein, 1823). [? CD 1403]. Z. p. 126: *Squatarola cincta* Jard. & Selby. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833. Material: skin/mount. Status: missing.
- \**Zonibyx modestus* (Lichtenstein, 1823). [CD 2123]. Z. p. 126: *Squatarola cincta* Jard. & Selby. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount. Status: missing.
- \**Zonibyx modestus* (Lichtenstein, 1823). [CD 1236]. Z. pp. 126-127: *Squatarola fusca* Gould. Holotype *Squatarola fusca* Gould, 1841. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.

#### SCOLOPACIDAE:

- \**Numenius borealis* (J. R. Forster, 1772). [? CD 684]. Z. p. 129: *Numenius brevirostris* Licht. Loc.: Argentina: Buenos Aires or Brazil: Rio de Janeiro. Summer 1832 or September 1833. Remark: Darwin in CD reported to have collected a '*Numenius*' at Rio, and it is assumed that it is indeed this species. Material: skin/mount. Status: missing.
- \**Numenius phaeopus hudsonicus* Latham, 1790. [CD 2501]. Z. p. 129: *Numenius hudsonicus* Lath. Loc.: Chile: mud-banks of Isla de Chiloé or Chonos Archipel. January 1835. Material: skin/mount. Status: missing.
- \**Limosa haemastica* (Linnaeus, 1758). [CD 2434]. Z. p. 129: *Limosa hudsonica* Swains. Loc.: Chile: mud-banks of East coast of Isla de Chiloé. December 1834. Material: skin/mount. Status: missing.
- \**Limosa haemastica* (Linnaeus, 1758). CD 1147 [original field label]. Z. p. 129: *Limosa hudsonica* Swains. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island: Port Louis. March 1833. Ex.coll. Gould, ex. ZSL. Material: skin. Status: USNM No. 8074.



- \**Limosa haemastica* (Linnaeus, 1758).** [CD 1148]. Z. p. 129: *Limosa hudsonica* Swains. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island: Port Louis. March 1833. Material: skin/mount. Status: missing.
- \**Limosa haemastica* (Linnaeus, 1758).** [? CD 1880]. Z. p. 129: *Limosa hudsonica* Swains. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1834. Material: skin/mount. Status: missing.
- \**Tringa flavipes* (Gmelin, 1789).** [? CD 1603/1607/1608, see below]. Z. p. 129: *Totanus flavipes* Vieill. Loc.: Uruguay: Rio Plata near Montevideo. November 1833. Material: skin/mount. Status: missing.
- \**Tringa melanoleuca* (Gmelin, 1789).** [?? CD 1430/1431]. Z. p. 130: *Totanus melanoleucos* Licht. et Vieill. Loc.: Uruguay: Rio Plata near Maldonado. October 1833. Material: skin/mount. Status: missing.
- \**Tringa solitaria cinnamomea* (Brewster, 1890).** [? CD 1603/1607/1608, see above and below]. Z. p. 129: *Totanus macropterus* G. R. Gray. Loc.: Uruguay: Rio Plata near Montevideo. November 1833. Material: skin/mount. Status: missing.
- \**Heteroscelus incanus* (Gmelin, 1789).** [CD 3355]. Z. p. 130: *Totanus fuliginosus* Gould. Holotype *Totanus fuliginosus* Gould, 1841. Loc.: Ecuador: Galápagos Archipelago. October 1835. Remark: The BMNH holds a specimen from FitzRoy's collection (BMNH 1837.2.21.263), considered by Warren 1966 to be the type. Material: skin/mount. Status: missing.
- \**Arenaria interpres interpres* (Linnaeus, 1758).** [CD 3191]. Z. p. 132: *Strepsilas interpres* Ill. Loc.: Peru: coast near Iquique. August 1835. Material: skin/mount. Status: missing.
- \**Arenaria interpres interpres* (Linnaeus, 1758).** [CD 3354]. Z. p. 132: *Strepsilas interpres* Ill. Loc.: Ecuador: Galápagos Archipelago. October 1835. Material: skin/mount, female. Status: missing.
- \**Capella paraguaiae paraguaiae* (Vieillot, 1816).** CD 1203 [original field label]. Z. p. 131: *Scolopax (Telmatis) paraguaiae* Vieill. Loc.: Uruguay: Rio Plata near Maldonado. May - June 1833. Ex.coll. Gould, ex. ZSL. Material: skin, ad. Status: BMNH 1860.1.16.74. Cat. XXIV: 651: h.
- \**Capella paraguaiae paraguaiae* (Vieillot, 1816).** [CD 1243]. Z. p. 131: *Scolopax (Telmatis) magellanicus* King. Loc.: Uruguay: Maldonado. May - June 1833. Ex.coll. ZSL via Darwin. Material: skin, ad. Status: BMNH unregistered specimen. Cat. XXIV: 652: n'.
- \**Capella paraguaiae magellanica* (King, 1828).** CD 1048. Z. p. 131: *Scolopax (Telmatis) magellanicus* King. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833. Ex.coll. Salvin & Godman, ex. Gould, ex. ZSL. Material: skin, ad. Status: BMNH 1891.10.20.563. Cat. XXIV: 652: i.
- \**Capella paraguaiae magellanica* (King, 1828).** [CD 2168]. Z. p. 131: *Scolopax (Telmatis) paraguaiae* Vieill. Loc.: Chile: Valparaíso. August - September 1834. Material: skin/mount, female Status: missing.
- \**Erolia minutilla* (Vieillot, 1819).** [CD 3358]. Z. p. 131: *Pelidna minutilla* Gould. Loc.: Ecuador: Galápagos Archipelago. October 1835. Material: skin/mount. Status: missing.
- \**Erolia minutilla* (Vieillot, 1819).** [CD 3359]. Z. p. 131: *Pelidna minutilla* Gould. Loc.: Ecuador: Galápagos Archipelago. October 1835. Material: skin/mount. Status: missing.
- \**Erolia fuscicollis* (Vieillot, 1819).** [CD 970]. Z. p. 131: *Pelidna schinzii* Bonap. Loc.: Chile: Tierra del Fuego: Goree Sound. January 1833. Material: skin/mount. Status: missing.
- \**Tryngites subruficollis* (Vieillot, 1819).** [? CD 1603/1607/1608, see above]. Z. p. 130: *Tringa rufescens* Vieill. Loc.: Uruguay: Rio Plata near Montevideo. November 1833. Material: skin/mount. Status: missing.

#### RECURVIROSTRIDAE:



*\*Himantopus himantopus melanurus Vieillot, 1817. [CD 1221]. Z. p. 130: Himantopus nigricollis Vieill. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.*

*\*Himantopus himantopus melanurus Vieillot, 1817. [?? CD 1422 / 1423]. Z. p. 130: Himantopus nigricollis Vieill. Loc.: Argentina: provinces bordering the Plata. 1833. Material: skin/mount. Status: missing.*

#### THINOCORIDAE:

*\*Attagis gayi gayi (Geoffroy Saint-Hilaire & Lesson, 1830). [CD 2823]. Z. p. 117: Attagis gayii Less. Loc.: Chile: Cordillera of Coquimbo or Copiapó. 1835. Material: skin/mount. Status: missing.*

*\*Attagis malouinus malouinus (Boddaert, 1783). [CD 1402]. Z. p. 117: Attagis falklandica G. R. Gray. Loc.: Chile: extreme Southern part of Tierra del Fuego: summit of Katers peak (1700 feet high) on Hermit Island. 1833. Material: skin/mount. Status: missing.*

*\*Thinocorus rumicivorus rumicivorus Eschscholtz, 1829. [CD 710]. Z. pp. 117-118: Tinochorus [sic] rumicivorus Eschsch. Loc.: Argentina: Bahia Blanca: sterile plains. February-March 1832. Material: skin/mount. Status: missing.*

*\*Thinocorus rumicivorus rumicivorus Eschscholtz, 1829. [CD 711]. Z. pp. 117-118: Tinochorus [sic] rumicivorus Eschsch. Loc.: Argentina: Bahia Blanca: sterile plains. February-March 1832. Material: tail, added to No. CD 710. Status: missing.*

*\*Thinocorus rumicivorus rumicivorus Eschscholtz, 1829. [CD 1224]. Z. pp. 117-118: Tinochorus [sic] rumicivorus Eschsch. Loc.: Uruguay: Maldonado. May-June 1833. Material: skin/mount, female. Status: missing.*

*\*Thinocorus rumicivorus rumicivorus Eschscholtz, 1829. [CD 1273]. Z. pp. 117-118: Tinochorus [sic] rumicivorus Eschsch. Loc.: Uruguay: Maldonado. May-June 1833. Material: skin/mount, male. Status: missing.*

*\*Thinocorus rumicivorus rumicivorus Eschscholtz, 1829. [CD 707, specimens in spirit]. Z. pp. 117-118 & 155-156: Tinochorus [sic] rumicivorus Eschsch. Loc.: Uruguay: Maldonado. June 1833. Material: specimen in alcohol. Status: missing.*

*\*Thinocorus rumicivorus rumicivorus Eschscholtz, 1829. [CD 388, specimens in spirit]. Z. pp. 117-118 & 155-156: Tinochorus [sic] rumicivorus Eschsch. Loc.: Argentina: Bahia Blanca. September 1832. Material: specimen in alcohol. Status: missing.*

#### CHIONIDIDAE:

*\*Chionis alba (Gmelin, 1789). [CD n/a]. Z. pp. 118-119: Chionis alba Forst. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833 or 1834. Material & Status: shot, but not preserved.*

#### LARIDAE:

*\*Gabianus scoresbii (Traill, 1822). [CD 1757]. Z. p. 142: Larus haematorhynchus King. Loc.: Argentina: Port St. Julian. January 1834. Material: skin/mount. Status: missing.*

*\*Larus fuliginosus Gould, 1841. [CD 3304]. Z. pp. 141-142: Larus fuliginosus Gould. Holotype Larus fuliginosus Gould, 1841. Loc.: Ecuador: Galápagos Archipelago: James Island. October 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.218. Cat. XXV: 223: b.*

*\*Larus dominicanus Lichtenstein, 1823. [CD 1455]. Z. p. 142: Larus dominicanus Licht. Loc.: Argentina: Pampas near Rio Plata. 1833. Material: skin/mount. Status: missing.*



\**Larus maculipennis* Lichtenstein, 1823. [CD 1268]. Z. pp. 142-143: *Xema (chroicocephalus) cirrocephalum* G. R. Gray. Loc.: Uruguay: Maldonado. June 1833. Material: skin/mount. Status: missing.

\**Larus maculipennis* Lichtenstein, 1823. [CD 1783]. Z. pp. 142-143: *Xema (chroicocephalus) cirrocephalum* G. R. Gray. Loc.: Chile: Straits of Magellan. January – February 1834. Ex.coll. ZSL. Material: ex mount, imm. Status: BMNH 1855.12.19.140. Cat. XXV: 206: d'.

\**Larus maculipennis* Lichtenstein, 1823. [CD 1390]. Z. pp. 142-143: *Xema (chroicocephalus) cirrocephalum* G. R. Gray. Loc.: Chile: Straits of Magellan. July 1833. Ex.coll. ZSL. Material: skin/mount, imm. Status: former BMNH specimen, missing. Cat. XXV: 206: e'.

\**Larus maculipennis* Lichtenstein, 1823. [CD 748]. Z. pp. 142-143: *Xema (chroicocephalus) cirrocephalum* G. R. Gray. Loc.: Argentina: Bahia Blanca. September 1832. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH unregistered specimen. Cat. XXV: 203: h'.

\**Gelochelidon nilotica aranea* (Wilson, 1814). [CD 745]. Z. p. 145: *Viralva aranea* G. R. Gray. Loc.: Argentina: Bahia Blanca. September 1832. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.134. Cat. XXV: 31: n.

\**Anous stolidus galapagensis* Sharpe, 1879. [CD 3302]. Z. p. 145: *Megalopterus stolidus* Boie. Loc.: Ecuador: Galápagos Archipelago. October 1835. Material: skin/mount, female. Status: missing.

\**Anous stolidus galapagensis* Sharpe, 1879. [CD 3375]. Z. p. 145: *Megalopterus stolidus* Boie. Loc.: Pacific Ocean: many 100 miles east from the Galápagos Archipelago. Night of 3 November 1835. Material: skin/mount. Status: missing.

\**Anous minutus atlanticus* (Mathews, 1912). [CD 413, shared with eggs of *Sula*]. Z. p. 145: *Megalopterus stolidus* Boie. Loc.: Brazil: St. Paul Rocks [=Sao Paulo Island, Atlantic Ocean]. April 1832. Material: single egg. Status: missing.

\**indet. Laridae "Gull"*. [CD 185]. Loc.: Portugal: Cape Verde Islands: São Tiago: Porto Praia (14°55'N 23°31'W). 9 January - 7 February 1832. Remark: This specimen is mentioned as "Gull" from Porto Praya, and would be the first record of any gull sighting on the Cape Verde Islands [cf. Hazevoet 1995: 124]. Material: skin/mount. Status: missing.

\**indet. Laridae "Sterna"*. [CD 1384]. Loc.: Argentina: Guritti Island in Rio de la Plata. May-June 1833. Remark: Might be an additional record of *Rynchops nigra* (see below). Locality not traced in Paynter 1994, 1995. Material: skin/mount. Status: missing.

#### RYNCHOPIDAE:

\**Rynchops nigra intercedens* Saunders, 1895. [CD 1264]. Z. pp. 143-144: *Rhynchops* [sic] *nigra* Linn. Loc.: Uruguay: Maldonado. May 1833. Ex.coll. ZSL [fide Barlow 1963: 221]. Material: skin/mount. Status: missing.

#### COLUMBIDAE:

\**Columba picazuro picazuro* Temminck, 1813. [CD 1340]. Z. p. 115: *Columba loricata* Licht. Loc.: Uruguay: Maldonado. June 1833. Ex.coll. ZSL via Darwin. Material: skin/mount, ad. Status: former BMNH specimen, missing. Cat. XXI: 272: c.

\**Columba araucana* Lesson, 1827. [CD 2481]. Z. p. 114: *Columba fitzroyii* King. Loc.: Chile: Peninsula Tres Montes. January 1835. Material: skin/mount. Status: missing.

\**Columba araucana* Lesson, 1827. [CD 2160]. Z. p. 114: *Columba fitzroyii* King. Loc.: Chile: Valparaíso. August – September 1834. Material: skin/mount. Status: missing.



**\**Zenaidura auriculata auriculata* (Des Murs, 1847).** [CD 2220]. Z. p. 115: *Zenaida aurita* G. R. Gray. Loc.: Chile: Valparaíso. August – September 1834. Material: skin/mount. Status: missing.

**\**Zenaidura auriculata virgata* (Bertoni, 1823).** [CD 1385]. Z. p. 115: *Zenaida aurita* G. R. Gray. Loc.: Uruguay: La Plata near Maldonado. July 1833. Material: skin/mount. Status: missing.

**\**Nesopelia galapagoensis galapagoensis* (Gould, 1841).** [CD 3305]. Z. pp. 115-116: *Zenaida galapagoensis* Gould. Syntype *Zenaida galapagoensis* Gould, 1841. Loc.: Ecuador: Galápagos Archipelago. September - October 1835. Ex. coll. Eyton, ex. ZSL. Remark: Darwin collected a single dove on the Galápagos Islands. RMNH and BMNH (coll. Eyton/ZSL) claim to possess this specimen, cf. Sulloway 1982; however, it is now believed that the two specimens at Leiden (Cat. No. 1, 2) probably derive from coll. Fuller/Covington and that the BMNH specimen, formerly from the ZSL, is Darwin's; nevertheless, the RMNH specimens have probably type status of Gould's name. Material: skin, ad. Status: BMNH 1881.2.18.84. Cat. XXI: 391: c.

**\**Metriopelia melanoptera melanoptera* (Molina, 1782).** [CD 2163]. Z. p. 116: *Zenaida boliviana* G. R. Gray. Loc.: Chile: Valparaíso. Late August 1834. Remark: BMNH possess an old data-less bird Cat. XXI: 499: p/q. Material: skin/mount, female. Status: probably missing.

**\**Columbina picui picui* (Temminck, 1813).** CD 1272 [original field label]. Z. p. 116: *Columbina strepitans* Spix. Loc.: Uruguay: Maldonado: on the banks of the Plata. 1833. Ex.coll. ZSL via Darwin. Material: skin, ad. Status: BMNH unregistered specimen. Cat. XXI: 472: u.

**\**Columbina picui picui* (Temminck, 1813).** [CD 1463]. Z. p. 116: *Columbina strepitans* Spix. Loc.: Argentina: Rio Negro. August 1833. Material: skin/mount. Status: missing.

**\**Columbigallina talpacoti talpacoti* (Temminck, 1811).** [? CD No. between 412-446, number not in Barlow 1963 nor in Keynes 2000]. Z. p. 116: *Columbina talpacoti* G. R. Gray. Loc.: Brazil: Rio de Janeiro. April - May 1832. Remark: Z. cites at least two specimens. Material: skin/mount. Status: missing.

**\**Columbigallina talpacoti talpacoti* (Temminck, 1811).** [? CD No. between 412-446, number not in Barlow 1963 nor in Keynes 2000]. Z. p. 116: *Columbina talpacoti* G. R. Gray. Loc.: Brazil: Rio de Janeiro. April - May 1832. Remark: Z. cites at least two specimens. Material: skin/mount. Status: missing.

#### PSITTACIDAE:

**\**Cyanoliseus patagonus patagonus* (Vieillot, 1817).** [CD 747]. Z. p. 113: *Conurus patachonicus* [Lear]. Loc.: Argentina: Bahia Blanca. September 1832. Material: skin/mount. Status: missing.

**\**Myiopsitta monachus monachus* (Boddaert, 1783).** [CD 1219]. Z. p. 112: *Conurus murinus* Kuhl. Loc.: Uruguay: Maldonado: grassy plains. May - June 1833. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH unregistered specimen. Cat. XX: 233: i.

#### CUCULIDAE:

**\**Crotophaga ani* Linnaeus, 1758.** [CD 455]. Z. p. 114: *Crotophaga ani* Linn. Loc.: Brazil: Rio de Janeiro. May 1832. Material: skin/mount. Status: Not yet looked for by author.

**\**Guira guira* (Gmelin, 1788).** [CD 1427]. Z. p. 114: *Diplopterus guira* G. R. Gray. Loc.: Argentina: Buenos Aires. October 1833. Ex.coll. ZSL. Material: skin. Status: perhaps BMNH 1858.4.3.143 [though "Chile" on label].



**\**Tapera naevia chochi* (Vieillot, 1817).** [? CD No. between 412-446, number not in Barlow 1963 and Keynes 2000]. Z. p. 114: *Diplopterus naevius* Boie. Loc.: Brazil: Rio de Janeiro. April 1832. Material: skin/mount. Status: Not yet looked for by author.

#### TYTONIDAE:

**\**Tyto alba tuidara* (J. E. Gray, 1829).** CD 1446. Z. p. 34: *Strix flammea* Linn. Loc.: Argentina: Bahia Blanca. 1833. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1841.1.18.16. Cat. II: 302: 1".

**\**Tyto alba punctatissima* (G. R. Gray, 1838).** [CD n/a]. Z. p. 34-35: *Strix punctatissima* G. R. Gray. Loc.: Ecuador: Galápagos Islands: James Island. October 1835. Remark: Holotype *Strix punctatissima* Gray, 1838 [pl. IV] = BMNH 1837.2.21.244 is from FitzRoy's collection. The main text of this present paper erroneously cites the year of original description from the textual account (1839), not from the plate (1838). The authorship is attributed to Gray on the basis that his name appears after the new name; however, plate IV was probably sketched by John Gould, and executed on stone by Elizabeth Gould. This matter would need further investigations. Material/Status: not collected by Darwin.

#### STRIGIDAE:

**\**Speotyto cunicularia cunicularia* (Molina, 1782).** CD 1293. Z. pp. 31-32: *Athene cunicularia* Bonap. Loc.: Uruguay: Maldonado. June 1833. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1841.1.18.17 [probably this registration number, though not on label]. [Cat. II: 144: t = 1855.12.19.144 nec Darwin].

**\**Speotyto cunicularia cunicularia* (Molina, 1782).** [CD 2162]. Z. pp. 31-32: *Athene cunicularia* Bonap. Loc.: Chile: Valparaíso. August - September 1834. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. ZSL. Material: ex mount. Status: perhaps BMNH 1955.6.N20.4499.

**\**Strix rufipes rufipes* King, 1828.** [CD 1875]. Z. p. 34: *Uhlula rufipes* [King]. Loc.: Chile: Tierra del Fuego: extreme southern Islands: Ponsonby Sound. February 1834. Ex.coll. ZSL. Material: ex mount, ad. Status: probably BMNH 1855.12.19.65. Cat. II: 261: b.

**\**Asio flammeus suinda* (Vieillot, 1817).** CD 1270. Z. p. 33: *Otus palustris* Gould. Loc.: Uruguay: Maldonado. 1833. Ex.coll. ZSL via Darwin. Material: skin/mount. Status: former BMNH 1841.1.18.15, missing since 1875.

**\**Asio flammeus suinda* (Vieillot, 1817).** [CD 2031]. Z. p. 33: *Otus palustris* Gould. Loc.: Argentina: Santa Cruz. April 1834. Material: skin/mount. Status: missing.

**\**Asio flammeus sanfordi* Bangs, 1919.** CD 1901 [original field label]. Z. p. 33: *Otus palustris* Gould. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1834. Ex.coll. Norwich Castle Museum/Gurney Collection, ex. ZSL. Material: ex mount. Status: BMNH 1955.6.N20.3684.

**\**Asio flammeus galapagoensis* (Gould, 1837).** [CD 3303]. Z. pp. 32-33: *Otus galapagoensis* Gould. Holotype *Otus galapagoensis* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago: James Island. October 1835. Ex.coll. ZSL. Material: ex mount, male, imm. Status: BMNH 1855.12.19.153. Cat. II: 238: x.

#### CAPRIMULGIDAE:

**\**Caprimulgus longirostris bifasciatus* Gould, 1837.** [CD 2171]. Z. pp. 36-37: *Caprimulgus bifasciatus* Gould. Holotype *Caprimulgus bifasciatus* Gould, 1837. Loc.: Chile: Valparaíso. August 1834. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.241. Cat. XVI: 586: u.



*\*Caprimulgus parvulus parvulus* Gould, 1837. CD 1623. Z. pp. 37-38: *Caprimulgus parvulus* Gould. Holotype *Caprimulgus parvulus* Gould, 1837. Loc.: Argentina: Santa Fé de Bajada. 27-30 September 1833. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.158. Cat. XVI: 575: m.

#### APODIDAE:

*\*Apus unicolor alexandri* Hartert, 1901. [CD 3907]. Z. p. 41: *Cypselus unicolor* Jard. Loc.: Portugal: Cape Verde Islands: São Tiago. September 1836. Material: skin/mount. Status: missing.

#### TROCHILIDAE:

*\*Chlorostilbon aureoventris berlepschi* Pinto, 1938. [CD 1610]. Z. p. 110: *Trochilus flavifrons* [n.n.]. [Nomen nudum *Trochilus flavifrons* Gould, 1841]. Loc.: Uruguay: Montevideo. November 1833. Ex.coll. ZSL via Darwin. Material: ex mount, male, ad. Status: BMNH unregistered specimen. Cat. XVI: 50: x.

*\*Patagona gigas gigas* (Vieillot, 1824). [? CD 2179/2180, see below]. Z. pp. 111-112: *Trochilus gigas* Vieill. Loc.: Chile: Valparaíso. September 1834. Ex.coll. Balston, ex. Eyton, ? ex. ZSL. Material: skin, female, ad. Status: perhaps BMNH 1913.3.20.292.

*\*Patagona gigas gigas* (Vieillot, 1824). [? CD 2179/2180, see above]. Z. pp. 111-112: *Trochilus gigas* Vieill. Loc.: Chile: Valparaíso. September 1834. Material: skin/mount. Status: missing.

*\*Patagona gigas gigas* (Vieillot, 1824). [CD 2319]. Z. pp. 111-112: *Trochilus gigas* Vieill. Loc.: Chile: Valparaíso. September-October 1834. Material: nest. Status: missing.

*\*Patagona gigas gigas* (Vieillot, 1824). [CD 1050, specimens in spirit]. Z. pp. 111-112 & 154: *Trochilus gigas* Vieill. Loc.: Chile: Valparaíso. August 1834. Material: specimen in alcohol. Status: missing.

*\*Sephanoides sephanoides* (Lesson, 1826). [CD 2134]. Z. pp. 110-111: *Trochilus forficatus* Lath. Loc.: Chile: Isla de Chiloé. July 1834. Ex.coll. Salvin & Godman, ex. ZSL. Remark: on younger label as leg. Leybold, but on older ZSL. Material: skin, male, ad. Status: perhaps BMNH 1887.3.22.924. Cat. XVI: 157: b/c.

*\*Sephanoides sephanoides* (Lesson, 1826). [CD 2135]. Z. pp. 110-111: *Trochilus forficatus* Lath. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount. Status: missing.

*\*Sephanoides sephanoides* (Lesson, 1826). [CD 2503]. Z. pp. 110-111: *Trochilus forficatus* Lath. Loc.: Chile: Chonos Archipel. January 1835. Material: skin/mount. Status: missing.

*\*Sephanoides sephanoides* (Lesson, 1826). [CD 2425]. Z. pp. 110-111: *Trochilus forficatus* Lath. Loc.: Chile: near South end of Isla de Chiloé: Island S. Pedro. December 1834. Material: egg clutch & nest. Status: missing.

#### ALCEDINIDAE:

*\*Ceryle torquata stellata* (Meyen, 1834). [CD 2122]. Z. p. 42: *Ceryle torquata* Bonap. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount, female. Status: missing.

*\*Ceryle torquata stellata* (Meyen, 1834). [CD 1210]. Z. p. 42: *Ceryle torquata* Bonap. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.

*\*Chloroceryle americana mathewsii* Laubmann, 1927. [? CD not traced]. Z. p. 42: *Ceryle americana* Boie. Loc.: Argentina: banks of the Parana, Buenos Aires. October 1833. Material: skin/mount. Status: shot by Darwin, perhaps not preserved or missing.

*\*Halcyon leucocephala acteon* (Lesson, 1830). CD 192. Z. pp. 41-42: *Halcyon erythrorhyncha* Gould. Holotype *Halcyon erythrorhyncha* [sic] Gould, 1837. Loc.: Portugal:



Cape Verde Islands: São Tiago: Porto Praia. January 1832. Ex.coll. Gould, ex. ZSL. Material: ex mount, ad. Status: BMNH 1881.5.1.3018. Cat. XVII: 235: a.

#### PICIDAE:

**\**Colaptes pitius pitius* (Molina, 1782).** [CD 2161]. Z. p. 114: *Colaptes chilensis* Vigors. Loc.: Chile: Valparaíso: stony hills. August 1834. Material: skin/mount, male. Status: missing.

**\**Colaptes campestris campestris* (Malherbe, 1849).** [CD 1238]. Z. pp. 113-114: *Chrysophilus campestris* Swains. Loc.: Uruguay: Maldonado. 1833. Remark: tongue of the specimen has been preserved in alcohol, cf. CD 620. Material: skin/mount. Status: missing.

**\**Colaptes campestris campestris* (Malherbe, 1849).** [CD 620, specimens in spirit]. Z. pp. 113-114: *Chrysophilus campestris* Swains. Loc.: Uruguay: Maldonado. 1833. Material: tongue of CD 1238 in alcohol. Status: missing.

**\**Colaptes campestris campestris* (Malherbe, 1849).** [CD 1428]. Z. pp. 113-114: *Chrysophilus campestris* Swains. Loc.: Argentina: Buenos Aires. October 1833. Material: skin/mount. Status: missing.

**\**Dendrocopos lignarius* (Molina, 1782).** CD 2480 [original field label]. Z. p. 113: *Picus kingii* G. R. Gray. Syntype *Picus kingii* Gray, 1841. Loc.: Chile: Peninsular Tres Montes: high mountains. January 1835. Ex.coll. Gould, ex. ZSL. Material: skin, female, ad. Status: BMNH 1881.5.1.3597. Cat. XVIII: 258: b/c [see below].

**\**Dendrocopos lignarius* (Molina, 1782).** CD 2185 [original field label]. Z. p. 113: *Picus kingii* G. R. Gray. Syntype *Picus kingii* Gray, 1841. Loc.: Chile: Valparaíso. August - September 1834. Ex.coll. Gould, ex. ZSL. Material: skin, female, ad. Status: BMNH 1881.5.1.3600. Cat. XVIII: 258: b/c [see above].

**\**Dendrocopos lignarius* (Molina, 1782).** [CD 2479]. Z. p. 113: *Picus kingii* G. R. Gray. Syntype *Picus kingii* Gray, 1841. Loc.: Chile: Peninsular Tres Montes: High mountains. January 1835. Ex.coll. ZMD, ex. BMNH, ex. ZSL. Material: skin, male, ad. Status: NMSE 1958.71. [batch number], ex. BMNH 1855.12.19.101. Cat. XVIII: 258: n.

#### FURNARIIDAE:

**\**Geositta cunicularia fissirostris* (Kittlitz, 1835).** [CD 2297]. Z. pp. 65-66: *Furnarius cunicularius* G. R. Gray. Loc.: Chile: Valparaíso. August – September 1834. Material: skin/mount. Status: missing.

**\**Geositta cunicularia fissirostris* (Kittlitz, 1835).** [CD 721, specimens in spirit]. Z. pp. 65-66 & 148: *Furnarius cunicularius* G. R. Gray. Loc.: Uruguay: Maldonado. June 1833. Material: specimen in alcohol. Status: missing.

**\**Geositta cunicularia cunicularia* (Vieillot, 1816).** CD 1222. Z. pp. 65-66: *Furnarius cunicularius* G. R. Gray. Loc.: Uruguay: Maldonado. May 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.57. Cat. XV: 6: a.

**\**Upucerthia dumetaria hallinani* Chapman, 1919.** [CD 2827]. Z. p. 66: *Upucerthia* [sic] *dumetaria* J. [sic] Geoffr. & d'Orb. Loc.: Chile: Coquimbo. 1835. Ex.coll. ZMD, ex. BMNH, ex. ZSL. Material: ex mount, ad. Status: NMSE 1931.76.10, ex. BMNH 1855.12.19.75. Cat. XV: 17: a.

**\**Upucerthia dumetaria dumetaria* Geoffroy Saint-Hilaire, 1832.** [CD 1467]. Z. p. 66: *Upucerthia* [sic] *dumetaria* J. [sic] Geoffr. & d'Orb. Loc.: Argentina: Patagonia: Port Desire. August 1833. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1839.8.4.1. Cat. XV: 17: p.



- \**Upucerthia dumetaria dumetaria* Geoffroy Saint-Hilaire, 1832. [728, specimens in spirit]. Z. pp. 66 & 148-149: *Uppucerthia* [sic] *dumetoria* J. [sic] Geoffr. & d'Orb. Loc.: Argentina: Rio Negro. 1833. Material: specimen in alcohol. Status: missing.
- \**Eremobius phoenicurus* Gould, 1839. CD 1702. Z. pp. 69-70: *Eremobius phoenicurus* Gould. Syntype *Eremobius phoenicurus* Gould, 1839 [pl. XXI]. Loc.: Argentina: Port Desire. January 1834. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.117. Cat. XV: 27: b.
- \**Eremobius phoenicurus* Gould, 1839. CD 2025 [on label 2052]. Z. pp. 69-70: *Eremobius phoenicurus* Gould. Syntype *Eremobius phoenicurus* Gould, 1839 [pl. XXI]. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.73. Cat. XV: 27: a.
- \**Eremobius phoenicurus* Gould, 1839. CD 1754 [original field label]. Z. pp. 69-70: *Eremobius phoenicurus* Gould. Syntype *Eremobius phoenicurus* Gould, 1839 [pl. XXI]. Loc.: Argentina: Port St. Julian. January 1834. Ex.coll. Salvin & Godman, ex. ZSL. Material: skin, ad. Status: BMNH 1889.5.14.65 [on label, this no. is a *Cinclodes fuscus* in register]. Cat. XV: 27: c.
- \**Cinclodes antarcticus antarcticus* (Garnot, 1826). [CD 1931]. Z. pp. 67-68: *Opetiorhynchus antarcticus* G. R. Gray. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1834. Material: skin/mount. Status: missing.
- \**Cinclodes antarcticus antarcticus* (Garnot, 1826). [CD not traced, specimens in spirit]. Z. pp. 67-68 & 149-150: *Opetiorhynchus antarcticus* G. R. Gray. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833/1834. Material: specimen in alcohol. Status: missing.
- \**Cinclodes patagonicus chilensis* (Lesson, 1828). [CD 2126]. Z. p. 67: *Opetiorhynchus patagonicus* G. R. Gray. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount, ? male [CD]. Status: missing.
- \**Cinclodes patagonicus patagonicus* (Gmelin, 1789). [CD 1823]. Z. p. 67: *Opetiorhynchus patagonicus* G. R. Gray. Loc.: Chile: Tierra del Fuego: Port Famine. February 1834. Material: skin/mount. Status: missing.
- \**Cinclodes patagonicus patagonicus* (Gmelin, 1789). [CD 972]. Z. p. 67: *Opetiorhynchus patagonicus* G. R. Gray. Loc.: Chile: Tierra del Fuego: Wolsey Island. January 1833. Ex.coll. Tristram, ex. ZSL. Material: skin, female. Status: LIVCM 4280.
- \**Cinclodes patagonicus ssp.* (Gmelin, 1789). [CD not traced, specimens in spirit]. Z. pp. 67 & 150: *Opetiorhynchus patagonicus* G. R. Gray. Loc.: Chile. Material: specimen in alcohol. Status: missing.
- \**Cinclodes fuscus fuscus* (Vieillot, 1818). [CD 1822]. Z. pp. 66-67: *Opetiorhynchus vulgaris* G. R. Gray. Loc.: Chile: Port Famine. February 1834. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.89. Cat. XV: 23: b.
- \**Cinclodes fuscus fuscus* (Vieillot, 1818). [CD 1260]. Z. pp. 66-67: *Opetiorhynchus vulgaris* G. R. Gray. Loc.: Uruguay: Maldonado. April-July 1833. Material: skin/mount. Status: missing.
- \**Cinclodes fuscus fuscus* (Vieillot, 1818). [CD 722, specimens in spirit]. Z. pp. 66-67 & 149: *Opetiorhynchus vulgaris* G. R. Gray. Loc.: Uruguay: Maldonado. June 1833. Material: specimen in alcohol. Status: missing.
- \**Cinclodes nigrofumosus* (d'Orbigny & Lafresnaye, 1838). CD 2826. Z. p. 68-69: *Opetiorhynchus nigrofumosus* G. R. Gray. Holotype *Opetiorhynchus lanceolatus* Gould, 1839 [pl. XX]. Loc.: Chile: Coquimbo. 1835. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.244. Cat. XV: 22: c.
- \**Cinclodes nigrofumosus* (d'Orbigny & Lafresnaye, 1838). [CD 2426]. Z. pp. 68-69: *Opetiorhynchus nigrofumosus* G. R. Gray. Loc.: Chile: Chonos Archipelago (Lat. 45 degree): Midship Bay. December 1834. Material: single egg. Status: missing.



- \**Furnarius rufus rufus* (Gmelin, 1788). [CD 1619]. Z. p. 64: *Furnarius rufus* Vieill. Loc.: Uruguay: Montevideo. November 1833. Material: skin/mount. Status: missing.
- \**Furnarius rufus rufus* (Gmelin, 1788). [CD 1200]. Z. p. 64: *Furnarius rufus* Vieill. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.
- \**Limnornis curvirostris* Gould, 1839. CD 1248. Z. p. 81: *Limnornis curvirostris* Gould. Syntype *Limnornis curvirostris* Gould, 1839 [pl. XXVI]. Loc.: Uruguay: Maldonado. June 1833. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XXV (1839). Status: BMNH 1855.12.19.74. Cat. XV: 77: a/b [see below].
- \**Limnornis curvirostris* Gould, 1839. [CD 1255]. Z. p. 81: *Limnornis curvirostris* Gould. Syntype *Limnornis curvirostris* Gould, 1839 [pl. XXVI]. Loc.: Uruguay: Maldonado. June 1833. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XXV (1839). Status: BMNH 1855.12.19.56. Cat. XV: 77: a/b [see above].
- \**Aphrastura spinicauda spinicauda* (Gmelin, 1789). [CD 2084]. Z. p. 81: *Oxyurus tupinieri* Gould. Loc.: Chile: Tierra del Fuego: Port Famine. June 1834. Material: skin/mount. Status: missing.
- \**Aphrastura spinicauda fulva* Angelini, 1905. [CD 2130]. Z. p. 81: *Oxyurus tupinieri* Gould. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount. Status: missing.
- \**Phleocryptes melanops melanops* (Vieillot, 1817). [? CD 1227]. Z. p. 82: *Oxyurus ? dorso-maculatus* Gould. Loc.: Uruguay: Maldonado. June 1833. Ex.coll. ZSL. Material: skin/mount. Status: former BMNH 1855.12.19.177, missing since 1880s.
- \**Leptasthenura aegithaloides pallida* Dabbene, 1920. CD 2022. Z. p. 79: *Synallaxis aegithaloides* Kittl. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL via Darwin. Material: ex mount, male, ad. Status: BMNH 1856.3.15.11. Cat. XV: 35: k.
- \**Leptasthenura aegithaloides pallida* Dabbene, 1920. [CD 2023]. Z. p. 79: *Synallaxis aegithaloides* Kittl. Loc.: Argentina: Santa Cruz. April 1834. Material: skin/mount. Status: missing.
- \**Leptasthenura aegithaloides aegithaloides* (Kittlitz, 1830). [CD 2298]. Z. p. 79: *Synallaxis aegithaloides* Kittl. Loc.: Chile: Valparaíso. August - September 1834. Material: skin/mount. Status: missing.
- \**Spartonoica maluroides* (d'Orbigny & Lafresnaye, 1837). [CD 1250]. Z. pp. 77-78: *Synallaxis maluroides* [D'Orb. & Lafr.]. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.
- \**Spartonoica maluroides* (d'Orbigny & Lafresnaye, 1837). [CD 1228]. Z. pp. 77-78: *Synallaxis maluroides* [D'Orb. & Lafr.]. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.
- \**Spartonoica maluroides* (d'Orbigny & Lafresnaye, 1837). [CD 630, specimens in spirit]. Z. pp. 77-78 & 152-153: *Synallaxis maluroides* [D'Orb. & Lafr.]. Loc.: Uruguay: Maldonado. May 1833. Material: specimen in alcohol. Status: missing.
- \**Synallaxis frontalis* / *ruficapilla* Pelzeln, 1859 / Vieillot, 1819. [CD 1256]. Z. p. 79: *Synallaxis ruficapilla* Vieill. Loc.: Uruguay: Maldonado. June 1833. Material: skin/mount. Status: missing.
- \**Synallaxis frontalis* / *ruficapilla* Pelzeln, 1859 / Vieillot, 1819. [? CD 1432]. Z. p. 79: *Synallaxis ruficapilla* Vieill. Loc.: Argentina: Buenos Aires. October 1833. Material: skin/mount. Status: missing.
- \**Limnornis rectirostris* (Gould, 1839). [? CD 1226/1252, see below]. Z. p. 80: *Limnornis rectirostris* Gould. Syntype *Limnornis rectirostris* Gould, 1839 [pl. XXV]. Loc.: Uruguay: Maldonado. June 1833. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XXVI (1839). Status: BMNH 1855.12.19.77. Cat. XV: 77: a.



- \**Limnornis rectirostris* (Gould, 1839). [? CD 1226/1252, see above]. Z. p. 80: *Limnornis rectirostris* Gould. Syntype *Limnornis rectirostris* Gould, 1839 [pl. XXV]. Loc.: Uruguay: Maldonado. June 1833. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XXVI (1839). Status: probably BMNH unregistered specimen. Cat. XV: 77: b.
- \**Asthenes pyrrholeuca flavogularis* (Gould, 1839). [CD 1705]. Z. pp. 78-79: *Synallaxis brunnea* Gould. Holotype *Synallaxis brunnea* Gould, 1839. Loc.: Argentina: Port Desire. January 1834. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.99. Cat. XV: 68: m.
- \**Asthenes pyrrholeuca flavogularis* (Gould, 1839). CD 2024. Z. p. 78: *Synallaxis flavogularis* Gould. Syntype *Synallaxis flavogularis* Gould, 1839 [pl. XXIV]. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, male, imm. Status: BMNH 1855.12.19.406. Cat. XV: 68: q.
- \**Asthenes pyrrholeuca flavogularis* (Gould, 1839). [? CD 751/828]. Z. p. 78: *Synallaxis flavogularis* Gould. Syntype *Synallaxis flavogularis* Gould, 1839 [pl. XXIV]. Loc.: Argentina: Bahia Blanca. September – October 1832. Material: skin/mount. Status: missing.
- \**Asthenes humicola humicola* (Kittlitz, 1830). [? CD 2191]. Z. p. 75: *Synallaxis humicola* Kittl. Loc.: Chile: neighbourhood of Valparaíso. August-September 1834. Material: skin/mount, female. Status: missing.
- \**Asthenes humicola humicola* (Kittlitz, 1830). [? CD 2192]. Z. p. 75: *Synallaxis humicola* Kittl. Loc.: Chile: neighbourhood of Valparaíso. August-September 1834. Material: skin/mount, male. Status: missing.
- \**Asthenes anthoides* (King, 1831). CD 2021. Z. p. 77: *Synallaxis rufogularis* Gould. Syntype *Synallaxis rufogularis* Gould, 1839 [pl. XXIII]. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, ? male [CD], ad. Status: BMNH 1855.12.19.170. Cat. XV: 70: h.
- \**Asthenes anthoides* (King, 1831). [CD 2190]. Z. p. 77: *Synallaxis rufogularis* Gould. Syntype *Synallaxis rufogularis* Gould, 1839 [pl. XXIII]. Loc.: Chile: Valparaíso. September 1834. Ex.coll. ZSL. Material: ex mount, ? male [CD], ad. Status: BMNH 1855.12.19.171. Cat. XV: 70: ?e.
- \**Asthenes anthoides* (King, 1831). [CD 2020]. Z. p. 77: *Synallaxis rufogularis* Gould. Syntype *Synallaxis rufogularis* Gould, 1839 [pl. XXIII]. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, ? male [CD], ad. Status: BMNH 1855.12.19.104. Cat. XV: 70: g.
- \**Phacellodomus striaticollis striaticollis* (d'Orbigny & Lafresnaye, 1838). [CD 1249]. Z. p. 80: *Anumbius ruber* D'Orb. & Lafr. Loc.: Uruguay: Maldonado: reeds on the borders of lakes near Maldonado. 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.52. Cat. XV: 82: a.
- \**Anumbius annumbi* (Vieillot, 1817). [CD 1251]. Z. p. 76: *Synallaxis major* Gould. Holotype *Synallaxis major* Gould, 1839 [pl. XXII]. Loc.: Uruguay: Maldonado: north bank of La Plata. June 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.166. Cat. XV: 76: a.
- \**Pygarrhichas albogularis* (King, 1831). [CD 2129]. Z. pp. 82-83: *Dendrodrampus leucosternus* Gould. Holotype *Dendrodrampus leucosternus* Gould, 1839 [pl. XXVII]. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount. Status: missing.

#### FORMICARIIDAE:

- \**Thamnophilus doliatus* ssp. (Linnaeus, 1764). [CD 1239]. Z. p. 58: *Thamnophilus doliatus* Vieill. Loc.: Uruguay: Maldonado. 1833. Remark: this species does not normally occur in Uruguay. Material: skin/mount. Status: missing.



# RHINOCRYPTIDAE:

- \**Pterotochos tarnii* (King, 1831).** CD 2531. Z. pp. 70-71: *Pterotochos tarnii* G. R. Gray. Loc.: Chile: Isla de Chiloé. January 1835. Ex.coll. ZSL via Darwin. Material: ex mount, male. Status: BMNH 1841.1.18.18. Cat. XV: 349: a.
- \**Pterotochos tarnii* (King, 1831).** [CD 1157, specimens in spirit]. Z. pp. 70-71 & 150-151: *Pterotochos tarnii* G. R. Gray. Loc.: Chile: Isla de Chiloé. January 1835. Material: specimen in alcohol. Status: missing.
- \**Pterotochos megapodius megapodius* Kittlitz, 1830.** [CD 2172]. Z. pp. 71-72: *Pterotochos megapodius* Kittl. Loc.: Chile: Valparaíso: dry country. August - September 1834. Material: skin/mount. Status: missing.
- \**Pterotochos megapodius megapodius* Kittlitz, 1830.** [CD 2296]. Z. pp. 71-72: *Pterotochos megapodius* Kittl. Loc.: Chile: Valparaíso: dry country. August - September 1834. Material: skin/mount. Status: missing.
- \**Pterotochos megapodius megapodius* Kittlitz, 1830.** [CD 2824]. Z. pp. 71-72: *Pterotochos megapodius* Kittl. Loc.: Chile: Coquimbo: dry country. 1835. Material: skin/mount. Status: missing.
- \**Scelorchilus albicollis albicollis* (Kittlitz, 1830).** [CD 2173]. Z. p. 72: *Pterotochos albicollis* Kittl. Loc.: Chile: Valparaíso. August - September 1834. Material: skin/mount. Status: missing.
- \**Scelorchilus albicollis albicollis* (Kittlitz, 1830).** [CD 2174]. Z. p. 72: *Pterotochos albicollis* Kittl. Loc.: Chile: Valparaíso. August - September 1834. Material: skin/mount. Status: missing.
- \**Scelorchilus albicollis albicollis* (Kittlitz, 1830).** [CD 2825]. Z. p. 72: *Pterotochos albicollis* Kittl. Loc.: Chile: Illapel. 1835. Material: skin/mount. Status: missing.
- \**Scelorchilus albicollis albicollis* (Kittlitz, 1830).** [CD 1037, specimens in spirit]. Z. pp. 72 & 151-152: *Pterotochos albicollis* Kittl. Loc.: Chile: Valparaíso. August 1834. Material: specimen in alcohol. Status: missing.
- \**Scelorchilus rubecula rubecula* (Kittlitz, 1830).** [CD 2127]. Z. p. 73: *Pterotochos rubecula* Kittl. Loc.: Chile: Isla de Chiloé. July 1834. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1841.1.18.19. Cat. XV: 346: g.
- \**Rhinocrypta lanceolata lanceolata* (Geoffroy Saint-Hilaire, 1832).** [CD 1459]. Z. p. 70: *Rhinomya lanceolata* Is. Geoffr. & d'Orb. Loc.: Argentina: Rio Negro. August 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.169. Cat. XV: 347: c.
- \**Scytalopus magellanicus magellanicus* (Gmelin, 1789).** [CD 1828]. Z. p. 74: *Scytalopus magellanicus* [sic] G. R. Gray. Loc.: Chile: Tierra del Fuego: Port Famine. February 1834. Ex.coll. ZSL. Material: ex mount, imm. Status: BMNH 1855.12.19.195. Cat. XV: 339: l.
- \**Scytalopus magellanicus magellanicus* (Gmelin, 1789).** [CD 1144]. Z. p. 74: *Scytalopus magellanicus* [sic] G. R. Gray. Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1833. Ex.coll. ZSL. Material: ex mount, imm. Status: BMNH 1855.12.19.180. Cat. XV: 339: m.
- \**Scytalopus magellanicus magellanicus* (Gmelin, 1789).** [CD 2502]. Z. p. 74: *Scytalopus magellanicus* [sic] G. R. Gray. Loc.: Chile: Isla de Chiloé or Chonos Archipel. January 1835. Material: skin/mount. Status: missing.
- \**Eugralla paradoxa* (Kittlitz, 1830).** [? CD 2555/2556, see below]. Z. pp. 73-74: *Pterotochos paradoxus* G. R. Gray. Loc.: Chile: Valdivia. January 1835. Ex.coll. ZSL. via Darwin. Material: ex mount, imm. Status: BMNH 1841.1.18.21 [wrong on label]. Cat. XV: 352: c.



**\**Eugralla paradoxa* (Kittlitz, 1830).** [? CD 2555/2556, see above]. Z. pp. 73-74: *Pteroptochos paradoxus* G. R. Gray. Loc.: Chile: Valdivia. January 1835. Material: ex mount, imm. Status: BMNH 1855.12.19.159. Cat. XV: 352: a.

**\**Eugralla paradoxa* (Kittlitz, 1830).** [CD 2436]. Z. pp. 73-74: *Pteroptochos paradoxus* G. R. Gray. Loc.: Chile: Isla de Chiloé: East Coast. December 1834. Material: skin/mount. Status: missing.

#### TYRANNIDAE:

**\**Suiriri suiriri suiriri* (Vieillot, 1818).** CD 1452. Z. p. 50: *Pachyramphus albescens* Gould. Holotype *Pachyramphus albescens* Gould, 1838 [pl. IX]. Loc.: Argentina: Buenos Aires. 1833. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XIV (1839). Status: BMNH unregistered specimen. Cat. XIV: 155: c.

**\**Elaenia albiceps chilensis* Hellmayr, 1927.** [CD 2829]. Z. p. 47: *Myiobus* [sic] *albiceps* G. R. Gray. Loc.: Chile: Coquimbo. 1835. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.118. Cat. XIV: 143: g'.

**\**Elaenia albiceps chilensis* Hellmayr, 1927.** [? CD 1825]. Z. p. 47: *Myiobus* [sic] *albiceps* G. R. Gray. Loc.: Chile: Tierra del Fuego: Port Famine. February 1834. Ex.coll. Salvin & Godman, ex. Eyton, ex. ZSL, Material: skin, ad. Status: BMNH 1888.1.1.728. Cat. XIV: 143: h'.

**\**Elaenia albiceps chilensis* Hellmayr, 1927.** [CD not traced]. Z. p. 47: *Myiobus* [sic] *albiceps* G. R. Gray. Loc.: Chile: Chonos Archipelago. December 1834 – January 1835. Material: skin/mount. Status: not collected or missing.

**\**Elaenia albiceps chilensis* Hellmayr, 1927.** [?? CD 1258]. Z. p. 47: *Myiobus* [sic] *albiceps* G. R. Gray. Loc.: Uruguay: Maldonado: banks of the Plata. 1833. Material: skin/mount. Status: missing.

**\**Serpophaga nigricans* (Vieillot, 1817).** [CD 1296]. Z. p. 50: *Serpophaga nigricans* Gould. Loc.: Uruguay: Maldonado: on the banks of the Plata. June 1833. Material: skin/mount. Status: not yet looked for by the author.

**\**Serpophaga subcristata straminea* (Temminck, 1822).** [CD 1257]. Z. pp. 49-50: *Serpophaga albo-coronata* Gould. Holotype *Serpophaga albo-coronata* Gould, 1839. Loc.: Uruguay: Maldonado. June 1833. Remark: Warren & Harrison 1971 listed the wrong (FitzRoy) specimen as type. Material: skin/mount. Status: not yet looked for by the author.

**\**Serpophaga subcristata straminea* (Temminck, 1822).** [CD 650, specimens in spirit]. Z. pp. 49-50 & 147: *Serpophaga albo-coronata* Gould. Loc.: Uruguay: Maldonado. May-June 1833. Material: specimen in alcohol. Status: missing.

**\**Anairetes parulus patagonicus* (Hellmayr, 1920).** [CD 2027, nec Keynes 2000]. Z. p. 49: *Serpophaga parulus* Gould. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.161. Cat. XIV: 107: c.

**\**Anairetes parulus patagonicus* (Hellmayr, 1920).** [CD 1469]. Z. p. 49: *Serpophaga parulus* Gould. Loc.: Argentina: Rio Negro. August 1833. Material: skin/mount. Status: missing.

**\**Anairetes parulus parulus* (Kittlitz, 1830).** [CD 2193]. Z. p. 49: *Serpophaga parulus* Gould. Loc.: Chile: Valparaíso. August-September 1834. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.98. Cat. XIV: 107: j.

**\**Tachuris rubrigastra rubrigastra* (Vieillot, 1817).** [CD 1259]. Z. p. 86: *Cyanotis ornicolor* Swains. Loc.: Uruguay: Maldonado. June 1833. Material: skin/mount. Status: missing.

**\**Tachuris rubrigastra rubrigastra* (Vieillot, 1817).** [CD 1277]. Z. p. 86: *Cyanotis ornicolor* Swains. Loc.: Uruguay: Maldonado. June 1833. Material: skin/mount. Status: missing.

**\**Polystictus pectoralis pectoralis* (Vieillot, 1817).** [? CD 1604/1613]. Z. p. 51: *Pachyramphus minimus* [Gould]. Holotype *Pachyramphus minimus* Gould, 1838 [pl. X].



Loc.: Uruguay: Montevideo. November 1832. Material: skin/mount. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XV (1839). Status: missing.

**\**Platyrinchus mystaceus mystaceus* Vieillot, 1818.** [CD not traced]. Z. p. [not traced]. Loc.: South America. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1856.3.15.18. Cat. XIV: 68: t.

**\**Myiophobus fasciatus auriceps* (Gould, 1839).** [?? CD 847]. Z. p. 47: *Myiobius auriceps* [Gould]. Holotype *Tyrannula auriceps* Gould, 1839. Loc.: Argentina: Buenos Aires. August 1833. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.172. Cat. XIV: 210: a'.

**\**Pyrocephalus rubinus nanus* Gould, 1838.** CD 3309. Z. pp. 45-46: *Pyrocephalus nanus* Gould. Syntype *Pyrocephalus nanus* Gould, 1838 [pl. VII]. Loc.: Ecuador: Galápagos Islands: Chatham Island. October [sic] 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH unregistered specimen. Cat. XIV: 215: a'.

**\**Pyrocephalus rubinus nanus* Gould, 1838.** [CD 3342]. Z. pp. 45-46: *Pyrocephalus nanus* Gould. Syntype *Pyrocephalus nanus* Gould, 1838 [pl. VII]. Loc.: Ecuador: Galápagos Islands. October 1835. Ex.coll. ZSL. Material: ex mount, female [male, imm. in CD], ad. Status: BMNH 1855.12.19.198. Cat. XIV: 215: c'.

**\**Pyrocephalus rubinus nanus* Gould, 1838.** CD 3344. Z. pp. 45-46: *Pyrocephalus nanus* Gould. Syntype *Pyrocephalus nanus* Gould, 1838 [pl. VII]. Loc.: Ecuador: Galápagos Islands. October 1835. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH unregistered specimen. Cat. XIV: 215: b'.

**\**Pyrocephalus rubinus nanus* Gould, 1838.** [CD 3343]. Z. pp. 45-46: *Pyrocephalus nanus* Gould. Syntype *Pyrocephalus nanus* Gould, 1838 [pl. VII]. Loc.: Ecuador: Galápagos Islands. October 1835. Remark: Gould and Darwin 1839b: 46 probably studied also FitzRoy's specimen BMNH 1837.5.13.210 / Cat. XIV: 215: e'. Material: skin/mount, male. Status: missing.

**\**Pyrocephalus rubinus dubius* Gould, 1839.** [CD 3345]. Z. p. 46: *Pyrocephalus dubius* Gould. Holotype *Pyrocephalus dubius* Gould, 1839. Loc.: Ecuador: Galápagos Islands: Chatham Island. September 1835. Ex.coll. ZSL. Material: ex mount, female [male in CD], ad. Status: BMNH 1855.12.19.184. Cat. XIV: 215: d'.

**\**Pyrocephalus rubinus obscurus* Gould, 1839.** [CD 3204]. Z. p. 45: *Pyrocephalus obscurus* Gould. Holotype *Pyrocephalus obscurus* Gould, 1839. Loc.: Peru: Callao. August 1835. Ex.coll. ZSL. Material: ex mount, female/imm. Status: BMNH 1855.12.19.389. Cat. XIV: 215: a.

**\**Pyrocephalus rubinus rubinus* (Boddaert, 1783).** [CD 1439]. Z. pp. 44-45: *Pyrocephalus parvirostris* Gould. Syntype *Pyrocephalus parvirostris* Gould, 1838 [pl. VI]. Loc.: Argentina: Buenos Aires: near La Plata. October 1833. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1856.3.16.17. Cat. XIV: 213: n'.

**\**Pyrocephalus rubinus rubinus* (Boddaert, 1783).** CD 1437. Z. pp. 44-45: *Pyrocephalus parvirostris* Gould. Syntype *Pyrocephalus parvirostris* Gould, 1838 [pl. VI]. Loc.: Argentina: Buenos Aires: La Plata. October 1833. Ex.coll. ZSL via Darwin. Material: ex mount, female, ad. Status: BMNH 1856.3.15.17a. Cat. XIV: 213: o'.

**\**Ochthoeca parvirostris* (Gould, 1839).** [? CD 2197]. Z. p. 48: *Myiobius parvirostris* [Gould]. Syntype *Tyrannula parvirostris* Gould, 1839. Loc.: Chile: Valparaíso. August – September 1834. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH unregistered specimen. Cat. XIV: 105: d.

**\**Ochthoeca parvirostris* (Gould, 1839).** CD 2083. Z. p. 48: *Myiobius parvirostris* [Gould]. Syntype *Tyrannula parvirostris* Gould, 1839. Loc.: Chile: Tierra del Fuego: Port Famine. June 1834. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1856.3.15.16. Cat. XIV: 105: f.



- \**Ochthoeca parvirostris* (Gould, 1839).** CD 1824. Z. p. 48: *Myiobius parvirostris* [Gould]. Syntype *Tyrannula parvirostris* Gould, 1839. Loc.: Chile: Tierra del Fuego: Port Famine. February 1834. Ex.coll. ZSL via Darwin. Material: skin/mount. Status: former BMNH 1841.1.18.25, missing since 1880s.
- \**Xolmis pyrope pyrope* (Kittlitz, 1830).** [CD 1819]. Z. p. 55: *Xolmis pyrope* G. R. Gray. Loc.: Chile: Tierra del Fuego: Port Famine. Early February 1834. Material: skin/mount. Status: missing.
- \**Xolmis pyrope pyrope* (Kittlitz, 1830).** [CD 1820]. Z. p. 55: *Xolmis pyrope* G. R. Gray. Loc.: Chile: Tierra del Fuego: Port Famine. Early February 1834. Material: skin/mount. Status: missing.
- \**Xolmis pyrope pyrope* (Kittlitz, 1830).** [CD 2081]. Z. p. 55: *Xolmis pyrope* G. R. Gray. Loc.: Chile: Tierra del Fuego: Port Famine. June 1834. Material: skin/mount. Status: missing.
- \**Xolmis pyrope fortis* Philippi & Johnson, 1946.** [CD 2198]. Z. p. 55: *Xolmis pyrope* G. R. Gray. Loc.: Chile: Copiapó or Valparaíso. August – September 1834. Material: skin/mount. Status: missing.
- \**Xolmis pyrope fortis* Philippi & Johnson, 1946.** [CD 2124]. Z. p. 55: *Xolmis pyrope* G. R. Gray. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount. Status: missing.
- \**Xolmis pyrope fortis* Philippi & Johnson, 1946.** [CD 2375]. Z. p. 55: *Xolmis pyrope* G. R. Gray. Loc.: Chile: Isla de Chiloé. November - December 1834. Material: single egg. Status: missing.
- \**Xolmis cinerea cinerea* (Vieillot, 1816).** [CD 1204]. Z. p. 54: *Xolmis nengeta* G. R. Gray. Loc.: Uruguay: Maldonado: banks of La Plata. 1833. Ex.coll. ZSL. Remark: This taxon is not *Fluvicola nengeta* Linnaeus, 1766. Material: ex mount, ad. Status: BMNH 1855.12.19.307. Cat. XIV: 11: e.
- \**Xolmis coronata* (Vieillot, 1823).** [? CD 1414/1415/1416, see below]. Z. p. 54: *Xolmis coronata* G. R. Gray. Loc.: Argentina: banks of Rio Parana near Santa Fé. 1833. Material: skin/mount. Status: missing.
- \**Xolmis dominicana* (Vieillot, 1823).** [CD 1205]. Z. pp. 53-54: *Fluvicola azarae* Gould. Holotype *Fluvicola Azarae* Gould, 1839 [pl. XII]. Loc.: Uruguay: Maldonado: banks of La Plata. 1833. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number X (1838). Status: BMNH 1855.12.19.245. Cat. XIV: 13: k.
- \**Xolmis irupero irupero* (Vieillot, 1823).** [CD 1600]. Z. p. 53: *Fluvicola irupero* G. R. Gray. Loc.: Argentina: Santa Fé. November 1833. Material: skin/mount. Status: missing.
- \**Neoxolmis rufiventris* (Vieillot, 1823).** [CD 1220]. Z. p. 55: *Xolmis variegata* G. R. Gray. Loc.: Uruguay: Maldonado. 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.276. Cat. XIV: 9: i.
- \**Neoxolmis rufiventris* (Vieillot, 1823).** [CD 1240]. Z. p. 55: *Xolmis variegata* G. R. Gray. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.
- \**Agriornis montana leucura* Gould, 1839.** [? CD 2012 / 2013, see below]. Z. p. 57: *Agriornis maritimus* G. R. Gray. Syntype *Agriornis leucurus* Gould, 1839 [pl. XV]. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XIII (1839). Status: BMNH 1855.12.19.252. Cat. XIV: 6: j/k [see below].
- \**Agriornis montana leucura* Gould, 1839.** [? CD 2012 / 2013, see above]. Z. p. 57: *Agriornis maritimus* G. R. Gray. Syntype *Agriornis leucurus* Gould, 1839 [pl. XV]. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XIII (1839). Status: BMNH 1855.12.19.251. Cat. XIV: 6: j/k [see above].



- \**Agriornis livida livida* (Kittlitz, 1835). [CD 2167]. Z. p. 56: *Agriornis gutturalis* Gould. Loc.: Chile: Valparaíso. August - September 1834. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.344. Cat. XIV: 5: g.
- \**Agriornis livida livida* (Kittlitz, 1835). [? CD 2199]. Z. p. 56: *Agriornis gutturalis* Gould. Loc.: Chile: Valparaíso. August - September 1834. Material: skin/mount. Status: missing.
- \**Agriornis microptera microptera* Gould, 1839. [CD 1752]. Z. p. 57: *Agriornis micropterus* Gould. Syntype *Agriornis micropterus* Gould, 1839 [pl. XIV]. Loc.: Argentina: Port St. Julian. January 1834. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XII (1839). Status: BMNH 1855.12.19.298. Cat. XIV: 5: e.
- \**Agriornis microptera microptera* Gould, 1839. [CD 1699]. Z. p. 57: *Agriornis micropterus* Gould. Syntype *Agriornis micropterus* Gould, 1839 [pl. XIV]. Loc.: Argentina: Port Desire. January 1834. Ex.coll. ZSL. Material: ex mount, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XII (1839). Status: BMNH 1855.12.19.253. Cat. XIV: 5: f.
- \**Agriornis microptera microptera* Gould, 1839. [CD 1700]. Z. p. 57: *Agriornis micropterus* Gould. Syntype *Agriornis micropterus* Gould, 1839 [pl. XIV]. Loc.: Argentina: Port Desire. January 1834. Material: skin/mount, imm. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number XII (1839). Status: missing.
- \**Agriornis microptera microptera* Gould, 1839. [CD 2013]. Z. pp. 56-57: *Agriornis striatus* Gould. Holotype *Agriornis striatus* Gould, 1839. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. Eyton, ex. ZSL. Material: ex mount, female, ad. Status: BMNH 1881.2.18.128. Cat. XIV: 5: d.
- \**Muscisaxicola macloviana mentalis* d'Orbigny & Lafresnaye, 1837. [? CD 2828]. Z. p. 83: *Muscisaxicola mentalis* D'Orb. & Lafr. Loc.: Chile: Coquimbo. 1835. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.186. Cat. XIV: 57: x.
- \**Muscisaxicola macloviana mentalis* d'Orbigny & Lafresnaye, 1837. [?? CD 1448]. Z. p. 83: *Muscisaxicola mentalis* D'Orb. & Lafr. Loc.: Argentina: Bahia Blanca. 1833. Ex.coll. Gould, ex. ? ZSL, Material: skin, ad. Status: perhaps BMNH 1860.1.16.56. Cat. XIV: 57: v.
- \**Muscisaxicola macloviana mentalis* d'Orbigny & Lafresnaye, 1837. [?? CD 971]. Z. p. 83: *Muscisaxicola mentalis* D'Orb. & Lafr. Loc.: Chile: Tierra del Fuego. ? January 1833. Material: skin/mount. Status: missing.
- \**Muscisaxicola macloviana mentalis* d'Orbigny & Lafresnaye, 1837. [CD 2128]. Z. p. 83: *Muscisaxicola mentalis* D'Orb. & Lafr. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount. Status: missing.
- \**Muscisaxicola macloviana mentalis* d'Orbigny & Lafresnaye, 1837. [?? CD 2208]. Z. p. 83: *Muscisaxicola mentalis* D'Orb. & Lafr. Loc.: Chile: Valparaíso. August-September 1834. Ex.coll. ZSL. Material: skin, ad. Status: perhaps BMNH 1858.4.3.45. Cat. XIV: 57: i.
- \**Muscisaxicola macloviana macloviana* (Garnot, 1829). [CD 1899]. Z. pp. 83-84: *Muscisaxicola macloviana* G. R. Gray. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1834. Material: skin/mount. Status: missing.
- \**Muscisaxicola* sp. [?? CD 1753]. Z. p. 84: *Muscisaxicola brunnea* Gould. Holotype *Muscisaxicola brunnea* Gould, 1839. Loc.: Argentina: Port St. Julian. January 1834. Remark: Cat. XIV: 53 already stated that the identity of this species remains uncertain. Material: skin/mount, imm. Status: missing.
- \**Lessonia rufa* (Gmelin, 1789). [? CD 749 / 780, see below]. Z. p. 84: *Muscisaxicola nigra* G. R. Gray. Loc.: Argentina: Bahia Blanca: M. Hermoso. September 1832. Material: skin/mount. Status: missing.
- \**Lessonia rufa* (Gmelin, 1789). [? CD 749 / 780, see above]. Z. p. 84: *Muscisaxicola nigra* G. R. Gray. Loc.: Argentina: Bahia Blanca. September 1832. Material: skin/mount. Status: missing.



**\**Lessonia rufa* (Gmelin, 1789).** [CD 903]. Z. p. 84: *Muscisaxicola nigra* G. R. Gray. Loc.: Chile: Tierra del Fuego: Good Success Bay. December 1832. Ex.coll. ZSL. Material: skin, male, ad. Status: perhaps BMNH 1858.4.3.65. Cat. XIV: 62: g.

**\**Hymenops perspicillata perspicillata* (Gmelin, 1789).** [CD 1231]. Z. pp. 52-53: *Lichenops erythropterus* Gould. Holotype *Lichenops erythropterus* Gould, 1839 [pl. XI]. Loc.: Uruguay: Maldonado: banks of the Plata. 1833. Ex.coll. Eyton, ex. ZSL. Material: ex mount, female, ad. Remark: In two original copies of the 'Zoology' seen the plate to this species was issued as number IX (1838). Status: BMNH 1881.2.18.157. Cat. XIV: 49: f.

**\**Hymenops perspicillata perspicillata* (Gmelin, 1789).** CD 1206. Z. pp. 51-52: *Lichenops perspicillatus* G. R. Gray. [no type; only the female has type status]. Loc.: Uruguay: Maldonado: neighbourhood of the Plata. 1833. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.123. Cat. XIV: 49: a.

**\**Alectrurus risora* (Vieillot, 1824).** [CD 1275]. Z. p. 51: *Alect[r]urus guirayetupa* Vieill. Loc.: Uruguay: Maldonado: on the banks of the Plata. 1833. Material: skin/mount. Status: missing [very unlikely BMNH 1888.1.13.125, Cat. XIV: 40: a].

**\**Alectrurus risora* (Vieillot, 1824).** [CD 1276]. Z. p. 51: *Alect[r]urus guirayetupa* Vieill. Loc.: Uruguay: Maldonado: on the banks of the Plata. 1833. Material: skin/mount. Status: missing.

**\**Satrapa icterophrys* (Vieillot, 1818).** [?? CD 1601]. Z. p. 53: *Fluvicola icterophrys* D'Orb. & Lafr. Loc.: Uruguay: Montevideo. 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.392. Cat. XIV: 42: 1.

**\**Satrapa icterophrys* (Vieillot, 1818).** [?? CD 1271]. Z. p. 53: *Fluvicola icterophrys* D'Orb. & Lafr. Loc.: Uruguay: Maldonado: on the banks of the Plata. 1833. Material: skin/mount. Status: missing.

**\**Myiarchus magnirostris* (Gould, 1838).** CD 3308. Z. p. 48: *Myiobius magnirostris* [Gould]. Holotype *Tyrannula magnirostris* Gould, 1838 [pl. VIII]. Loc.: Ecuador: Galápagos Islands: Chatham Island. October 1835. Ex.coll. ZSL via Darwin. Material: ex mount, female, ad. Status: BMNH 1856.3.15.10. Cat. XIV: 263: b.

**\**Pitangus sulphuratus argentinus* Todd, 1952.** [CD 1216]. Z. p. 43: *Saurophagus sulphuratus* Swains. Loc.: Uruguay: Maldonado: northern banks of the Plata. 1833. Material: skin/mount. Status: missing.

**\**Tyrannus savana savana* Vieillot, 1808.** [CD 1622]. Z. pp. 43-44: *Muscivora tyrannus* G. R. Gray. Loc.: Argentina: Buenos Aires. November 1833. Material: skin/mount, female. Status: missing.

**\**Tyrannus savana savana* Vieillot, 1808.** [CD 1621]. Z. pp. 43-44: *Muscivora tyrannus* G. R. Gray. Loc.: Argentina: Buenos Aires. November 1833. Material: skin/mount, male. Status: missing.

#### PHYTOTOMIDAE:

**\**Phytotoma rara* Molina, 1782.** [CD 2175]. Z. p. 106: *Phytotoma rara* Mol. Loc.: Chile: Valparaíso. August - September 1834. Ex.coll. Frank, ex. Gould, ex. ZSL. Remark: On label as 'Darwin's reis 1837 Chiloe' [in errore]. Material: ex mount, male, ad. Status: RMNH unregistered specimen.

**\**Phytotoma rara* Molina, 1782.** [CD 2176]. Z. p. 106: *Phytotoma rara* Mol. Loc.: Chile: Valparaíso. August - September 1834. Material: skin/mount, female. Status: missing.

**\**Phytotoma rara* Molina, 1782.** [CD 1043, specimens in spirit]. Z. pp. 106 & 153-154: *Phytotoma rara* Mol. Loc.: Chile: Valparaíso. August 1834. Material: specimen in alcohol. Status: missing.

#### ALAUDIDAE:



- \**Eremopterix nigriceps nigriceps* (Gould, 1839).** [CD 3906]. Z. pp. 87-88: *Pyrrhalauda nigriceps* Gould. Syntype *Pyrrhalauda nigriceps* Gould, 1839. Loc.: Portugal: Cape Verde Islands: São Tiago: Porto Praia. September 1836. Material: skin/mount. Status: missing.
- \**Eremopterix nigriceps nigriceps* (Gould, 1839).** [CD 188]. Z. pp. 87-88: *Pyrrhalauda nigriceps* Gould. Syntype *Pyrrhalauda nigriceps* Gould, 1839. Loc.: Portugal: Cape Verde Islands: São Tiago: Porto Praia. January 1832. Material: skin/mount. Status: missing.
- \**Ammomanes cincturus cincturus* (Gould, 1839).** CD 3905. Z. p. 87: *Melanocorypha cinctura* Gould. Holotype *Melanocorypha cinctura* Gould, 1839. Loc.: Portugal: Cape Verde Islands: São Tiago: Porto Praia. September 1836. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.379. Cat. XIII: 645: a.

#### HIRUNDINIDAE:

- \**Tachycineta leucorrhoa* (Vieillot, 1817).** [? CD 1609/1618, see below]. Z. p. 40: *Hirundo frontalis* Gould. Holotype *Hirundo frontalis* Gould, 1839. Loc.: Uruguay: Montevideo. November 1833. Material: skin/mount. Status: missing.
- \**Tachycineta leucopygia* (Meyen, 1834).** [? CD 2200/2201, see below]. Z. p. 40: *Hirundo leucopygia* [sic] Licht. Loc.: Chile: Valparaíso. August - September 1834. Material: skin/mount, male. Status: missing.
- \**Tachycineta leucopygia* (Meyen, 1834).** [CD 1827]. Z. p. 40: *Hirundo leucopygia* [sic] Licht. Loc.: Chile: Tierra del Fuego: Port Famine. February 1834. Material: skin/mount. Status: missing.
- \**Progne tapera fusca* (Vieillot, 1817).** [CD 746]. Z. pp. 38-39: *Progne purpurea* Boie. Loc.: Argentina: Bahia Blanca. September 1832. Material: skin/mount. Status: missing.
- \**Progne tapera fusca* (Vieillot, 1817).** [? CD 1609/1618, see above]. Z. pp. 38-39: *Progne purpurea* Boie. Loc.: Uruguay: Montevideo. November 1833. Material: skin/mount. Status: missing.
- \**Progne modesta modesta* Gould, 1838.** [CD 3356]. Z. pp. 39-40: *Progne modesta* Gould. Holotype *Hirundo concolor* Gould, 1837 & Holotype *Progne modesta* Gould, 1838 [pl. V]. Loc.: Ecuador: Galápagos Islands: James Island. October 1835. Ex.coll. Gould, ex. ZSL. Material: ex mount, male, ad. Remark: The species name differs on the plate of a facsimile copy compared to two original copies of the 'Zoology'; alternative spelling is *modestus*. Status: BMNH 1860.1.16.54. Cat. X: 176: a.
- \**Notiochelidon cyanoleuca patagonica* (d'Orbigny & Lafresnaye, 1837).** CD 1445. Z. p. 41: *Hirundo cyanoleuca* Vieill. Loc.: Argentina: Bahia Blanca. 1833. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1841.1.18.20. Cat. X: 188: x.
- \**Notiochelidon cyanoleuca patagonica* (d'Orbigny & Lafresnaye, 1837).** [? CD 2200/2201, see above]. Z. p. 41: *Hirundo cyanoleuca* Vieill. Loc.: Chile: Valparaíso. September 1834. Material: skin/mount, male. Status: missing.

#### MOTACILLIDAE:

- \**Anthus furcatus furcatus* Lafresnaye & d'Orbigny, 1837.** [CD 1202]. Z. p. 85: *Anthus furcatus* D'Orb. & Lafr. Loc.: Uruguay: Maldonado: northern bank of the Plata. 1833. Material: skin/mount. Status: missing.
- \**Anthus furcatus furcatus* Lafresnaye & d'Orbigny, 1837.** [?? CD 1230]. Z. p. 85: *Anthus furcatus* D'Orb. & Lafr. Loc.: Uruguay: Maldonado: northern bank of the Plata. 1833. Material: skin/mount. Status: missing.
- \**Anthus furcatus furcatus* Lafresnaye & d'Orbigny, 1837.** [CD 1592, shared with eggs of *Zonotrichia capensis* & *Molothrus bonariensis*]. Z. p. 85: *Anthus furcatus* D'Orb. & Lafr.



Loc.: Uruguay: Montevideo: northern bank of the Plata. 1833. Material: two eggs. Status: missing.

\**Anthus lutescens lutescens* Pucheran, 1855. [CD 685]. Z. p. 85: *Anthus chii* Licht. Loc.: Brazil: Rio de Janeiro. 5 April – 5 July 1832. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.185. Cat. X: 608: h.

\**Anthus correndera chilensis* (Lesson, 1839). [CD 2181]. Z. p. 85: *Anthus correndera* Vieill. Loc.: Chile: Valparaíso. August - September 1834. Ex.coll. ZSL. Material: skin, male, ad. Status: BMNH 1841.1.18.22. Cat. X: 610: m.

\**Anthus correndera chilensis* (Lesson, 1839). [CD 2182]. Z. p. 85: *Anthus correndera* Vieill. Loc.: Chile: Valparaíso. August - September 1834. Material: skin/mount, male. Status: missing.

\**Anthus correndera grayi* Bonaparte, 1850. [CD 1898]. Z. p. 85: *Anthus correndera* Vieill. Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1834. Material: skin/mount. Status: missing.

\**Anthus correndera correndera* Vieillot, 1818. [CD 1246]. Z. p. 85: *Anthus correndera* Vieill. Loc.: Uruguay: Maldonado. 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.131. Cat. X: 610: q.

#### TROGLODYTIDAE:

\**Cistothorus platensis platensis* (Latham, 1790). CD 1444 [as 1443 on label]. Z. p. 75: *Troglodytes platensis* Gmel. Loc.: Argentina: Bahia Blanca. October 1833. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1856.3.15.20. Cat. VI: 247: b.

\**Cistothorus platensis falklandicus* Chapman, 1934. [CD 1053]. Z. p. 75: *Troglodytes platensis* Gmel. Loc.: Falkland Islands/Islands Malvinas: East Falkland Island. March 1833. Ex.coll. Salvin & Godman or Gould, ex. ? ZSL. Remark: not quite sure if one of these two specimens is the missing Darwin bird. Material: skin, ad. Status: perhaps BMNH 1885.3.6.480 or BMNH 1859.3.25.83 [Keynes 2000 accidentally listed the wrong specimen].

\**Troglodytes aedon chilensis* Lesson, 1830. CD 2194. Z. p. 74: *Troglodytes magellanicus* Gould. Loc.: Chile: Valparaíso. August – September 1834. Ex.coll. Salvin & Godman, ex. Gould, ex. ZSL. Remark: Darwin's specimens are not the types of *Troglodytes magellanicus* Gould, 1837, which was probably based on specimens collected by Captain King (nec. Warren & Harrison 1971). Material: skin, female, ad. Status: BMNH 1885.3.6.408. Cat. VI: 257: l [annotation by Sharpe in BMNH copy].

\**Troglodytes aedon musculus* Naumann, 1823. [CD not traced]. Z. p. 74: *Troglodytes magellanicus* Gould. Loc.: Brazil: Rio de Janeiro. April – July 1832. Ex.coll. Salvin & Godman, ex. Gould, ex. ZSL. Remark: Darwin's specimens are not the types of *Troglodytes magellanicus* Gould, 1837, which was probably based on specimens collected by Captain King (nec. Warren & Harrison 1971). Material: skin, ad. Status: BMNH 1885.3.6.409. Cat. VI: 257: i [annotation by Sharpe in BMNH copy].

\**Troglodytes aedon bonariae* Hellmayr, 1919. [?? CD 1425/1434/1450]. Z. p. 74: *Troglodytes magellanicus* Gould. Loc.: Argentina: banks of the Plata. 1833. Remark: Darwin's specimens are not the types of *Troglodytes magellanicus* Gould, 1837, which was probably based on specimens collected by Captain King (nec. Warren & Harrison 1971). Material: skin/mount. Status: missing.

\**Troglodytes aedon chilensis* Lesson, 1830. [CD 2026]. Z. p. 74: *Troglodytes magellanicus* Gould. Loc.: Argentina: Santa Cruz. April 1834. Remark: Darwin's specimens are not the types of *Troglodytes magellanicus* Gould, 1837, which was probably based on specimens collected by Captain King (nec. Warren & Harrison 1971). Material: skin/mount, female. Status: missing.



**\**Troglodytes aedon chilensis* Lesson, 1830.** [CD 1831]. Z. p. 74: *Troglodytes magellanicus* Gould. Loc.: Chile: Tierra del Fuego: Port Famine. February 1834. Remark: Darwin's specimens are not the types of *Troglodytes magellanicus* Gould, 1837, which was probably based on specimens collected by Captain King (nec. Warren & Harrison 1971). Material: skin/mount. Status: missing.

#### MIMIDAE:

**\**Mimus thenca* (Molina, 1782).** CD 2169. Z. p. 61: *Mimus thenca* G. R. Gray. Loc.: Chile: Valparaíso. August - September 1834. Ex.coll. ZSL. Material: ex mount, male [on label], female [CD], ad. Status: BMNH 1855.12.19.230. Cat. VI: 345: e/f [see below].

**\**Mimus thenca* (Molina, 1782).** [CD 2170]. Z. p. 61: *Mimus thenca* G. R. Gray. Loc.: Chile: Valparaíso. August - September 1834. Ex.coll. ZSL. Material: ex mount, ? male [CD], ad. Status: BMNH 1855.12.19.226. Cat. VI: 345: e/f [see above].

**\**Mimus saturninus modulator* (Gould, 1836).** [CD 1620]. Z. p. 60: *Mimus orpheus* G. R. Gray. Loc.: Uruguay: Montevideo: banks of the Plata. November 1833. Ex.coll. ZSL. Remark: The types of *Orpheus modulator* Gould, 1836, had probably been collected by King, not by Darwin, nec Warren & Harrison 1971. Material: ex mount, ad. Status: BMNH 1855.12.19.229. Cat. VI: 348: a.

**\**Mimus saturninus modulator* (Gould, 1836).** [CD 1213]. Z. p. 60: *Mimus orpheus* G. R. Gray. Loc.: Uruguay: Maldonado: banks of the Rio Plata. 1833. Ex.coll. ZSL. The types of *Orpheus modulator* Gould, 1836, were probably collected by King, not by Darwin, contra Warren & Harrison 1971. Material: ex mount, ad. Status: BMNH 1855.12.19.227. Cat. VI: 348: d.

**\**Mimus patagonicus* (Lafresnaye & d'Orbigny, 1837).** [? CD 2011, see below]. Z. pp. 60-61: *Mimus patagonicus* G. R. Gray. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Remark: Cat. erroneously listed this specimen as syntype of *Mimus patagonicus* G. R. Gray. Material: ex mount, ad. Status: BMNH 1855.12.19.221. Cat. VI: 352: a/b [see below].

**\**Mimus patagonicus* (Lafresnaye & d'Orbigny, 1837).** [? CD 2011, see above]. Z. pp. 60-61: *Mimus patagonicus* G. R. Gray. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Remark: Cat. erroneously listed this specimen as syntype of *Mimus patagonicus* G. R. Gray. Material: ex mount, ad. Status: BMNH 1855.12.19.311. Cat. VI: 352: a/b [see above].

**\**Mimus patagonicus* (Lafresnaye & d'Orbigny, 1837).** [CD 1461]. Z. pp. 60-61: *Mimus patagonicus* G. R. Gray. Loc.: Argentina: Rio Negro. August 1833. Remark: Cat. erroneously listed this specimen as syntype of *Mimus patagonicus* G. R. Gray. Material: skin/mount. Status: missing.

**\**Nesomimus trifasciatus trifasciatus* (Gould, 1837).** [CD 3306]. Z. p. 62: *Mimus trifasciatus* G. R. Gray. Holotype *Orpheus trifasciatus* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago: Charles Island. October 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.225. Cat. VI: 346: a.

**\**Nesomimus trifasciatus melanotis* (Gould, 1837).** [CD 3307]. Z. p. 62: *Mimus melanotis* G. R. Gray. Syntype *Orpheus melanotis* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago: Chatham Island. October 1835. Ex.coll. ZSL. Remark: BMNH 1881.2.18.80 originates from Covington's collection (cf. Sulloway 1982). Material: ex mount, male, ad. Status: BMNH 1855.12.19.228. Cat. VI: 350: a.

**\**Nesomimus trifasciatus parvulus* (Gould, 1837).** [CD 3349]. Z. p. 63: *Mimus parvulus* G. R. Gray. Holotype *Orpheus parvulus* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago: Albemarle Island. October 1835. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.92. Cat. VI: 350: a.

**\**Nesomimus trifasciatus personatus* Ridgway, 1890.** [CD 3350]. Z. p. 62: *Mimus melanotis* G. R. Gray. ?Syntype *Orpheus melanotis* Gould, 1837. Loc.: Ecuador: Galápagos



Archipelago: [James Island]. October 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.223. Cat. VI: 350: ?b.

#### TURDIDAE:

\**Turdus rufiventris rufiventris* Vieillot, 1818. [? CD 1460/1470, see below]. Z. p. 59: *Turdus rufiventer* Licht. Loc.: Argentina: Rio Negro. August 1833. Material: skin/mount. Status: missing.

\**Turdus rufiventris rufiventris* Vieillot, 1818. [? CD 1274/1233, see below]. Z. p. 59: *Turdus rufiventer* Licht. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.

\**Turdus rufiventris rufiventris* Vieillot, 1818. [? CD 1233/1274, see above]. Z. p. 59: *Turdus rufiventer* Licht. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.

\**Turdus falcklandii falcklandii* Quoy & Gaimard, 1824. [CD 1900]. Z. p. 59: *Turdus falklandicus* [sic] Quoy & Guim. [sic]. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1834. Material: skin/mount. Status: missing.

\**Turdus falcklandii magellanicus* King, 1831. [CD not traced]. Z. p. 59: *Turdus falklandicus* [sic] Quoy & Guim. [sic]. Loc.: Chile: Tierra del Fuego. Dezember 1832 – February 1833 or January – March 1834. Material: skin/mount. Status: missing.

\**Turdus falcklandii magellanicus* King, 1831. [CD 2125]. Z. p. 59: *Turdus falklandicus* [sic] Quoy & Guim. [sic]. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount. Status: missing.

\**Turdus falcklandii pembertoni* Wetmore, 1923. [? CD 1470/1460, see above]. Z. p. 59: *Turdus falklandicus* [sic] Quoy & Guim. [sic]. Loc.: Argentina: Rio Negro. August 1833. Material: skin/mount. Status: missing.

#### EMBERIZIDAE:

\**Zonotrichia capensis subtorquata* Swainson, 1837. [CD 1592, is shared with eggs of *Anthus furcatus* & *Molothrus bonariensis*]. Z. p. 91: *Zonotrichia matutina* G. R. Gray [later referred to as *Zonotrichia ruficollis*, p. 108]. Loc.: Uruguay: Montevideo. 1833. Material: three eggs. Status: missing.

\**Zonotrichia capensis subtorquata* Swainson, 1837. [CD 1615]. Z. p. 91: *Zonotrichia matutina* G. R. Gray. Loc.: Uruguay: Montevideo: banks of the Plata. November 1833. Material: skin/mount. Status: missing.

\**Zonotrichia capensis subtorquata* Swainson, 1837. [CD 683]. Z. p. 91: *Zonotrichia matutina* G. R. Gray. Loc.: Uruguay: Montevideo: banks of the Plata. August 1832. Material: skin/mount. Status: missing.

\**Zonotrichia capensis australis* (Latham, 1790). [CD 750]. Z. p. 91: *Zonotrichia matutina* G. R. Gray. Loc.: Argentina: Bahia Blanca. September 1832. Ex.coll. Gould, ex. ? ZSL. Material: skin, ad. Status: probably BMNH 1857.10.16.51. Cat. XII: 610: a.

\**Zonotrichia capensis australis* (Latham, 1790). CD 1826. Z. pp. 91-92: *Zonotrichia canicapilla* Gould. Syntype *Zonotrichia canicapilla* Gould, 1839. Loc.: Chile: Tierra del Fuego: Port Famine. February 1834. Ex.coll. Salvin & Godman, ex. ZSL. Material: skin, juv. Status: BMNH unregistered specimen. Cat. XII: 610: c.

\**Zonotrichia capensis australis* (Latham, 1790). [CD 1704]. Z. pp. 91-92: *Zonotrichia canicapilla* Gould. Syntype *Zonotrichia canicapilla* Gould, 1839. Loc.: Argentina: Port Desire. January 1834. Material: skin/mount. Status: missing.

\**Zonotrichia capensis australis* (Latham, 1790). [? CD 902/904/1001, see below]. Z. pp. 91-92: *Zonotrichia canicapilla* Gould. Syntype *Zonotrichia canicapilla* Gould, 1839. Loc.: Chile: Tierra del Fuego. December 1832 – February 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.388. Cat. XII: 610: b.



- \**Zonotrichia capensis australis* (Latham, 1790). [CD 1771]. Z. pp. 91-92: *Zonotrichia canicapilla* Gould. Syntype *Zonotrichia canicapilla* Gould, 1839. Loc.: Argentina: Port St. Julian. January 1834. Material: skin/mount. Status: missing.
- \**Zonotrichia capensis australis* (Latham, 1790). [CD 1710, number shared with eggs of *Falco femoralis*, see above]. Z. pp. 91-92: *Zonotrichia canicapilla* Gould. Paratype *Zonotrichia canicapilla* Gould, 1839. Loc.: Argentina: Port St. Julian. January 1834. Material: egg(s). Status: missing.
- \**Zonotrichia capensis chilensis* (Meyen, 1834). [CD 2299]. Z. p. 91: *Zonotrichia matutina* G. R. Gray. Loc.: Chile: Valparaíso. August – September 1834. Material: skin/mount. Status: missing.
- \**Ammodramus humeralis xanthornus* Gould, 1839. [CD 1262]. Z. p. 90: *Ammodramus manimbe* G. R. Gray. Holotype *Ammodramus xanthornus* Gould, 1839 [pl. XXX]. Loc.: Uruguay: Maldonado. June 1833. Ex.coll. Gould, ex. ZSL. Remark: FitzRoy's specimens BMNH 1837.2.21.328 = Cat. XII: 693; z & BMNH 1837.2.21.291 = Cat. XII: 693; a' are not the types. Material: skin. Status: VMM B19633.
- \**Aimophila strigiceps strigiceps* (Gould, 1839). [? CD 1414/1415/1416, see above & below]. Z. p. 92: *Zonotrichia strigiceps* Gould. Holo/Syntype *Zonotrichia strigiceps* Gould, 1839. Loc.: Argentina: Santa Fé. October 1833. Ex.coll. Sclater, ex. Gould, ex. ZSL. Material: skin, ad. Status: BMNH 1885.2.10.447. Cat. XII: 608; a.
- \**Phrygilus gayi caniceps* Burmeister, 1860. [CD 2017]. Z. p. 93: *Fringilla gayi* Eyd. & Gerv. Loc.: Argentina: Santa Cruz. April 1834. Material: skin/mount, male. Status: missing.
- \**Phrygilus gayi caniceps* Burmeister, 1860. [CD 2018]. Z. p. 93: *Fringilla gayi* Eyd. & Gerv. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, female, ad. Status: 1855.12.19.42. Cat. XII: 784; h.
- \**Phrygilus patagonicus* Lowe, 1923. [? CD 1818]. Z. pp. 93-94: *Fringilla formosa* Gould. Syntype *Fringilla formosa* Gould, 1839 & Syntype *Phrygilus gayi patagonicus* Lowe, 1923. Loc.: Chile: Tierra del Fuego: Port Famine. Early February 1834. Material: ex mount, female, ad. Status: BMNH 1856.3.15.12. Cat. XII: 782; i.
- \**Phrygilus patagonicus* Lowe, 1923. [? CD 902/904/1001, see above & below]. Z. pp. 93-94: *Fringilla formosa* Gould. Syntype *Fringilla formosa* Gould, 1839 & Syntype *Phrygilus gayi patagonicus* Lowe, 1923. Loc.: Chile: Tierra del Fuego. December 1832 – February 1833. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.162. Cat. XII: 782; g.
- \**Phrygilus patagonicus* Lowe, 1923. [? CD 902/904/1001, see above]. Z. pp. 93-94: *Fringilla formosa* Gould. Syntype *Fringilla formosa* Gould, 1839 & Syntype *Phrygilus gayi patagonicus* Lowe, 1923. Loc.: Chile: Tierra del Fuego. December 1832 – February 1833. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.24. Cat. XII: 782; f.
- \**Phrygilus fruticeti fruticeti* (Kittlitz, 1833). [CD 2829]. Z. p. 94: *Fringilla fruticeti* Kittl. Loc.: Chile: Coquimbo. 1835. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.16. Cat. XII: 791; g.
- \**Phrygilus fruticeti fruticeti* (Kittlitz, 1833). [CD 2016]. Z. p. 94: *Fringilla fruticeti* Kittl. Loc.: Argentina: Santa Cruz. April 1834. Material: skin/mount, female. Status: missing.
- \**Phrygilus fruticeti fruticeti* (Kittlitz, 1833). [CD 2015]. Z. p. 94: *Fringilla fruticeti* Kittl. Loc.: Argentina: Santa Cruz. April 1834. Ex.coll. ZSL. Material: ex mount, female/imm. Status: BMNH 1855.12.19.45. Cat. XII: 791; l.
- \**Phrygilus carbonarius* (Lafresnaye & d'Orbigny, 1837). [CD 1466]. Z. p. 94: *Fringilla carbonaria* G. R. Gray. Loc.: Argentina: between Rio Negro and Colorado. August 1833. Material: skin/mount. Status: missing.
- \**Phrygilus alaudinus alaudinus* (Kittlitz, 1833). [CD 2177]. Z. p. 94: *Fringilla alaudina* Kittl. Loc.: Chile: Valparaíso. August - September 1834. Ex.coll. ZSL. Material: ex mount, female, [male in CD], ad. Status: BMNH 1855.12.19.390. Cat. XII: 795; t.



**\**Phrygilus alaudinus alaudinus* (Kittlitz, 1833).** [CD 2178]. Z. p. 94: *Fringilla alaudina* Kittl. Loc.: Chile: Valparaíso. August - September 1834. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.41. Cat. XII: 795: s.

**\**Melanodera melanodera melanodera* (Quoy & Gaimard, 1824).** [? CD 1879/1046, see below]. Z. pp. 95-96: *Chlorospiza ? melanodera* G. R. Gray. Loc.: Falkland Islands/Isas Malvinas: East Falkland Island. March 1833/1834. Ex.coll. ZSL. Material: ex mount, imm. Status: BMNH 1855.12.19.50. Cat. XII: 788: o.

**\**Melanodera melanodera melanodera* (Quoy & Gaimard, 1824).** [?? CD 1701]. Z. pp. 95-96: *Chlorospiza ? melanodera* G. R. Gray. Loc.: Argentina: Santa Cruz or Port Desire. January or April 1834. Ex.coll. Salvin & Godman, ex. ZSL. Remark: error of locality in CD or Z. or not entered in CD or specimen not a Darwin bird. Material: skin, female, ad. Status: probably BMNH 1885.12.14.807. Cat. XII: 788: x.

**\**Melanodera melanodera melanodera* (Quoy & Gaimard, 1824).** [?? CD 1468]. Z. pp. 95-96: *Chlorospiza ? melanodera* G. R. Gray. Loc.: Argentina: Santa Cruz [? Rio Negro]. April 1834. Ex.coll. Salvin & Godman, ex. ZSL. Remark: not under this loc. in CD or specimen not a Darwin bird. Material: skin, male, ad. Status: probably BMNH 1885.12.14.806. Cat. XII: 788: w.

**\**Melanodera xanthogramma xanthogramma* (Gray, 1839).** [?? CD 1003, see below]. Z. pp. 96-97: *Chlorospiza ? xanthogramma* G. R. Gray. Syntype *Chlorospiza xanthogramma* G. R. Gray, 1839. Loc.: Chile: Tierra del Fuego. February 1833. Ex.coll. ZSL via Darwin. Remark: One of these two specimens cannot be traced in CD (see below). The authorship is attributed to Gray on the basis that his name appears after the new name; however, plate XXXIII, which has been published together with the text in the November 1839 issue, was probably sketched by John Gould, and executed on stone by Elizabeth Gould. This matter would need further investigations. Material: skin, female, ad. Status: BMNH 1841.11.18.24. Cat. XII: 790: e [see below].

**\**Melanodera xanthogramma xanthogramma* (Gray, 1839).** [?? CD 1003, see above]. Z. pp. 96-97: *Chlorospiza ? xanthogramma* G. R. Gray. Syntype *Chlorospiza xanthogramma* G. R. Gray, 1839. Loc.: Chile: Tierra del Fuego. February 1833. Ex.coll. ZSL. Remark: One of these two specimens cannot be traced in CD (see above). The authorship is attributed to Gray on the basis that his name appears after the new name; however, plate XXXIII, which has been published together with the text in the November 1839 issue, was probably sketched by John Gould, and executed on stone by Elizabeth Gould. This matter would need further investigations. Material: ex mount, imm. Status: BMNH 1855.12.19.181. Cat. XII: 790: e [see above].

**\**Melanodera xanthogramma xanthogramma* (Gray, 1839).** [? CD 1046/1879, see above]. Z. pp. 96-97: *Chlorospiza ? xanthogramma* G. R. Gray. Syntype *Chlorospiza xanthogramma* G. R. Gray, 1839. Loc.: Falkland Islands/Isas Malvinas: East Falkland Island. March 1833/1834. Material: skin/mount. Status: missing.

**\**Melanodera melanodera* / *xanthogramma* (Quoy & Gaimard, 1824) / (Gray, 1839).** [?? CD 1919/1920/1923/1047, see below]. Z. pp. 95-97: *Chlorospiza ? melanodera* or *xanthogramma* G. R. Gray. ? Syntype *Chlorospiza xanthogramma* G. R. Gray, 1839. Loc.: Falkland Islands/Isas Malvinas: East Falkland Island. March 1833/34. Material: skin/mount. Status: missing.

**\**Melanodera melanodera* / *xanthogramma* (Quoy & Gaimard, 1824) / (Gray, 1839).** [?? CD 1919/1920/1923/1047, see below & above]. Z. pp. 95-97: *Chlorospiza ? melanodera* or *xanthogramma* G. R. Gray. ? Syntype *Chlorospiza xanthogramma* G. R. Gray, 1839. Loc.: Falkland Islands/Isas Malvinas: East Falkland Island. March 1833/34. Material: skin/mount. Status: missing.

**\**Melanodera melanodera* / *xanthogramma* (Quoy & Gaimard, 1824) / (Gray, 1839).** [?? CD 1919/1920/1923/1047, see below & above]. Z. pp. 95-97: *Chlorospiza ? melanodera* or



*xanthogramma* G. R. Gray. ? Syntype *Chlorospiza xanthogramma* G. R. Gray, 1839. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833/34. Material: skin/mount. Status: missing.

**\**Melanodera melanodera* / *xanthogramma* (Quoy & Gaimard, 1824) / (Gray, 1839).** [?? CD 1919/1920/1923/1047, see above]. Z. pp. 95-97: *Chlorospiza* ? *melanodera* or *xanthogramma* G. R. Gray. ? Syntype *Chlorospiza xanthogramma* G. R. Gray, 1839. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833/34. Material: skin/mount. Status: missing.

**\**Melanodera melanodera* / *xanthogramma* (Quoy & Gaimard, 1824) / (Gray, 1839).** [CD 1922]. p. 95-97: *Chlorospiza* ? *melanodera* or *xanthogramma* G. R. Gray. ? Syntype *Chlorospiza xanthogramma* G. R. Gray, 1839. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1834. Material: skin/mount, female. Status: missing.

**\**Donacospiza albifrons* (Vieillot, 1817).** [? CD 1605/1611/1612/1614/1616/1617, see below]. Z. p. 90: *Ammodramus longicaudatus* Gould. Syntype *Ammodramus longicaudatus* Gould, 1839 [pl. XXIX]. Loc.: Uruguay: Montevideo. November 1832. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1856.3.15.13. Cat. XII: 767: i.

**\**Donacospiza albifrons* (Vieillot, 1817).** [?? CD 1297]. Z. p. 90: *Ammodramus longicaudatus* Gould. Syntype *Ammodramus longicaudatus* Gould, 1839 [pl. XXIX]. Loc.: Uruguay: Maldonado. June 1833. Ex.coll. ZSL via Darwin. Material: ex mount, ad. Status: BMNH 1856.3.15.9. Cat. XII: 767: h.

**\**Diuca diuca chiloensis* Philippi & Pena, 1964.** [CD 2132]. Z. p. 93: *Fringilla diuca* Mol. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount, male. Status: missing.

**\**Diuca diuca chiloensis* Philippi & Pena, 1964.** [CD 2131]. Z. p. 93: *Fringilla diuca* Mol. Loc.: Chile: Isla de Chiloé. July 1834. Material: skin/mount. Status: missing.

**\**Diuca diuca chiloensis* Philippi & Pena, 1964.** [CD 2133]. Z. p. 93: *Fringilla diuca* Mol. Loc.: Chile: Isla de Chiloé. July 1834. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.187. Cat. XII: 801: e.

**\**Diuca diuca diuca* (Molina, 1782).** [CD 2320]. Z. p. 93: *Fringilla diuca* Mol. Chile: Valparaíso. September - October 1834. Material: egg clutch & nest. Status: missing.

**\**Poospiza nigrorufa nigrorufa* (d'Orbigny & Lafresnaye, 1837).** [? CD 1241]. Z. p. 98: *Pipillo* [sic] *personata* Swains. Loc.: Uruguay: Maldonado. 1833. Ex.coll. ZSL. Material: skin, male, ad. Status: BMNH 1858.4.3.120. Cat. XII: 641: a.

**\**Poospiza nigrorufa nigrorufa* (d'Orbigny & Lafresnaye, 1837).** CD 1234. Z. p. 98: *Pipillo* [sic] *personata* Swains. Loc.: Uruguay: Maldonado. 1833. Ex.coll. Tristram, ex. ZSL. Material: skin, male. Status: LIVCM 14875.

**\**Sicalis flaveola pelzelni* Sclater, 1872.** [? CD 1247]. Z. p. 88: *Crithagra* ? *brasiliensis* [Spix]. Uruguay: northern bank of the Plata near Maldonado. June 1833. Material: skin/mount. Status: missing.

**\**Sicalis flaveola pelzelni* Sclater, 1872.** [? CD 1605/1611/1612/1614/1616/1617, see below & above]. Z. p. 88: *Crithagra* ? *brasiliensis* [Spix]. Loc.: Uruguay: northern bank of the Plata near Montevideo. November 1833. Material: skin/mount. Status: missing.

**\**Sicalis* [?] *luteola luteiventris* (Meyen, 1834).** [? CD 1232]. Z. pp. 88-89: *Crithagra* ? *brevirostris* Gould. Syntype *Crithagra brevirostris* Gould, 1839. Loc.: Uruguay: Maldonado. May 1833. Remark: The original description would fit to *Sicalis luteola luteiventris* (Meyen, 1834), but as the type is lacking, some doubts remain. Material: skin/mount. Status: missing.

**\**Sicalis* [?] *luteola luteiventris* (Meyen, 1834).** [? CD 2196]. Z. pp. 88-89: *Crithagra* ? *brevirostris* Gould. Syntype *Crithagra brevirostris* Gould, 1839. Chile: Valparaíso. September 1834. Remark: The original description would fit to *Sicalis luteola luteiventris* (Meyen, 1834), but as the type is lacking, some doubts remain. Material: skin/mount, [?] male. Status: missing.



**\**Sicalis luteola luteiventris* (Meyen, 1834).** [CD 2019]. Z. p. 89: *Emberiza luteoventris* [sic] G. R. Gray. Loc.: Argentina: Santa Cruz. April 1834. Material: skin/mount, male. Status: missing.

**\**Embernagra platensis platensis* (Gmelin, 1789).** CD 683. Z. p. 98: *Emberizoides poliocephalus* G. R. Gray. Syntype *Emberizoides poliocephalus* G. R. Gray, 1841. Loc.: Uruguay: Montevideo: northern shore of the Plata. July - August 1832. Ex.coll. Salvin & Godman, ex. Gould, ex. ZSL. Remark: The only type for which Gray's authorship seems to be without any doubts. Material: skin, ad. Status: BMNH 1885.12.14.1325. Cat. XII: 759: d.

**\**Embernagra platensis platensis* (Gmelin, 1789).** CD 1207 [original field label]. Z. p. 98: *Emberizoides poliocephalus* G. R. Gray. Syntype *Emberizoides poliocephalus* G. R. Gray, 1841. Loc.: Uruguay: Maldonado: northern shore of the Plata. 1833. Ex.coll. Gould, ex. ZSL. Remark: The only type for which Gray's authorship seems to be without any doubts. Material: ex mount. Status: VMM No. B19600.

**\**Volatinia jacarina jacarina* (Linnaeus, 1766).** [? CD No. between 412-446, number not in Barlow 1963 & Keynes 2000]. Z. p. 92: *Passerina jacarina* Vieill. Loc.: Brazil: Rio de Janeiro. April-July 1832. Ex.coll. BMNH, ex. Gould, ? ex. ZSL. Material: ex mount, male, ad. Status: MANCH B.7528, ex.1857.11.28.251. Cat. XII: 155: h.

**\**Sporophila caerulescens caerulescens* (Vieillot, 1823).** [? CD 1605/1611/1612/1614/1616/1617, see below & above]. Z. p. 88: *Spermophila nigrogularis* Gould. Syntype *Spermophila nigrogularis* Gould, 1839. Loc.: Uruguay: Montevideo. November 1832/1833. Ex.coll. ZSL via Darwin. Material: skin, female, ad. Status: BMNH 1841.1.18.26. Cat. XII: 127: o.

**\**Sporophila caerulescens caerulescens* (Vieillot, 1823).** [? CD 1605/1611/1612/1614/1616/1617, see below & above]. Z. p. 88: *Spermophila nigrogularis* Gould. Syntype *Spermophila nigrogularis* Gould, 1839. Loc.: Uruguay: Montevideo. November 1832/1833. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.200. Cat. XII: 127: n.

**\**Geospiza magnirostris magnirostris* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see below]. Z. p. 100: *Geospiza magnirostris* Gould. Syntype *Geospiza magnirostris* Gould, 1837. Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.113. Cat. XII: 8: b.

**\**Geospiza magnirostris magnirostris* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. p. 100: *Geospiza magnirostris* Gould. Syntype *Geospiza magnirostris* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.80. Cat. XII: 8: a.

**\**Geospiza magnirostris magnirostris* Gould, 1837.** [?? CD 3312-19/24-29/32-36/38/39/41, see below & above]. Z. p. 100: *Geospiza magnirostris* Gould. [?] Syntype *Geospiza magnirostris* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. Salvin & Godman, ex. Eyton, ex. ?Gould, ex. ?ZSL. Remark: probably from Covington's private collection, cf. Sulloway 1982. Material: skin, male, ad. Status: BMNH 1885.12.14.280. Cat. XII: 8: c/d [see below].

**\**Geospiza magnirostris magnirostris* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see below & above]. Z. p. 100: *Geospiza magnirostris* Gould. [?] Syntype *Geospiza magnirostris* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. Salvin & Godman, ex. Eyton, ex. ?Gould, ex. ?ZSL. Remark: Sulloway (1982) believed that this specimen is from Covington's collection; numbers in CD reveal that it is Darwin's. Material: skin, [?] female, ad. Status: BMNH 1885.12.14.281. Cat. XII: 8: c/d [see above].

**\**Geospiza magnirostris strenua* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see below & above]. Z. pp. 100-101: *Geospiza strenua* Gould. Syntype *Geospiza strenua* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.114. Cat. XII: 9: b/c [see below].



- \**Geospiza magnirostris strenua* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 100-101: *Geospiza strenua* Gould. Syntype *Geospiza strenua* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.81. Cat. XII: 9: a.
- \**Geospiza fortis* [cf. Sulloway 1982] Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 100-101: *Geospiza strenua* Gould. Syntype *Geospiza strenua* Gould, 1837. Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount/skin, female, ad. Status: BMNH 1855.12.19.83. Cat. XII: 9: b/c [see above].
- \**Geospiza fortis* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. p. 101: *Geospiza fortis* Gould. Syntype *Geospiza fortis* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Remark: Sulloway (1982) discussed that this specimen might derive from the private collection of Covington, which is here not followed. Material: ex mount, female, ad. Status: BMNH 1855.12.19.82. Cat. XII: 11: a.
- \**Geospiza fortis* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. p. 102: *Geospiza dentirostris* Gould. Holotype *Geospiza dentirostris* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, male [fide Sulloway 1982], juv. Status: BMNH 1855.12.19.176. Cat. XII: 12: a.
- \**Geospiza fortis* [fide Swarth 1931] Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. p. 103: *Geospiza dubia* Gould. Holotype *Geospiza dubia* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: skin/mount, female. Status: missing.
- \**Geospiza fuliginosa* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 101-102: *Geospiza fuliginosa* Gould. Syntype *Geospiza fuliginosa* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, ? female [fide Sulloway 1982], ad. Status: BMNH 1855.12.19.44. Cat. XII: 13: a.
- \**Geospiza fuliginosa* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 101-102: *Geospiza fuliginosa* Gould. Syntype *Geospiza fuliginosa* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. Gould, ex. ZSL. Material: skin, ? female [fide Sulloway 1982], ad. Status: BMNH 1857.11.28.247. Cat. XII: 13: b.
- \**Geospiza fuliginosa* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 101-102: *Geospiza fuliginosa* Gould. Syntype *Geospiza fuliginosa* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. Salvin & Godman, ex. Eyton, ex. ? Gould, ex. ? ZSL. Remark: Sulloway (1982) believed that this specimen is from Covington's collection; numbers in CD reveal that it is Darwin's. Material: skin, female, ad. Status: BMNH 1885.12.14.320. Cat. XII: 13: c.
- \**Geospiza fuliginosa* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 101-102: *Geospiza fuliginosa* Gould. Syntype *Geospiza fuliginosa* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. Frank, ex. Gould, ex. ZSL. Material: skin, male. Status: RMNH Cat. 2 [purchase of 1863].
- \**Geospiza fuliginosa* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 101-102: *Geospiza fuliginosa* Gould. Syntype *Geospiza fuliginosa* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. Frank, ex. Gould, ex. ZSL. Material: skin, female. Status: RMNH Cat. 3 [purchase of 1863].
- \**Geospiza fuliginosa* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 101-102: *Geospiza fuliginosa* Gould. Syntype *Geospiza fuliginosa* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. Frank, ex. Gould, ex. ZSL. Material: skin, male. Status: RMNH Cat. 4 [purchase of 1863].
- \**Geospiza nebulosa debilirostris* Ridgway, 1894.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 100-101: *Geospiza strenua* Gould. Syntype *Geospiza strenua* Gould,



1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL via Darwin. Material: ex mount, female [fide Sulloway 1982]. Status: BMNH 1856.3.15.4. Cat. XII: 12: a.

**\**Geospiza nebulosa nebulosa* [fide Sulloway 1982] (Gould, 1837).** [CD 3323]. Z. pp. 104-105: *Cactornis scandens* Gould. Syntype *Cactornis scandens* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.20. Cat. XII: 20: b.

**\**Geospiza ? nebulosa nebulosa* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. p. 101: *Geospiza nebulosa* Gould. Syntype *Geospiza nebulosa* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Remark: Grant et al. 1985 accidentally cited original Darwin finches at Stockholm Museum, which is an error for Leiden Museum. These are not the missing birds listed here. Material: skin/mount. Status: former BMNH 1855.12.19.43, missing.

**\**Geospiza scandens scandens* (Gould, 1837).** [CD 3320]. Z. pp. 104-105: *Cactornis scandens* Gould. Syntype *Cactornis scandens* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.125. Cat. XII: 20: a.

**\**Geospiza scandens scandens* (Gould, 1837).** [? CD 3321/3322, see below]. Z. pp. 104-105: *Cactornis scandens* Gould. Syntype *Cactornis scandens* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. Frank, ex. Gould, ex. ZSL. Material: skin, male [fide Sulloway 1982], juv. Status: RMNH Cat. 1 [purchase of 1863].

**\**Geospiza scandens ? rothschildi* [fide Sulloway 1982] Heller & Snodgrass, 1901.** [? CD 3321/3322, see above]. Z. p. 105: *Cactornis assimilis* Gould. Syntype *Cactornis assimilis* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, male [fide Sulloway 1982], juv. Status: BMNH 1855.12.19.15. Cat. XII: 18: a.

**\**Camarhynchus crassirostris* Gould, 1837.** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. pp. 103-104: *Camarhynchus crassirostris* Gould. Syntype *Camarhynchus crassirostris* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. Frank, ex. Gould, ex. ZSL. Material: skin, male [fide Sulloway 1982], juv. Status: RMNH Cat. 2 [purchase of 1863].

**\**Camarhynchus psittacula psittacula* Gould, 1837.** [CD 3331]. Z. p. 103: *Camarhynchus psittaculus* [sic] Gould. Syntype *Camarhynchus psittacula* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.22. Cat. XII: 17: a/b [see below].

**\**Camarhynchus psittacula psittacula* Gould, 1837.** [CD 3330]. Z. p. 103: *Camarhynchus psittaculus* [sic] Gould. Syntype *Camarhynchus psittacula* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Remark: specimen has last been seen by Swarth 1931: 215. Material: skin/mount, [?] male [Sulloway 1982 female] ad. Status: former BMNH 1855.12.19.12, now missing. Cat. XII: 17: a/b [see above].

**\**Camarhynchus parvulus parvulus* (Gould, 1837).** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. p. 102: *Geospiza parvula* Gould. Syntype *Geospiza parvula* Gould, 1837. Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, female, ad. Status: BMNH 1855.12.19.167. Cat. XII: 14: b.

**\**Camarhynchus parvulus parvulus* (Gould, 1837).** [? CD 3312-19/24-29/32-36/38/39/41, see above & below]. Z. p. 102: *Geospiza parvula* Gould. Syntype *Geospiza parvula* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.194. Cat. XII: 14: a.

**\**Geospiza* sp.** [CD 3337]. Syntype [of one of the species]. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ?ZSL. Remark: Grant et al. 1985 cited original Darwin finches at Stockholm Museum, which is an error for Leiden Museum. These are not the missing birds listed here. Material: skin/mount, upper mandible broken. Status: missing.



**\**Geospiza* sp.** [CD 3361]. Part of Syntype [of one of the species] Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ?ZSL. Material: Upper mandible of CD 3337. Status: missing.

**\**Certhidea olivacea olivacea* Gould, 1837.** [? CD 3310/3346/3348, see below]. Z. p. 106: *Certhidea olivacea* Gould. Syntype *Certhidea olivacea* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. BMNH, ex. Gould, ex. ZSL. Material: skin. Status: MANCH B. 3089, ex. BMNH 1857.11.28.248.

**\**Certhidea olivacea olivacea* Gould, 1837.** CD 3340. Z. p. 106: *Certhidea olivacea* Gould. Syntype *Certhidea olivacea* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, male, ad. Status: BMNH 1855.12.19.126. Cat. XI: 28: a-c [see below].

**\**Certhidea olivacea olivacea* Gould, 1837.** [? CD 3310/3346/3348, see below & above]. Z. p. 106: *Certhidea olivacea* Gould. Syntype *Certhidea olivacea* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.164. Cat. XI: 28: a-c [see below/above].

**\**Certhidea olivacea olivacea* Gould, 1837.** [? CD 3310/3346/3348, see above]. Z. p. 106: *Certhidea olivacea* Gould. Syntype *Certhidea olivacea* Gould, 1837. Loc.: Ecuador: Galápagos Archipelago. October 1835. Ex.coll. ZSL. Material: ex mount, ad. Status: BMNH 1855.12.19.127. Cat. XI: 28: a-c [see above].

**\**Gubernatrix cristata* (Vieillot, 1817).** [? CD 1417]. Z. p. 89: *Emberiza gubernatrix* Temm. Loc.: Argentina: banks of the Parana near Santa Fé. 1833. Material: skin/mount. Status: missing.

**\**Saltator coerulescens coerulescens* Vieillot, 1817.** [? CD 1414/1415/1416, see above]. Z. p. 97: *Pitylus superciliaris* [Spix]. Loc.: Argentina: Santa Fé. 1833. Material: skin/mount. Status: missing.

**\**Thraupis bonariensis bonariensis* (Gmelin, 1789).** [CD 1229]. Z. pp. 97-98: *Aglaia striata* D'Orb. & Lafr. Loc.: Uruguay: Maldonado. 1833. Remark: BMNH holds a specimen of Covington's collection, which might be in fact this missing Darwin bird (BMNH 1839.6.8.2. Cat. XI: 164: e), nec MNHN Paris No. 3068. This is not a type of *Tanagra Darwinii*. Material: skin/mount. Status: probably missing.

**\**Pipraeidea melanonota melanonota* (Vieillot, 1819).** [?? CD 1245]. Z. p. 98: *Aglaia vittata* [Temm.] Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.

#### PARULIDAE:

**\**Dendroica petechia aureola* (Gould, 1839).** CD 3347. Z. p. 86: *Sylvicola aureola* Gould. Holotype *Sylvicola aureola* Gould, 1839 [pl. XXVIII]. Loc.: Ecuador: Galápagos Archipelago. September 1835. Ex.coll. ZSL via Darwin. Material: ex mount, male, ad. Status: BMNH 1856.3.15.14. Cat. X: 283: i.

**\**Geothlypis aequinoctialis velata* (Vieillot, 1808).** [CD 1215]. Z. p. 87: *Trichas velata* G. R. Gray. Loc.: Uruguay: Maldonado: shot in a garden. June 1833. Material: skin/mount. Status: missing.

#### VIREONIDAE:

**\**Cyclarhis gujanensis ochrocephala* Tschudi, 1845.** [CD 1261]. Z. p. 58: *Cyclarhis gujanensis* Swains. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.

#### ICTERIDAE:



- \**Xanthopsar flavus* (Gmelin, 1788). CD 1217. Z. p. 107: *Xanthornus flavus* G. R. Gray. Loc.: Uruguay: Maldonado. 1833. Ex.coll. Salvin & Godman, ex. Gould, ex. ZSL. Material: skin, female, ad. Status: BMNH 1885.11.2.301. Cat. XI: 346: c.
- \**Xanthopsar flavus* (Gmelin, 1788). [CD 1218]. Z. p. 107: *Xanthornus flavus* G. R. Gray. Loc.: Uruguay: Maldonado. 1833. Ex.coll. Salvin & Godman, ex. Gould, ex. ZSL. Material: skin, male, ad. Status: BMNH 1885.11.2.300. Cat. XI: 346: b.
- \**Agelaius thilius thilius* (Molina, 1782). CD 2187 [original field label]. Z. p. 106: *Xanthornus chrysopterus* G. R. Gray. Loc.: Chili: Valparaíso. August - September 1834. Ex.coll. Gould, ex. ZSL. Material: skin, female, ad. Status: BMNH 1858.6.25.27. Cat. XI: 344: j.
- \**Agelaius thilius petersii* Laubmann, 1934. [? CD 1242/1418/1426, see below]. Z. p. 106: *Xanthornus chrysopterus* G. R. Gray. Loc.: Argentina or Uruguay: La Plata. 1833. Material: skin/mount. Status: missing.
- \**Pezites militaris militaris* (Linnaeus, 1771). [CD 1784]. Z. p. 110: *Sturnella militaris* Vieill. Loc.: Chile: Straits of Magellan. 1834. Material: skin/mount. Status: missing.
- \**Pezites militaris falklandicus* (Leverkühn, 1889). [CD 1146]. Z. p. 110: *Sturnella militaris* Vieill. Loc.: Falkland Islands/Islas Malvinas: East Falkland Island. March 1833. Material: skin/mount. Status: missing.
- \**Pseudoleistes virescens* (Vieillot, 1819). [CD 1201]. Z. p. 107: *Leistes anticus* G. R. Gray. Loc.: Uruguay: Maldonado: La Plata. 1833. Material: skin/mount. Status: missing.
- \**Amblyramphus holosericeus* (Scopoli, 1786). [CD 1244]. Z. pp. 109-110: *Amblyramphus ruber* G. R. Gray. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.
- \**Curaeus curaeus curaeus* (Molina, 1782). [CD 2186]. Z. p. 107: *Agelaius chopi* Vieill. Loc.: Chile: Valparaíso. August - September 1834. Material: skin/mount. Status: very unlikely the unregistered BMNH specimen of coll. Eyton.
- \**Molothrus badius badius* (Vieillot, 1819). [? CD 1242/1418, see above & below]. Z. p. 107: *Agelaius fringillarius* G. R. Gray. Loc.: Uruguay/Argentina: Maldonado or banks of the Parana. 1833. Material: skin/mount. Status: missing.
- \**Molothrus bonariensis bonariensis* (Gmelin, 1789). [CD 1211]. Z. pp. 107-109: *Molothrus niger* Gould. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.
- \**Molothrus bonariensis bonariensis* (Gmelin, 1789). [CD 1212]. Z. pp. 107-109: *Molothrus niger* Gould. Loc.: Uruguay: Maldonado. 1833. Material: skin/mount. Status: missing.
- \**Molothrus bonariensis bonariensis* (Gmelin, 1789). [CD 1592, shared with eggs of *Anthus furcatus* & *Zonotrichia capensis*]. Z. pp. 107-109: *Molothrus niger* Gould. Loc.: Uruguay: Montevideo. 1833. Material: single egg. Status: missing.
- \**Dolichonyx oryzivorus* (Linnaeus, 1758). CD 3374 [original field label]. Z. p. 106: *Dolichonyx oryzivorus* Swains. Loc.: Ecuador: Galápagos Islands: James Island. October 1835. Ex.coll. Gould, ex. ZSL. Material: skin, imm. Status: BMNH 1881.5.1.2394. Cat. XI: 332: c'.
- \**Dolichonyx oryzivorus* (Linnaeus, 1758). [CD 1309, specimens in spirit]. Z. p. 106: *Dolichonyx oryzivorus* Swains. Loc.: Ecuador: Galápagos Islands: James Island. October 1835. Remark: Body of BMNH 1881.5.1.2394. Material: specimen in alcohol. Status: missing.
- \**Icteridae* indet. [one of the above mentioned species] [?? CD 1242/1418/1426, see above]. Loc.: Uruguay/Argentina: Maldonado, Buenos Aires or Bajada. 1833. Material: skin/mount. Status: missing.

#### FRINGILLIDAE:



*\*Carduelis magellanica magellanica* (Vieillot, 1805). [CD 1465]. Z. p. 97: *Chrysomitris magellanica* Bonap. Loc.: Argentina: Rio Negro. May 1833. Material: skin/mount. Status: missing.

*\*Carduelis magellanica magellanica* (Vieillot, 1805). [CD 1209]. Z. p. 97: *Chrysomitris magellanica* Bonap. Loc.: Uruguay: Maldonado. May 1833. Material: skin/mount. Status: missing.

*\*Carduelis barbata* (Molina, 1782). CD 2195. Z. p. 89: *Chrysometris* [sic] *campestris* Gould. Loc.: Chile: Valparaíso [Maldonado on label]. September 1834. Ex.coll. ZSL via Darwin. Material: ex mount, male, ad. Status: BMNH 1856.3.15.5. Cat. XXII: 217: f.

*\*Carduelis barbata* (Molina, 1782). [CD 1830]. Z. p. 89: *Chrysometris* [sic] *campestris* Gould. Loc.: Chile: Tierra del Fuego: Port Famine: forests. February 1834. Material: skin/mount. Status: missing.

#### PLOCEIDAE:

*\*Passer hispaniolensis hispaniolensis* (Temminck, 1820). CD 189 [original field label]. Z. p. 95: *Passer hispaniolensis* G. R. Gray. Loc.: Portugal: Cape Verde Islands: São Tiago: Porto Praia. January 1832. Ex.coll. Gould, ex. ZSL. Remark: In Darwin's hand "X [/] loc [/] S Jago" [in pencil] on label. Material: skin, male, ad. Status: BMNH 1881.5.1.2117. Cat. XII: 319: i.

*\*Passer iagoensis iagoensis* (Gould, 1838). [CD 190]. Z. p. 95: *Passer jagoensis* [sic] Gould. Holotype *Pyrgita Iagoensis* Gould, 1838 [the issue containing pp. 77-79 of the Proceedings of the Zoological Society of London for the year 1837 was published in 1838]. Loc.: Portugal: Cape Verde Islands: São Tiago: Porto Praia. January 1832. Ex.coll. Gould, ex. ZSL. Remark: BMNH 1881.5.1.2124 [2133] has no type status. Material: ex mount, male, ad. Status: BMNH 1867.3.16.79. Cat. XII: 324: a.

Following CD numbers not linked: 779, 1026, 1027, 1404, 1451, 1462, 1468, 1829, 2189, 2300, one of 751 & 828, 1430 & 1431 and 1604 & 1613, three of 1423, 1425, 1434, 1450, and two of 1605, 1611, 1612, 1614, 1616 and 1617.

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