

The collection of Indian birds in Turin Museum donated by Paolo Solaroli to King Carlo Alberto in 1841

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Abstract: The Museo Regionale di Scienze Naturali of Turin houses numerous specimens of birds from India, donated in 1841 by Paolo Solaroli to Carlo Alberto, King of Sardinia. Solaroli announced the shipment in two almost identical letters, sent from Mussoorie (Uttarakhand) and addressed to the Ministry for Foreign Affairs. In the letters Solaroli introduced himself with some brief autobiographical notes, which retraced the early stages of his venturesome life. A third letter had been addressed directly to His Majesty. Originally the collection consisted of 446 birds but currently only 337 specimens (190 species) have been found. However, the entries in the old manuscript catalogue of the zoological collection also retain traces of specimens that were lost or exchanged, and among these, another 109 birds from the Solaroli collection have been identified, thus reaching 215 species. The full list, with the updated nomenclature and some information on synonyms, is presented in this work. The only specimens studied so far are the two syntypes of Indian Thick-knee *Oedinemus indicus* Salvadori, 1866. Numerous birds donated by Paolo Solaroli belonged to species that at the time had not yet been described: Giuseppe Gené, director of the Turin Museum, intended to describe some of them, but actually he didn't. As already noted, many years later by Tommaso Salvadori, only the old manuscript catalogue preserves track of these unpublished binomia.

Introduction

Pietro Paolo Maria Solaroli (1796–1878) was an Italian adventurer and soldier from Novara who travelled to India in the 1820s and eventually entered the royal court of Sardhana in Uttar Pradesh. His remarkable rise—from the son of a regimental tailor to a wealthy and influential figure associated with the Indian court and later the Italian Risorgimento—made him one of the more intriguing European fortune-seekers in nineteenth-century India. When Solaroli returned to Italy at the end of 1843, he was forty-six years old and had already built an aura of mystery by spreading news of vague heroism alongside the British armies (Vialardi 2021). He had married an Indian princess and boasted of the title of ‘Prince of Sardhana’. Furthermore, he was an extremely rich man: Cardoza (1997) reports that, at the end of his life, he left almost five million lire of the time, the third largest fortune of the entire City of Turin. It is very likely that this fortune greatly favoured his formidable military and political career. In 1844, a year after his return from India, he had already received the title of baron and had been appointed honorary colonel (Antonelli 2018).

In two letters, dated 13 and 15 February 1841, sent from Mussoorie and addressed to Ministry for Foreign Affairs, Solaroli announced the gift of a large collection of Himalayan birds to His Majesty. A third letter from Mussoorie, dated 15 February 1841, was addressed directly to Carlo Alberto, King of Sardinia. Most likely Solaroli tried to ingratiate himself with the royal family before returning home: perhaps he wanted to emulate John Gould, who a decade earlier had dedicated a series of illustrations of Himalayan birds to the King and Queen of the United Kingdom (Gould 1830).

The Solaroli's bird collection was shipped from Calcutta in January 1841 aboard the ‘Ottavia Carolina’, led by Commander Carlo Filippo Balduino. The sailing ship landed in Marseille, after one hundred and twenty-five days of navigation and having completed the round-the-world trip (Nitti 1963).

The collection sent by Solaroli was promptly transferred to the University Museum of Zoology and the Museo Regionale di Scienze Naturali (hereinafter, MRSN) of Turin still houses most of the birds. With very few exceptions, this collection was never the subject of a detailed study. This work offers a brief biography of Solaroli and, for the first time, lists all the birds he sent.

Biographical notes on Solaroli

It is not easy to outline a biography of Solaroli, since during his lifetime, details of his adventurous life were circulated that were later revealed to be false or, at the very least, enriched with unreliable details and which have not been confirmed by the most recent and in-depth research.

Many of the facts reported below are based on the works of Antonelli (2018) and Vialardi (2021), but we decided to also give space to the short autobiography compiled by Solaroli himself, translated from Italian.

I was born in Novara on December 8, 1797, to humble parents who, unable to afford my education, decided to have me pursue an artisan craft [tailor], even though I preferred a different career. When my age permitted, I left home, with the firm hope of achieving a higher social position. I travelled for several years to different cities in Italy, residing four years in Turin and supporting myself with my work. However, since my situation did not improve according to my wishes, I decided to leave Italy and set off for France, then passing through the Netherlands and finally to England, with the firm intention of reaching America. During my stay in England, I met a certain Mr. Peach [unidentified], an artillery officer. Thus, I had the opportunity to share my intentions, trying to obtain from him all the possible help to achieve my goals. One day he told me that he had received a tempting offer to go to Egypt in the Pasha's service to build a cannon foundry, and proposed that I should follow him. I soon entered the service, and I had no difficulty in learning the first necessary notions, for I was already inclined to the military art. We left London for Alexandria, and on the way Mr. Peach gave me the necessary instructions. A few days after my arrival I was admitted into the Pasha's service, through the mediation of Mr. Salt, the English Consul.

After six months I left Egypt with the division which was going to reinforce the army of Mecca, under the command of "Ibraim" Pasha. I stayed for some time in Jeddah, then in Mokha, where I left the service and went to India with the Colonel Bagnol [...]. I arrived in Bombay at the end of July 1825, where I stayed 4 months. However, finding it impossible to find employment there, I decided to leave for Calcutta, equipped with several letters of introduction to the personalities of that city. Here I was soon employed as an assistant in an indigo factory [...].

In July 1830 I received a letter from Mr. Dr. Burlini [unidentified] a native of Pisa [Italy], who had been employed in the Government Hospital in Calcutta for more than forty years. He invited me, on the basis of a letter received from "Miret" [error for Meerut?], from his friend General Brown [probably Clements Brown, cf. Vialardi (2021: 576)], who informed him that the Princess Begom Sombre of Sardhana had two daughters [actually they were daughters of her late husband] whom she wished to marry to Europeans, preferably devotees of the Roman Catholic Church. The doctor, in a letter, assured me that he had already recommended me and strongly urged me not to miss such a favourable opportunity. After a short correspondence with the doctor, with Gen. Brown, and with the Princess's eldest son, I determined to set out, and arrived at Sardhana on the 8th January 1831. I was presented to the Princess, and received very graciously. She was kind enough to tell me to visit her every day, and after ten days she created me Commander of her bodyguard and gave me an apartment in her palace. In conclusion, I married on the 3rd October 1831 Princess Dyce [Georgiana, 1807-1867], sister of Prince Dyce Sombre.

On my wedding day I was promoted to Colonel, and sometime later I was given supervision of the Revenue and then of Justice, and I continued until her death. She also left 400,000 francs to the Church of St. Peter in Rome, for which His Holiness in gratitude awarded the Order of "Cavaliere di Cristo" [Knight of Christ, order cited in Giacchieri (1852)] to my Brother-in-law, and later, against my merit, also to me.

According to Vialardi (2021), Solaroli was quickly given increasingly important roles by Begum Samru (born Farzana Zebunisa, 1753–1836), who was head of a professionally trained mercenary army. Begum showed great enterprise in taking over the leadership of the troops she inherited from her deceased European husband, Walter Reinhardt Sombre (1725–1778).

The Begum had no children and, upon her death, her enormous legacy was disputed among three descendants of Walter Reinhardt Sombre and his senior wife (Cheesman 2005; Vialardi 2021): Georgiana, David Ochterlony, and Anna Maria.

Solaroli seems to have been particularly close to Begum as she transferred to him the old palace of Reinhardt at Sardhana [now, St. John's Seminary], but after the Begum's death he did not delay in moving to Mussoorie, Uttarakhand in 1839. In this site, together with his brother-in-law Troup (who had married the Georgiana's youngest sister) and Frederick Angelo founded the Mussoorie Bank, later known as the North Western Bank of India. It was originally a private bank "for merely local discounts, and other local purposes" (Cooke 1863: 222), but it seems likely that Solaroli and Troup used it to transfer to Europe the Begum's enormous fortune, inherited from their respective wives.

Materials and Methods

The MRSN still houses most of the birds donated in 1841 by Paolo Solaroli and once deposited in the University Museum. According to Salvadori (1915: 12), the specimens donated in 1841 by Paolo Solaroli were recorded in the old manuscript catalogue (MS catalogue, hereinafter) with the numbers 3668–4109. This corresponds to 442 specimens; however, the exact number may be slightly different. Solaroli himself, in his letters, writes that he sent 444 birds, but his attached list reveals only 437 individuals, including two "flying squirrels", therefore 435 birds. Currently, many of these have not been found, since some were destroyed during the bombings of the Second World War, others were exchanged, and a small number were eliminated due to their poor state of preservation (Salvadori 1915; Elter 1986; MS catalogue). The birds were sent as mounts, but some of them are currently unmounted.

Almost all the Solaroli specimens still existing are listed in the catalogue of the Museum's ornithological collection (Elter 1986), but the data reported are incomplete and difficult to use. More information can be found in the MRSN database, on the specimen tags and, above all, in the MS catalogue, which allowed us to identify the original annotations by Giuseppe Gené (1800–1847; director of the Turin museum from 1831 to 1847) and the later emendations by Filippo de Filippi (1814–1867; director from 1848 to 1867) and Tommaso Salvadori (1835–1923; curator and then deputy director from 1866 to 1821).

Scientific names were never used by Solaroli, the birds listed in his manuscript being identified only by English names and, in some cases, by local and anglicised names. These are often imprecise or completely approximate, such as "Falcons marked", "Small Hawks of Kinds", "Large Hawks", "Specifies (?) of Crane", "Species of Gull", "Parraqueets", and so on. Furthermore, as many as 70 specimens are listed as "Birds name unknown".

The vernacular names reported in manuscript list have been researched in some works on Indian birds published in the 19th century, such as those in Thomas Jerdon's *Birds of India* (Jerdon 1862, 1863, 1864). Further research has been carried out in the early issues (1832–1848) of the *Journal of the Asiatic Society of Bengal*, which collects numerous ornithological papers and also contains information on the state of the Asiatic Society Museum in Calcutta.

It is not clear how Solaroli obtained the collection: in the letter from Mussoorie he only wrote "*my diligence, supported by a favorable outcome, has allowed me to become the owner of*". This seems to imply a partly random event, but this is not necessarily the case, because Solaroli's statements should usually be treated with caution. The letters (written in Italian) and the list of birds (written in English) are kept in the State Archives of Turin, fund Ministry for Foreign Affairs of the Kingdom of Sardinia, Cabinet, Letters of the royal subjects, Letters received, deck 1670, protocol number 71599.

Results

Currently, in the MRSN ornithological collection we have identified 337 specimens (189 species) sent by P. Solaroli in 1841 (Table 1). The MS catalogue lists another 109 individuals, which are no longer present because they were lost, exchanged, or eliminated (Table 2). Adding these to the

previous ones, the collection totals 446 individuals (215 species). The full list, with the updated nomenclature and some information on synonyms, is presented in Supplementary Information in Zenodo as Table 1 (Aimassi & Ghiraldi 2026a) and Table 2 (Aimassi & Ghiraldi 2026b).

JAYARAM: Please layout these two tables in two columns

Table 1: List of birds from the Solaroli collection that have preserved specimens in the Turin Museum.
Full details in Supplementary information (Table 1).

SI No.	Species	No of specimens
1	Hill Partridge <i>Arborophila torqueola</i>	1
2	Snow Partridge <i>Lerwa lerwa</i>	1
3	Western Tragopan <i>Tragopan melanocephalus</i> [1]	3
4	Himalayan Monal <i>Lophophorus impejanus</i>	2
5	Cheer Pheasant <i>Catreus wallichii</i>	1
6	Red Junglefowl <i>Gallus gallus</i>	1
7	Grey Francolin <i>Ortygornis pondicerianus</i>	2
8	Black Francolin <i>Francolinus francolinus</i> [2]	2
9	Himalayan Snowcock <i>Tetraogallus himalayensis</i> [3]	1
10	Common Quail <i>Coturnix coturnix</i>	2
11	Rain Quail <i>Coturnix coromandelica</i>	2
12	Chukar Partridge <i>Alectoris chukar</i>	1
13	Jungle Bush-Quail <i>Perdica asiatica</i>	2
14	Asian Emerald Dove <i>Chalcophaps indica</i>	1
15	Yellow-footed Green-Pigeon <i>Treron phoenicopterus</i>	1
16	Wedge-tailed Green-Pigeon <i>Treron sphenurus</i>	2
17	Sirkeer Malkoha <i>Taccocua leschenaultii</i>	2
18	Pied Cuckoo <i>Clamator jacobinus</i>	2
19	Asian Koel <i>Eudynamis scolopaceus</i>	1
20	Asian Emerald Cuckoo <i>Chrysococcyx maculatus</i>	1
21	Banded Bay Cuckoo <i>Cacomantis sonneratii</i>	1
22	Grey-bellied Cuckoo <i>Cacomantis passerinus</i>	1
23	Square-tailed Drongo-Cuckoo <i>Surniculus lugubris</i>	1
24	Indian Cuckoo <i>Cuculus micropterus</i>	3
25	Common Cuckoo <i>Cuculus canorus</i>	2
26	Savanna Nightjar <i>Caprimulgus affinis</i>	2
27	Brown Crane <i>Zapornia akool</i>	2
28	Indian Thick-knee <i>Burhinus indicus</i>	2
29	Little Ringed Plover <i>Thinornis dubius</i>	2
30	Eurasian Woodcock <i>Scolopax rusticola</i>	1
31	Yellow-legged Buttonquail <i>Turnix tanki</i>	1
32	Little Heron <i>Butorides atricapilla</i>	1
33	Black-winged Kite <i>Elanus caeruleus</i>	3
34	Bearded Vulture <i>Gypaetus barbatus</i>	2
35	Oriental Honey-buzzard <i>Pernis ptilorhynchus</i>	2
36	Crested Serpent-Eagle <i>Spilornis cheela</i> [4]	2
37	Steppe Eagle <i>Aquila nipalensis</i>	1
38	Tawny Eagle <i>Aquila rapax</i>	1
39	Bonelli's Eagle <i>Aquila fasciata</i>	1

40	Besra <i>Tachyspiza virgata</i>	1
41	Shikra <i>Tachyspiza badia</i>	4
42	Eurasian Sparrowhawk <i>Accipiter nisus</i>	3
43	Pallid Harrier <i>Circus macrourus</i>	1
44	Brahminy Kite <i>Haliastur indus</i>	2
45	White-eyed Buzzard <i>Butastur teesa</i>	2
46	Long-legged Buzzard <i>Buteo rufinus</i>	2
47	Himalayan Buzzard <i>Buteo refectus</i>	3
48	Indian Eagle-Owl <i>Bubo bengalensis</i>	1
49	Brown Wood-Owl <i>Strix leptogrammica</i>	1
50	Eurasian Hoopoe <i>Upupa epops</i>	2
51	Indian Grey Hornbill <i>Ocyrocus birostris</i>	2
52	Blue-bearded Bee-eater <i>Nyctornis athertoni</i>	2
53	Common Kingfisher <i>Alcedo atthis</i>	1
54	Crested Kingfisher <i>Megaceryle lugubris</i>	2
55	Pied Kingfisher <i>Ceryle rudis</i>	1
56	Indian Roller <i>Coracias benghalensis</i>	1
57	Coppersmith Barbet <i>Psilopogon haemacephalus</i>	2
58	Great Barbet <i>Psilopogon virens</i>	2
59	Lineated Barbet <i>Psilopogon lineatus</i>	1
60	Brown-headed Barbet <i>Psilopogon zeylanicus</i>	1
61	Blue-throated Barbet <i>Psilopogon asiaticus</i>	1
62	Eurasian Wryneck <i>Jynx torquilla</i>	2
63	Speckled Piculet <i>Picumnus innominatus</i>	2
64	Grey-capped Pygmy Woodpecker <i>Yungipicus canicapillus</i>	2
65	Brown-fronted Woodpecker <i>Dendrocoptes auriceps</i>	2
66	Rufous-bellied Woodpecker <i>Dendrocoptes hyperythrus</i>	2
67	Fulvous-breasted Woodpecker <i>Dendrocoptes macei</i>	2
68	Greater Flameback <i>Chrysocolaptes guttacristatus</i>	2
69	Rufous Woodpecker <i>Micropternus brachyurus</i>	2
70	Black-rumped Flameback <i>Dinopium benghalense</i>	2
71	Lesser Yellownape <i>Picus chlorolophus</i>	2
72	Streak-throated Woodpecker <i>Picus xanthopygaeus</i>	2
73	Grey-headed Woodpecker <i>Picus canus</i>	2
74	Common Kestrel <i>Falco tinnunculus</i>	6
75	Oriental Hobby <i>Falco severus</i>	1
76	Laggar Falcon <i>Falco jugger</i>	1
77	Plum-headed Parakeet <i>Psittacula cyanocephala</i>	2
78	Indian Pitta <i>Pitta brachyura</i>	2
79	Small Minivet <i>Pericrocotus cinnamomeus</i>	2
80	Short-billed Minivet <i>Pericrocotus brevirostris</i>	1
81	Scarlet Minivet <i>Pericrocotus speciosus</i>	2
82	Rosy Minivet <i>Pericrocotus roseus</i>	2
83	Large Cuckooshrike <i>Coracina javensis</i>	2

84	Black-winged Cuckooshrike <i>Lalage melaschistos</i>	1
85	Black-headed Cuckooshrike <i>Lalage melanoptera</i>	1
86	Large Woodshrike <i>Tephrodornis virgatus</i>	1
87	Common Woodshrike <i>Tephrodornis pondicerianus</i>	2
88	Common Iora <i>Aegithina tiphia</i>	1
89	White-throated Fantail <i>Rhipidura albicollis</i>	2
90	White-browed Fantail <i>Rhipidura aureola</i>	2
91	Hair-crested Drongo <i>Dicrurus hottentottus</i>	2
92	Black-naped Monarch <i>Hypothymis azurea</i>	1
93	Indian Paradise-Flycatcher <i>Terpsiphone paradisi</i>	4
94	Bay-backed Shrike <i>Lanius vittatus</i>	2
95	Long-tailed Shrike <i>Lanius schach</i>	2
96	Eurasian Jay <i>Garrulus glandarius</i>	2
97	Black-headed Jay <i>Garrulus lanceolatus</i>	2
98	Red-billed Blue-Magpie <i>Urocissa erythroryncha</i>	2
99	Rufous Treepie <i>Dendrocitta vagabunda</i>	2
100	Grey Treepie <i>Dendrocitta formosae</i>	2
101	Spotted Nutcracker <i>Nucifraga hemispila</i>	1
102	Yellow-billed Chough <i>Pyrrhocorax graculus</i>	1
103	Grey-headed Canary-Flycatcher <i>Culicicapa ceylonensis</i>	1
104	Cinereous Tit <i>Parus cinereus</i>	4
105	Himalayan Black-lored Tit <i>Machlolophus xanthogenys</i>	2
106	Ashy-crowned Sparrow-Lark <i>Eremopterix griseus</i>	2
107	Bengal Bushlark <i>Plocealauda assamica</i>	2
108	Common Tailorbird <i>Orthotomus sutorius</i>	2
109	Grey-breasted Prinia <i>Prinia hodgsonii</i>	3
110	Jungle Prinia <i>Prinia sylvatica</i>	1
111	Ashy Prinia <i>Prinia socialis</i>	2
112	Zitting Cisticola <i>Cisticola juncidis</i>	1
113	Blyth's Reed Warbler <i>Acrocephalus dumetorum</i>	2
114	Ashy Bulbul <i>Hemixos flavala</i>	1
115	Mountain Bulbul <i>Ixos mcclllandii</i>	2
116	Black Bulbul <i>Hypsipetes leucocephalus</i>	2
117	Black-crested Bulbul <i>Rubigula flaviventris</i>	2
118	Red-vented Bulbul <i>Pycnonotus cafer</i>	2
119	Himalayan Bulbul <i>Pycnonotus leucogenys</i>	1
120	Lemon-rumped Warbler <i>Phylloscopus chloronotus</i>	2
121	Grey-hooded Warbler <i>Phylloscopus xanthoschistos</i>	1
122	Black-throated Tit <i>Aegithalos concinnus</i>	2
123	Yellow-eyed Babbler <i>Chrysomma sinense</i>	2
124	Whiskered Yuhina <i>Yuhina flavicollis</i>	2
125	Indian White-eye <i>Zosterops palpebrosus</i>	2
126	Black-chinned Babbler <i>Cyanoderma pyrrhops</i>	2
127	Puff-throated Babbler <i>Pellorneum ruficeps</i>	2

128	Striated Laughingthrush <i>Grammatoptila striata</i>	2
129	Chestnut-tailed Minla <i>Actinodura strigula</i>	2
130	Red-billed Leiothrix <i>Leiothrix lutea</i>	2
131	Jungle Babbler <i>Argya striata</i>	2
132	White-crested Laughingthrush <i>Garrulax leucolophus</i>	2
133	Wallcreeper <i>Tichodroma muraria</i>	2
134	Velvet-fronted Nuthatch <i>Sitta frontalis</i>	2
135	Indian Nuthatch <i>Sitta castanea</i>	2
136	Bar-tailed Treecreeper <i>Certhia himalayana</i>	2
137	Eurasian Wren <i>Troglodytes troglodytes</i>	1
138	Brown Dipper <i>Cinclus pallasi</i>	3
139	Long-tailed Thrush <i>Zoothera dixonii</i>	1
140	Scaly Thrush <i>Zoothera dauma</i>	1
141	Orange-headed Thrush <i>Geokichla citrina</i>	1
142	Mistle Thrush <i>Turdus viscivorus</i>	1
143	Grey-winged Blackbird <i>Turdus boulboul</i>	1
144	Tickell's Thrush <i>Turdus unicolor</i>	2
145	White-collared Blackbird <i>Turdus albocinctus</i>	1
146	Chestnut Thrush <i>Turdus rubrocanus</i>	1
147	Black-throated Thrush <i>Turdus atrogularis</i>	1
148	Asian Brown Flycatcher <i>Muscicapa dauurica</i>	1
149	Indian Robin <i>Copsychus fulicatus</i>	2
150	Oriental Magpie-Robin <i>Copsychus saularis</i>	1
151	Verditer Flycatcher <i>Eumyias thalassinus</i>	2
152	Blue-throated Flycatcher <i>Cyornis rubeculoides</i>	2
153	Indian Blue Robin <i>Larvivora brunnea</i>	1
154	Bluethroat <i>Luscinia svecica</i>	1
155	Blue Whistling-Thrush <i>Myophonus caeruleus</i>	2
156	Little Forktail <i>Enicurus scouleri</i>	2
157	Spotted Forktail <i>Enicurus maculatus</i>	2
158	Himalayan Bluetail <i>Tarsiger rufilatus</i>	2
159	Slaty-blue Flycatcher <i>Ficedula tricolor</i>	2
160	Rufous-gorgeted Flycatcher <i>Ficedula strophilata</i>	2
161	Blue-fronted Redstart <i>Phoenicurus frontalis</i>	1
162	Plumbeous Redstart <i>Phoenicurus fuliginosus</i>	4
163	White-capped Redstart <i>Phoenicurus leucocephalus</i>	2
164	Blue-capped Redstart <i>Phoenicurus coerulescapula</i>	1
165	Black Redstart <i>Phoenicurus ochruros</i>	1
166	Chestnut-bellied Rock-Thrush <i>Monticola rufiventris</i>	2
167	Blue-capped Rock-Thrush <i>Monticola cinclorhyncha</i>	3
168	Siberian Stonechat <i>Saxicola maurus</i>	3
169	Pied Bushchat <i>Saxicola caprata</i>	3
170	Grey Bushchat <i>Saxicola ferreus</i>	3
171	Purple Sunbird <i>Cinnyris asiaticus</i>	2

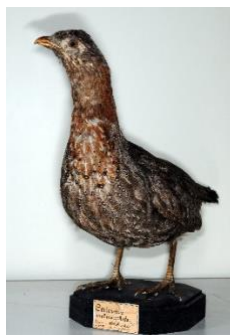
172	Green-tailed Sunbird <i>Aethopyga nipalensis</i>	2
173	Crimson Sunbird <i>Aethopyga siparaja</i>	2
174	Orange-bellied Leafbird <i>Chloropsis hardwickii</i>	1
175	Baya Weaver <i>Ploceus philippinus</i>	1
176	Indian Silverbill <i>Euodice malabarica</i>	1
177	Scaly-breasted Munia <i>Lonchura punctulata</i>	1
178	Chestnut Munia <i>Lonchura atricapilla</i>	1
179	Rufous-breasted Accentor <i>Prunella strophiate</i>	1
180	Russet Sparrow <i>Passer cinnamomeus</i>	2
181	Yellow-throated Sparrow <i>Gymnoris xanthocollis</i>	2
182	Grey Wagtail <i>Motacilla cinerea</i>	2
183	Black-and-yellow Grosbeak <i>Mycerobas icteroides</i>	2
184	Pink-browed Rosefinch <i>Carpodacus rodochroa</i>	2
185	Red-headed Bullfinch <i>Pyrrhula erythrocephala</i>	2
186	Dark-breasted Rosefinch <i>Procarduelis nipalensis</i>	1
187	Yellow-breasted Greenfinch <i>Chloris spinoides</i>	2
188	Crested Bunting <i>Emberiza lathami</i>	4
189	White-capped Bunting <i>Emberiza stewarti</i>	2

Table 1: List of birds of which specimens from the Solaroli collection that are now missing in the Turin Museum. Full details in Supplementary information (Table 2).

SI No.	Species	No of specimens
1	Hill Partridge <i>Arborophila torqueola</i>	1
2	Snow Partridge <i>Lerwa lerwa</i>	1
3	Western Tragopan <i>Tragopan melanocephalus</i>	2
4	Himalayan Monal <i>Lophophorus impejanus</i>	1
5	Koklass Pheasant <i>Pucrasia macrolopha</i>	2
6	Cheer Pheasant <i>Catreus wallichii</i>	1
7	Kalij Pheasant <i>Lophura leucomelanos</i>	2
8	Red Junglefowl <i>Gallus gallus</i>	1
9	Himalayan Snowcock <i>Tetraogallus himalayensis</i>	1
10	Chukar Partridge <i>Alectoris chukar</i>	1
11	Asian Emerald Dove <i>Chalcophaps indica</i>	1
12	Yellow-footed Green-Pigeon <i>Treron phoenicopterus</i>	1
13	Chestnut-winged Cuckoo <i>Clamator coromandus</i>	1
14	Asian Koel <i>Eudynamis scolopaceus</i>	1
15	Asian Emerald Cuckoo <i>Chrysococcyx maculatus</i>	1
16	Square-tailed Drongo-Cuckoo <i>Surniculus lugubris</i>	3
17	Large Hawk-Cuckoo <i>Hierococcyx sparveroides</i>	2
18	Indian Cuckoo <i>Cuculus micropterus</i>	1
19	Common Cuckoo <i>Cuculus canorus</i>	3
20	Eurasian Woodcock <i>Scolopax rusticola</i>	1
21	Barred Buttonquail <i>Turnix suscitator</i>	1
22	Little Heron <i>Butorides atricapilla</i>	1
23	Indian Eagle-Owl <i>Bubo bengalensis</i>	1

24	Asian Green Bee-eater <i>Merops orientalis</i>	2
25	Common Kingfisher <i>Alcedo atthis</i>	2
26	Indian Roller <i>Coracias benghalensis</i>	1
27	Blue-throated Barbet <i>Psilopogon asiaticus</i>	1
28	Greater Yellownape <i>Chrysophlegma flavinucha</i>	1
29	Common Kestrel <i>Falco tinnunculus</i>	1
30	Short-billed Minivet <i>Pericrocotus brevirostris</i>	1
31	Black-winged Cuckooshrike <i>Lalage melaschistos</i>	1
32	Black-headed Cuckooshrike <i>Lalage melanoptera</i>	1
33	Indian Golden Oriole <i>Oriolus kundoo</i>	2
34	Black-hooded Oriole <i>Oriolus xanthornus</i>	2
35	Ashy Woodswallow <i>Artamus fuscus</i>	2
36	Common Iora <i>Aegithina tiphia</i>	1
37	Black Drongo <i>Dicrurus macrocercus</i>	2
38	Black-naped Monarch <i>Hypothymis azurea</i>	1
39	Yellow-billed Cough <i>Pyrhocorax graculus</i>	1
40	Ashy Prinia <i>Prinia socialis</i>	2
41	Blyth's Reed Warbler <i>Acrocephalus dumetorum</i>	1
42	Ashy Bulbul <i>Hemixos flava</i>	1
43	Himalayan Bulbul <i>Pycnonotus leucogenys</i>	1
44	White-browed Scimitar-Babbler <i>Pomatorhinus schisticeps</i>	2
45	Rusty-cheeked Scimitar-Babbler <i>Erythrogonys erythrogonys</i>	2
46	Streaked Laughingthrush <i>Trochalopteron lineatum</i>	2
47	Variegated Laughingthrush <i>Trochalopteron variegatum</i>	2
48	Rufous Sibia <i>Heterophasia capistrata</i>	2
49	Rufous-chinned Laughingthrush <i>Ianthocincla rufogularis</i>	2
50	White-throated Laughingthrush <i>Pterorhinus albogularis</i>	2
51	Brown Dipper <i>Cinclus pallasii</i>	1
52	Common Starling <i>Sturnus vulgaris</i>	2
53	Rosy Starling <i>Pastor roseus</i>	2
54	Brahminy Starling <i>Sturnia pagodarum</i>	2
55	Chestnut-tailed Starling <i>Sturnia malabarica</i>	2
56	Common Myna <i>Acridotheres tristis</i>	2
57	Spot-winged Starling <i>Saroglossa spilopterus</i>	2
58	Long-tailed Thrush <i>Zoothera dixonii</i>	2
59	Orange-headed Thrush <i>Geokichla citrina</i>	1
60	Mistle Thrush <i>Turdus viscivorus</i>	1
61	Grey-winged Blackbird <i>Turdus boulboul</i>	1
62	Black-throated Thrush <i>Turdus atrogularis</i>	1
63	Oriental Magpie-Robin <i>Copsychus saularis</i>	1
64	Blue-throated Flycatcher <i>Cyornis rubeculoides</i>	1
65	Blue-capped Rock-Thrush <i>Monticola cinclorhyncha</i>	1
66	Siberian Stonechat <i>Saxicola maurus</i>	1
67	Orange-bellied Leafbird <i>Chloropsis hardwickii</i>	1

68	Indian Silverbill <i>Euodice malabarica</i>	1
69	Scaly-breasted Munia <i>Lonchura punctulata</i>	1
70	Chestnut Munia <i>Lonchura atricapilla</i>	1
71	Red Munia <i>Amandava amandava</i>	2



[1] Western Tragopan (MZUT Av16767), immature male. Himalayan mountains, from Paolo Solaroli in 1841 as "Argus Pheasant". All Photos by Luca Ghiraldi.



[2] Black Francolin (Left: MZUT Av16742, adult female. Right: MZUT Av16741, adult male). Himalayan mountains, from Paolo Solaroli in 1841 as "Black Partridge".



[3] Himalayan Snowcock (MZUT Av4065), adult female. Himalayan mountains, from Paolo Solaroli in 1841 as "Snow Pheasant".



[4] Crested Serpent-Eagle (MZUT Av16423), adult unsexed. Himalayas, from Paolo Solaroli in 1841.

The number of birds corresponds almost exactly to that indicated by Solaroli (444) and this seems almost surprising, since some specimens cited in Solaroli's list appear never to have reached the Turin Museum. Among the vernacular names used by Solaroli, only those of game birds were easily identified, evidently because the hunters knew them quite well. Among others, we only remember the recurring name 'fistah' (error for fishta or

phishta?), cited for 13 specimens: in one case it has been associated with wren, so it could correspond to Eurasian Wren *T. troglodytes* (a species present in the collection). Furthermore, Chaudhary (2018) lists nine species whose Nepali name is partially transliterated as 'phisto', belonging to various genera of small passerines, some of which are represented in the Solaroli collection: *Orthotomus* (two specimens), *Prinia* (eight specimens) and *Phylloscopus* (two specimens). So, the names like 'Crested Fistah' and 'Yellow Fistah' mentioned in Solaroli collection may represent such small passerines. Further discrepancies have been found between the names in Solaroli's list and the specimens identified in the collection: among the birds he sent are listed two 'Fishing Eagles', two 'Bastard Florikin', two 'Specifies of Crane', and two 'Species of Gull', however, there are no Fish Eagles, Bustards, Cranes, or Gulls in the collection, nor were they listed in the MS catalogue. Regarding the localities Solaroli just wrote: "*The collection includes almost all species of birds that occur in the different seasons in this part of the great Himalayas, from the bottom up to seventeen thousand feet above sea level*". A bit presumptuous and, all things considered, of modest use.

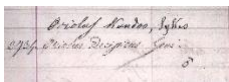
It can be ruled out that Solaroli, unlike the numerous British Army officers stationed in India, possessed any scientific knowledge, much less any naturalistic one. A search for natural history notes or papers potentially connected to the Solaroli collection in the volumes of the *Journal of the Asiatic Society of Bengal*, published in the 1830s and 1840s, revealed no explicit evidence. It has however emerged that in or near Mussoorie, there were people in contact with the *Asiatic Society* and that ornithological research was carried out in that area by Thomas Hutton (1807–1874). In particular:

1. In 1837, a member (Major G. Everest) and a subscriber (Rev. R. Everest) of the *Asiatic Society* were recorded as residing in Mussoorie: Solaroli could have turned to them for help or suggestions.
2. In 1836 and 1837, the ornithologist T. Hutton captured and studied some specimens of *G. barbatus* from Shimla (Himachal Pradesh, not far from Mussoorie), suggesting a new species which he called *Gypaetos hemachalanus* (Hutton 1838).
3. Just a year after the expedition of the collection, when Solaroli had not yet abandoned India, T. Hutton was in Mussoorie, as evidenced by a letter dated 21 June 1842 (Hutton 1842). A few years later, he also conducted some ornithological research in which Mussoorie is repeatedly mentioned (Hutton 1848a; b). Although not conclusive, this evidence allows us to define in better detail T. Hutton's presence in the Mussoorie area, before and after the years in which he was engaged in the first Anglo-Afghan War (Praveen et al. 2024).

From a different source we learn that a certain Dr. Stewart, from Mussoorie, is also mentioned together with Hutton among the correspondents of Edward Blyth, who in 1841 arrived in Calcutta to take charge of the Museum of the Asiatic Society (Kinnear 1952: 700).

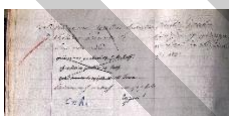
Discussion

Many of the specimens sent to Turin in 1841 belong to taxa (35, of which 21 at the rank of species and 14 of subspecies) that were described later. Giuseppe Gené, who was director of the Zoological Museum of the University of Turin at the time of the donation, expressed the intention to describe some "new species", but of this intention only a few binomials can be found on old labels or in the MS catalogue, never published and therefore unavailable. In four cases these were species already described, that Gené could not identify: n. 3684 "*Spizaetus hemispilus*" = *Aquila nipalensis* Hodgson, 1833; n. 3838, 3839 "*Acis aurora*" = *Pericrocotus roseus* (Vieillot, 1818); n. 3734, 3735, lost specimens quoted as "*Oriolus decipiens*" = *Oriolus kundoo* Sykes, 1832 [5]; n. 3769, 3770 "*Trichophorus eximius*" = *Ixos mcclllandii* (Horsfield, 1840). In two cases, however, Gené names actually referred to still undescribed taxa, recognised as new only a few years later: n. 3763, 3764 "*Haematornis castanotus*" = *Pycnonotus cafer intermedius* Blyth, 1846; n. 4099, 4100 "*Emberiza himalayana*" = *Emberiza stewarti* (Blyth, 1854). Furthermore, Tommaso Salvadori (1865)¹ described the new species *Oedichnemus indicus* based on two specimens donated by Solaroli (MZUT Av4086, MZUT Av4087), the exact provenance of which has been debated (d'Entrèves et al. 1995; Aimassi et al. 2020; Praveen & Aimassi 2024).



[5] Number 3734 in the old manuscript catalogue lists "*Oriolus decipiens* Gené, ♂", an undescribed species, then amended to "*Oriolus kundoo*, Sykes". Unfortunately, the specimen was lost.

Reading the MS catalogue of the Turin Museum, one gets the impression that the animals came from the Himalaya and in particular from Sardhana [6], but certainly Sardhana is not Himalayan. Significant, though of little support, are Hutton's words, then resident in Mussoorie, who in a letter to Blyth wrote (footnote in the *Journal of Asiatic Society of Bengal*, vol. XIV-1845, Pp.850): "*Many of the Doon birds [the Doon Valley is not far from Mussoorie] have come to be regarded as hill species, from their commonly occurring in collections made by residents at the different hill stations. Such collectors, however, entertain one or more shikarrees [professional hunters], who start off sometimes to the Doon, sometimes to the interior of the mountains [...] and when the collection is brought in, the collector never dreams of asking where the birds were shot, but puts them all down together as "a collection from the hills"*".



[6] Number 4086 in the old manuscript catalogue corresponds to one of the two syntypes of Indian Thick-knee. Here, as in other parts of the MS catalogue, the origin of the specimen is referred to both the Himalayan mountains and the locality of Sardhana, but this is misleading, since Sardhana is not in the Himalaya.

Since the letter sent by Solaroli to King Carlo Alberto came from Mussoorie, d'Entrèves (1995) suggested that the specimens came mostly from the "surroundings of Mussoorie". More recently, Praveen & Aimassi (2024), while recognising that at least some birds in the collection give it a "Himalayan" feel, e.g. Bearded Vulture *Gypaetus barbatus*, White-collared Blackbird *Turdus albocinctus*, Chukar *Alectoris chukar* and Western

¹ Year 1865 follows Praveen & Jayapal (2023) but see also Aimassi (2022) who recommends 1866

Tragopan *Tragopan melanocephalus*, clearly indicating the collectors visited the Middle Himalaya, the bulk of the collection comprises common birds of the northern plains expected around Sardhana.

Conclusion

It must be admitted that the collecting area of the specimens sent by Solaroli is poorly defined, however assuming that it is presumably included between the Gangetic plain, perhaps not far from Sardhana (c.225 m above sea level, Uttar Pradesh) and the Himalayan mountains not far from Mussoorie (Uttarakhand). This is not an isolated case: the collection designed and studied by J. Gould and N. Vigors was also based on a "beautiful series of birds, from a now unknown source, brought from the Himalayas" (Mearns & Mearns 1998: 145). Despite the lack of precise data regarding the locations and dates of capture of the birds, the historical and scientific value of such a rich ornithological collection is unquestionable. The birds sent by Solaroli dates back to the first half of the 19th century, a period of great advancement in the study of Himalayan birds, thus adding an important piece to the material known so far. Unfortunately, these birds were sent to a European museum and then virtually forgotten, thus removing them for a long time from any opportunity for study by ornithologists.

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We are grateful to Claudio Pulcher, who about twenty years ago undertook an extensive review of the Turin Museum's ornithological collection and created the database that facilitated all subsequent research. We also thank an anonymous referee and Praveen J., who provided numerous suggestions to significantly improve the first draft of the paper.

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