



Some remarkable specimens of the giant Cape Verde skink, *Macroscincus coctei* (Duméril & Bibron, 1839), with notes about its distribution and causes of its possible extinction

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ABSTRACT

At the end of the nineteenth century, about 40 live specimens of the presumably now extinct giant Cape Verde skink, *Macroscincus coctei*, were imported into Italy by M. G. Peracca. Currently 26 adult specimens (11 males and 15 females) and six eggs, whose provenance is likely Ilhéu Branco, have been located in the herpetological collection of Turin University. Other six specimens exchanged by Peracca are currently present at Treviso ('Seminario Vescovile'). This paper provides information about them, together with data on some further specimens preserved in two other Italian museums. At Genoa there are six specimens (four males and two juveniles) from Ilhéu Branco and Ilhéu Razo; at Florence a single male is preserved and bears, as provenance locality, São Vicente. Besides its museological relevance, the Turin and Treviso series can provide some biometric and meristic information, until now limited to a few specimens. The snout-vent length of the individuals from Turin pooled together with specimens held at Treviso (belonging to the former Peracca's collection) is 285.85 ± 25.12 mm in males and 253.50 ± 17.00 mm in females; sexes differ also in several biometric ratios: males have in general a larger and longer head and longer hindlegs. The maximum scale number at midbody is 114 in both adult sexes and 110 in the smallest juvenile. Their colouration can be assigned to three colour morphs (grey, yellow, and intermediate). It is argued that the 11 males still preserved in Turin may be those measured by Peracca. The presence of the species at São Vicente is also discussed, but most likely it is due to inaccuracy on the label accompanying the Florence specimen.

KEY WORDS: *Macroscincus coctei* - Scincidae - Cape Verde - Extinct species - Morphometry - Herpetological collections.

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INTRODUCTION

The giant skink, *Macroscincus coctei* (Duméril & Bibron, 1839), once present on at least two islets of Cape Verde Republic ("Ilhéus" Branco and Razo), 'disappeared' at the beginning of this century, and subsequently reliable observations have not been available. For this reason it is considered an extinct species (Balouet & Alibert, 1989; Baillie & Groombridge, 1996). Furthermore, because of the difficulty of obtaining animals from these islands (see Guedes, 1991), it has been the subject of only a few studies, and even 'basic' data, such as length range, colouration and sexual dimorphism, have been almost non-existent in scientific papers.

At the end of the nineteenth century, the Italian herpetologist M. G. Peracca, 'assistant' at the Zoological Museum in Turin, had the good fortune to have in captivity a rather large number of specimens (about 40; Fig. 1) on which he made some ethological observations (Peracca, 1891a, b). After this, for a long time almost nothing was known about this series, which was therefore considered as lost, except for a single specimen quoted in the catalogue of the herpetological collection in the Turin Museum (Elter, 1982). About 10 years ago, during the reorganization and transfer of the collections from the Zoological Museum of Turin University to the Museo Regionale di Scienze Naturali (see Gavetti & Andreone, 1993; Gavetti & Andreone, in press), J. M. Cei and one of us (EG) rediscovered 25 further specimens preserved in ethanol. Other three specimens, prepared as skeletons, were quoted in the catalogue from the Museum of Comparative Anatomy, but have not been successively found. Furthermore, more recently, we came aware of a herpetological collection in Treviso (mainly set up at the end of the last century by the local naturalist G. Scarpa) where six *M. coctei* (five in ethanol and one mounted as dry specimen) are held; these specimens were received in exchange by Peracca, who was in close correspondence with Scarpa. There is no doubt that the 26 specimens held at Turin and the six at Treviso represent the remnant of the individuals imported by Peracca in 1891. The Peracca's series acquires particular scientific and historical significance since, on the basis of present knowledge, it represents the largest collection of this species, until now studied from only a few individuals (e.g., Greer, 1976). In this paper we therefore provide information on these specimens; moreover,

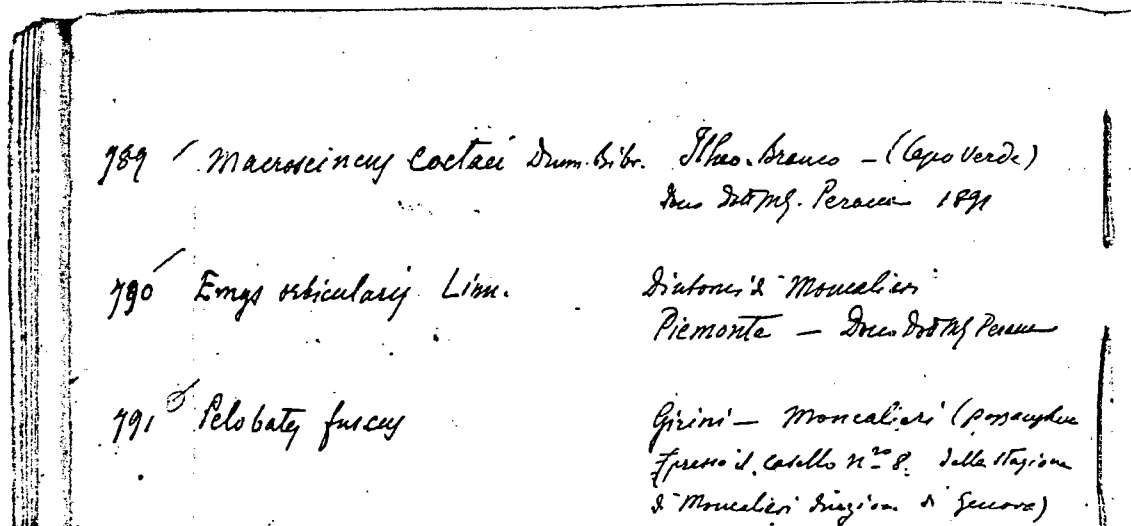


Fig. 1 - Detail of the original catalogue of the amphibians and reptiles kept in Turin University (zoological collection), with Peracca's handwritten note about the specimens of *Macroscincus coctei*.

we analyse some additional individuals preserved in Italy, namely in the Genoa and Florence museums, and discuss the distribution and causes of the possible extinction of *M. coctei*.

MATERIAL AND METHODS

Analysed material

Acronyms used are as follows: MZUT, Museo di Zoologia dell'Università degli Studi, Torino (collection now managed by the Museo Regionale di Scienze Naturali, Torino); MSNG, Museo Civico "G. Doria" di Storia Naturale, Genova; MZUF, Museo di Storia Naturale "La Specola" dell'Università (Zoologia), Firenze; MZST, Museo Zoologico "G. Scarpa", Treviso.

The studied material is represented by 26 individuals and six eggs from the Turin Museum (MZUT R1981.1-26, R1981.27-32, Ilhéu Branco, Cape Verde Republic, 1891, M.G. Peracca don.), five alcohol preserved specimens and one dry specimen from the Treviso collection (MZST R1-6, provisional numeration, Ilhéu Branco, Cape Verde Republic, 1891, M.G. Peracca exchanged, G. Scarpa don.) six specimens from the Genoa collection (MSNG 8769.1-2, Ilhéu Branco, Cape Verde Republic; 1891, D. Schiavetti don.; MSNG 43132, Ilhéu Branco, Cape Verde Republic; MSNG 34516, Ilhéu Razo, Cape Verde Republic, 27 October - 7 November 1898, L. Fea leg.; MSNG 28891.1-2, Ilhéu Razo, Cape Verde Republic, 27 October - 7 November 1898, L. Fea leg.), and one adult male from Florence (MZUF 176, São Vicente, Cape Verde Republic, G. Ceconi don.).

Biometric measurements

All the individuals were photographed dorsally and ventrally to illustrate their colouration. The following measurements were taken (to 1 mm on the liquid preserved specimens only) by the same person (EG): body length, from the tip of the snout to the posterior edge of the cloaca (BL); tail length, from the posterior edge of the cloaca to the tip of the tail (TaL1); head width at the jaw commissure (HW); head length from the tip of the snout to the jaw commissure (HL), distance between fore- and hindlegs (ILD); hindleg length from the tip of the fourth toe to the groin (HLL). A second kind of tail length (TaL2), corresponding to the length taken by Peracca, 1891) was also measured from the attachment of the hindlimbs to the tip of the tail. The number of

scales at midbody was counted in the largest male and female, as well as in the smallest juvenile. Since in many females, the belly is longitudinally opened we also checked for the presence of eggs, which were counted and measured for their longest (length) and shortest (diameter) axis.

Colour morph attribution

The colour morphs were classified according to Peracca's (1891b) original description: a) grey colour morph - back iron-grey with scattered small brownish spots; head brown-olive green above, flanks cinder grey, shading to whitish-yellowish on the belly; b) yellow colour morph - back grey-yellowish, more or less light, with large, sometimes isolated, blackish-brownish dots, some others coalescing to form a darker network; sides grey, belly white-yellowish; some large grey spots on the flanks of the head; c) intermediate colour morph, which includes specimens with a colouration intermediate between that of the grey and yellow morphs.

RESULTS

The history of the giant Cape Verde skink

According to present knowledge, the original distribution of *Macroscincus coctei* was limited to a few of the Cape Verde islands, an archipelago located between 17°13' - 14°48' N and between 22°42' - 25°22' W (Fig. 2). In particular, the localities where it was present, according to Schleich (1982), Schleich & Wuttke (1983) and Schleich & Schleich (1995) are the Ilhéus (i.e., islets) Razo (or Raso, as reported by Hazevoet, 1993; 16°37'45" - 16°36'14" N and 24°34'40" - 24°36'45" W), Branco (16°40'11" - 16°38'33" N and 24°40'27" - 24°41'31" W) and Santa Luzia Island (16°48'15" - 16°43'58" N and 24°41'22" - 24°47'58" W). These small islands, located midway between São Vicente and São Nicolau Islands in the Barlavento sub-archipelago, are currently not inhabited: for this reason they are named as "Ilhas Desertas" (Fea, 1898; Schleich & Wuttke, 1983; Schleich & Schleich, 1995; Mateo *et al.*, 1997).

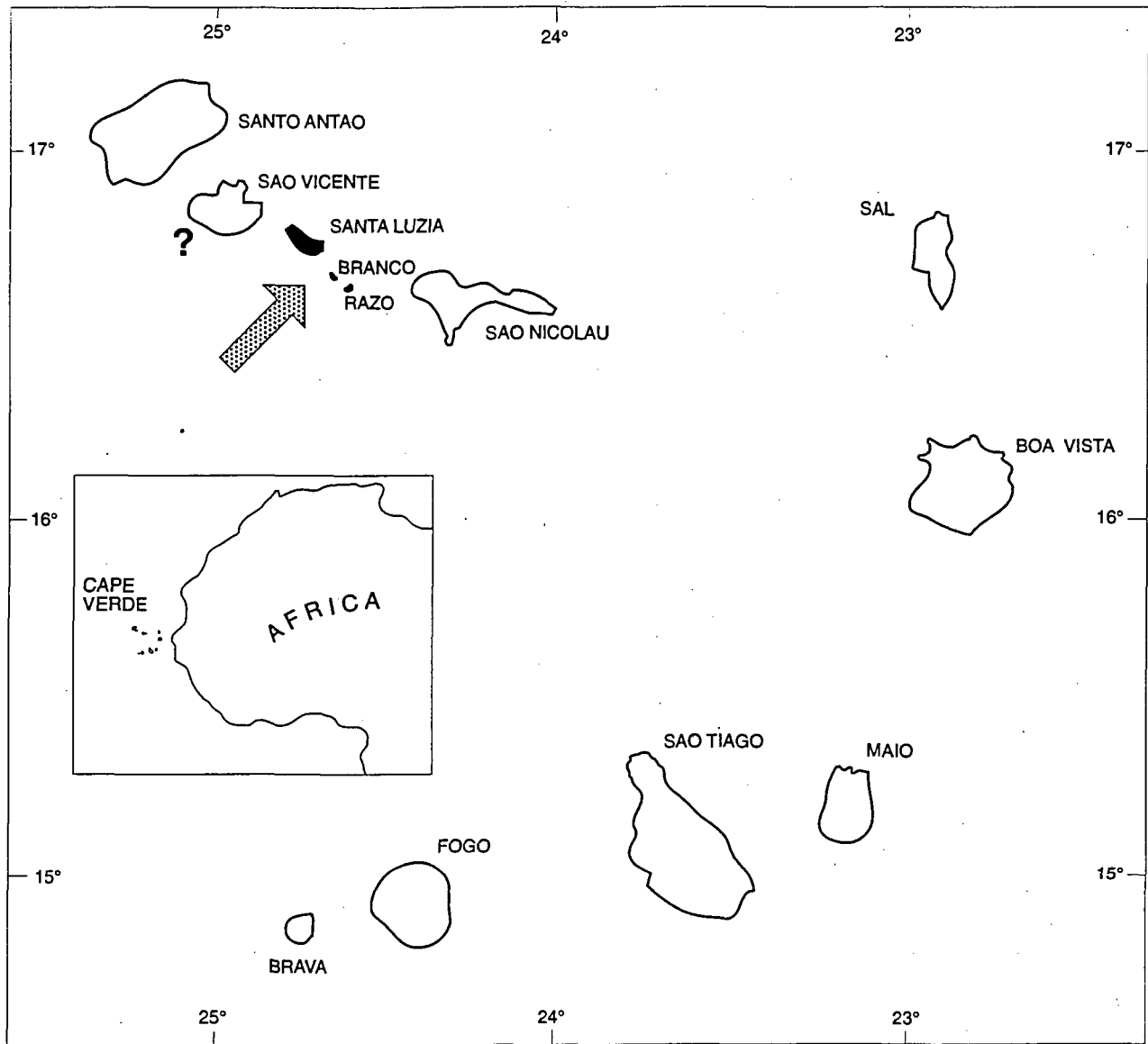


Fig. 2 - Map of Cape Verde Archipelago. Arrows indicate the likely origin of *Macroscincus coctei* specimens kept in Italian natural history museums (Turin, Genoa and Florence). The arrows indicate the three "Ilhas Desertas" (Santa Luzia, Branco and Razo) for which findings of *M. coctei* were known; the question mark indicates São Vicente Island, provenance locality of the specimen kept in Florence.

According to our information, the last published observations of living specimens of *M. coctei* were made on the occasion of the expeditions to Cape Verde by the ornithologist Alexander (1898a, b) and the naturalist Fea (1898). Subsequent expeditions by De Naurois (1969), Schleich (1982) and Mateo *et al.* (1997) were unable to find evidence of the presence of *M. coctei* in any of the islands. Recently (March-April 1998), one of us (FA) visited Ilhéu Razo with the same negative results (a detailed report of this expedition will be provided elsewhere). Because of the lack of recent records *M. coctei* is now considered extinct (Balouet & Alibert, 1989).

Several studies of other reptiles from Cape Verde (O'Shaughnessy, 1874; Boulenger, 1906), or concerning the island reptiles (Mertens, 1934), included annotations

on *M. coctei*. The contributions of Schleich (1979, 1982), Greer (1976), and Hutchinson (1989) gave a general outline of its evolution, mainly based upon osteological and morphological comparisons. The phylogenetic relationships of *M. coctei* with other skinks were summarized by Greer (1976), who considered it closely allied to Cape Verde *Mabuya* species. As a common trait, *Macroscincus coctei* shares with the Cape Verdean *Mabuya* spp. a high number of midbody scales: in *Macroscincus coctei*, these range from 108 to 112, in *Mabuya fogoensis* (O'Shaughnessy, 1874) from 60 to 66, in *M. vaillanti* Boulenger, 1877, it is 54, and in *M. delalandii* (Duméril & Bibron, 1839) from 46 to 52. In *M. stangeri* (Gray, 1845), which is the most plesiomorphic *Mabuya* of Cape Verde (Greer, 1976), the number is

lower (36-46) and is similar to that of species inhabiting the African mainland.

Among the few available life-history observations of *M. coctei*, we note those of Vaillant (1882) and Peracca (1891a, b). According to these authors, evidence from captive specimens suggested that the species was at least partly nocturnal, although Fea (1898) clearly reported that he found the specimens during the day. Other works of the last century were by Gervais (1874) and Orlandi (1894), who studied the specimens from the Paris and Genoa collections, while a report on the 'vicissitudes' of the species, and a number of remarkable and little known historical references, were provided by Guedes (1991). Of course, particularly interesting for us are Peracca's observations. This author analysed a rather large number of individuals (Fig. 2) and published two notes. In the first (Peracca, 1891a), he gave information about the oviparity of *M. coctei*, specifying that on June 1891 he received about fifteen living specimens, including several females, which were apparently not gravid. In a second paper (1891b), Peracca made other observations on scale morphology and arrangement, stating also that the tail of this skink was prehensile and that, over about 40 specimens examined, it was only rarely intact. An interesting observation was that males and females differed in the development of the head (wider and longer in males), of the hind legs and of the tail (both longer in males). For this purpose Peracca provided in a table the data for 11 males and 8 females, with total length, head length and width, length of the fore- and hind legs and state of the tail. A description of the colouration was also given, together with information about the eggs, stressing that after about 15 days of captivity the number laid was seven. Although he hypothesized also that the temperature at Ilhéu Branco (to which he supposed that *M. coctei* was confined, ignoring its presence on Ilhéu Razo) was probably high, he observed that the animals suffered when the temperature was higher than 30° C.

Morphometry and pholidosis

As may be seen from Table I, males from Peracca's collection reach a significantly larger SVL than females (males: 285.85 ± 25.12 mm; females: 253.50 ± 17.00 mm; Student's $t = 4.28$, $P < 0.01$). The dry mounted male from Treviso (MZST 4) has a snout-vent length of 310 mm and a tail length of 225 mm. The other analysed adults fall within the range of variability of the Turin and Treviso specimens. The two juveniles have SVL 130 and 77 mm, respectively.

Of the analysed percentages (Table II), only two are not significant: (FLL/SVL) % and (ILD/SVL) %. The other characters show sexual dimorphism. In particular, the most remarkable difference is in the percentage of HW/HL, being 114.18 ± 4.07 in males and 98.25 ± 2.82 in females ($t = 12.91$; $P < 0.01$).

The number of scales at midbody according to Greer (1976) is 108-112. In the examined specimens the maxi-

mum number of scales is 114 (MZUT R1981.6, male, and R1981.15, female) and 110 (MSNG 28891.1, juvenile).

Colouration

The analysed specimens presumably still maintain their original colouration, although it is likely that preservation in alcohol has made them fade (Figs 3 - 6). The juveniles (now present only at Genoa) have a lighter colouration than adults. Their head is brownish with yellowish spots, while the back is light yellowish-grey, with brownish spots arranged in one or two rows, bordered with black. The belly is flesh-coloured. Some adult females retain traces of juvenile colouration, with a series of transverse irregular yellow rows on a dark grey-yellow background. In all specimens, the edge of the eyelids is yellow, as are the lobuli which ornament the anterior edge of the auricular opening. In some specimens the upper labial scales and the temporal region are light-brownish.

Among the Peracca's series (Turin and Treviso specimens pooled), nine specimens can be attributed to the grey colour morph, eight to the yellow colour morph, and 14 are intermediate. In the series from Genoa, of the three specimens from Ilhéu Branco, one (MSNG 43132) is grey, while the two others (MSNG 8769.1-2) belong to the yellow colour morph. The adult specimen from Ilhéu Razo (MSNG 34516) is intermediate in colour, while the two juveniles are grey (MSNG 28891.1) and yellow (MSNG 28891.2). Finally, the specimen from Florence (MZUF 176), a male labelled São Vicente, is of the yellow colour morph.

Eggs

Currently six eggs are preserved in Turin collection. Two (MZUT R1981.27-28; Fig. 7) were found free in the jar with the adults; the remaining four (MZUT R1981.29-31) were still within the females' bellies, from which they have been removed. It is likely, therefore, that the other two were also taken from the bodies of other females. At Treviso two females are kept, but they do not bear any egg. Concerning the morphology and appearance of the eggs, we agree with Peracca's (1891a) description, since they are cylinder-shaped and rather rounded at their extremities. The mean length (± SD) is 36.55 ± 4.34 mm (range: 30.00-41.20 mm); their diameter is 21.95 ± 1.43 mm (range: 19.60-23.50 mm). The shell, described as very white (*bianchissimo*) in Peracca's note, is now brownish; the overall consistency, originally elastic, is now quite hardened, due to the long preservation in alcohol.

DISCUSSION

Morphometry and colouration

Peracca measured 11 males and eight females of *M. coctei* (Table III). Since at Turin we found the same

TABLE I - Biometric data of *Macroscincus coctei* specimens (preserved in liquid) from Turin, Treviso, Genoa and Florence collections.

Acronym	Number	Collection	Locality	Sex	SVL	TaL1	TaL2	HL	HW	FLL	HLL	ILD	Colour
MZUT	R1981.1	Turin	Ilhéu Branco	♂	265	192	213	40	46	76	97	145	yellow
MZUT	R1981.2	Turin	Ilhéu Branco	♂	305	239	260	47	54	90	113	166	interm.
MZUT	R1981.3	Turin	Ilhéu Branco	♂	280	189	198	43	47	80	102	155	interm.
MZUT	R1981.6	Turin	Ilhéu Branco	♂	320	284	305	50	60	92	114	175	interm.
MZUT	R1981.7	Turin	Ilhéu Branco	♂	282	245	265	44	47	80	100	140	yellow
MZUT	R1981.8	Turin	Ilhéu Branco	♂	310	260	276	45	50	90	112	175	grey
MZUT	R1981.11	Turin	Ilhéu Branco	♂	288	299	317	43	49	79	101	155	grey
MZUT	R1981.12	Turin	Ilhéu Branco	♂	238	242	258	34	39	69	88	122	yellow
MZUT	R1981.13	Turin	Ilhéu Branco	♂	308	113	134	44	54	92	111	165	grey
MZUT	R1981.14	Turin	Ilhéu Branco	♂	255	202	221	37	42	78	97	140	interm.
MZUT	R1981.17	Turin	Ilhéu Branco	♂	260	246	263	39	45	75	97	140	yellow
MSNST	R1	Treviso	Ilhéu Branco	♂	300	310	340	45	51	84	105	168	grey
MSNST	R2	Treviso	Ilhéu Branco	♂	305	248	273	44	50	83	107	168	yellow
			\bar{X}		285.85	236.08		42.69	48.77	82.15	103.39	154.92	/
			SD		25.12	52.54		4.25	5.46	7.19	7.81	16.39	/
MZUT	R1981.4	Turin	Ilhéu Branco	♀	274	200	220	41	39	76	92	152	interm.
MZUT	R1981.5	Turin	Ilhéu Branco	♀	260	178	200	37	35	77	88	145	interm.
MZUT	R1981.9	Turin	Ilhéu Branco	♀	277	182	198	41	39	74	85	155	yellow
MZUT	R1981.10	Turin	Ilhéu Branco	♀	243	173	197	33	33	64	77	135	interm.
MZUT	R1981.15	Turin	Ilhéu Branco	♀	282	165	180	41	40	77	93	155	yellow
MZUT	R1981.16	Turin	Ilhéu Branco	♀	234	185	205	33	32	67	80	124	interm.
MZUT	R1981.18	Turin	Ilhéu Branco	♀	264	175	194	35	33	76	89	156	interm.
MZUT	R1981.19	Turin	Ilhéu Branco	♀	255	250	269	36	35	74	87	145	interm.
MZUT	R1981.20	Turin	Ilhéu Branco	♀	255	115	135	37	37	67	75	150	yellow
MZUT	R1981.21	Turin	Ilhéu Branco	♀	281	181	198	40	39	77	89	153	interm.
MZUT	R1981.22	Turin	Ilhéu Branco	♀	236	75	92	32	32	67	78	130	grey
MZUT	R1981.23	Turin	Ilhéu Branco	♀	253	167	185	36	36	70	82	146	interm.
MZUT	R1981.24	Turin	Ilhéu Branco	♀	245	80	95	34	34	70	81	145	grey
MZUT	R1981.25	Turin	Ilhéu Branco	♀	243	167	185	34	33	70	81	120	interm.
MZUT	R1981.26	Turin	Ilhéu Branco	♀	225	206	222	35	34	70	82	108	grey
MSNST	R3	Treviso	Ilhéu Branco	♀	255	262	288	38	38	71	87	142	interm.
MSNST	R5	Treviso	Ilhéu Branco	♀	234	75 *	101 *	35	35	63	77	133	grey
MSNST	R6	Treviso	Ilhéu Branco	♀	247	87 *	112 *	34	36	67	82	140	grey
			\bar{X}		253.50	162.39		36.22	34.57	70.94	83.611	140.79	/
			SD		17.00	55.68		2.92	2.60	4.58	5.36	13.45	/
MSNG	8769.1	Genoa	Ilhéu Branco	♂	267	205	221	39	47	72	93	145	interm.
MSNG	8769.2	Genoa	Ilhéu Branco	♂	256	149	168	34	38	67	87	140	interm.
MSNG	43132	Genoa	Ilhéu Branco	♂	280	194	210	42	50	70	91	150	grey
MSNG	34516	Genoa	Ilhéu Razo	♂	289	270	290	41	50	74	98	147	yellow
MSNG	28891.1	Genoa	Ilhéu Razo	J	130	105	114	18	20	35	47	75	grey
MSNG	28891.2	Genoa	Ilhéu Razo	J	77	93	96	11	13	23	25	40	yellow
MZUF	176	Florence	São Vicente	2c	270	199	209	41	44	67	88	115	yellow

The provenance "Ilhéu Branco" for the specimens from the Turin and Treviso collections is given on the basis of Peracca's indications. Abbreviations: J, juvenile; interm. intermediate colour morph; BL, body length, from the tip of the snout to the posterior edge of the cloaca; TaL1, tail length, from the posterior edge of the cloaca to the tip of the tail; TaL2, tail length, measured from the groin to the tip of the tail; HW, head width at the jaw commissure; HL, head length from the tip of the snout to the jaw commissure; ILD, distance between fore- and hindlegs; HLL, hindleg length from the tip of the fourth toe to the groin. The tail length of two specimens from Treviso collection (marked with an asterisk) are characterized by a very short regenerated tail.

number of males, we may argue that he measured all the specimens of this sex still present at Turin, but only some of the females. Peracca (1891b) affirmed that in males the tail was often regenerated, while in the females it was intact. In his opinion, five of the 11 males

did not have regenerated tails, and for this reason he gave their lengths. In the females, on the contrary, all the eight measured specimens had complete tails. Analysing Peracca's data we notice that the shortest tail in males measured 240 mm (male number 2 in Perac-

TABLE II - Percentage ratios of *Macroscoincus coctei* specimens (preserved in liquid) held in Turin and Treviso collections.

Ratio	♂♂ (n=16)	♀♀ (n=20)	t
(Tal/SVL) %	82.96 ± 18.06	65.92 ± 21.82	2.57 *
(HL/SVL) %	14.93 ± 0.49	14.29 ± 0.59	3.19 **
(HW/SVL) %	17.04 ± 0.71	14.03 ± 0.64	12.34 **
(HW/HL) %	114.18 ± 4.07	98.25 ± 2.82	12.91 **
(FLL/SVL) %	28.76 ± 0.92	28.02 ± 1.23	1.81 NS
(HLL/SVL) %	36.22 ± 0.96	33.02 ± 1.53	6.65 **
(ILD/SVL) %	54.14 ± 1.86	55.47 ± 2.96	1.43 NS

Abbreviations as in Table I. Values are reported as mean ± standard deviation; t, Student's t-test value; *, P < 0.05; **, P < 0.01; NS, not significant, P > 0.05.

ca's original Table I). Considering as intact a tail longer than this length, we identified five males from Turin (MZUT R1981.2, 1981.7, 1981.8, 1981.11, 1981.12, and 1981.17) and three from Treviso (MZST R1, 2, and 3). Two of the females currently held at Treviso (MZST R5-6) have a very short regenerated tail. It may be argued that Peracca measured only a few of the specimens he got and that the 11 males still preserved in Turin may be those measured by him.

As general trait we may say that the differences between sexes lie in the greater development of the head and in the longer hindlimbs of males. Most likely these differences relate to mating activities, with either a stronger head or longer hindlimbs being useful to males during amplexus.

From the analysis of the colouration we can state that, at least in the large Peracca's series, the representation of the three morphs appears to be different between the sexes, since the intermediate colour morph represents the 55.6% of the females and the 30.8% of the males. This contrasts with Peracca's observations that the yellow colour morph was more frequent in females. We do not know whether preservation in alcohol has changed the original colouration, but we suspect that the colouration of most of the current 'intermediate' females (10 specimens) might have been originally yellow. We also can not say anything about the colouration of the juveniles from Ilhéu Branco, since they are no longer present neither at Turin, nor at Treviso.

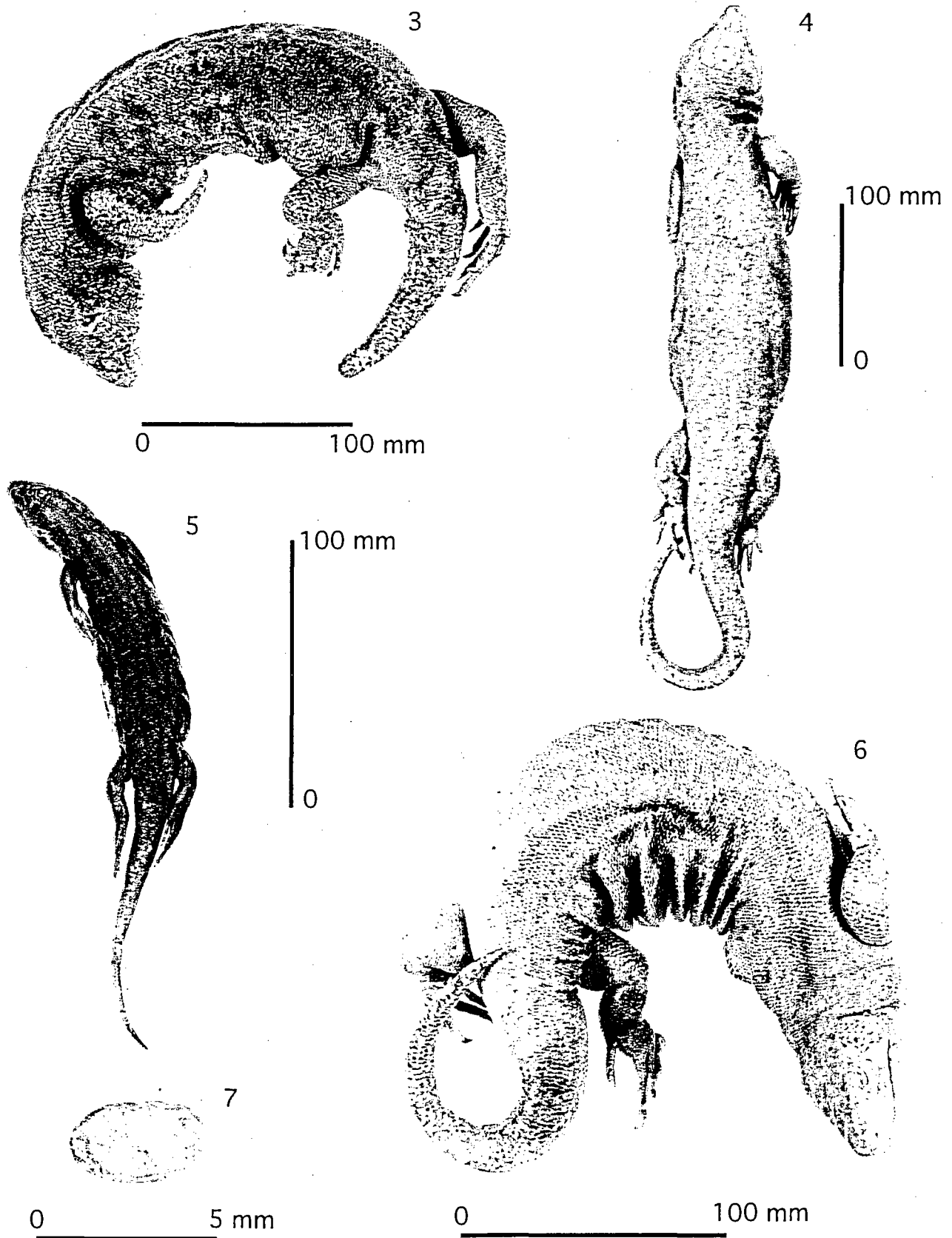
Although it is not our aim to determine whether the populations of *M. coctei* from Razo and Branco islets differed in morphology and colouration, we can make some considerations. By taking into account that all the specimens imported by Peracca and presently kept at Turin came from Ilhéu Branco (as reported in Peracca 1891a, b), their differences from the few analysed adult specimens from Ilhéu Razo kept at Genoa are not consistent. The colouration is more or less similar and even a slight difference might be due to long preservation in

the liquid or to a different fixation. It is even more difficult to say whether there is a notable difference in the single male from São Vicente, although its colouration is rather yellowish and the body appears rather stout.

Provenance of the specimens and possible causes of decline and extinction

Macroscoincus coctei is a species exclusive to Cape Verde, and inhabited at least the Ilhéus Branco and Razo, and, possibly, Santa Luzia (Schleich, 1982). Of the Turin and Treviso specimens, we do not know the exact island of origin, on the basis of what was stated by Peracca (1891b). In fact, although this skink was already known from the nearby Ilhéu Razo (Troschel, 1875), Peracca (1891b) affirmed that [he did not know] the physical and climatological conditions of Ilhéu Branco, where this scincid seems to be confined ("...le condizioni fisiche e climatologiche dell'Ilheu Branco dove questo scincide pare confinato"). Peracca did not provide any further information about the collector and collecting data. In fact, he was primarily interested in the importation of exotic animals for the vivarium built on his estate in Chivasso (Turin Province) and not in precise data of provenance or collector. Most likely many specimens were privately bought and were kept alive for a certain period, after which they were put into the collection. During the reorganization of the Turin herpetological collection, we found several amphibians and reptiles without labels. We argue that they were already being stored at the museum by Peracca, or that they were donated after his death in 1923. This may be the case also for *M. coctei*. The specimens held at Treviso and undoubtedly referable to Peracca, were certainly exchanged by himself with Scarpa.

Taking into account the friendship existing between Peracca and Boulenger which led, among other things, to a reciprocal dedication of several taxa and the exchange of scientific material (see Gavetti & Andreone, 1993; Andreone & Gavetti, in press), it is interesting to investigate whether some of the *M. coctei* specimens imported by Peracca were given to his English colleague or were received by him. According to Clarke (1997 *in litt.*) holdings of *M. coctei* in the Natural History Museum of London (formerly the British Museum) refer to the specimens BM 1891.9.24.1-2 ("Cape Verde Islands, purchased by Mr. Jamrach"), BM 1877.9.26.1 (no locality data, presented by Dr. W. K. Parker); BM 1960.1.8.2-4 (eggs, no locality data, laid in London Zoo, Tring Museum Collection). The 1891 specimens are of particular interest, since this was the same year as the importation by Peracca. Additionally in London there is a letter dated July 22, 1891, from Charles Jamrach Naturalist, a London dealer in "Foreign Birds, Waterfowls, Animals, Birdskins, Shells & c." to A. Günther (head of the Zoological Department at that time), offering a range of animals including four *M. coctei*. Unfortunately, Jamrach did not write anything about the provenance of the animals listed in his letter. Since at London only two



Figs 3-7 - Selected specimens and egg of *Macroscincus coctei* kept in Turin, Genoa and Florence natural history museums. 3, Male from Ilhéu Branco (MZUT R1981.13), grey colour morph. 4, Male from Ilhéu Razo (MSNG 34516), yellow colour morph. 5, Juvenile from Ilhéu Razo (MSNG 28891.1). 6, Male kept at Florence, and labelled São Vicente (MZUF 176), yellow colour morph. 7, Egg (MZUT R1981.27), found in the same jar as specimens presumed to be from Ilhéu Branco.

TABLE III - Biometric measurements of *Macroscoincus coctei* as given by Peracca (1891b).

Number	Sex	TL	HL	HW	FLL	HLL	TaL2
1	♂	480	45	50	90	110	-
2	♂	530	50	50	90	110	240
3	♂	560	45	55	90	110	260
4	♂	440	45	47	90	105	-
5	♂	550	45	47	80	100	280
6	♂	520	52	57	90	110	-
7	♂	520	50	49	90	110	-
8	♂	570	51	57	90	112	260
9	♂	410	46	52	85	105	-
10	♂	630	52	56	95	115	320
11	♂	410	44	48	85	100	-
1	♀	530	41	40	80	90	270
2	♀	450	36	34	70	80	230
3	♀	450	36	34	70	85	220
4	♀	410	35	32	70	80	200
5	♀	520	41	39	80	93	270
6	♀	480	38	38	78	90	240
7	♀	480	38	35	70	85	240
8	♀	490	39	38	80	90	250

Number, progressive number as given by Peracca. TaL2 is given only for specimens recognized by Peracca as having an integer original tail. Other abbreviations as in Table I.

1891 specimens are still present it can not be excluded that some of Peracca's specimens received in that year were given in exchange by Boulenger or that were by him received. Anyway, neither in his papers (1891a, b), nor in the letters sent to Boulenger (and currently conserved in London), Peracca did say anything about this possibility. So maybe it is just a coincidence that all these specimens were from the same year. Possibly (but we will probably never know for certain), they came from the same collector and Ilhéu Branco is the provenance of all the 1891 specimens. 1891 is also the year for two of the Genoa specimens which came from Ilhéu Branco, given by D. Schiavetti (MSNG 8769.1-2), an unknown donor (R. Poggi and G. Doria pers. comm., 1998). Three other specimens preserved in the Genoa Museum (MSNG 28891.1-2 and 34516) came from Ilhéu Razo and were collected by L. Fea on the occasion of his visit (27 October - 7 November 1898) to this islet (Fea, 1898; Gestro, 1904). Finally one (MSNG 43132), without any accompanying data, bears simply the label "Ilhéu Branco". The single male from Florence (MZUF 176) was obtained by G. Cecconi, and the locality given on the label is "São Vicente". Until now this island was not known as a site of provenance of *M. coctei*, at least according to the information given by Greer (1976) and Schleich (1982).

Indeed, the original distribution of *M. coctei* is a very interesting topic. Apart from Branco and Razo, which are the only certain localities, as witnessed by several museological and bibliographic sources, the only other

references for the species are therefore those relative to Santa Luzia (according to Schleich, 1982, who refers to a specimen conserved in Wien) and now the specimen labelled São Vicente conserved at Florence. It is not unlikely that this large island (about 227 km²), rather heterogeneous in morphology, was once inhabited by *M. coctei*. São Vicente, moreover, is not far from either Santa Luzia or Ilhéus Branco and Razo. The distance from Santa Luzia is about 9 km, while from the two "Ilhéus" it is respectively about 25 km (Branco) and 37 km (Razo). We can therefore agree with Vaillant (1882), who affirmed that the species was once most likely present on other islands located in the northwestern part of the archipelago (Barlavento islands). There are many places on São Vicente which may have been ideal for *M. coctei*, as well as on the other large island to the east of Ilhéu Razo, São Nicolau, for which, in any case, we do not have any data of its presence.

The human colonization of Cape Verde, which occurred about 500 years ago (Schleich & Schleich, 1995), may have been the cause of the range contraction of *M. coctei* and over a longer period, of its disappearance and possible extinction. We must also take into account that several drought crises, especially in the last century, caused the death of a large part of the human population. For this reason it is likely that *M. coctei* populations were eradicated by capture for food (as already stressed by Bocage, 1896) and by habitat alteration due to the introduction (especially at Santa Luzia, see Schleich & Schleich, 1995) of many domesticated and feral animals, such as goats, cats and dogs, as well as rats. The islands between São Vicente and São Nicolau might have been the last refuges of *M. coctei*, at least until the end of the last century. At Branco and Razo, the removal of specimens for food and, partly, for scientific studies, may have been among the causes of its rapid decrease and possible extinction.

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