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AN ANNOTATED LIST OF THE MAMMALS RECORDED FROM THE MADEIRA ISLANDS

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ABSTRACT. Twenty five species of extant mammals are cited for the Madeira Islands, including 13 species of marine mammals. Vernacular names and the world distribution for each species are given together with biological and ecological comments.

These species include five bats (Chiroptera), two carnivores (Carnivora), two seals (Pinnipedia), ten toothed whales (Cetacea, Odontoceti), one baleen whale (Cetacea,- Mysticeti), one even-toed ungulate (Artiodactyla), three rodents (Rodentia) and one lagomorph (Lagomorpha).

SUMÁRIO. Neste trabalho são referidas, com anotações, as 25 espécies de mamíferos actuais que ocorrem no Arquipélago da Madeira, incluindo as 13 espécies de mamíferos marinhos. As áreas de distribuição e os nomes vernáculos das espécies vão indicados juntamente com alguns comentários sobre a biologia e ecologia das mesmas.

INTRODUCTION

The following is a list of the recent mammals recorded from the Islands of the Madeira Archipelago (or the Madeiras): Madeira, Porto Santo and Desertas (Deserta Grande, Ilhéu Chão and Bugio).

Vernacular names and the world distribution for each species together with remarks on their biology and ecology are given; whenever possible a few notes concerning their status in the wild are also given.

The list follows the systematic order of Corbet and Hill (1980).

Most species of marine mammals are still poorly known and particularly the list of cetaceans must be considered provisional.

Useful compilations dealing with most of the Madeiran mammals are *'Mamíferos da Madeira'* and *'Vertebrados da Madeira'* respectively by Sarmento (1936) and (1948) as well as *'Ilhas de Zargo'* by Pereira (1956).

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However, more recent information on habitat preferences, population structure or breeding of Madeiran mammals are badly required.

As taxonomic works of reference *Walker's Mammals of the World* (4th ed.) by Nowak and Paradiso (1983) and *Mammal Species of the World* by Honacki *et al.* (1982) were followed here.

For synonymy Ellerman and Morrison-Scott (1951) was followed except for cetaceans where Hershkovitz (1966) was adopted. The synonyms that follow the species names are only those which have been used for the species as a whole in the sources of information referred to throughout the text.

The English vernacular names included were selected from Rice (1977), Corbet and Hill (1980) and Nowak and Paradiso (1983).

Whenever available, somatic and cranial measurements in millimetres (mm) or metres (m), and body weights in grammes (g) or kilogrammes (kg) are given. Most of the biometrical data referred to are based on specimens from the British Museum (Natural History). Detailed descriptions of the characters most useful in the recognition of most of the species referred to as well as tables of somatic and cranial measurements can be found in Miller (1912).

The following abbreviations were here used:

IUCN — International Union for Conservation of Nature and Natural Resources.

CITES — Convention of International Trade in Endangered Species of Wild Fauna and Flora.

BMNH — British Museum (Natural History), London.

MMF — 'Museu Municipal do Funchal', Funchal, Madeira.

MB — 'Museu Bocage', Lisbon.

incl. — 'including' synonyms based upon different type-species.

To define the categories of threatened mammals I used mainly the classification referred to by the IUCN Mammal Red Data Book (issued through 1978). I also considered the rules proposed by the CITES and by the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitat); I followed lists issued by the CITES in 1981 and by the Bern Convention in 1980. The 'star' system developed by Burton and Pearson (1987) was also adopted.

According to the IUCN the main categories of threatened mammals are as follows: i) extinct: taxa that are possibly extinct or near extinction; ii) endangered: taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating; iii) vulnerable: taxa believed likely to move into the 'endangered' category in the near future if the causal factors continue operating; iv) rare: taxa with small world

population that are not at present 'endangered' or 'vulnerable' but are at risk.

The species subject to regulation in CITES are indicated in three appendices: appendix I includes all species threatened with extinction which are or may be affected by trade; appendix II includes species which although not necessarily now threatened with extinction may become so, unless trade in specimens of such species is subject to strict regulation; appendix III is little used.

In the Bern Convention, annexes give lists in appendix II of all strictly protected species and in appendix III of the protected ones.

The 'star' system of Burton and Pearson (1987) considered five categories from five 'stars' (*****), which includes species endangered and likely to become extinct in the wild, to one 'star' (*), which includes species considered by some authorities to be of conservation concern but probably not threatened with imminent extinction. The intermediate categories are defined in the main text.

Readers interested in the history, geology, flora or zoogeography of the Madeira Islands should consult the following publications: Fructuoso (1873), Sarmento (1903), Silva and Meneses (1940, 1945, 1946), Morais (1948), Zurara (1960), Tavares (1965), Quartau (1982) and Ribeiro (1985).

LIST

Order CHIROPTERA

Suborder MICROCHIROPTERA

Family **Vespertilionidae**

Madeira Pipistrelle **Pipistrellus maderensis** (Dobson, 1878)

Syn.: *Vesperugo maderensis* Dobson, 1878

Distribution. Madeira and Canary Islands. The occurrence of this species in Madeira is referred to e.g. in Sarmento (1936 & 1948), Silva and Meneses (1945), Pereira (1956), Corbet and Hill (1980) and Nowak and Paradiso (1983).

Habitat. Mostly found in lowlands. Roosts are mostly in rock crevices (Sarmento, 1936 & 1948).

General remarks. Small sized bats. The rounded ears are rather short. The colour of their fur is very dark brown. They fly high and later in the day. Usually they wait until it is dark before emerging (Sarmento, 1948). Very little is known about breeding or population structure of the Madeira Pipistrelle. *P. maderensis* is perhaps conspecific with *P. kuhli* Kuhl, 1819 which occurs in Africa and SW Europe (Corbet, 1978). It is an interesting species for its restrictive distribution area.

P. maderensis is probably not threatened with imminent extinction in spite of being considered by some authorities to be of conservation concern (*) (Burton and Pearson, 1987). Listed in appendix II of the Bern Convention.

Savi's Pipistrelle **Pipistrellus savii** (Bonaparte, 1837)

Syn.: *Vesperugo maurus* Blasius, 1853

Distribution. From Iberia, Morocco, the Canary and Cape Verde Islands through Crimea, Caucasus, Asia Minor, Turkestan and Mongolia to Korea and Japan, south-eastwards through Iran and Afghanistan to Punjab (Stebbings and Griffith, 1986). The occurrence of this species in Madeira is referred to by Pereira (1956). The species listed as *Vesperugo maurus* for Madeira by Silva and Meneses (1945) is probably *P. savii.*

Habitat. Mostly found in mountainous areas near woodland and buildings. Roosts mainly in buildings and rock crevices but also in hollow trees. Hibernates in outer parts of caves and in buildings (Stebbings and Griffith, 1986).

General remarks. Short rounded ears. Head and body length about 45 mm; forearm 32-38 mm; condylobasal length from 13 to 14 mm (Miller, 1912; Corbet and Ovenden, 1980).

Little is known about Savi's Pipistrelle behaviour and population structure.

Investigation concerning the occurrence and the status of this species in Madeira is required; Sarmento (1936) refers to the complete absence of data concerning this species from 1885 to 1936. More recent data are also unknown.

Protected in all countries where it occurs. Colonies are threatened by remedial timber treatment in buildings. *P. savii* is considered not to be in immediate danger of extinction (*) (Burton and Pearson, 1987). Listed in appendix II of the Bern Convention.

Lesser Noctule **Nyctalus leisleri** (Kuhl, 1818)

Syn.: *Pterygistis leisleri* Kuhl, 1818; *Nyctalus verrucosus* Bowdich, 1825; *N. madeirae* Barrett-Hamilton, 1906.

Distribution. From W. Europe to the Urals and Caucasus, Britain, Ireland, Madeira and Azores, the western Himalayas and E. Afghanistan (Corbet, 1978; Stebbings and Griffith, 1986). Previously referred to Madeira by Bowdich (1825) and Barrett-Hamilton (1906) (in Ellerman and Morrison-Scott, 1951) and also by Sarmento (1936 & 1948) and Pereira (1956).

Habitat. Found in deciduous and conifer forests as well as parkland and urban areas. Roosts in hollow trees as well as in buildings.

It often occurs both in new and old buildings (Stebbings and Griffith, 1986).

Specimens studied. Madeira — three specimens (skull), incl. *verrucosus* and *madeirae* (BMNH).

General remarks. A medium-sized bat. Ears short, reaching more than half-way to tip of muzzle when laid forward. Head and body 54-64 mm; ear 12-13 mm; forearm 39-47 mm; weight 11-20 g. Probably females slightly larger than males (Corbet and Southern, 1977). The skull can be identified by its small size; condylobasal length of three specimens from BMNH collections, 15.20 mm, 14.90 mm, 14.50 mm; mandible length respectively 11.20 mm, 11.20 mm, 11.10 mm.

Little is known about its behaviour and population structure. It appears to be a species that occasionally flys low in day light.

The Lesser Noctule is protected in all countries where it occurs. Colonies are threatened by loss of forest, hollow trees or reductions in numbers of large insects (Stebbings and Griffith, 1986). However, *N. leisleri* is probably not threatened with imminent extinction (*). Listed in appendix II of the Bern Convention.

Grey Long-eared Bat **Plecotus austriacus** (Fischer, 1829)

Syn.: *Plecotus auritus* Jenyns, 1829

Distribution. S. Europe and N. Africa through Caucasus and Palestine to the Himalayas, Mongolia and W. China, S. England, Jersey, Canary Islands and Cape Verde Islands (Stebbings and Griffith, 1986). The long-eared bat listed for Madeira by Sarmento (1936 & 1948) and Pereira (1956) and labelled as *Plecotus auritus* probably belongs to this species. For a more accurate identification further observations are required. For example it would be interesting to know if the subspecies which occurs in the Canaries also occurs in Madeira — *P. a. teneriffae* Barrett-Hamilton, 1907 — as suggested by Pereira (1956).

Habitat. Mostly found in urban lowlands and highly wooded areas. Nursery roosts associated with villages and small towns (Corbet and Southern, 1977; Stebbings and Griffith, 1986). In Madeira it often occurs in buildings (Sarmento, 1936).

General remarks. The length of the ears is sufficient to distinguish this species. The bases of the ears meet each other on top of the head. Head and body length 40 to 52 mm; ear 30-38 mm; forearm 38-43 mm; condylobasal length 15-17 mm; weigth 7-14 g (Corbet and Southern, 1977).

The Grey Long-eared Bat usually flies at night.

P. austriacus is protected in all countries where it occurs. Colonies are threatened by loss of hollow trees, remedial timber treatment in buil-

dings or direct killing by people (Nowak and Paradiso, 1983; Stebbings and Griffith, 1986). Listed in appendix II of the Bern Convention and classified with (*) by Burton and Pearson (1987).

Family **Molossidae**

European Free-tailed Bat **Tadarida teniotis** (Rafinesque, 1814)

Syn.: *Nyctinomus taeniotis* Thomas, 1891

Distribution. Mediterranean Europe and most Mediterranean Islands as well as Madeira, Morocco and Algeria, Egypt and Asia Minor east to Kirghizia and Afghanistan, also eastern Asia from eastern Himalayas through China to N. Korea and Japan (Corbet, 1978; Stebbings and Griffith, 1986). Previously referred to Madeira by Pereira (1956).

Habitat. Free-tailed Bats live mainly in hilly country or on sea-cliffs but are also frequently found in towns (Corbet and Ovenden, 1980). They roost in buildings, rock clefts and occasionally large high caves and mines (Stebbings and Griffith, 1986).

General remarks. Very large. Tail long and extending far beyond short membrane. The ears are equally distinctive, projecting forwards over the muzzle and joining across the top of the head. Forearm from 58 to 60 mm (Corbet and Ovenden, 1980); condylobasal length about 23 mm (Miller, 1912).

This is a rare species. Little is known about its ecology and critical habitat.

Protected in all countries where it occurs. Colonies are threatened probably by disturbance and reductions in numbers of large insects (Stebbings and Griffith, 1986). Listed in appendix II of the Bern Convention.

Order CARNIVORA

Family **Mustelidae**

Ferret **Mustela furo** Linnaeus, 1758

Distribution and habitat. Bred in captivity. The Ferret is a widespread domestic animal. Feral animals inhabit the woodland areas of Madeira. Data on the occurrence of feral populations in this island can be found e.g. in Sarmento (1948) and Pereira (1956).

General remarks. The domestic ferret kept for hunting and controlling rabbits is of uncertain origin. It is not clear which species of Polecat — *Mustela putorius* Linnaeus, 1758 or *M. eversmanni* Lesson, 1827 — was first domesticated nor in what country this was done. In their skeletal characters the ferret and these two species of polecat are very similar and there are differing opinions about their relationships (Clutton-Brock, 1981).

In fact, cranially *M. furo* resembles *M. eversmanni* more closely. However, the karyotype is identical to that of *M. putorius* but differs from that of *M. eversmanni* (Corbet, 1978).

The ferrets are weasel-like animals, smaller than the wild polecat which can reach a length of the head and body up to 0.40 m; tail 0.13 to 0.18 m (Corbet and Ovenden, 1980). Usually they are bred in the albino form which is yellowish white with red eyes, and it is said that they succumb quickly to the cold. Futhermore, ferrets are solitary carnivores and as such it is not excepted that they became social animals as the dog. They always remain erratic and recalcitrant in their behaviour (Clutton-Brock, 1981). This is probably the reason why ferrets easily return to the wild as it happens in Madeira. Feral populations of Madeiran ferrets tend to resemble the polecat in habits and colour: dark brown above with yellowish underfur and black below; white on muzzle as well as between eyes and ears (Pereira, 1956).

In Madeira woodlands, ferrets probably live among rocks or tree roots or in old rabbit holes.

Family **Felidae**

Cat **Felis catus** Linnaeus, 1758

Syn.: *Felis domestica* Schreber, 1777.

Distribution and habitat. The cat is a widespread domestic carnivore which inhabits the woodland areas of Madeira as a feral form. Data on the occurrence of feral populations in this island and also in the two larger Desertas can be found e.g. in Sarmento (1903 & 1948) and Pereira (1956).

General remarks. The cat like its ancestor, *Felis silvestris* Schreber, 1777 is a territorial and solitary carnivore and at least a partly nocturnal hunter. This is the reason why all domestic cats can survive on their own, as half wild animals which inhabit cellars and outbuildings or as truly feral carnivores which live entirely by hunting (Clutton-Brock, 1981). This is what happens in Madeira, Deserta Grande and the Bugio where the cats reproduce as wild animals.

In Madeira, the occurrence of feral cats has been recorded for several years. Nobody really knows when domestic cats were first introduced in this island. According to Sarmento (1948) cats have lived in Madeira since the establishment of the first settlements or a little later when rats and mice were already a problem.

Feral cats are robust animals about the size of the largest domestic cats: head and body length 0.50 - 0.65 m; tail 0.30 m. They can be distinguished from wild cats by their longer, more pointed tails with less clearly

marked rings and many have some rounded blotches on the flanks rather than vertical stripes (Sarmento, 1984) (1).

In Deserta Grande cats have lived on their own since 1801, the year they were introduced for the control of rabbits (Sarmento, 1948; Pereira, 1956). In this island cats are wilder and heavier than those of Madeira and have a darker coat pattern. They eat small mammals, rabbits, birds, lizards as well as a few insects (Cook and Yalden, 1980).

Order PINNIPEDIA

Family **Phocidae**

Common Seal **Phoca vitulina** Linnaeus, 1758

Distribution. Iceland; European coasts from N. Portugal to Arctic Norway including the north Baltic Sea; N. Pacific coasts from Shantung and S. Japan to Bering Straits; Alaska (including N. coast) and Aleutian Islands south to California; W. Atlantic from New York to Ellesmere Island and Hudson Bay (including the freshwater Seal Lakes east of Hudson Bay) (Corbet, 1978; Corbet and Hill, 1980). First record for the Island of Madeira (Praia do Portinho) by Reiner and Lacerda (1987).

Habitat. Common Seals are usually found in shallow coastal waters, in estuaries, sheltered bays and fjords, and are occasionally encountered entering rivers (Corbet and Ovenden, 1980).

General remarks. Head and body length in females from nose to tail 1.20 - 1.55 m; body weight between 45 and 87.50 kg. Males distinguished from females by heavier build. Length in males from nose to tail from 1.30 to 1.61 m; body weight between 55 and 105 kg. The calf is about 1 m long at birth; weight at birth 9 - 11 kg (Corbet and Shouthern, 1977). External measurements of a specimen found stranded in Madeira were as follows: body length from nose to tail 1.34 m; total length from tip of snout to the extremity of posterior limbs 1.49 m: length of tail 60 mm (Reiner and Lacerda, 1987).

The presence of this seal in the waters of Madeira is certainly exceptional in spite of being known that some pinnipeds have been found far away from their breeding grounds (Reiner and Lacerda, 1987). The southernmost limit of the range of *Phoca vitulina* had until quite recently been the Portuguese mainland.

Common Seals feed predominantly on fish. They are locally regarded a pest to fisheries, particularly in relation to set nets (Corbet and Southern, 1977).

Phoca vitulina is listed in appendix II of the CITES and in appendix III of the Bern Convention. Classified as endangered (***) by Burton and Pearson (1987).

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(1) Skull data on insular feral cats (from Crozet archipelago) can be found e.g. in Derenne and Mougin (1976).

Mediterranean Monk Seal **Monachus monachus** (Hermann, 1779)

Syn.: *Monachus albiventer* Boddaert, 1758; *Heliophoca atlantica* Gray, 1854.

Distribution. Mediterranean and Black Sea (except most of the Mediterranean coast of Africa), Atlantic coast of Morocco and western Sahara, Madeira Islands (King, 1964; Walker, 1975; Corbet, 1978). Recorded from Madeira since the 'discovery' of the archipelago in the 15th century (Fructuoso, 1873; Sarmento, 1903 & 1948; Silva and Meneses, 1945; Pereira, 1956) (2). Also recorded from the more isolated parts of the Desertas by Gray (1854).

Habitat. The Monk Seal is entirely marine. Found near uninhabited small islands and on relatively inaccessible cliff-bound mainland coastlines (Nowak and Paradiso, 1983). The Monk Seals (genus *Monachus*) are the only tropical pinnipeds (Walker, 1975).

Specimens studied. Deserta Grande — type of *Heliophoca atlantica* Gray, 1854 and five more specimens (skeleton and skull); Bugio — one specimen (skin, skeleton and skull) (BMNH).

General remarks. The length of the head and body given in the literature is 2 to 3 m; 225 to 275 kg is probably the average weight for both sexes. Newborn calf 0.80 m long (Walker, 1975; Maigret *et al.*, 1976). Skull measurements of a specimen captured at Cape Blanc (Atlantic Ocean) are as follows: total length 295 mm; zygomatic breadth 216 mm; maxillary tooth-row 90 mm (Monod, 1948).

This species is very rare and numbers appear to be declining. During the 20th century due to human pressure together with the gregarious habits of the monk seals and their restricted habitat they became extinct in Spain, southern France and Crimea. The living populations of *Monachus monachus* are considered highly vulnerable. The most important living colony of this species seems to be the one located near Cape Blanc, on the southern coast of Sahara (Maigret *et. al.*, 1976). In the Madeiras Monk Seals are mostly confined to the more isolated parts of the Desertas where a small breeding colony still lives.

Monk Seals are classified as endangered by the IUCN (Goodwin and Halloway, 1978) as well as by Smit and van Wijngaarden (1981) and are likely to become extinct (*****) by Burton and Pearson (1987). Moreover, they are listed in appendix I of the CITES and in appendix II of the Bern Convention.

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(2) On the 'discovery' or otherwise the 'rediscovery' of the Madeira Archipelago see Zurara (1960).

Order CETACEA

Suborder ODONTOCETI

Family **Delphinidae**

Common Dolphin **Delphinus delphis** Linnaeus, 1758

Syn.: *Delphinus capensis* Gray, 1828; *D. pomeegra* Owen, 1866; *D. major* Gray, 1866.

Distribution. Tropical and warm temperate waters of all oceans (Rice, 1977; Nowak and Paradiso, 1983). Occasionally occurring in cold waters (Walker, 1975). This is the commonest dolphin in the Black Sea, the Mediterranean and up to the northern part of the English Channel (Corbet and Ovenden, 1980). Listed for Madeira by Sarmento (1936 & 1948), Silva and Meneses (1946) and Maul and Sergeant (1977). According to Maul and Sergeant (1977), *Delphinus delphis* is common in Madeiran waters.

Habitat. Mainly occurring in the sea but occasionally found in fresh water. Very abundant in places where the currents are interrupted by formations such as canyons and escarpments and where the resultant upwelling supports high levels of productivity (Nowak and Paradiso, 1983). Depending on the availability of food, common dolphins are occasionally seen near land.

Specimens studied. Cape of Good Hope (South Africa) — type of *D. capensis* Gray, 1828; Madras Sea (India) — type of *D. pomeegra* Owen, 1866, type of *D. major* Gray, 1866; Atlantic Ocean — one specimen (BMNH).

General remarks. Head and body length from 1.80 to 2.60 m; weight up to 75 kg. Males slightly larger than females. A male harpooned off Madeira measured 1.61 m (MMF) (Maul and Sergeant, 1977).

Common Dolphins frequently swim alongside ships or ride on the bow waves (Corbet and Ovenden, 1980). Experiments with *D. delphis* have shown that their echolocation ability is extremely accurate.

For years great numbers of Common Dolphins have been killed deliberately by people or accidentally in nets set for tunafish. Since the beginning of this century, the numbers of Common Dolphins seen have declined which suggests a decline in their populations.

D. delphis is classified as endangered (***) by Burton and Pearson (1987) and is in appendix II of the CITES as well as of the Bern Convention.

Bottle-nosed Dolphin **Tursiops truncatus** (Montagu, 1821)

Syn.: *Tursiops tursio* Gervais, 1855; *Delphinus eurynome* Gray, 1846; *T. metis* Gray, 1871; *D. cymodoca* Gray, 1846.

Distribution. Temperate and tropical waters of the Atlantic Ocean and adjoining seas; sometimes ascends large rivers. Range north

to Japan, Hawai, California, New Brunswick and Norway; south to southern Australia, New Zealand, Chile, Argentina and South Africa (Rice, 1977; Nowak and Paradiso, 1983). The Bottle-nosed Dolphin is the most abundant dolphin in most European coastal waters (Corbet and Ovenden, 1980). Listed for Madeira by Sarmento (1936 & 1948) and Maul and Sergeant (1977). According to Maul and Sergeant (1977), *T. truncatus* is common along the Madeiran coasts.

Habitat. Found mainly in coastal waters but also near islands, bays, and lagoons (Nowak and Paradiso, 1983); often in waters shallower than 18 m (Walker, 1975).

Specimens studied. Bay of Bengal — type of *Delphinus eurynome* Gray, 1846, type of *Tursiops metis* Gray, 1871, type of *D. cymodoca* Gray, 1846 (BMNH).

General remarks. Head and body length from 1.75 to 3.60 m; average weight about 220 kg which may reach 650 kg (Nowak and Paradiso, 1983; Boitani and Bartoli, 1986). At birth the calves are about 1 m long and weigh 12 kg (Walker, 1975). A female harpooned off Madeira measured 2.48 m (MMF) (Maul and Sergeant, 1977).

The first time the ability of echolocation was demonstrated for a cetacean was thirty years ago with this genus. The sense of vision is also developed in the Bottle-nosed Dolphins and studies of captive animals show that these mammals are very intelligent and capable of communicating with people through a variety of vocalizations (Nowak and Paradiso, 1983).

The species has long been hunted either (i) for human consumption (the main products being meat for food, body oil for cooking and jaw oil for lubricant) or (ii) because of being considered a competitor to fisheries. Sometimes these small cetaceans are also captured accidentally in nets set for tunafish.

T. truncatus is listed in CITES, appendix II, and in Bern Convention, appendix II.

Killer Whale **Orcinus orca** (Linnaeus, 1758)

Syn.: *Orca gladiator* Gray, 1870.

Distribution. All oceans and adjoining seas of the world; mostly common in Arctic and Antarctic waters (Walker, 1975). In the European seas, killer whales occur throughout, from Spitzbergen and Iceland to Iberia and also in the Baltic and Mediterranean (Corbet and Ovenden, 1980). Listed for Madeira by Sarmento (1936 & 1948) and Silva and Meneses (1940).

Habitat. Mainly in coastal waters and cooler regions; often enters shallow bays, estuaries and the mouths of rivers (Nowak and Paradiso, 1983).

General remarks. Head and body length in males more than 9 m; in females around 4.60 m. Recent studies indicated an average length of 6 m for both males and females (Walker, 1975). Body weight around 850 kg, but perhaps more.

In some parts *O. orca* is often killed by people to obtain meat and oil and also because it is considered a competitor to fisheries (Nowak and Paradiso, 1983). The killer whales feed on almost any type of marine animal: the other members of this family feed mainly on cephalopods and fish (Walker, 1975).

Although it is possible that localised populations have been adversely affected by exploitation, Killer Whales cannot be classed as endangered (*). Listed in CITES, appendix II, and in Bern Convention, appendix III.

Risso's Dolphin **Grampus griseus** (Cuvier, 1812)

Distribution. All temperate and tropical oceans and adjoining seas (Nowak and Paradiso, 1983). Found in European waters, from the Mediterranean to Scandinavia but rare in the far north (Corbet and Ovenden, 1980). Data on the occurrence of this species in Madeiran waters can be found in Sarmento (1936 & 1948).

Habitat. Mainly, occurring well out to sea in waters deeper than 180 m (Nowak and Paradiso, 1983). Risso's Dolphins are probably most common in the higher latitudes during the summer months (Walker, 1975).

General remarks. Head and body length between 2.50 and 4 m; weight up to 700 kg (Boitani and Bartoli, 1986).

Risso's Dolphin is known for its habit of following ships. *Grampus* as all the dolphins included in the family *Delphinidae* is amongst the most agile and speedy of all cetaceans (Walker, 1975).

G. griseus is in appendix II of the CITES and in appendix III of the Bern Convention.

Pilot Whale **Globicephala sieboldii** Gray, 1846

Syn.: *Globicephala macrorhyncha* Gray, 1846 [3]

Distribution. Subtropical and temperate waters of the Atlantic, Indian and Pacific Oceans and adjoining seas (Nowak and Paradiso, 1983). Recorded from Madeira by Sarmento (1936) and Nobre (1938) [4]. Further data on the occurrence of this species in Madeira can be found in Silva and Meneses (1940), Sarmento (1948) and Maul and Sergeant (1977).

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[3] According to Rice (1977), *G. sieboldii* is conspecific with *G. macrorhyncha*.

[4] Erroneously assigned to *G. melas* by Nobre (1938). See Maul and Sergeant, (1977).

Habitat. Sometimes Pilot Whales become more abundant near the shore during the winter.

Specimens studied. 'South Seas' — type of *Globicephala macrorhyncha* Gray, 1846 (BMNH).

General remarks. Head and body length of adult *G. sieboldii* range from 3.60 to 8.50 m; body weight about 680 kg. Calves at birth are 2.50 to 2.80 m long (Walker, 1975). A specimen harpooned off Madeira measured 4.30 m in length and weighed 1.300 kg (MMF). Measurements of the skull as follows: skull length, 0.60 m; skull width, 0.47 m; mandible length, 0.52 m (Nobre, 1938).

Pilot Whales are considered the most intelligent of all cetaceans. They have been demonstrated to use echolocation efficiently and to have a variety of sounds for communication. They were also one of the most exploited cetaceans by people; the main products were meat and oil (Nowak and Paradiso, 1983). A specimen, about 7 m long, found floating off Madeira was thought to have produced 200 litres of oil (MMF) (Sarmento, 1936; Nobre, 1938).

G. sieboldii is in appendix II of the CITES and in appendix III of the Bern Convention.

Family **Phocoenidae**

Common Porpoise **Phocoena phocoena** (Linnaeus, 1758)

Syn.: *Phocoena communis* Lesson, 1827

Distribution. European and African waters from the North Sea and Antarctic Ocean to West Africa, the western Atlantic and the Pacific Ocean from Alaska to southern California (Walker, 1975). Data on the occurrence of this species in Madeiran waters can be found e.g. in Sarmento (1936 & 1948) and Silva and Meneses (1940).

Habitat. *P. phocoena* usually frequents coasts and the mouths of large rivers and sometimes goes up rivers (Walker, 1975).

General remarks. The head and body length of *P. phocoena* is 1.20 to 1.80 m; weight of adults from 50 to 75 kg (Walker, 1975). Newborn calf 0.76 m long (Corbet and Southern, 1977).

Common Porpoises are slow swimmers. They usually swim below the surface and rise to breathe about four times a minute, but individuals have become trapped in fishnets at depths of 75 m (Walker, 1975). Common Porpoises were regularly hunted by people in the past. The main products were meat for food and oil to be used in lamps. Moreover, they are very vulnerable to pollution and have seriously declined in the Baltic and in some parts of the North Sea (Corbet and Ovenden, 1980).

P. phocoena is considered vulnerable by Smit and van Wijngaarden (1981) and is listed in appendix II of the Bern Convention. The Common

Porpoise is protected in most coastal waters but received little protection outside territorial waters: classified with (***) by Burton and Pearson (1987).

Family **Physeteridae**

Pygmy Sperm Whale **Kogia breviceps** (Blainville, 1838)

Syn.: *Physeter* (*Euphipetes*) *simus* Owen, 1866

Distribution. Tropical and warm temperate seas. Most frequently stranded on the coasts of South Africa, southeastern Australia, New Zealand and the southeastern part of the United States (Walker, 1975). Known in European waters only from a small number of stranded animals on the coasts of Portugal, France, Ireland and the Netherlands (Corbet and Ovenden, 1980). Data on the occurrence of this species in Madeira can be found in Sarmento (1948) and Maul and Sergeant (1977).

Habitat. Usually inhabits oceanic waters beyond the edge of the conitnental shelf (Nowak and Paradiso, 1983). Pygmy Sperm Whales probably migrate toward the poles in summer and return to warm waters in winter (Walker, 1975).

Specimens studied. Madras Sea (India) — type of *Physeter* (*Euphipetes*) *simus* Owen, 1866 (♀) (BMNH).

General remarks. Head and body length 2.10 to 3.40 m. Body weight from 318 to 408 kg. Males usually larger and heavier than females (Walker, 1975). Skull measurements of a specimen taken off the southeastern coast of Madeira (MMF) are as follows: skull length, 195-200 mm; maximum width, 160 mm (Maul and Sergeant, 1977).

K. breviceps possesses a miniature spermaceti organ in the same relative position as in the Sperm Whale.

Pygmy Sperm Whales are rarely found (Duguy, 1966). However, they are occasionally taken by fishermen. These whales have apparently no economic value (Walker, 1975).

Listed in appendix II of the CITES and in appendix III of the Bern Convention. Classified with (*) by Burton and Pearson (1987).

Sperm Whale **Physeter catodon** Linnaeus, 1758

Syn.: *Physeter macrocephalus* Linnaeus, 1758; *Catodon macrocephalus* Linnaeus, 1761.

Distribution. All oceans and adjoining seas of the world, except the polar ice fields (Rice, 1977). Recorded from Madeiran waters by Silva and Meneses (1940) and Sarmento (1948). Previously referred to in the waters which surround these islands by Sarmento (1936). Accor-

ding to Maul and Sergeant (1977) *P. catodon* is common around the Madeiran coasts ([5]).

Habitat. Coastal and deep waters, rarely found farther than 300 miles from the coast (Boitani and Bartoli, 1986).

General remarks. Sperm Whales are the largest toothed mammals in the world and the most sexually dimorphic of all cetaceans.

Head and body length in males between 15 and 18 m; body weight from 30.000 to 50.000 kg. Females from 9 to 12 m in length of head and body; weight around 13.000 kg. The calf is about 5 m long at birth (Walker, 1975).

The plunge to great depths may be facilitated by a buoying or stabilizing effect of the oil reservoirs in the head (spermaceti organ) (Walker, 1975).

The Sperm Whale had been regularly hunted by people since 1712 (Nowak and Paradiso, 1983). The main product (unique to this whale) which used to be extracted from this species is ambergris, a substance probably formed in the intestines which was formely used as a fixative in perfumery (Walker, 1975). Its oil was also important as a lubricant as well as the base for cosmetics. The oil of the spermaceti organ in the head was used for making candles or as a lubricant for precision instruments (Nowak and Paradiso, 1983).

The behaviour and communication sounds of specimens from Madeiran waters have been studied by Busnel and Dziedzic (1967).

In spite of being the most numerous of the great whales, this species is considered to be of conservation concern but not in immediate danger of extinction (*) (Burton and Pearson, 1987). Listed in CITES, appendix I and in Bern Convention, appendix III.

Family **Ziphiidae**

Sowerby's Beaked Whale **Mesoplodon bidens** Sowerby, 1804

Distributio. Cool temperate waters of the North Atlantic from Newfoundland and Massachusetts to southern Norway and the Bay of Biscay and Mediterranean (Nowak and Paradiso, 1983). Recorded from Madeira by Sarmento (1948) ([6]). Further data on the occurrence of this species in the waters of Madeira can be found in Maul and Sergeant (1977).

([5]) Sperm whaling in Madeira was practiced from 1941 until 1981, from a shore station at Caniçal near the eastern extremity of Madeira (Maul and Sergeant, 1977; M. Biscoito, *in litt.*).

([6]) Erroneously assigned by Sarmento (1948) to *Hyperoodon rostratus* (Maul and Sergeant, 1977).

Habitat. *Mesoplodon* is a pelagic genus, generally occurring in deep waters far from shore (Nowak and Paradiso, 1983).

General remarks. Head and body length up to 5 m (Corbet and Ovenden, 1980). The calf is 1.50 to 2.50 m long at birth (Walker, 1975). Skull measurements of a specimen taken at Machico (Madeira Is.) (MMF) are as follows: skull length, 750 mm; maximum width, 260 mm (Maul and Sergeant, 1977).

Sowerby's Beaked Whales are extremely fast swimmers and are mainly pelagic. Nowhere are they sufficiently abundant to be hunted (Corbet and Southern, 1977). Only occasionally are Sowerby's Beaked Whales taken by fishermen.

Listed in CITES, appendix II, and in Bern Convention, appendix III.

Blainville's Beaked Whale **Mesoplodon densirostris** Blainville, 1817

Distribution. Tropical and warm temperate waters of all oceans. North in the Atlantic at least as far as Madeira but not yet recorded near the European coast (Corbet and Ovenden, 1980). First recorded from Porto Santo by Harmer (1924). Further data on the occurrence of this species in the seas of Madeira can be found in Sarmento (1936 & 1948).

Habitat. They usually avoid ships and dive to great depths (Nowak and Paradiso, 1983).

Specimens studied. Porto Santo Island — two specimens (skull) (BMNH).

General remarks. Head and body length up to 5.20 m (Corbet and Ovenden, 1980). The calf is 1.50 to 2.50 m long at birth (Walker, 1975).

M. densirostris is in appendix II of the CITES and in appendix III of the Bern Convention.

Suborder MYSTICETI

Family **Balaenidae** (7)

Black Right Whale **Balaena glacialis** Muller, 1776

Syn.: *Eubalaena glacialis* Borowski, 1781; *Halibalaena britannica* Gray, 1873.

Distribution. Temperate waters of the Atlantic, Indian and Pacific Oceans and adjoining seas (Nowak and Paradiso, 1983). Right Wha-

(7) The reporting of stranded whales off the Madeiran coasts during the last century probably involves specimens of *Balaenopteridae* (Sarmento, 1936; Silva and Meneses, 1940). A record from 1846 refers to a carcass found floating and showing numerous parallel grooves on the throat and chest. However, since that time no more specimens of this family have been reported as stranding off the Madeiran coasts.

les apparently avoid tropical waters from about 30 degrees N. latitude to 30 degrees S. latitude (Walker, 1975). Formerly on the European coasts, migrating between Spitzbergen and Iberian waters, but almost exterminated through whaling by the early 19th century (Corbet and Ovenden, 1980). Recorded from Madeira by Maul and Sergeant (1977).

Habitat. Often comes close to shore. *B. glacialis* usually dives deeply for about 20 minutes after a series of five to six shallow dives and often remains near the surface for some time (Walker, 1975). Migrations are recorded to higher latitudes for summer feeding coming back to lower latitudes for winter breeding (Nowak and Paradiso, 1983).

Specimens studied. Southern England — type of *Haliba-laena britannica* Gray, 1873 (BMNH).

General remarks. Head and body length usually between 14 and 18.50 m; body weight from 40,000 to 70,000 kg. The length of the young at birth is about one-fourth of the mother (Walker, 1975). A specimen taken off the northern coast of Madeira in 1967 measured 14.40 m (Maul and Sergeant, 1977).

Horny protuberances ('bonnet') of unknown functions, and which are infested with barnacles and parasitic crustaceans, are very conspicuous around the head and on the tip of the upper jaw.

Right Whales are slow swimmers which are easily caught. They were considered to be the best kind of whale to be hunted; the main products were baleen blades as well as oil used for cooking, as a lubricant and in the manufacture of soap (Nowak and Paradiso, 1983). Consequently, during the 18th and 19th centuries the world stocks of *B. glacialis* were seriously depleted. *B. glacialis* is nowadays one of the rarest of all large mammals.

Totally protected from exploitation since 1935 it is classified as vulnerable by Smit and van Wijngaarden (1981), as endangered by the IUCN (Goodwin and Holloway, 1978) and likely to became extinct (*****) by Burton and Pearson (1987). *B. glacialis* is listed in appendix I of the CITES and in appendix II of the Bern Convention.

Order ARTIODACTYLA

Family **Bovidae**

Goat **Capra hircus** Linnaeus, 1758

Distribution and habitat. The goat is a widespread domestic animal. Data on the occurrence of feral populations of this species in the Desertas can be found e.g. in Sarmento (1903, 1936 & 1948), Lockley (1952) and Pereira (1956).

General remarks. The domestic goat, *C. hircus*, as well as its main ancestor, *C. aegagrus* Erxleben, 1777, because of being well adapted to particularly harsh environments, is probably the most versatile

of all ruminants in their feeding habits (Clutton-Brock, 1981). They also breed on the minimum of food and under extremes of temperature and humidity conditions. These factors are greatly responsible for its success as a domestic animal.

The first domestic goats arriving at Madeira, Porto Santo and Desertas were brought from Algarve and probably also from the Canary Islands or elsewhere perhaps before 1481. The goats of Deserta Grande have lived on their own as very successful ruminants since their introduction in this island (Sarmento, 1936 & 1948; Pereira, 1956). Some of the 'primitive' feral herds have been established deliberately for sporting reasons (Sarmento, 1903).

Nowadays, feral goats can only be found in the rocky hills and cliffs of Deserta Grande and Bugio. In the open woodlands of Madeira some animals are still kept on their own, but they cannot be considered feral goats because their reproduction is mainly controlled by man.

At present, the feral goats found in Deserta Grande are rather small but strong animals, with a dark grey coat pattern and short legs. The hornes of the males are larger than in the females and are twisted in an open spiral; in females, hornes are much straighter (Sarmento, 1903; Pereira, 1956). These animals are of especial interest because they have not been affected by recent introductions of modern breeds. Their small size is probably a result of the shortage of food, of the adaptation to an unstable and rocky soil or a 'reversion' to a 'wild type', a phenomenon which is not uncommon in feral herds (Corbet and Southern, 1977) (8).

Order RODENTIA

Family **Muridae**

House Mouse **Mus musculus** Linnaeus, 1758

Distribution. Nearly worldwide by association with man. In the Palaearctic absent only from N. E. Siberia (Corbet, 1978). Data on the occurrence of *M. musculus* in Madeira can be found e.g. in Fructuoso (1873), Sarmento (1936 & 1948), Silva and Meneses (1945) and Pereira (1956).

Habitat. The House Mouse is predominantly an indoor mouse, being found in and around houses, farm buildings, warehouses and factories. It is also found in farmland and gardens, and in the absence of other mice (as is the case in Madeira) often on sea-cliffs, scrub and other natural habitats (Corbet and Ovenden, 1980).

Specimens studied. Madeira (Funchal) — five specimens (skull) (3 ♂♂; 2 ♀♀) (MB).

(8) On the insular evolution of mammals in respect to size and shape see Thaler (1973).

General remarks. Small size. Measurements of five specimens from Funchal (MB) as follows: head and body length from 66.50 to 79.50 mm; ear length 12 - 14 mm; tail almost naked with conspicuous scaly rings from 70.50 to 84.50 mm. The skull can be recognized by a notch in the wearing surface of the upper incisors: condylobasal length 18.70 - 20.32 mm; zygomatic breadth 10.25 - 11.09 mm; mandible length 10.77 - 11.80 mm.

This is probably the first rodent to have been introduced in Madeira; according to Fructuoso (1873), the house mouse was the only rodent occurring in Porto Santo in the 16th century. A larger form, now extinct, is thought to have existed in Madeira until the establishment of the first settlements during the 15th century (Pieper, 1981) (9).

Mus musculus is especially associated with man's activities, either indoors or in the farmland and in the wild is predominantly nocturnal. Out of doors it makes extensive burrows and uses runways at ground level, making nests, of relatively fine fibers from plants and other sources, underground or under stones or other debris. Indoors the house mouse occupies wall cavities, under-floor cavities and roof-spaces, making nests of paper, cloth or similar soft material in crevices (Corbet and Ovenden, 1980).

The House Mouse is a major pest of agriculture and stored products and when left undisturbed can rapidly build up to plague proportions. It is of public health importance due to its close association with man and its disease carrying potential.

Common Rat **Rattus norvegicus** (Berkenhout, 1769)

Syn.: *Mus norvegicus* Berkenhout, 1769; *M. decumanus* Pallas, 1779.

Distribution. The whole of Europe including most islands, Asia Minor, eastwards across southern Siberia to the Pacific, most of China and Japan. Also in most of temperate North America and locally, mainly in ports, in many other parts of the world. The present distributior is the result of multiple introductions by man (Corbet, 1978). Data on the occurrence of this species in Madeira can be found e.g. in Sarmento (1936 & 1948), Silva and Meneses (1946), and Pereira (1956).

Habitat. Common Rats are found in almost all man-made or man-influenced habitats, from city sewers, rubbish dumps, warehouses, cellars and industrial sites to gardens, arable fields (sugar cane, corn), farmyards and farm buildings (Sarmento, 1948; Corbet and Ovenden, 1980). Often associated with water; in Funchal (Madeira) they may be found for instance in the lake of the 'Jardim Municipal' and in the 'Ribeira de Sta. Luzia'. In Madeira free-living populations of *R. norvegicus* are more abundant in coastal areas, where human settlements concentrate, than in altitudes.

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(9) '... pourquoi les mammifères enfermés sur une île evoluent-ils en devenant nains ou géants?' (Thaler, 1973).

Specimens studied. Madeira (Ribeira de Sta. Luzia) — two young specimens (skin, skull) (MB).

General remarks. Large size. Length of head and body 210 - 270 mm; scaly tail from 160 to 220 mm; ears from 20 to 21 mm; body length from 280 to 520 g. Condylobasal length of skull up to 54 mm. Males tend to be larger than females (Miller, 1912; Boitani and Bartoli, 1986).

The exact date of its introduction into Madeira is uncertain. Probably it occurred during the 17th century (the time *R. norvegicus* spread across Europe from Asia), but never before the 16th century (Fructuoso, 1873).

Although primarily nocturnal, Common Rats are fairly often seen by day and often live in close proximity of one another reaching considerable densities. They are one of the most serious mammal pests, damaging enormous quantities of crops and stored food. Moreover, health hazards can be caused by their presence, including the transmittal of such diseases as bubonic plague and murine typhus.

In Madeira, as in many other places, the damages have not yet been quantified.

Ship Rat **Rattus rattus** (Linnaeus, 1758)

Syn.: *Mus rattus* Linnaeus, 1758

Distribution. Widespread throughout the tropics and the southern part of the Palaearctic region including the Mediterranean area of Europe, S. Russia, S. W. Asia, N. Africa, S. China and Japan. Sporadically found further north, mainly in ports, e.g. in Britain and Scandinavia (Corbet, 1978). Data on the occurrence of this species in Madeira can be found e.g. in Sarmento (1936 & 1948), Silva and Meneses (1946) and Pereira (1956).

Habitat. It can survive in a wide variety of habitats but shows a marked preference for man-made environments such as urban areas and ports. It is less associated with water than the common rat. Due to their climbing ability, the nest is frequently built up above ground and as such Ship Rats do not usually live away from buildings except in islands where there are few or no indigenous competitors (Corbet and Southern, 1977). This is the case of Madeira.

General remarks. Large size, although smaller than the Common Rat: head and body length from 160 to 230 mm; longer tail 180 - 250 mm; ears 24 - 27 mm; condylobasal length of skull up to 45 mm; body weight up to 280 g. Males generally larger than females (Miller, 1912; Corbet and Ovenden, 1980).

Date of introduction into Madeira uncertain but certainly not before the arrival of the first settlers.

Densities vary greatly with environment. It is a serious pest of agriculture in islands. In Madeira they concentrate in cultivated areas showing

a marked preference for fruits such as bananas and passionflowers (Sarmento, 1948); the amount of damage in crops has not yet been quantified.

The Ship Rat is an important vector of plague and typhus.

R. rattus is, in Europe, considered locally endangered (*) due to competition with *R. norvegicus* (Burton and Pearson, 1987).

Order LAGOMORPHA

Family **Leporidae**

Rabbit **Oryctolagus cuniculus** (Linnaeus, 1758)

Syn.: *Lepus cuniculus* Linnaeus, 1758 (incl. *huxleyi* Haeckel, 1874)

Distribution. Original range probably confined to N. W. Africa and Iberia. Now present in most of W. Europe east to E. Poland and Hungary, including Britain (since the 12th century), Ireland and the islands of the western Mediterranean (Azores, Madeira, and the Canary Is.). More recently introduced and widely distributed in Australia, New Zealand, Chile and some oceanic islands (Corbet, 1978). Data on the occurrence of this species in Madeira can be found e.g. in Sarmento (1903, 1936 & 1948).

Habitat. Rabbits are abundant on grassland, especially when associated with woodland, scrub, hedges or rocks which provide cover. Most suitable habitats are areas of sandy soils where they easily dig burrows (Corbet and Ovenden, 1980; Boitani and Bartoli, 1986).

Specimens studied. Madeira — one specimen (skull) (♀); Porto Santo — one specimen (skull); Desertas — four specimens (skull) (2 ♂♂; 2 ♀♀) (BMNH).

General remarks. Medium size. Adult head and body from 350 to 450 mm; ear from notch 60 - 70 mm. Body weight in adults 1,200 - 2,000 g. Rabbits occurring in islands are frequently smaller than the mainland forms (Corbet and Southern, 1977; Corbet and Ovenden, 1980). Skull measurements of six specimens from Madeira as follows: condylobasal length from 60.40 to 73.00 mm; zygomatic breath 35.50 - 40.00 mm; mandible length 53.70 - 65.50 mm (BMNH).

The rabbits from the Madeira Islands all descend from Portuguese domestic rabbits whose ancestor is the Iberian Wild Rabbit. The first rabbits released in Porto Santo at the time of the arrival of the first settlers (1419 - 1421), are known to be a captive female and its offspring (Fructuoso, 1873; Sarmento, 1936; Pereira, 1956; Zurara, 1960). The rabbits from Madeira proper and the Desertas were introduced almost simultaneously from Porto Santo.

The Porto Santo rabbit has been the main subject of several studies e.g. Darwin (1868), Miller (1912), França (1913), Trouessart (1917), Giglio-Tos (1919), Mougin (1985). Although it has been first considered an

endemic species (Darwin, 1868; Haeckel, 1874 *in* Miller, 1912 ([10])) — *Lepus huxleyi* Haeckel, 1874, with type locality being the Island of Porto Santo — it is now known that it closely resembles the South European wild rabbit, more precisely the Iberian wild rabbit, on the basis of its smaller size and paler colouring (Miller, 1912; França, 1913; Mougin, 1985) — *Oryctolagus cuniculus huxleyi* Haeckel, 1874.

Rabbits are highly colonial and active mainly at night. However, if undisturbed they can also be seen out by day.

They are considered to be a serious pest in most crops where they can reach high population densities.

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TABLE I. List of the extant mammals occurring in Madeira and which are referred to in the text. In addition to the English names, the most commonly used Portuguese names are also given. The status of each species is indicated as follows:

§ Indigenous
\+ Occurring regularly (cetaceans)
E In danger of extinction
* Introduced
F Feral
V Vagrant (irregular visitor)

([10]) Haeckel, Natürliche Schöpfungsgeschichte, 1868; French transl.: *'Histoire de la création des êtres organisés d'après les lois naturelles'*, 1874, p. 130 (under *Lepus Huxleyi*).

Order CHIROPTERA

Suborder MICROCHIROPTERA

Family Vespertilionidae

§ *Pipistrellus maderensis* — Madeira Pipistrelle (Morcego)
(V?) § *Pipistrellus savii* — Savi's Pipistrelle (Morcego)
§ *Nyctalus leisleri* — Lesser Noctula or Leisler's Bat (Morcego)
(V?) § *Plecotus austriacus* — Grey Long-eared Bat (Morcego-orelhudo)

Family Molossidae

§ *Tadarida teniotis* — European Free-tailed Bat (Morcego)

Order CARNIVORA

Family Mustelidae

(*) F *Mustela furo* — Ferret (Furão)

Family Felidae

(*) F *Felis catus* — Cat (Gato)

Order PINNIPEDIA

Family Phocidae

V *Phoca vitulina* — Common or Harbour Seal (Foca-comum)
E *Monachus monachus* — Mediterranean Monk Seal (Lobo marinho)

Order CETACEA

Suborder ODONTOCETI

Family Delphinidae

+ *Delphinus delphis* — Common or Saddleback Dolphin (Golfinho-comum ou toninha)
+ *Tursiops truncatus* — Bottle-nosed Dolphin (Roaz-corvineiro)
+ *Orcinus orca* — Killer Whale (Roaz-de-bandeira)
+ *Grampus griseus* — Risso's Dolphin or Whitehead Grampus (Grampo)
+ *Globicephala sieboldii* — Pilot Whale or Short-finned Pilot Whale (Baleote)

Family Phocoenidae

+ *Phocoena phocoena* — Common Porpoise (Toninha-comum ou bôto)

Family Physeteridae

+ *Kogia breviceps* — Pygmy Sperm Whale (Cachalote-pigmeu)
+ *Physeter catodon* — Sperm Whale (Cachalote)

Family Ziphiidae

+ *Mesoplodon bidens* — Sowerby's Beaked Whale or North Sea Beaked Whale
+ *Mesoplodon densirostris* — Blainville's Beaked Whale (Baleia-de-bico)

Suborder MYSTICETI

Family Balaenidae

(E) + *Balaena glacialis* — Black Right Whale (Baleia-branca)

Order ARTIODACTYLA

Family Bovidae

(*) F *Capra hircus* — Goat (♀ Cabra; ♂ bode)

Order RODENTIA

Family Muridae

* *Rattus norvegicus* — Common or Brown Rat (Ratazana-castanha)
* *Rattus rattus* — Ship or Black Rat (Ratazana-preta)
* *Mus musculus* — House Mouse (Rato-caseiro; ratinho)

Order LAGOMORPHA

Family Leporidae

(F) * *Oryctolagus cuniculus* — Rabbit (Coelho)

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