



## Data sources for 18<sup>th</sup> century French encyclopaedists – what they used and omitted: evidence of data lost and ignored from the Mascarene Islands, Indian Ocean

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**ABSTRACT.** The pioneering encyclopaedias of Brisson (1756, 1760) and Buffon (1749-1767, 1770-1783, and supplements) were the first to be solidly based on specimens examined by the authors. Collectors in the Mascarenes assembled substantial material for these works, but only a part ended up in the published encyclopaedias. Part of this was due to loss in transit, but more was apparently simply overlooked amidst the mass of material the writers were dealing with. As a result, several species collected &/or illustrated in the mid-18<sup>th</sup> century and apparently available to the encyclopaedists were not formally described for several decades or even a century later, notably *Pseudobulweria aterrima*, *Coracina newtoni* and *Taphozous mauritianus* from Réunion, *Alectroenas nitidissima*, *Nesoenas mayeri*, *Mascarenotus sauzieri*, *Mormopterus acetabulosus* and *Phelsuma ornata* from Mauritius, and *Psittacula exsul* and *Cylindraspis peltastes* from Rodrigues. The colonial collector-correspondents also sent much useful life history data that also did not make it into print at the time.

**KEY WORDS.** Brisson, Buffon, Réaumur, Lanux, Cossigny, Commerson, Jossigny, de Querhoënt, Mauritius, Réunion, Rodrigues, birds, mammals, reptiles.

### INTRODUCTION

In the mid-18<sup>th</sup> century, French scientific writers published extensive natural history encyclopaedias of world fauna based for the first time on actual specimens and travel literature instead of being largely or partly informed by myth and legend (Newton & Gadow 1896, Farber 1982). Of land vertebrates, birds and mammals were covered by Brisson (1756, 1760) and Buffon (1749-1767 & supplements, 1770-1783), reptiles and amphibia by Lacépède (1788-1789). In general we have little information on the database used for these works apart from the internal inference that the authors were attempting to incorporate *all* the information they had access to: they were explicitly attempting to be comprehensive in their coverage: Brisson's largely taxonomic, Buffon's also including life-history data. However in relation to the Mascarene Islands in the Indian Ocean, then French colonies, manuscript material exists to show that the amount of data potentially available to the encyclopaedists was substantially greater than what they actually used. This paper examines the pioneering 18<sup>th</sup> century collections, and the way the information became attenuated between the islands and the published encyclopaedias.

## THE EARLY HISTORY OF NATURAL HISTORY COLLECTING IN THE MASCARENES

Far out in the Indian Ocean east of Madagascar, the three islands that comprise the Mascarenes, Mauritius, Réunion and Rodrigues, had pristine ecosystems when discovered by Portuguese navigators in the 16<sup>th</sup> century, and the anthropogenic degradation of their biota has been documented in detail from surviving travellers' accounts from 1598 onwards (Cheke & Hume 2008). The Portuguese barely landed, but the first Dutch visits in 1598-1601 resulted in three endemic species being brought back to Europe to be described and/or illustrated. Two, the Dodo *Raphus cucullatus* (Linnaeus, 1758) and the Black-spined Flying-fox *Pteropus niger* (Kerr, 1792) were described and crudely illustrated by Charles l'Ecluse working in Leiden (Clusius 1605). Specimens of these two species, plus the Red Hen *Aphanapteryx bonasia* (Selys-Longchamps, 1848) reached the emperor Rudolf II's collection in Prague and were enumerated in Daniel Fröschl's inventory (Bauer & Haupt 1976) and also painted for the famous manuscript folio 'Museum' or 'Bestiaire' (Haupt et al. 1990, Cheke 2007). Several further Dodos reached Europe before 1640 (Hume 2006, Cheke & Hume 2008), and remains of some of these still exist, or existed until recently, in collections in Oxford, London (NHM), Prague and Copenhagen (all illustrated by Kallio 2004). However none of these specimens directly informed the encyclopaedists, and in the rest of the century no more animals from Mauritius reached Europe, and only one from Réunion, a giant tortoise *Cylindraspis indica* (Schneider, 1783) described by Perrault (1676, Bour 2004). Several later 17<sup>th</sup> century compilations included the Dodo (e.g. Piso 1658, Ray 1678, Nieuhoff 1682), but only Ray explicitly stated described seeing a specimen – the one in Tradescant's collection, part of which still survives in the Oxford University Museum of Zoology (McGregor 1983, Ovenell 1992).

Apart from another Réunion tortoise in the 1730s (Petit 1741, Bour 1978), it was not until the 1750s that any further specimens were collected in the Mascarenes, and as the islands were by then all under French control, these new collections, together with accompanying field notes, fed directly into the encyclopaedias, and form the material discussed here. In addition to the specimens and information sent to France, a Mauritius Fody *Foudia rubra* (Gmelin, 1788) reached England (alive!) in the 1770s (Brown 1776), as also (Latham 1781-1785) did a Mascarin Parrot *Mascarinus mascarinus* (Linnaeus, 1771); a Mauritian tortoise *Cylindraspis triserrata* (Günther, 1873) also reached England at an unknown date before 1788 (Arnold 2004; all discussed in Cheke & Hume 2008<sup>1</sup>). After about 1790 a new impetus for collecting began, feeding into the monographs and revised encyclopaedias that appeared in the early 1800s, but outside the scope of this paper.

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1 The Fody was acquired by Marmaduke Tunstall for his aviary, illustrated, once stuffed, by Brown (1776); it was later preserved in the Hancock Museum, Newcastle (Fox 1827) but has vanished since (pers. obs. 1978, Jessop 1999). The parrot and the tortoise were in Sir Ashton Lever's collection. The tortoise which probably came from offshore Round Island as the mainland animals were extinct by 1722 (Cheke & Hume 2008); the carapace, the type of *Testudo schweigeri* Gray 1831 is now in the NHM, London (Austin & Arnold 2001, Arnold 2004). The parrot specimen is now in Vienna (Hume 2007).

## THE ENCYCLOPAEDISTS AND THEIR SOURCES

Unlike their predecessors, Jacques Mathurin Brisson (1723-1806) and Georges LeClerc, Comte de Buffon (1707-1788), compiled their books more from specimens and details supplied by correspondents than from the literature, though contemporary regional books similarly based (e.g. Catesby 1731-1743) were freely plundered by Buffon. Brisson worked with specimens acquired by René-Antoine Réaumur (1683-1757), Buffon with the royal collection (Farber 1982, Roger 1997). Most of their collectors and correspondents were in Europe, but some were in far-flung settlements or colonies, including the French island colonies of Bourbon and Isle de France in the Indian Ocean, now Réunion and Mauritius, which also included the smaller and more remote island of Rodrigues (now part of the Republic of Mauritius).

As part of studies over many years on the ecological history of these islands, it has become clear that the compilers in Paris received substantially more material than they included in their publications. The purpose of this paper is to examine from archival records the material actually sent from the islands in relation to what actually appeared in print. As the compilers, especially Buffon, laid claim to an unprecedented degree of completeness, it is of some historical and biological interest to discover how much they left out, including species that were not formally described until many decades thereafter. Brisson's and Buffon's books were confined to birds and mammals, and it is these groups I will concentrate on, with some reference also to reptiles.

The pertinent archival material is correspondence from Jean-Baptiste de Lanux and Jean-François Charpentier de Cossigny with Réaumur, Philibert Commerson's notes, supplemented by drawings by Paul Jossigny and Pierre Sonnerat, and a short manuscript from the Viscount de Querhoënt addressed to Buffon. The Lanux correspondence is unpublished, apart from brief extracts in Torlais (1936), whereas the Cossigny letters were printed in the 1930s in a low circulation historical journal in Réunion. Commerson's vertebrate material, also largely unpublished, has had some airing in print: Oustalet (1897) extracted some bird data, Vaillant (1898; North-Coombes 1994) the tortoise material, and Hermann (1804; Moutou 1982) described Mascarene bats from the drawings<sup>2</sup>. Some data from the Cossigny letters and Querhoënt's piece was extracted for Cheke (1987a,b), and Stresemann (1952), largely using internal evidence in the encyclopaedias themselves, commented briefly on some of the birds discussed below, including 5 of Lanux's specimens. My recent examination of Lanux's letters and Commerson's manuscripts has revealed a much fuller picture of these men's contributions. In addition to these surviving materials, Buffon commissioned specimens from the Transit of Venus expedition of 1761 to Rodrigues, led by astronomer Abbé Guy Pingré (1711-1796) – the commission was specifically to Pingré's assistant Thuillier (Woolf 1959) – however all specimens were lost when the travellers were intercepted and robbed of their collections by the British navy on the return journey (Lacroix 1936). Nonetheless not only did Pingré himself sur-

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2 Hermann (1804) correctly described '*Vespertilio*' (now *Mormopterus*) *acetabulosus* as new, and also unknowingly re-described *Pteropus niger* from Jossigny's drawing for Commerson (Moutou, 1982). The vast bulk of Commerson's MSS concern plants (Laissus 1974).

vive, but also his diary and edited account of the expedition, full of natural history material - but there is no indication that Buffon even remembered his commission, let alone attempted to consult Pingré himself or his manuscripts, preserved in his subsequent place of work, the Ste. Geneviève library in Paris. The edited account has only recently been published in full (Pingré 1763); of Thuillier, nothing more is heard.

### **Lanux's letters and specimens sent to Réaumur, and correspondence with Buffon**

Brisson's books (1756, 1760) were largely based on Réaumur's extensive collections (Farber 1982). Although the Dodo and a flying-fox from Mauritius had been described 150 years earlier (above), Brisson's books included the first formal descriptions of bats and birds from Réunion, and the first passerine birds from the Mascarenes: six species, five of them endemic, sent to Réaumur by Lanux, a senior official in the French East India company (Lacroix 1936, Couteau et al. 2000). To judge from his letters, Lanux was interested in all aspects of natural history, and was also actively experimenting with farming silkworms. Brisson included several local names under which Lanux had supplied the specimens, but no other details beyond the locality and brief plumage/pelage diagnosis, and, for the birds, the key information that Lanux was the source. However Lanux's letters to Réaumur in the 1750s (Lanux 1753-1756, Torlais 1936, 1962) survive in the archives of the Institut de France in Paris (formerly the Académie des Sciences), and reveal many details that do not appear in Brisson's books, including mention of additional species, and details of the birds' nests and (generally correct) clutch sizes (summarised in Table 1). The way the material is presented in Brisson strongly suggests that he only had access to the specimens and their labels, but not any ancillary material. After Réaumur's death in 1757 (Farber 1982), Lanux corresponded with Buffon (Lacroix 1936, below).

The details on birds sent by Lanux appear in several letters written in 1754, generally describing contents of cases of specimens sent alongside – in one case the consignment was evidently lost *en route*. In the collection that included all six passerines listed by Brisson (1760), Lanux also included nests and eggs of these species and also two specimens of the 'tuit-tuit'. In the absence of a description this last would be unidentified, except that the local onomatopoeic name (Cheke 1982) has survived to this day for the now endangered endemic Réunion Cuckoo-shrike *Coracina newtoni*, a bird not formally described until 110 years later by Pollen (1866), still using the same local name. Another bird Lanux sent, the 'oyseau rouge', he fortunately did describe<sup>3</sup>, allowing us to identify it as the Mascarene Paradise Flycatcher *Terpsiphone bourbonnensis* (Müller, 1776); Brisson (1760) described this specimen, but without its local name. At the same time Lanux also sent an insectivorous bat, also missing from Brisson (1756), but identifiable from his

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3 "the male is distinguished by its head of which the feathers are dark blue" (ASC's translation) - a 'red' bird with a dark blue head can only be *Terpsiphone bourbonnensis* - in fact bright rusty brown with a black head with blue reflections (illustration in Probst 1997, Sinclair & Langrand 1998).

description<sup>4</sup> as the Grey Tomb Bat *Taphozous mauritanus* Geoffroy, 1818, which he distinguished from a smaller species, presumably the endemic free-tailed bat *Mormopterus francoismoutoui* Goodman et al., 2008. The tomb bat was not formally described until 1818 (Geoffroy 1818, Moutou 1982), and the free-tailed bat not distinguished from its Mauritian counterpart until 2008 (Goodman et al. 2008<sup>5</sup>).

One species that Lanux sent under the name *jacobin*, and Brisson (1760) described, has caused some confusion and controversy. This bird is the White-rumped Munia *Lonchura striata* (Linnaeus, 1766), of which Réunion is, due to Brisson's description, the type locality. As the species is a native of Asia, not Réunion, it has been considered that the locality was an error (e.g. Mayr et al. 1968, Ali & Ripley 1983), but the letters demonstrate otherwise. Not only did Lanux send specimens<sup>6</sup>, but also a nest and eggs, with a comment on its clutch size. Furthermore he also remarked that this bird was also called in common parlance [*vulgairement*] '*oiseau de malgache*', a name used for an otherwise unidentifiable granivore stigmatised in pest control legislation in 1769 (Delaleu 1826, Cheke & Hume 2008). Hence, as Stresemann (1952) correctly surmised, this Indian estrildine was an established exotic in Réunion, probably for at least 25 years, although it later disappeared, most likely through competition with other seed-eaters introduced subsequently (Cheke & Hume 2008).

Curiously both Lanux in Réunion and Querhoënt in Mauritius (in Buffon 1770-1783; below) recorded broods or clutches of two for the White-tailed Tropic-bird *Phaethon lepturus* Daudin, 1802, contrary to standard information that accords the genus, including this species, a clutch of invariably one (e.g. Tuck & Heinzel 1978, Skerrett et al. 2001, Nelson 2006<sup>7</sup>). Given that their information was almost certainly independent (as Lanux's was unpublished), and both claimed to have first-hand information of nests, it seems possible that 250 years ago this species did in fact sometimes lay two eggs, though the egg Lanux actually sent was single<sup>8</sup>. Querhoënt additionally contrasted the White-tail's two with the single egg laid by the Red-tailed Tropic-bird *P. rubricauda* Boddaert, 1783.

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4 "a little whitish bat bigger than the little grey ones" (ASC's translation) – *Taphozous mauritanus* is grey with whitish underparts, larger than the sympatric *Mormopterus* which is dark grey-brown all over (illustrated in Probst 1997); however this 'whitish bat' could refer to the enigmatic Bory's White Bat '*Boryptera alba*' (Cheke & Hume 2008), though since Bory implied it was smaller than *Taphozous*, this is unlikely.

5 *M. francoismoutoui* was long considered part of *M. acetabulosus*, itself not described until 1804 from an original manuscript description and a drawing of a Mauritian specimen in Commerson's MSS (Hermann 1804, Moutou 1982, Cheke & Hume 2008, Cheke 2009, see below). Goodman et al. (2008) designated a recently collected specimen as a neotype for this species, the type being lost, but failed to note that Jossigny's drawing, upon which Hermann (1804) based this species, survives in the Commerson archive in Paris (MS 282; pers. obs. 2006; Cheke 2009). It remains for a fuller phylogenetic study of *Mormopterus* to confirm whether *francoismoutoui* should be treated as a valid full species or as a well-marked race of *acetabulosus*.

6 It is not always clear from his letters whether Lanux sent one or several specimens, though he referred to *jacobins* in the plural.

7 Most tropic-bird studies fail to mention the clutch/brood size, assuming it is a 'given'!

8 He was evidently given by his shepherds a single tropic-bird egg, but commented that "this bird makes its nest in tree-hollows; one normally finds two young, never more" (ASC's translation). He kept another egg (from a different nest) in a 'Chinese-style furnace' ("furneau à la chinoise") to discover the incubation period, but the letters do not reveal the result, if any.

However their accounts imply that they did not personally climb the nest-trees, so minions could have provided inaccurate data, or the nests regularly contained unhatched eggs from previous attempts - though the fact that Lanux stated that “one normally finds two *young*” (my italics – i.e. not old infertile eggs!) argues for the birds laying clutches of two. In fact occasional clutches of two have recently been recorded in Red-tails in Australia (Tarburton 1977<sup>9</sup>), so in the right conditions tropic-birds may possibly lay or have laid double clutches more regularly. An analogous case is the report by Leguat (1707) of twin births in the Golden Bat or Rodrigues Flying-fox *Pteropus rodricensis* Dobson, 1879 – this was regarded as fanciful as twins were unknown in flying-foxes – until produced in captivity at Chester Zoo, and in the wild in Rodrigues, in 2003 (Powell 2004, Cheke & Hume 2008<sup>10</sup>).

### Cossigny’s letters and specimens sent to Réaumur

Réaumur also received specimens and information from Jean-François Charpentier de Cossigny, the French East India Company’s chief engineer on the islands (Crépin 1922, Torlais 1936). In 1755 he sent from Mauritius a Pigeon Hollandais *Alectroenas nitidissima* (Scopoli, 1786), now extinct, its stomach contents (seeds of native trees) and comments on its progressive rarefaction. He also sent the stomach contents of an endemic Pink Pigeon *Nesoenas mayeri* (Prévost, 1843), but possibly not the bird itself (the text is ambiguous), specimens of introduced Grey-headed Lovebirds *Agapornis canus* (Gmelin, 1788), and a nestling White-tailed Tropic-bird *Phaethon lepturus* (Charpentier 1732-1755<sup>11</sup>). However these specimens may not have survived long, as neither pigeon featured in Brisson’s *Ornithologie*, and the lovebird and tropic-bird only as examples from Madagascar. The *Alectroenas* was formally described from different material by Sonnerat (1782, below), but the Pink Pigeon had to wait until 1843 (Temminck et al. 1838-1843)! Cossigny also tried in 1755 to obtain a Rodrigues Solitaire *Pezophaps solitaria* Strickland, 1848, then undescribed, but was unsuccessful. In addition to the birds, Cossigny reported on the habits and sent Réaumur a specimen of the endemic Mauritian day-gecko *Phelsuma ornata* Gray, 1827, eventually described 70 years later (Gray 1827; Commerson also collected this species, below).

Cossigny also mentioned numerous other animals in his letters, but none specifically enough for an eighteenth century European naturalist to identify or describe, though much of his material is recognisable to species in retrospect and can be used to date introductions and extinctions of birds (Cheke 1987a, Cheke & Hume 2008).

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9 Nelson (2006) assumed the two-egg clutches had been laid by two females, but neither he nor Tarburton (1977) presented positive evidence as to how many females had contributed. Vikash Tatayah (e-mail 11 July 2007), who has worked for several years on the seabirds of Round Island (off Mauritius), where both tropic-birds are abundant, has found tropic-bird nests with two eggs, but like Nelson, considers them the product of either two females or an earlier infertile laying.

10 Apparently twins were born to captive bats in Jersey and Mauritius well before the 2003 observations, but the details were not published (Carl Jones & Vikash Tatayah, pers. comm.)

11 Cheke & Hume (2008) gave further details; Cheke (1987a) discussed the identity of Cossigny’s ‘*boeuf*’, a name normally applied at that time to Abbott’s Booby *Papasula abbotti* (Ridgway, 1893), but used by Cossigny for the nestling tropic-bird.

## **Mascarene animals from other sources featured in Brisson's encyclopaedias**

Brisson described two further birds from Réunion without further details – a *perruche à double collier* (= Echo Parakeet *Psittacula eques* (Boddaert, 1783); *Planches Enluminées* 215, hereafter 'PE') from Aubry's *cabinet* [collection] and a living *mascarin* (= Mascarin Parrot *Mascarinus mascarinus* PE 35) the origin of which was unknown to him. Stresemann (1952) assumed the Echo was a locality error for Mauritius, but there is ample additional evidence that a green parakeet of this general size and description also occurred originally in Réunion (Cheke 1987a, Jones 1987, Barré et al. 1996, Hume 2007, Cheke & Hume 2008)<sup>12</sup>, so there is no reason to doubt the provenance of Aubry's bird – it later passed into the royal collection and was re-described by Buffon (1770-1783), as was the Mascarin. It may however have been the only Echo Parakeet specimen collected on Réunion (Hume 2007).

## **Specimens and drawings from Commerson, Jossigny and Sonnerat**

Réaumur's collection was bequeathed on his death in 1757 to the French Academy of Sciences, but Buffon, in charge of the *Cabinet du Roi*, the French royal collection, arranged for the King to acquire it so that he could control and study it (Stresemann 1952, Farber 1982). Hence the same specimens feature, re-described, in his encyclopaedias, but they were supplemented by material pouring in from the expanding French colonial empire. This included some new species, but Buffon also added Vicomte de Querhoënt's life history comments to several of the Brisson specimens (below), although other material available to him was largely ignored.

Prominent amongst traveller-naturalists was Philibert Commerson (1727-1773), who was diverted in 1768 from Bougainville's circumnavigatory expedition by Pierre Poivre, *intendant* (civil governor) of Mauritius, to study the natural history of Madagascar and the Mascarene Islands (Oliver 1909; Monnier et al. 1993). Commerson died in Mauritius in 1773 having accumulated an enormous archive of specimens and notes, but having published nothing on the islands (Laissus 1974). The materials were taken back to Paris in 1774 by his collaborator and artist Paul Jossigny (Ly-Tio-Fane 1978).

While the plant specimens, many of which survive (e.g. Monnier et al. 1993), have been extensively studied, the zoological material remains underexplored. It was very haphazardly dipped into by Buffon and his co-author Guéneau de Montbeillard for the *Histoire naturelle des oiseaux* (Buffon 1770-1783), the associated *Planches Enluminées*, and the supplements to the *Histoire Naturelle* (Buffon 1776, 1789). Some was borrowed by Commerson's other artist Pierre Sonnerat (1782), and the archive has been sporadically looked at since, notably by Oustalet (1897) and Vaillant (1898) for unpublished bird and tortoise notes and drawings. However Oustalet did not discover all the Mascarene bird data, and much will probably never surface, as the notebooks and papers as currently preserved have many pages torn or cut out which evidently once contained further comments

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<sup>12</sup> The *Psittacula* parakeets on Réunion ('*eques*') and Mauritius ('*echo*') are often treated as separate species in the absence of surviving specimens from Réunion, but the coloured illustrations of the specimen described by Brisson and Buffon (PE 215 and Levaillant 1805) are indistinguishable from extant Mauritian birds.

and descriptions (pers. obs. 2006<sup>13</sup>). In the Mascarenes, Commerson himself collected in Réunion (in 1771) and Mauritius (Ly-Tio-Fane 1978), but also acquired specimens from Rodrigues (Oustalet 1897, Vaillant 1898), presumably via personnel in the tortoise collecting station there (Cheke & Hume 2008). Only once in his *Ornithologie* did Buffon or Montbeillard (Buffon 1770-1783) mention the Commerson drawings, for the introduced Yellow-fronted Canary *Serinus mozambicus* (Müller, 1776). They acknowledged Commerson's Mascarene specimens for only three species, and his descriptions for only two – in both cases the notes on those species are no longer present in the Commerson archive, although two canary illustrations by Sonnerat (a rough sketch and a finished aquarelle) are still there (pers. obs. 2006). Buffon (1776, supplement vol. 3; Moutou 1982) used further lost notes from Commerson to comment on flying-foxes in Réunion<sup>14</sup>, though the bulk of the section is a long letter written to Buffon in 1772 by Lanux in response to a request from the author to correct errors in his original descriptions of these bats. This letter provided the first ever serious ecological data on flying foxes, refuting the then prevalent idea, subscribed to earlier by Buffon (1749-1767; vol. 10, 1763), that these large fruit-bats were carnivorous. Buffon (1770-1783) based his long article on the Common Mynah *Acridotheres tristis* (Linnaeus, 1766), and its use in the control of locusts in the Mascarenes, on information from Lanux and Sonnerat, though in combining the sources he generated errors in the history of this famous early use of biological control (Cheke & Hume 2008); the Commerson MSS additionally include drawings of mynahs by Sonnerat and a brief mention of the locust story from Commerson himself (Oustalet 1897, pers.obs., Table 2). Buffon failed to pick up on Commerson's description and accompanying drawing<sup>15</sup> of a microchiropteran bat, used later by Herman (1804) to describe the endemic *Mormopterus acetabulosus* (Moutou 1982, Cheke 2009).

Although the *Cabinet du Roi* in Buffon's time was extensive, few 18<sup>th</sup> century specimens survive in the MNHN in Paris, most having been destroyed by c1810 through excessive sulphur fumigation (Stresemann 1952; Jouanin 1962: 274, footnote), and no inventory of Commerson's bird or mammal specimens seems to have survived. Amongst Mascarene specimens still extant are three extinct species (Milne-Edwards & Oustalet 1893, Jouanin 1962): A Mascarin Parrot *Mascarinus mascarinus* and a Hoopoe Starling *Fregilupus varius* (Boddaert, 1783) from Réunion (collectors unknown), and a Pigeon Hollandais *Alectroenas nitidissima* from Mauritius collected by, or at least presented by, Sonnerat, who was also the first to formally describe it (Sonnerat 1782). It is probable that the Hoopoe Starling is Commerson's specimen (below), and it is likely that Sonnerat used some Mascarene specimens originally collected for Commerson in compiling his

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13 For instance MS 2127 (mammals, birds, plants; No. 57 of Laissus 1974) is missing pages 36-40 and 77-93, though some removed pages ('75' & 77-80) are included with MS 887, III (pers. obs. 2006). Oustalet (1897) also noted that the descriptions of *Aerodramus francicus* and *Lonchura oryzivora* used by Buffon were missing from the archive.

14 The Commerson archive retains in MS 282 a life-size drawing by Jossigny of a *Pteropus niger* from Mauritius (pers. obs. 2006).

15 The description is in MS 887(III) and the drawing in MS 282(II) (respectively Nos. 41 & 73 of Laissus 1974).



**Figure 1. Jossigny’s drawing, ca. 1771, of a Réunion Black Petrel *Pseudobulweria aterrima* (Bonaparte, 1857), annotated by Commerson in Latin on the reverse: “Procellaria tota vestita ater; tibiis plantisque pedum pallidibus. nobis. Hist. nat. de Bourbon” [Petrel with entire plumage black; tibia [= tibiotarsus] and webs of the feet pale. New. Nat. hist. of Réunion]. From MS 282 in the Commerson papers (No. 73 of Laissus 1974). © Bibliothèque centrale Muséum national d’histoire naturelle Paris 2009, reproduced with permission.**

book. Three species he described as from China, Malaysia and Madagascar were already naturalised in Mauritius (*Stigmatopelia chinensis* (Scopoli, 1786), *Geopelia striata* (Linnaeus, 1766), *Margaroperdix striatus* (Scopoli, 1786) (Ly-Tio-Fane 1978, Cheke & Hume 2008<sup>16</sup>). His published Seychelles and Malagasy novelties definitely originated in material collected for Commerson (Ly-Tio-Fane 1978)<sup>17</sup>.

Oustalet (1897) drew attention to the extinct Mascarene species featured amongst Jossigny’s drawings for Commerson<sup>18</sup> (Hoopoe Starling, Commerson’s Lizard-owl *Mascarenotus sauzieri* (Newton & Gadow, 1893), Rodrigues Parakeet *Psittacula exsul* (A. Newton, 1872)), and quoted Commerson’s notes on several more mundane species

<sup>16</sup> Sonnerat did not use binomial nomenclature; his names for the birds were: *Tourterelle grise de la Chine*, *Petite tourterelle de Quéda* [= Kedah] and *Grande caille de Madagascar*. In the same work he (wrongly) described as new the *Francolin de l’Île de France* (= *Francolinus pintadeanus* (Scopoli, 1786)), introduced to Mauritius, but claimed it was native to Madagascar. Sonnerat is notorious for having frequently assigned animals to wrong localities (even, in his previous book, describing penguins as from New Guinea); see discussion in Alexander (1924), and especially Ly-Tio-Fane (1983).

<sup>17</sup> Cuvier [ca.1795] commented that “Sonnerat’s two books contain many drawings originating in the papers left by Commerson” (unreferenced quote in Ly-Tio-Fane 1983; ASC’s translation).

<sup>18</sup> All the drawings are in MS 282 (No.73 of Laissus 1974).

(Table 2), but missed an excellent drawing of the now endangered Réunion Black Petrel *Pseudobulweria aterrima* (Fig. 1), a species not formally described until over 80 years later (Bonaparte 1856, Jouanin 1970). He also missed several further species amongst Commerson's written Latin diagnoses, notably good descriptions of a Mauritius Fody *Foudia rubra* (Gmelin, 1788) and the introduced Spice Finch *Lonchura punctulata* (Linnaeus, 1766)<sup>19</sup>. Of the fody he wrote 'said to be new[ly introduced]'<sup>20</sup>, indicating a confusion (shared by Querhoënt, below) with the Cardinal Fody *F. madagascariensis* (Linnaeus, 1766), which really was a recent introduction. The unpublished description however, clearly indicates the endemic species: "Sparrow with [-?-] abdomen [-?-] & olive, wings greenish black, head, neck and rump red". The Spice Finch he accurately defined as a "Sparrow with reddish-brown back, belly white, breast and flanks with overlapping black-ringed spots"<sup>21</sup>. His use of the name *moineau de Chine* for this bird has finally allowed identification of a previously enigmatic cereal pest referred to in books and legislation from the mid-late 18<sup>th</sup> century (Cheke & Hume 2008). Montbeillard (in Buffon 1770-1783) included, under the name *grand traquet*, another bird collected by Commerson. The specimen apparently lacked locality, but the text is a good description of a female Mauritius Cuckoo-shrike *Coracina typica* (Hartlaub, 1865), identified as such only in the 1980s (Cheke 1983). The Hoopoe Starling, first formally described by Montbeillard in 1779 (in Buffon 1770-1783 & *PE* 697) is likely, as Oustalet (1897) suggested, to have been the one drawn by Jossigny and hence amongst Commerson's collection; the unattributed remarks by Montbeillard on the bird's diet may well also have been from Commerson<sup>22</sup>. Given the dates of publication (see Stresemann 1952), it seems likely that the following also originated from Commerson<sup>23</sup>:

- Mascarene Grey White-eyes in *PE* 681:2 (*Zosterops (b.) borbonicus* (Boddaert, 1783)) and 705:1 (*Z. (b.) mauritianus* (Gmelin, 1788); see Cheke (1983), Boddaert (1783)).
- Mascarene Swallow *Phedina borbonica* (Gmelin, 1788) (*PE* 544:2).
- Red-tailed Tropic-bird (*PE* 979).
- Purple Swampphen *Porphyrio porphyrio* Linnaeus, 1758 imported to Mauritius from Madagascar (*PE* 810); also commented on by Querhoënt (below).

Commerson's specimen of a bird he called the *serevan* was assimilated by Montbeillard (Buffon 1770-1783) with an earlier specimen depicted in *PE* 230:3 as a *petit moineau du Sénégal* and a 'Sonnerat' specimen of a *bengali* from Mauritius. The latter is clearly a female Red Avadavat *Amandava amandava* (Linnaeus, 1758), and the *serevan* and 'Senegal sparrow' appear to be juveniles of the same species<sup>24</sup>. Finally Commerson's sur-

<sup>19</sup> Both from MS 886 (No. 55 of Laissus 1974).

<sup>20</sup> 'neophyta dicitur'; the Latin diagnosis being: "Passer [dono] abdomine [*illeg.*] [&] olivarius alis nigris viriduli cap[ete] collo & uropygio coccineas"; square brackets indicate where I had difficulty in reading Commerson's handwriting.

<sup>21</sup> "Passer dorso fusco-rufescente ventro exalbido pectore lateribusque maculi annulis nigris concatent[is]".

<sup>22</sup> No notes on *Fregilupus* survive in the Commerson manuscripts.

<sup>23</sup> Grey White-eye *PE* 705:2 and the Réunion Olive White-eye in *PE* 575 being from Réaumur's collection.

<sup>24</sup> Sonnerat's name '*bengali*' was the standard Mascarene name for Avadavats before it transferred to the Common Waxbill *Estrilda astrild*, introduced several decades later (below & Cheke 1982). The conspecific

viving Latin diagnoses contain several birds with neither French name nor locality, which include some from Madagascar (e.g. *Alectroenas madagascariensis* (Linnaeus, 1766) & *Nesoenas picturata* (Temminck, 1813)), but none recognisably from the Mascarenes. However a thorough investigation of these by someone well versed in handwritten Latin could prove interesting - for instance Oustalet (1897), who was also primarily concerned with Mascarene species, noted that Commerson had made detailed diagnoses of spoon-bills *Platalea alba* (Scopoli, 1786) and comb ducks *Sarkidiornis melanotus* (Pennant, 1869) from Madagascar decades before they were formally recorded from there.

It is generally hard to fault Commerson on accuracy of his notes or his annotations on drawings, but two birds drawn by Jossigny, a Red-footed Booby *Sula sula* (Linnaeus, 1766) and a Red-tailed tropic-bird are labelled by Commerson as from Réunion, an island where the booby has never been seen (Probst 1997, Cheke 2001) and the tropic-bird was not reliably recorded before 2001 (Le Corre 2004<sup>25</sup>). The former is annotated 'Hist.nat de Bourbon', the latter actually named 'le pail-en-cul de Bourbon'. Since in the Mascarenes the booby bred only in Rodrigues (Cheke 2001), and the tropic-bird only there and on hard-to-access Mauritian offshore islets it seems likely that both specimens actually came from Rodrigues with the tortoise, turtle and parakeet (Cheke & Hume 2008), although they could have originated in the Seychelles. Two drawings of White-tailed Tropic-birds are labelled from there, and there is also Common Noddy, *Anous stolidus* (Linnaeus, 1758) without locality, that could have come from any of the islands (Oustalet 1897 found 3 Common Noddy drawings, I noted only one!). Oustalet disingenuously ignored Commerson's name on the Red-tailed Tropic-bird, suggesting it originated in Mauritius; he did not mention the booby drawing at all. Buffon's *Oiseaux* is plagued by specimens labelled with wrong localities (see below) – clearly not all due to mislabelling by museum staff!

Brisson and Buffon did not treat reptiles, the task falling to Lacépède (1788-1789) who continued Buffon's unfinished work. Lacépède's herpetological text is decidedly skimpy, and he largely failed to tease out valid species from the specimen collection as had Brisson and Buffon, subsuming various Mascarene tortoise specimens (collectors unknown) under his European species 'La Ronde' and 'La Greque' (see discussion in Gerlach 2004), and made no use of Commerson's material. It is unclear what reptile specimens actually reached Paris from Commerson's collections, but Jossigny not only drew the extinct Rodrigues Domed Tortoise *Cylindraspis peltastes* (Dumeril & Bibron, 1835), as Vaillant (1898) revealed long ago, but also made excellent renderings of a Green Turtle *Chelonia mydas* (Linnaeus, 1758) from Rodrigues, and two Mauritian lizards (pers. obs.), the endemic day-gecko *Phelsuma ornata* and the introduced house gecko or Cheechak

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*serevan* is thus likely also to have come from Mauritius, although the name is not recorded from any other local source (though used by Buffon's successors and revisers). *PE* 230 was published in 1767 (Stresemann 1952) from specimens clearly anterior to anything from Commerson or Sonnerat.

<sup>25</sup> Barré & Barau (1982) said 'it has been noted for Réunion' without detail, perhaps based on 2 specimens of unknown provenance (see Milon 1951) in the St-Denis museum; Probst (2005) considered it a vagrant and (1997) noted a record (undated) of a juvenile - the first fully documented record appears to be a ringed bird from Australia found in 2001 (Le Corre et al. 2003).

*Hemidactylus frenatus* (Schlegel in Dumeril & Bibron, 1836), neither of which were described until well into the 19<sup>th</sup> century (Gray 1827, Dumeril & Bibron 1834-1854), from different material. Although described in 1827, the day-gecko was generally not distinguished from another endemic, *P. cepediana* (Milbert, 1812), until the 1960s (Mertens 1963a,b, Vinson & Vinson 1969).

### De Querhoënt's contributions to Buffon

Although Buffon had access to Commerson's specimens and notes, he made, as we have seen, little use of them, relying more for Mascarene information on notes contributed by the Vicomte de Querhoënt, a naval officer about whom nothing is known apart from his contributions to Buffon<sup>26</sup>; there is no evidence that he collected specimens. In his published work Buffon (1770-1783, 1776) cited Querhoënt's notes for 8 Mascarene bird species and two mammals<sup>27</sup>. In addition the MNHN library holds a short manuscript, a fair copy of notes dated 1773 from Querhoënt on seven further species from Mauritius (Querhoënt 1773), on which Buffon wrote "to be held over to the supplement" on each species sheet. None of these species would have been new to the encyclopaedia, but provided data additional to the *Histoire naturelle des oiseaux*. In the published series Buffon and Montbeillard had added nothing to Brisson's descriptions of the Mascarene Paradise Flycatcher, had not recognised in the 'serevan' a female Avadavat *Amandava amandava*, and had sunk a pair of Mauritius Fodies, correctly labelled in Martinet's PE 665 as from Mauritius (hence probably from Commerson), as a mere variety of the Red-billed Quelea *Quelea quelea* (Linnaeus 1758). Querhoënt's manuscript notes amply remedy these shortcomings, supplying descriptions and basic biological data for these species and also additional material on the Common Mynah *Acridotheres tristis*, the Yellow-fronted Canary *Serinus mozambicus* and two sorts of *calfat*, the Java Sparrow *Lonchura oryzivora* and another smaller one, undescribed, probably the Spice Finch. As had Commerson a year or two earlier, Querhoënt confused Cardinal and Mauritius Fodies, describing the 'foude de l'isle de France' as originating in Madagascar, recently introduced and a pest in wheat fields, and contrasting it with the (implied) native 'cardinal' (that name switching later to the introduced *madagascariensis*, Cheke 1982). However his plumage description is that of *rubra*<sup>28</sup>. He cited only hearsay information on the breeding of the introduced bird whereas he was clearly more familiar himself with the native species. Table 3 includes both data from Querhoënt's manuscript and as published by Buffon/Montebeillard, to contrast the detail Querhoënt sent with that actually used by Buffon.

26 The de Querhoënts/Kerhoants were an extensive Breton family, but biographical details are meagre. The best candidate for Buffon's correspondent is Joseph Marie de Querhoënt [1746-1822], who was a military officer and married into a family connected to the French East India Company (see [www.chez.com/kerhoant.html](http://www.chez.com/kerhoant.html)).

27 Querhoënt is also cited for several additional oceanic seabirds and species from Ascension & South Africa.

28 Given that he was confusing two similar species, it is not surprising that his fody description had some anomalies. He gave the bird *madagascariensis*'s stouter bill, and stated that the female was 'greyer than the cardinal' – in fact native *rubra* females are markedly greyer than introduced *madagascariensis* (R. Newton 1959; pers. obs.). *Foude* is from the Malagasy name for *F. madagascariensis*, and was adopted by Buffon as his 'French' name.

Where Buffon quotes Querhoënt for Mascarene birds it is always dated 1773, the same date as on the manuscript, so it is reasonable to assume that Querhoënt sent equivalent data for all species.

Querhoënt's description of the 'rat musquée' ('musky rat', in fact the House Shrew *Suncus murinus* (Linnaeus, 1766) is undated (Buffon 1776). Buffon did not realise it was a shrew rather than a rodent (despite citing several other indicative travellers' accounts), and when Sonnerat later sent him from India a 'musaraigne musquée de l'Inde' he did not recognise it (Buffon 1789) as the same species (he also failed to equate either with Linné's *Sorex murinus*!). Similarly he failed to recognise Querhoënt's good description<sup>29</sup> of the introduced Black-naped Hare *Lepus nigricollis* F. Cuvier, 1823 as an undescribed species different from the European *L. capensis* Linnaeus, 1758.

Querhoënt's life-history data is usually accurate, but he clearly mistook some other bird's nest for the Mascarene Paradise Flycatcher *Terpsiphone bourbonensis* (Müller, 1776)<sup>30</sup>. He claimed to find two eggs in White-tailed Tropic-bird nests (see above). The Yellow-fronted Canary has white eggs speckled pink or brown (McLachlan & Liversidge 1970), not tinged green as Querhoënt claimed<sup>31</sup>. Probably selective use of data by Buffon explains Querhoënt's apparent failure to see the abundant Grey White-eye in Mauritius. Although both Commerson and Querhoënt recorded them, and the latter even commented on its habits (in Buffon 1770-1783), it remains extraordinary that no eighteenth century observer realised that the Mascarene Swiftlet *Aerodramus francica* (Gmelin, 1789) nested in caves, although some visitors, like Bernardin de St. Pierre (1773) explored caves that are known from later information (e.g. Middleton 1996) to have sheltered thousands of nests.

### Other birds in Buffon from the Mascarenes

Buffon (1770-1783) also included a bird he called the *mordoré*, captioned 'Bruant de l'île de Bourbon' in *PE* 321, and acquiring the Latin name *Foudia bruante* (Müller, 1776); the plate was published in May 1768 (Stresemann 1952), thus too early to have come from Commerson. There is nothing to indicate the collector of this bird, considered by some an extinct endemic Réunion fody, but more probably a colour variant of the Cardinal Fody (see discussion in Cheke 1983, Cheke & Hume 2008<sup>32</sup>). Several other species in Buffon supposedly from the Mascarenes have either been identified as from elsewhere or remain unidentified (Cheke 1983).

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29 „The hares are no larger than French rabbits; they have white flesh, and make no burrows; their fur is softer than ours and they have a big black patch on the back of the head and neck“ (ASC's translation).

30 The flycatcher never lays four eggs; neither are they greenish, but white spotted with brown (Cheke 1987b). The description of the nest itself is rather equivocal, but appears to be roofed, ruling out the flycatcher (greenish eggs with a roofed nest suggests a fody, *Foudia* sp.).

31 Querhoënt's colour vision may have been faulty, as he described as green the eggs of birds most people see (& record) as turquoise or blue – the fodies and the Common Mynah, though he did use 'blue' to (correctly) describe the eggs of Grey White-eyes.

32 There was a Réunion Fody, but it became extinct in the 1670s – long without a scientific name, it is now called *Foudia delloni* Cheke & Hume, 2008.

## CONCLUSION

Not only did the encyclopaedists not make full use of the information available to them, but, unlike some pioneer visitors in the previous century (notably Dubois in 1674; Barré et al. 1996 and Leguat 1707 in the 1690s), it is clear from the data presented here that none of these collectors/observers attempted to make a complete inventory of the land vertebrate fauna of the islands they visited. For the amateurs Lanux, Cossigny and de Querhoënt this is perhaps not surprising, but even Commerson, who was employed as a botanist and collector, seems to have collected quite haphazardly, apart from apparently trying to get all the agricultural pest species. At the time these were a big headache to the authorities and had a price on their heads, double for Java Sparrows and Spice Finches (Delaleu 1826, Cheke & Hume 2008); however he missed the Cape Canary *Serinus canicollis* (Swainson, 1838), which at the time was not clearly distinguished, in Mauritius, from *S. mozambicus* (Cheke & Hume 2008)<sup>33</sup>. While Sonnerat (1782), by then Buffon's protégé (Ly-Tio-Fane 1978), picked up on several species (game-birds & pigeons) that he had collected for Commerson but that Buffon (1770-1783) overlooked<sup>34</sup>, it remains odd that conspicuous large Mauritian species such as the Echo Parakeet and Mauritius Kestrel *Falco punctatus* Temminck, 1823, although featuring in some contemporary travelogues (e.g. Bernardin de St. Pierre 1773), were missed. Seabirds breeding abundantly on Mauritian offshore islets are also almost absent<sup>35</sup>, though Jossigny drawings exist for some of the same species collected in the Seychelles (e.g. *Anous stolidus*, *Phaethon lepturus*; pers. obs. 2006). In Réunion Commerson managed to find the rare Black Petrel but not Barau's Petrel *Pterodroma baraui* Jouanin, 1964, which we know from Bory (1804) to have been still common, and also missed two common mainland-nesting shearwaters (*Puffinus bairdii* (Bonaparte, 1853) & *P. pacificus* (Gmelin, 1788)), the Réunion Harrier *Circus mail-lardi* Verreaux, 1863, and on both islands possibly the Malagasy Turtle Dove *Nesoenas picturata* (Temminck, 1813), the type of which was collected in Mauritius around 1805 (Cheke & Hume 2008), although it is not clear what its status was in Commerson's time (Cheke & Hume 2008)<sup>36</sup>.

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33 Le Gentil (1779-81, Cheke & Hume 2008) described 'yellow & grey' canaries which were probably *S. canicollis*, seen in Mauritius sometime during 1761-1769.

34 Sonnerat's drawings for Commerson include the then undescribed Madagascar Partridge *Margaroperdix striatus* (Gmelin, 1789) = *Margaroperdix madagarensis* (Scopoli, 1786) annotated by Commerson as introduced to Mauritius (Oustalet 1897, pers. obs. 2006), but not (at least amongst surviving material) the francolins or the pigeons also described by Sonnerat (1782), nor do any Commerson notes survive on these species – it is not now possible to be sure what Sonnerat collected on his own behalf and what he 'pirated' from his work with Commerson. As Ly-Tio-Fane (1978) pointed out, he may have felt entitled to use this material after Commerson's death.

35 The only exception is the Red-tailed Tropic-bird mentioned by Querhoënt as breeding on Gunner's Quoin.

36 It remains possible that Commerson did find some of these species but that his notes (and any specimens) are lost.

séum in Paris for access to Querhoënt's MS in 1976 and to Commerson's MSS in 2006; Julian Hume worked through the latter with me and commented on a draft of the paper. Stéphane Schmitt of the CNRS helpfully clarified some issues around the *Planches Enluminées*. I would also like to appreciate Edward Dickinson's *Howard & Moore* (2003) as a great help in finding authorities of scientific names of birds, and the editor for his careful checking of these.

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- dates; one, in 10 vols., includes the Planches Enluminées by Martinet. Numerous later reprints; see E. Genet-Varcin & J. Roger, 1954, *Bibliographie de Buffon*. Paris: Presses Universitaires de France, and N. Mayaud, *Alauda* 9: 18-32 (1939).]
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**Table 1. Lanux's & Cossigny's data from 1754-1755 sent to Réaumur, and what was published by Brisson (1756, 1760). Notes: 1: M = Mauritius, Ré = Réunion; C = Cossigny, L = Lanux; s = specimens sent, w = written description & details. 2: from Cheke (1982) & Probst (1997) 3: + = published, ++ = published and Lanux's name cited; [-] indicates species included in Brisson but from other source. 4: *PE* = serial number in the *Planches Enluménées* of Martinet, made later from these specimens. 5: current clutch size information in square**

Scientific name	Island & collector <sup>1</sup>	Lanux/Cossigny's name	Current local name <sup>2</sup>
<b>Reptiles</b>			
<i>Phelsuma ornata</i>	M/C sw	gobe-mouche	lézard vert
<b>Birds (Brisson 1760)</b>			
<i>Phaethon lepturus</i>	Ré/ L w M/C sw	paille-en-cul (L), boeuf (C)	paille-en-queue, payank
<i>Alectroenas nitidissima</i>	M/C sw	pigeon hollandais	[extinct]
<i>Nesoenas mayeri</i>	M/C w	pigeon ramier	pigeon des mares
<i>Agapornis canus</i>	M/C sw	petit péroquet	perruche [died out]
<i>Hypsipetes borbonicus</i>	Ré/L sw	merle	merle
<i>Coracina newtoni</i>	Ré/L sw	tuit-tuit	tuit-tuit
<i>Saxicola tectes</i>	Ré/L sw	tec-tec	tec-tec
<i>Terpsiphona bourbonnensis</i>	Ré/L sw	oyseau rouge	chakoit, sakwat, oiseau de la vierge
<i>Zosterops olivaceus</i>	Ré/L sw	oyseau vert	oiseau/zwazo vert
<i>Zosterops (b.) borbonicus</i>	Ré/L sw	petit simon	oiseau/zwazo blanc
<i>Lonchura striata</i>	Ré/L sw	jacobin	[died out]
<b>Mammals (Brisson 1756)</b>			
<i>Taphozous mauritanus</i>	Ré/L sw	'petite chauve-souris blanchâtre' <sup>6</sup>	chauve-souris/sosuri-blanchâtre
<i>Mormopterus francois-moutoui</i>	Ré/L w	'petite chauve-souris grise' <sup>6</sup>	chauve-souris/sosuri-grise
<i>Pteropus niger</i> <sup>7</sup>	Ré/L s	roussette	[extinct in Ré]
<i>Pteropus subniger</i> <sup>7</sup>	Ré/L s	[rougette] <sup>8</sup>	[extinct]

brackets (Barré et al. 1996, Restall 1996, Thiollay & Probst 1999, Hoyo et al. 2005, Skerrett et al. 2001). 6: This was simply a description, not a local name. 7: The date Lanux sent the flying-foxes is not recorded; they are not mentioned in his surviving letters (but the source is given by Buffon 1749-1767, in vol. 10, 1763). 8: Lanux (in Buffon 1776) used the term ‘rougette’, but may by then have back-borrowed from Buffon (1749-1767, vol. 10, 1763) whose inaccurate ecological information he was disputing.

Published by Brisson <sup>3</sup>	Brisson's French name & [PE. No.] <sup>4</sup>	Nest & eggs sent by Lanux	Clutch size given by Lanux <sup>5</sup>
–	–	–	–
[+]	paille-en-cul blanc [369]	[egg only]	2 [1]
–	–	–	–
–	–	–	–
[+]	–	–	–
++	Merle de l'Isle de Bourbon [–]	+	2-3 [2-3]
–	–	–	– [2-3]
++	Gobe-mouche de l'Isle de Bourbon [572:3]	+	up to 4 [2-4]
+	Gobe-mouche huppé de l'Isle de Bourbon [573]	+	up to 4 [2-3]
+	Grimpereau olive de Madagascar [575:1]	+	3 [2-3]
++	Figuier de l'Isle de Bourbon [705:2]	+	2-3 [2-4]
++	Gros-bec de l'Isle de Bourbon [153:1]	+	6 [3-8, av. 5]
–	–	–	–
–	–	–	–
++	Rousette	–	–
+	Rousette à col rouge	–	–

**Table 2. Commerson's data and its use by Buffon (1770-1783) and Oustalet (1897). Notes: 1: M = Mauritius, Ré = Réunion, Ro = Rodrigues (as recorded by Commerson/Sonnerat, in square brackets where not explicit). 2: Commerson's specimen, drawing description or comment – Jd: drawing by Jossigny, Sd: drawing or painting by Sonnerat, \*: Latin diagnosis (date in brackets), [#] indicating notes alluded to by Buffon/Montbeillard but now lost; +: brief annotation on drawing or passing remark; =: specimen mentioned by Buffon, [=] if Commerson not acknowledged, but probable source; [S=]: specimen claimed by Sonnerat. 3: Mostly in French, some only as Latin diagnoses (in ‘’). ‘#’ indicates the non-standard French/creole name is still current in the islands (Cheke 1982, Probst 1997); in some cases the PE name is added, as this appears to be from the specimen label (hence derived from the collector), whereas Buffon often invented names arbitrarily (column 6); Sonnerat's**

Scientific name	Island <sup>1</sup>	Commerson <sup>2</sup>	Commerson's name <sup>3</sup>
<b>Reptiles</b>			
<i>Phelsuma ornata</i>	M	Jd	(unnamed)
<i>Hemidactylus frenatus</i>	M	Jd	Lézard domestique de l'île de France
<i>Cylindraspis peltastes</i>	Ro	Jd	Tortue de terre de Rodrigue
<i>Chelonia mydas</i>	Ro	Jd	Tortue de mer de Rodrigue
<b>Birds</b>			
<i>Pseudobulweria aterrima</i>	Ré	Jd+	‘Procellaria tota vestita ater...’
<i>Sula sula</i>	‘Ré’	Jd+	Fou
<i>Phaethon rubricauda</i>	‘Ré’	Jd+ [=]	Paille-en-cul # de Bourbon [PE: Paille-en-queue de l'île de France]
<i>Francolinus pintadeanus</i>	[M]	– [S=]	– [Francolin de l'île de France ]
<i>Francolinus pondicerianus</i>	M	– [S=]	– [Perdrix commune]
<i>Margaroperdix madagascariensis</i>	M	Sd+ * [n.d.] [S=]	Perdrix de Madagascar [Grande caille de Madagascar]
<i>Numenius phaeopus</i>	M Ré	Jd+	Corbiveau #
<i>Alectroenas nitidissima</i>	[M]	– [S=]	– [Pigeon hollandais]
<i>Stigmatopelia chinensis</i>	[M]	– [S=]	– [Tourterelle grise de la Chine]
<i>Geopelia striata</i>	[M]	– [S=]	– [Petite tourterelle de Quéda]
<i>Psittacula exsul</i>	Ro	Jd+	Perruche de Rodrigue
<i>Agapornis canus</i>	M	Sd *(1770)	Petite perruche de l'Isle de France

names also added in square brackets. 4: Species noted by Buffon (1770-1783, 1776)<sup>4</sup> & PE No. where featured. – + cited from Commerson’s data, [+] cited for the Mascarenes, but without Commerson input. 5: Status data from Cheke & Hume (2008). 6: Sonnerat revisited Mauritius a number of times after his training with Commerson in 1768-1770 (Ly-Tio-Fane 1978), so his contributions may date from later occasions, although he is known to have borrowed from the deceased Commerson’s manuscripts and drawings (*ibid.*) and may be responsible for some of the missing pages etc. already mentioned. 7: In square brackets are Buffon’s names from other entries in his *Oiseaux*, where he did not recognise the Mascarene species as the same as birds described elsewhere. 8: Drawing &/or description noted by Oustalet or Vaillant. – See Note 4 for explanation.

Buffon & PE <sup>4</sup>	Buffon's name <sup>7</sup>	Oustalet or Vaillant <sup>8</sup>	
–	–	–	drawing annotated ‘fauna of Mauritius’, without further detail
–	–	–	drawing annotated ‘fauna of Mauritius’, without further detail
–	–	+	3 sketches; see Vaillant (1898), North-Coombes (1994)
–	–	–	2 sketches, no detail apart from noted as from Rodrigues
–	–	–	See text & fig.1.
–	–	[+]	Does not occur in Réunion: probably collected in Rodrigues & cited for Réunion in error.
[+] [PE 979]	Paille-en-queue à brins rouges	+	Does not occur in Réunion: probably collected in Rodrigues & cited for Réunion in error for <i>P. lepturus</i>
–	–	[+] 4	Introduced, died out c1956; not in MSS; illustrated & described by Sonnerat (1782)
–	–	- ?[+]	Introduced; mentioned by Sonnerat only in contrast to above species
–	–	+	Introduced; died out early 19thC (later unsuccessfully reintroduced)
–	[Petit corlieu]	+	common migrant to the islands
–	–	[+]	Extinct since c1826; not in MSS; illustrated & described by Sonnerat (1782)
–	–	[+]	Introduced; not in MSS; illustrated & described by Sonnerat (1782)
–	[Tourterelle rayée des Indes]	[+]	Introduced; not in MSS; illustrated & described by Sonnerat (1782)
–	–	+	Extinct since c1875.
– [PE 791:2]	Perruche à tête grise	+	Introduced, cereal crop pest, died out c1950. Buffon simply redescribed Brisson’s specimen.

Scientific name	Island <sup>1</sup>	Commerson <sup>2</sup>	Commerson's name <sup>3</sup>
<i>Mascarenotus sauzieri</i>	M	Jd+	Hibou cornu ou Petit-Duc de l'isle de France
<i>Aerodramus francicus</i>	M	= [#]	?
<i>Phedina borbonica</i>	Ré	[=]	[PE: Hirondelle de l'île Bourbon]
<i>Coracina typica</i>	[M]	= [S+]	- [Serrurier]
<i>Hypsipetes</i> spp.	M Ré	Jd+	merle #
<i>Terpsphone bourbonensis</i>	M	Sd+	(unnamed) [PE: Gobe-mouche huppé de l'île de Bourbon]
<i>Zosterops (b.) borbonicus</i>	[Ré]	[=]	[PE: Figuier de l'île de Bourbon, Grimpeau de l'île de Bourbon ]
<i>Zosterops (b.) mauritanus</i>	[M]	[=]	[PE: Figuier de l'île de France
<i>Serinus mozambicus</i>	M	Sd+	Canari du Cap, Oiseau du Cap
<i>Amandava amandava</i>	M	- [S=]	Serevan [Bengali]
<i>Foudia rubra</i>	M	* (n.d.) [=]	Cardinal de l'isle de France [PE: Moineau de l'île de France]
<i>Fregilupus varius</i>	Ré	Jd+ [=]	Huppe de Bourbon [PE: Huppe du cap de Bonne-Espérance]
<i>Acridotheres tristis</i>	M	Sd+	Martin # de l'isle de France
<b>Mammals</b>			
<i>Mormopterus acetabulosus</i>	[M]	Jd+ *(1769)	'Vespertilio caudatus fuscus membrana acetabulosus...'
<i>Pteropus niger</i>	[M,Ré]	Jd [#]	(unnamed)
<i>Macaca fascicularis</i>	M	Jd	Singe à toupet

[i] Montbeillard cited a Latin diagnosis from Commerson, now lost, and did not recognise his *calfat* as the same species Buffon had described & illustrated (PE 152:1) earlier as the *padda*.

Buffon & PE <sup>4</sup>	Buffon's name <sup>7</sup>	Oustalet or Vaillant <sup>8</sup>	
–	–	+	Extinct since c1836.
+	Petite hirondelle noire à croupion gris	–	Buffon used specimen & (now lost) description from Commerson
[+] [PE 544]	Grande hirondelle brune à ventre tacheté, Hirondelle des blés	–	[no source acknowledged for specimen]
+	Grand traquet	[+]	See Cheke (1983); name and presence in Mauritius only from Sonnerat (Oustalet 1897:56 footnote)6.
[+]	Merle de l'île de Bourbon [ex Brisson]	[+]	Jossigny drew a Malagasy <i>H. madagascariensis</i> ; Buffon relied only on Brisson's Réunion specimen from Lanux.
[+] [PE 573:3]	Gobe-mouche huppé du Sénégal	[+]	Buffon relied only on Brisson's Réunion specimen from Lanux
[+] [PE: 681:2, 705:2]	Petit Simon, Soui-manga de l'île Bourbon	+	[no source acknowledged for specimens]
[PE: 705:1]	Figuier bleu	+	[no source acknowledged for specimens]
+	Serin de Mozambique	+	Introduced; a cereal crop pest in the later 18thC (Cheke & Hume 2008); Buffon cited Sonnerat drawing for Commerson
+	Serevan [Bengali piqueté]	–	Introduced, died out c1896; see text.
[+] [PE 665]	Moineau du Sénégal	[+]	See text; Buffon confused it with <i>Quelea quelea</i> and considered all conspecific with <i>Passer domesticus</i> !
[+] [PE 697]	Huppe noire et blanche du Cap de Bonne Espérance	+	Extinct c1860. First described in Buffon, but Commerson not acknowledged
[+] [PE 219]	Martin	+	Introduced; Buffon cited information from Lanux and Sonnerat
–	–	–	Jossigny's drawing used by Hermann to describe species in 1804 (Moutou 1982), and is thus the lectotype of the species (see footnote 6)
+	Roussette	–	Flock like crows at dusk in Réunion; eat 'vaccoun' (= vacoa, <i>Pandanus</i> ) fruit (Buffon 1776, citing Commerson's notes, now missing); Buffon also used Lanux's letter.
–	–	–	Introduced

**Table 3. Vicomte de Querhoënt's life-history data supplied to Buffon. Notes: 1. Illustration in the *Planches Enluménées* in square brackets. 2. Current data on clutch size in square**

Scientific name	Island	Querhoënt's name(s)	Querhoënt data in Buffon (1770-83, 1776) <sup>1</sup>
<b>Birds</b>			
<i>Phaethon rubricauda</i>	M	paille-en-queue # à filet rouge	+ [PE 979]
<i>Phaethon lepturus</i>	M	paille-en-queue #	+ [PE 369]
<i>Porphyrio porphyrio</i>	[M]	poule bleue de Madagascar	+ [PE 810]
<i>Mascarinus mascarinus</i>	Ré	–	+ [PE 35]
<i>Aerodramus francicus</i>	M	–	+
<i>Phedina borbonica</i>	M Ré	hirondelle # des blés	+ [PE 544:2]
<i>Hypsipetes olivaceus</i>	M	merle #	–
<i>Terpsiphone bourbonnensis</i>	M	coq maron; colin	– [PE 573:3, Ré]
<i>Zosterops chloronothus</i>	M	oeil blanc	+
<i>Zosterops borbonicus</i>	Ré	petit simon	+ [PE 705:2, M] [PE 681, 705:1 Ré]
? <i>Lonchura punctulata</i>	M	calfat [2 <sup>nd</sup> variety]	–
<i>Lonchura oryzivora</i>	M	calfat #	– [PE 152:1, not Mascarene]
<i>Amandava amandava</i>	M	bengali	– [PE 115:3, not Mascarene]
<i>Foudia</i> spp. (see text)	M	foude + cardinal #	– [PE 665] [PE 134:2, not Mascarene]
<i>Serinus mozambicus</i>	M	oiseau du Cap	–
<i>Acridotheres tristis</i>	M	martin #	– [PE 219, not Mascarene]
<b>Mammals</b>			
<i>Suncus murinus</i>	M	rat musqué #	+
<i>Lepus nigricollis</i>	M	lièvre	+

brackets (from Ali & Ripley 1983, Barré et al. 1996, Cheke 1987, McLachlan & Liversidge 1970, Skerrett et al. 2001).

Nest described	Clutch size, egg colour <sup>2</sup>	Breeding season	Comment by Querhoënt
+	1 [1]	–	only nests in on offshore islets
+	2, yellowish white spotted rusty [1]	Sept.-Oct.	described nest-site competition for tree-holes with Common Mynahs
–	–	–	‘have bred at the Isle de France’ [=Mauritius], captive implied.
–	–	–	lives in Bourbon island [=Réunion]
–	–	–	often seen along forest edge in the evening, so possibly roosts there
+	2 [2-(3)]	Sept.-Oct.	nest data from Réunion; In Mauritius feed on insects around livestock & around ships in port
–	–	–	only mentioned in passing in discussion on mynah (below)
+	4; greenish [2-3]	Sept.	eats insects; lives in the forest [nest & egg colour: see endnote 25] [see also Table 2]
–	–	–	lives in groups & eats insect; keeps away from habitations. Buffon combined it with the chéric from Madagascar, <i>Z. maderaspatana</i>
+	3; blue [2-4]	Sept. onwards, multi-brooded	eats insects & soft fruit; noisily attracted to terrestrial animals; abundant in Réunion
–	–	–	eats seeds; lives in flocks
–	–	–	from Java; damages wheat crops; eats rice; keeps to the lowlands
+	up to 8; white spotted red [6-10]	April	from Bengal; eats small seeds
+	3-5; pale green [2-4]	July-Aug	from Madagascar; lives in flocks & damages wheat crops
+	4; white tinted green [(2)-3-4]	multi-brooded	from ‘the Cape’[of Good Hope]; ravages cereal crops in big flocks
+	4-6; green [4-5(-6)]	multi-brooded	‘from Bengal’; lives around buildings; eats insects, peas, nestlings
–	–	–	‘rat from India ... it has the strongest odour of musk’
–	–	–	white flesh, do not dig burrows, very widespread