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Clarifying the nomenclature of *Pomarea* species (Monarchidae) from the Society Islands

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SUMMARY.—We re-examine evidence from the voyage of the corvette *La Coquille* in respect of the *Pomarea* monarch flycatchers from Tahiti and Maupiti, and conclude that *Pomarea maupitiensis* Garnot, 1829, should be recognised as a distinct but extinct species for which we designate a lectotype, necessarily represented by the image in a colour plate.

Monarch flycatchers of the genus *Pomarea*, a genus endemic to Eastern Polynesia including the Society, Marquesas and Cook Islands, were listed by Mayr (1986) who accepted five species. Subsequently, based on phylogenetic evidence, these species were discussed by Cibois *et al.* (2004), Coates *et al.* (2006), Andersen *et al.* (2015) and, most recently, Thibault & Cibois (2017). See Appendix.

James Cook visited Tahiti in 1773 (16 August–17 September) and 1774 (22 April–4 June) during his second voyage (Beaglehole 1969). The naturalists aboard Cook's vessel at this time were Johann & Georg Forster and Anders Sparrman. Birds collected in Tahiti included two monarch flycatchers, one almost all black and the other largely yellow-ochre. Johann Forster described the former as *Muscicapa atra* in his *Descriptiones animalium*, but this work remained a manuscript until it was published posthumously in 1844 by Lichtenstein, who provided both a preface and many annotations (Zimmer 1926: 228). Sparrman (1786) also named, and figured, it as *Muscicapa nigra* in a work which Zimmer (1926: 599) said covered 'new or otherwise interesting species of birds held in the private museum of Gustavus Carlson' (Fig. 1).

In works that eschewed the use of Latin names, Latham (1783: 342) reported a yellow-ochre bird from Otaheite (= Tahiti) which he referred to as the Luteous Flycatcher then, later, noting Sparrman's publication, he (Latham 1787: 174) reported the black Tahitian bird as the Society Flycatcher. Gmelin (1789: 944) noting the lack of a scientific name for the former named it *Muscicapa lutea*—a name also found in the long-delayed publication of Forster's *Descriptiones animalium*, where Forster suggested that two species had been found in Tahiti.

Additional to early records arising from Cook's voyages, relevant collections were made by René Primevère Lesson (1794–1849) and Prosper Garnot (1794–1838), naval surgeons and zoologists to the scientific expedition of the French naval corvette *La Coquille*, which circumnavigated the globe in 1822–25, under the command of Louis Isidore Duperrey (1786–1865) who was overall author of the expedition report (Duperrey 1825–30). *La Coquille* visited Tahiti on 3–22 May and Bora Bora on 25 May–9 June 1823 (Lee & Holyoak 2017). It is the publications of Lesson and Garnot in respect of monarch flycatchers that we re-examine here. As we shall see, their publications introduced the names *Muscicapa pomarea* and *Muscicapa maupitiensis* in ways that caused confusion.

Bonaparte (1850: 326) placed *Muscicapa nigra* in genus *Monarcha*, and mentioned both *pomarea* and *maupitiensis* as synonyms. Later Bonaparte (1854) proposed the genus-group name *Pomarea*, with *P. nigra* as its type species by monotypy.



Figure 1. Pl. 23 from Sparrman's *Museum Carlsonianum*, Fasc. 1, 1786. Anders Sparrman (1748–1820), a Swede, joined James Cook's second voyage in Cape Town in late 1772, and returned there in 1775. Tahiti was visited on 16 August to 17 September 1773, and 22 April to 4 June 1774. Reproduced from the volume accessible at the Biodiversity Heritage Library (www.biodiversitylibrary.org/item/128098#page/103/mode/1up).

Mixed messages from Lesson and Garnot

Lesson (1828a: 192–194), with some contribution from Garnot, in his *Manuel d'ornithologie*—available as a published work on 14 June 1828 (see Dickinson *et al.* 2015)—chose not to use the earlier names from Cook's voyage, despite mentioning Sparrman's description, and provided the name *Muscicapa pomarea*. This name he attributed to 'Less. et Garn.' and associated it with Pl. 17 of the 'Atlas' from the *Voyage de la Coquille* (Figs. 2a,b).

On p. 192 in the *Manuel d'ornithologie* the authors, generally accepted as Lesson & Garnot, described the male, which they said inhabited the island of Tahiti, and on p. 193 reported that what they considered to be the female was what Latham had called the Luteous Flycatcher, and gave Latham's 1783 Latin description (but without mentioning the name *Muscicapa lutea*). Following that, and still treated as *Muscicapa pomarea*, is a description of an 'old male' (evidently based on Fig. B in Pl. 17). Later, on p. 194, it is said that the latter bird was obtained on the island of Maupiti by M. de Blosseville. Garnot then



Figure 2a. Pl. 17 from the *Voyage de la Coquille*: A (top) said to be of a male and from Tahiti; image B (lower right) said to be an old male, from Maupiti; image C (lower left) said to be a female.

Figure 2b. Detail from Fig. 2a: 'Prêtre after Garnot'. Thus Garnot was the first to paint this. All images reproduced from Pl. 17 of the volume of the *Voyage de la Coquille* accessible at the Biodiversity Heritage Library (www.biodiversitylibrary.org/item/119447#page/43/mode/1up).

signs off, so we consider that short sentence to be his alone. However, he may have also written the description of the 'vieux mâle' given that he had possession of the specimen until its presumed loss, and some—perhaps all—of the images on this plate are based on his sketches (see Fig. 2b).

Jules Poret de Blosseville (1802–33), younger brother of the Vicomte Ernest Poret de Blosseville, a naval officer and hydrographer with an interest in zoology, was a member of the crew of *La Coquille* who obtained permission from Duperrey for a six-day survey of Maupiti while *La Coquille* visited Bora Bora. In 1827 he sailed to India and Burma, and in 1833 as captain of *La Lilloise* he was sent to explore the Denmark Strait, where his ship went down with all hands in August (Lee 2018).

In this initial account, Lesson & Garnot appear quite clear that the name *pomarea* was to be applied to Tahiti birds, but that the Maupiti 'old male' looked very different (see Fig. 1a). So our first conclusion is that *Muscicapa pomarea* is a subjective junior synonym of *Muscicapa nigra* Sparrman. We note, too, that the type series of *pomarea*, which must include the Maupiti bird, was apparently a composite from two islands of which the populations could be distinct taxa.

Pl. 17 from the zoology 'Atlas' of the *Voyage de la Coquille* (our Fig. 2a) was published in livr. 7 of the *Voyage* about a week later than the *Manuel* (see Cretella 2010, Dickinson et al. 2015). The legend labelled all three images 'Moucherolle Pomaré (*Muscicapa pomarea* N.)' and relied on the text to explain where these were collected. In fact, the name Pōmare comes from Tahiti, where it was and remained for many years the title of successive ruling chiefs.

On p. 298 in livr. 8 of the *Voyage de la Coquille* (November 1828) we find the following from Lesson (1828b):

'Les auteurs ont décrit sous deux noms un gobe-mouche que nous avons appelé *muscicapa Pomarea* (Atlas, pl. XVII), en l'honneur du Pomaré, chef des îles de la Société, et dont le gouvernement était empreint d'une sorte d'élévation. Cette espèce de gobe-mouche se trouve décrite, le mâle, sous le nom de *muscicapa nigra*, figuré planche XXIII, Fasc. I, du Museum Carlsonianum de Sparrman, tandis que la femelle est le type du *muscicapa lutea* de Latham. Cet oiseau varie singulièrement dans son plumage, non-seulement suivant ses sexes, mais aussi suivant les âges.'

'Authors have described under two names a flycatcher that we have called *Muscicapa pomarea* (Atlas, pl. 17) in honour of Pomaré, chief of the Society Islands, whose government was imbued with a special status. This species of flycatcher has [already] been described; the male was described as *Muscicapa nigra*, depicted in plate 23 [from] Fascicle 1 of Sparrman's *Museum Carlsonianum*, while the female is typical of *Muscicapa lutea* of Latham. This bird varies unusually in its plumage, not only based on sex, but also according to age.'

Note, first, that there is no specific mention here of either Tahiti or Maupiti (see Fig. 3) and, second, that Lesson, the author of this text, makes *pomarea* a synonym of the older name, *nigra*. One year later, on pp. 592–593 in livr. 13 of the *Voyage de la Coquille* (November 1829), Garnot supplied the following text from the *Manuel d'ornithologie* with a changed heading that introduced the name *maupitiensis* for the first time:

'7° GOBE-MOUCHE DE MAUPITI, *Muscicapa Maupitiensis*, Garnot.
Muscicapa Pomarea, Less., Man[uel]
PLANCHE XVII, fig. A, B, C.

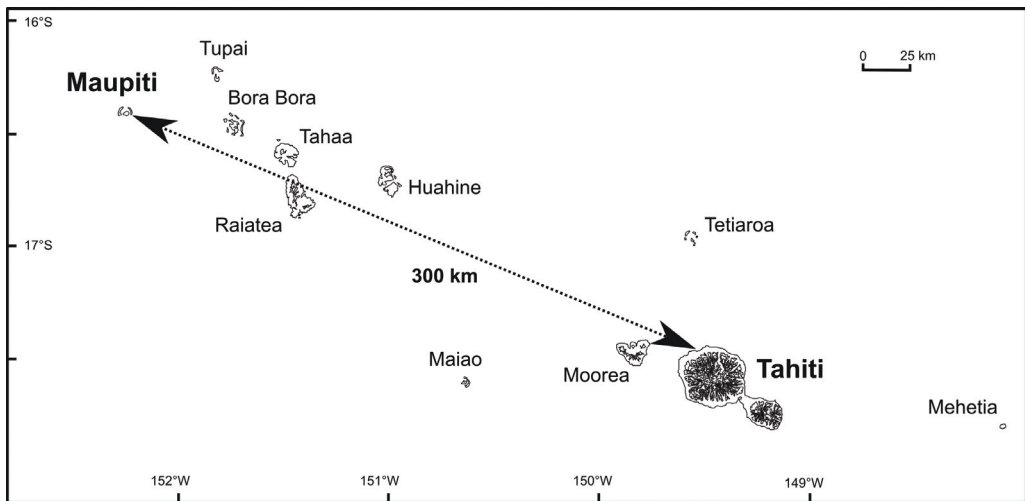


Figure 3. Map of the Society Islands showing the Leeward Islands, including Bora Bora and Maupiti, and the Windward Islands, including Tahiti.

Muscicapa nigra; corpore toto nigro; capite, dorso, reetricibus alarum nigris, nebulosis subcaeruleis, rostro pedibusque plumbeis. N.

Bien que ce gobe-mouche ait été décrit par Sparmann [sic], nous croyons devoir cependant en donner une nouvelle description, afin de faire connaitre avec exactitude le mâle et la femelle de cette espèce. Celui-ci, comme nous nous en sommes souvent assuré par la dissection, est le mâle. Son plumage...’ [and later] ‘La femelle, dont on a fait une espèce distincte dans les ouvrages d’ornithologie, en le décrivant sous le nom de moucherolle jaune d’O-tahiti (*muscicapa lutea*, Lath.), est, nous n’en pouvons douter, la femelle du gobe-mouche noir de la mer du Sud...’. [And finally] ‘Le vieux mâle (pl. XVII, fig. B) diffère de la livrée précédente par les teintes de son plumage, qui ne se composent que de deux couleurs, le noir et le blanc. La première occupe la tête, le col et la poitrine, et quelques-unes de couvertures alaires: la seconde appartient aux autres parties; mais cependant plusieurs plumes alaires sont brunes. Le bec et les pieds sont plombés.

Cet oiseau a été rapporté de l’île de Maupiti par M. de Blosséville [sic]’

Translated this reads:

‘7. MAUPITI FLYCATCHER, *Muscicapa maupitiensis*, Garnot.
Muscicapa pomarea, Lesson, *Manuel d’ornithologie*
PLATE XVII, fig. A, B, C.

Muscicapa nigra; corpore toto nigro; capite, dorso, reetricibus alarumm nigris,nebulosis subcaeruleis, rostro pedibusque plumbeis. N.

Although this flycatcher was described by Sparmann [sic] we believe ourselves obliged to provide a new description so that the male and female of this species are clearly known. Thus [Sparman described] the male, and we are certain of this because we often dissected the bird. Its plumage...’ [and later] ‘The female, which ornithological



Figure 4. The island of Maupiti in 1823, engraving by Tardieu, after Jules de Blosseville and Chazal. Pl. 18 from *Voyage de la Coquille. Atlas histoire du Voyage* (1828) (courtesy of the Auckland War Memorial Museum)

works have treated as a distinct species based on its description under the name Tahiti Yellow Flycatcher (*Muscicapa lutea*, Latham) which we do not doubt is the female of the Southern Seas Flycatcher...'. [And finally] 'The old male differs from the previous plumage by its colours which are only two, the black and the white. The first applies to the head, neck and breast; the second applies to the rest of the plumage except for a number of wing feathers which are brown. The bill and feet are lead coloured.'

This bird was brought from Maupiti by M. de Blosseville.'

Some observations are required. First, Garnot (1829) introduced the name *maupitiensis*, placing it above the name *Muscicapa pomarea*, and attached to it descriptions of all three plumages. However, his first two descriptions clearly apply to Tahiti birds (and no mention is made of Maupiti in connection with them), but the third applies to the bird from Maupiti collected by de Blosseville. Garnot nonetheless applied the name to birds from both Maupiti and Tahiti, thus the original type series includes birds from both islands. Garnot's text appears to suggest that he was trying to make *pomarea* a synonym of *maupitiensis*. Here lies the source of confusion: confusion that must have led Mayr (1986), and perhaps some earlier author(s), to apply the name *pomarea* only to Maupiti birds.

On p. 643 of livr. 14 of the *Voyage de la Coquille*, in January 1830, Lesson appeared to accept the comments on pp. 592–593 by Garnot, by listing *Muscicapa pomarea* from 'les îles de la Société', but naturally he treated the younger name *maupitiensis* as a synonym. This may have reinforced in the minds of Mayr and others the idea that the *terra typica* was the same (whether Maupiti or Tahiti).



Figure 5. Surviving 'male' syntype (MNHN-ZO-2016-276) of *Muscivora pomarea* Lesson & Garnot, 1828 (also a syntype of *Muscivora maupitiensis* Garnot, 1829, although not representative of the Maupiti population). Originally catalogued as no. 9458B, and typical of the subject of image A in Pl. 17 of the *Voyage de la Coquille* (© Muséum nationale d'Histoire naturelle, Paris)

Combining the evidence of Lesson that *pomarea* is a synonym of *nigra*—a view shared by Garnot—with what we know of de Blosseville and the island of Maupiti, it is clear that Garnot's final sentence sought to indicate that the bird collected by de Blosseville was from Maupiti. We therefore designate the specimen depicted in fig. B of Pl. 17 as the lectotype of *Muscivora maupitiensis* Garnot, 1829. This specimen is also a syntype of *Muscivora pomarea* Lesson & Garnot, 1827, but it must not be considered representative of that taxon.

We also designate MNHN-ZO-2016-276 (see Fig. 5) as a lectotype of *Muscivora pomarea* Lesson & Garnot, 1828; this we believe to validly represent the supposed adult male depicted in Pl. 17 of the *Voyage de la Coquille*. For some reason, this specimen of *M. pomarea* (now numbered as above) could not be found in the Muséum nationale d'Histoire naturelle, Paris (MNHN) when specimens were being sought for a molecular study.

However, it was perhaps not a male; Lesson and Garnot dissected specimens that were all black and found all to be male, and dissected yellow-ochre specimens and found them to be female, concluding, in error, that they were dealing with one sexually dichromatic species. In fact both adults are black (see Murphy & Mathews 1928: 2).

Early records suggest that the MNHN received four adult and four supposed juveniles from 'Tahiti' (J. J. F. J. Jansen *in litt.* 2018), but evidently some duplicates were not assigned catalogue numbers and now just one adult remains.



Figure 6. Base of the mount for the pedestal supporting the mounted—but now dismounted—MNHN-ZO-2016-276, syntype of *Muscivora pomarea* Lesson & Garnot, 1828, and of *Muscivora maupitiensis* Garnot, 1829, although not taken on Maupiti; Ancien Catalogue no. 9458B (© Muséum nationale d'Histoire naturelle, Paris)

Maupiti (see Figs. 3–4) is 11 km² in area and 380 m high, with an eroding volcanic cone. It lies c.300 km north-west of Tahiti, is the westernmost tall island in the Society Islands archipelago, and is believed to be the oldest.

We believe de Blossville obtained a single specimen of the Maupiti bird and gave it to Garnot who was still suffering from a chronic gastric disease he had contracted in Peru some six weeks or so earlier. Garnot's scientific work during the time the ship spent in the Society Islands was therefore necessarily restricted. Seven months later, in Australia, this illness forced him to return alone to France with part of the collection, presumably including this specimen. His ship sank off the coast of South Africa in mid-July 1824 (Garnot 1829: 573–575). His sketches may have survived.

Following the recommendation of a referee, we asked Hein van Grouw to advise on whether the Maupiti bird depicted was likely to be an aberrant individual, knowing, of course, that no comparative Maupiti specimens exist. He replied: 'with all the background information I have now on this case it is in my opinion most likely that the black-and-white pattern in the pictured *maupitiensis* was not an aberration but indeed an adult feature of the species (perhaps only in the males), as is the case in the Chuuk Monarch *Metabolus rugensis*'.

Conclusions

The name *Muscicapa pomarea* Lesson & Garnot, 1828, must be treated as a synonym of *Muscicapa nigra* Sparman, 1785. The single extant type specimen, is designated a lectotype so that, despite an originally composite type series, the name's type locality is Tahiti. The name *Muscicapa maupitiensis* Garnot, 1829, despite the same confused composite type series, was based on just one specimen (thought to have been lost at sea). Based on the depiction, this is designated a lectotype for the distinct population on the relatively distant island of Maupiti.

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Appendix: the Marquesas relatives and their phylogeny

The *Coquille* did not visit the Marquesas and the taxa of genus *Pomarea* from there and the Cook Islands—which complete the genus *Pomarea* within its circumscribed limits—were described only later in the 19th century. Further monarch flycatcher species were discovered in the Marquesas (see Hartlaub 1854, Murphy & Mathews 1928) and on Rarotonga in the Cook Islands (Rarotonga Monarch *P. dimidiata*; see Hartlaub & Finsch 1871); all are currently treated in the genus *Pomarea*. Murphy & Mathews (1928) reported on new material obtained by the Whitney South Sea Expedition and discussed four Marquesan species: Tahiti Monarch *P. nigra*, Marquesas Monarch *P. mendozae*, Iphis Monarch *P. iphis* and Fatu Hiva Monarch *P. whitneyi*. They implied that *nigra* is polytypic, but did not mention any subspecies other than the nominate (although *maupitiensis* is the only possibility), divided *mendozae* into four subspecies (of which two were described as new), and their new species *iphis* comprised two subspecies, while *whitneyi* was monotypic.

Cibois et al. (2004: 838), dealing with *Pomarea* species from the Cook, Society and Marquesas archipelagos, recognised six species, largely following Murphy & Mathews (1928), and implicitly treated *pomarea* as a subspecies of *nigra* (implying recognition of a neighbouring population which could only be that from

Maupiti). Their phylogeny omitted *pomarea* for which they found no specimen to sample, and they declared: 'The extinct *P. pomarea* is only known from an 'old male' (Lesson & Garnot 1826–1830) which exhibits a black and white pattern'. This, of course, is a reference to the image of *maupitiensis*, although in their Table 5 they treated this taxon at species rank. Their treatment resembles that of Mayr (1986) and it seems it was he who first treated *pomarea* from Maupiti as a subspecies of *P. nigra*, albeit without signalling that it was extinct.

Treatment of the Monarchidae in the *Handbook of the birds of the world* commences with a global account of the family by Coates *et al.* (2006: 244–279), while the genus *Pomarea* is covered by five species accounts by Clement (2006: 297–299) where, on p. 298, he treated *P. nigra pomarea* as an extinct subspecies 'confined to' Maupiti. Dickinson & Christidis (2014: 246), citing Holyoak & Thibault (1984), treated a species *P. pomarea* from Maupiti, implying that *maupitiensis* must be a synonym and, like Mayr, did not list the taxon as extinct.

Andersen *et al.* (2015) sampled '91 of 99 recognised species of monarch flycatchers' of 16 genera, of which the species currently treated in the genus *Pomarea* all grouped within a single clade. But while the 'mendozae complex', all of the Marquesan species (which Andersen *et al.* erroneously referred to as 'true *Pomarea*'), group well together, *P. nigra* (and by implication the unsampled Maupiti population) and *P. dimidiata* lie outwith this tight group. Thibault & Cibois (2017) reported the findings of Andersen *et al.* and accepted nine species in *Pomarea* of which four—including Maupiti Monarch—were considered extinct. They agreed that the Marquesan species formed a monophyletic group and the evidence from DNA of the taxa in the Marquesas suggests colonisation from north to south across that archipelago, which is volcanic. The Marquesan group appears distinct from and thus excludes *P. nigra*—the type species of *Pomarea*—and *P. dimidiata*.

