

# Resolution of the status of the taxon *Apteryx maxima*

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**ABSTRACT:** We investigate the history, availability, and validity of the nominal taxon *Apteryx maxima*. We conclude that *Apteryx maxima* Sclater & Hochstetter, 1861 is an available name, and a senior synonym of *Apteryx haastii* Potts, 1872. However, we propose that the junior synonym (*Apteryx haastii*) be regarded as the valid name (*nomen protectum*) for the species known as the great spotted kiwi, while relegating *Apteryx maxima* to be an invalid name (*nomen oblitum*), in accordance with Article 23.9 on *Reversal of precedence* as established in the Fourth Edition of the *International Code of Zoological Nomenclature* published in 1999. Also, we designate a neotype for *Apteryx maxima*.

**KEYWORDS:** *Apteryx haastii*, *Apteryx maxima*, kiwi, history, synonymy, *nomen nudum*, *nomen protectum*, *nomen oblitum*, neotype.

## Introduction

The name *Apteryx maxima* appears in early New Zealand bird literature many times and is variously attributed to Verreaux or to Bonaparte in the works of Sclater & Hochstetter (1861), Gray (1862), Finsch (1870), Hutton (1871), Buller (1891; 1892), and other authors listed under '*Apteryx maxima*' in the synonymy of *Apteryx haastii* provided by Salvadori (1895). However, the origin of the name *Apteryx maxima* was not clarified until Rothschild (1893) reported that it was from an unpublished manuscript by Jules Verreaux, a well known taxidermist and bird collector from Paris (Stresemann 1975: 162). Salvadori (1895) provided details of the name's origin, stating in a footnote (p. 611) that 'the name *A. maxima* was invented for the "Fireman" but, according to Bonaparte, it is based on a description given by natives, and on the inspection of an egg which J. Verreaux assured Prince Bonaparte was preserved in the Museum of Philadelphia (!)'.<sup>1</sup>

Despite the many papers and books dealing with kiwi systematics published since Bonaparte's (1856) first

mention of the name *Apteryx maxima*, the availability, authorship, date, and status of this taxonomic name have not yet been properly established. In this paper we investigate the history and nomenclatorial availability of the binomen *Apteryx maxima*, which author(s) and date can be attributed to the binomen, its status as an ornithological entity, and its validity as a taxon.

## History of the taxon *Apteryx maxima*

The name *Apteryx maxima* was first used by Jules Verreaux in an unpublished manuscript (*vide* Rothschild 1893; Salvadori 1895). Accordingly, '*Apteryx maxima* Verreaux' is not a published name under the *Criteria of Publication* (Chapter 3) established by the *International Code of Zoological Nomenclature* (International Commission on Zoological Nomenclature, 1999: 6) [here on referred to as 'the Code (ICZN 1999)']. Bonaparte (1856: 841) listed the name *Apteryx maxima* and attributed it to Verreaux, but without

a description. Therefore, '*Apteryx maxima* Bonaparte' is a *nomen nudum* according to the *Criteria of Availability* (Chapter 4) established by the *Code* (ICZN 1999: 8).

Slater & Hochstetter (1861: 506) were the first to publish a description associated with the name *Apteryx maxima* (republished by the same authors in 1862), but attributed its authorship to Bonaparte (1856). Their account began with summaries of what was then known about *Apteryx australis* Shaw & Nodder, 1813, *Apteryx owenii* Gould, 1847, and *Apteryx mantelli* Bartlett, 1852. Later (p. 506), they described *Apteryx maxima* as follows: 'Besides *Apteryx Owenii* a second larger species lives on the Middle Island, of which, although no examples have yet reached Europe, the existence is nevertheless quite certain.' This statement clearly shows they recognised two species larger than *Apteryx owenii*, one being the previously described *Apteryx australis* and the second *Apteryx maxima*, and that both lived in the South Island.

Slater & Hochstetter (1861: 506) continued: 'The natives distinguish this species not as a *Kiwi*, but as a *Roa*, because it is larger than *A. Owenii* (*Roa* meaning long or tall).' Further, with regard to the locality where this species was found, they stated that it 'is said to be by no means uncommon in the Paparoa elevation, between the Grey and Buller Rivers'. By quoting John Rochfort, then Provincial Surveyor in the Nelson District, from the *Nelson Examiner* of 24 August 1859, they provided the following description: 'A Kiwi about the size of a turkey, very powerful, having spurs on its feet, which, when attacked by a dog, defends himself so well as frequently to come off victorious.' Rochfort's (1859) original article makes no mention of the name *Apteryx maxima*, or any other scientific name.

Slater & Hochstetter (1861: 507) then reported an observation by Julius Haast, dated July 1860, at 'ten miles above the mouth of the river Buller, on the mountains of the Buller chain, which at a height of from 3000 to 4000 feet, were at that time, it being winter in New Zealand, slightly covered with snow, that the tracks of a large Kiwi of the size of a turkey were very common in the snow, and that at night he had often heard the singular cry of this bird, but that as he had no dog with him he had not succeeded in getting an example of it.'

Slater & Hochstetter (1861) is therefore the first publication which made the name *Apteryx maxima* available from a nomenclatorial point of view, even if the kiwi species that name actually referred to was controversial for many

years. The fact that no specimen (i.e. type) was associated with Slater & Hochstetter's description was the main reason for that controversy. Both the validity of *Apteryx maxima* and its attribution to Slater & Hochstetter (1861) were first recognised by Charles Richmond (formerly a curator at the United States National Museum, Smithsonian Institution), who in the 1910–20s compiled a card index of avian synonyms (Fig 1), which remains unpublished (Storrs Olson, pers. comm., 17 April 2002).

The name *Apteryx maxima* was next used by Gray (1862: 233) in his list of birds of New Zealand, attributing it to Verreaux as published by Bonaparte (1856).

Hochstetter (1867: 180), in the chapter dealing with kiwi and moa in his pioneering book on New Zealand's geography, geology, and natural history, gave an account of *Apteryx maxima* that repeated the same information as published by Slater & Hochstetter (1861), but still attributed authorship to Bonaparte (1856).

Buller (1869: 15) regarded *Apteryx maxima* as a valid species, repeating parts of Slater & Hochstetter's (1861) description, but without acknowledging a source. Buller's (1869) 'Essay' had already appeared as a leaflet intended for the 1865 *New Zealand Exhibition*, and was also republished in July 1867 (*vide* Galbreath, 1989: 312). Finsch (1867) published his German translation of that leaflet in September. Although Finsch (1867) added some notes, he did not add anything about *Apteryx maxima*. However, Finsch (1870: 340) referred to '?*Apteryx maxima*, (Verr.)', saying that the meagre information available regarding the 'Roa-roa' was still insufficient to recognise it as a known species.

Gray (1871: 3), in his *Hand-list* of the birds contained in the British Museum, included the species '9856. maxima, Verr.' as a valid entity under the genus *Apteryx*, without any reference to a publication. In the preface, he explained that specific names in 'Roman (or thin) type' were used for those species not present in the British Museum collection.

The next most significant use of the name *Apteryx maxima* as a valid species (but preceded by '?') is by Hutton (1871) in his *Catalogue of the Birds of New Zealand*. Hutton still attributed the name to Verreaux, but provided a diagnosis (p. 23): 'GREY, spotted with reddish white; feathers, soft to the touch. L., [length] 25 [inches]; B., [bill] 5.75 [inches]; T., [tarsus] 2.7 [inches]' and a locality: 'South Island, in alpine regions'. Also, in his 'Critical notes', Hutton (1871: 75) described a complete foot from what he believed 'to be

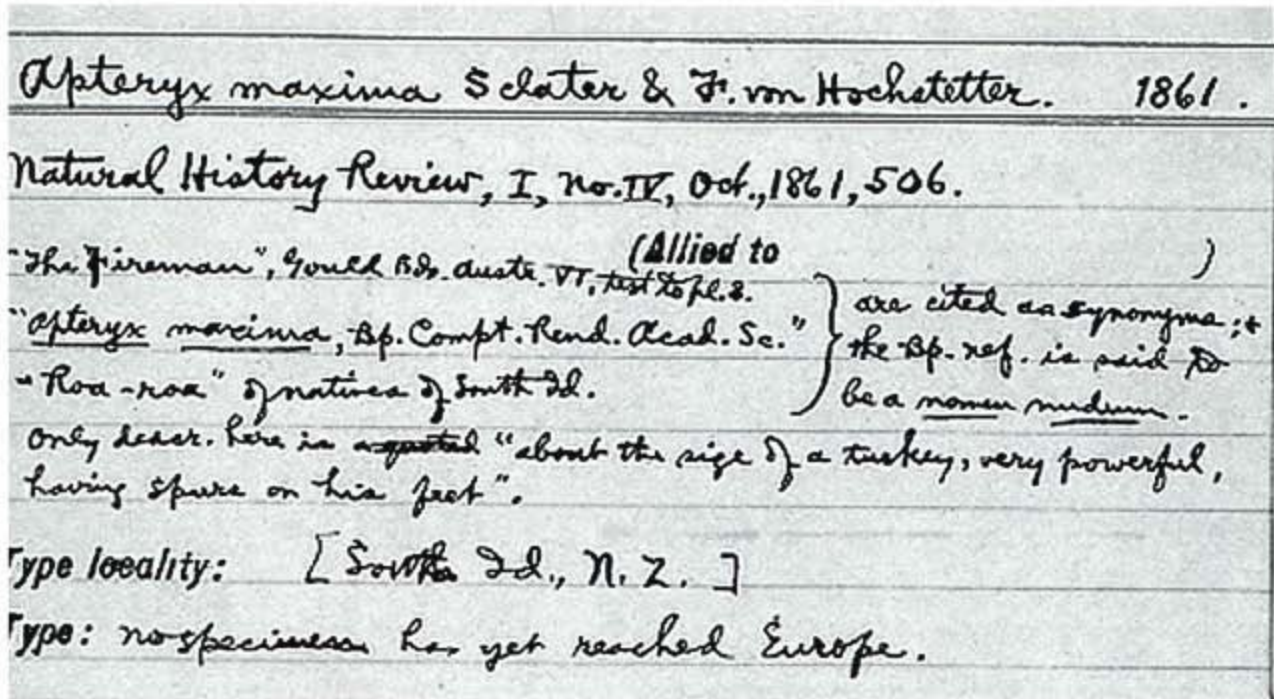


Fig 1. Facsimile of *Apteryx maxima* card from the unpublished Smithsonian Institution card index compiled by Charles Richmond in the 1910–20s.

the largest Kiwi yet procured' caught near the headwaters of the Aorere River in northwest Nelson, which he thought belonged to 'the same species as the two large spotted Kiwis in the Canterbury Museum, which I have referred to *A. maxima*'. We have been unable to locate that large kiwi foot in the ornithological collection of the Museum of New Zealand, the most likely place where Hutton would have deposited it, considering that at the time he worked in the Colonial Museum, the forerunner of the present institution.

While Hutton (1871) was incorrect to refer the name *Apteryx maxima* to Verreaux, the discussion above indicates that he not only provided a further diagnosis but also identified specimens that he believed belonged to that species. If it is argued that Sclater & Hochstetter's (1861: 506) description is insufficient to make the name taxonomically available, or that *Apteryx maxima* Sclater & Hochstetter, 1861 is available but not valid because it is a *nomen dubium*, Hutton's (1871) account would become the first available and valid description of the taxon *Apteryx maxima*.

The birds Hutton (1871: 76) referred to *Apteryx maxima* were described and named *Apteryx haastii* by Potts

(1872). On 2 August 1871, Potts read a paper before the Philosophical Institute of Canterbury describing as *Apteryx haastii* two large spotted kiwi obtained in the summer of 1870–71. The description was published (Potts 1872: 204), but the original locality of the type specimens was further defined by Potts (1873: 195) as follows: 'One was found in the bush far up the Okarita [sic] River, the other in the dense bush between the eastern shore of Lake Mapourika and the snowy range of which Mt Cook is monarch.' In a 'NOTE', Potts (1872: 205) wrote, 'In the "Cat. Birds N.Z.," Hutton, Colonial Museum, Wellington, 1871, the compiler appears anxious to refer the new species to *A. maxima*, Verr.' This is further evidence that the two types (syntypes) of *Apteryx haastii* Potts, 1872 are those Hutton (1871) referred to '*Apteryx maxima* Verr.' Potts (1872: 205) dismissed Hutton (1871), arguing that only the foot of an unknown 'nearly 14 lbs' kiwi was attributed to *Apteryx maxima*. However, Hutton clearly diagnosed whole birds (giving measurements for total length, bill, and tarsus, as well as plumage characteristics), using the Canterbury Museum specimens, and referred the foot from the Aorere River to the same taxon.

Finsch (1873: 212), in his discussion of *Apteryx haastii*, wrote, 'Mr Potts' name ought to be preserved for this species,

from *A. maxima*, Verr., there exists no other source than the simple name, noticed first by Bonaparte, without any reference to the Roa-roa.' However, Finsch had overlooked Sclater & Hochstetter (1861; 1862), Hochstetter (1867), and Hutton (1871). We note here that a name published initially as a *nomen nudum* is not available from a nomenclatorial perspective, and therefore the same name can be made available later, by the same or other author(s), for the same or different zoological entity, but taking the authorship and date of the latter publication (*Glossary*, ICZN 1999: 111).

Buller (1873: 371) attributed the name *Apteryx maxima* to Hutton (1871), but placed it as a junior synonym of *Apteryx haastii* [sic] Potts, 1871 [sic] because, according to Buller, *Apteryx maxima* Hutton was not the same species as '*Apteryx maxima* Bonaparte'. Thus, Buller (1873) recognised that Hutton's (1871) description referred to the same birds described and named as *Apteryx haastii* by Potts (1872). However, Buller (1873: 372) still maintained that 'There is no proof whatever that the bird here described [*Apteryx haastii*] is the same as that for which M. Jules Verreaux proposed the name of *Apteryx maxima*'. Buller's main argument was that *Apteryx maxima* was a 'much larger species of Kiwi than any of the foregoing – in fact, a bird equalling in size a full-grown Turkey.' It appears that the size difference between a turkey and *Apteryx haastii* had become the only reason for rejecting the name *Apteryx maxima* for the large spotted kiwi, known today as *Apteryx haastii* Potts, 1872. Buller (1888: 330) repeated almost *verbatim* the statements he made in the first edition (1873) of his classic book.

Finsch's (1873) and Buller's (1873; 1888) opinions were highly valued and therefore accepted almost immediately. For example, Rowley (1874: 498), in a short account about an exhibition of rare New Zealand birds at a meeting of the Zoological Society of London, wrote, 'The high value I attach to the opinions of these gentlemen' to justify his recognition of *Apteryx haastii* and other species as valid. However, he still remarked, 'We have yet to discover that great and glorious form, *A. maxima*, which may, perhaps, reward the zeal of some painstaking naturalist.' Notwithstanding Rowley's poetic remarks, no kiwi was found to fit the concept of *Apteryx maxima* and therefore large spotted kiwi went by the name *Apteryx haastii* Potts, while the name *Apteryx maxima* was largely forgotten.

Rowley (1875: 23), in his sumptuous *Ornithological Miscellany*, followed Buller's (1873) opinion that *Apteryx maxima* was a much larger species than *Apteryx haastii*, still

to be found in the west coast of the South Island. Also, he added a comment about Haast's finding of subfossil bones of *Apteryx australis* in the 'Moa-bone-Point Cave, Sumner Road' but stated that no bones of *Apteryx maxima* were found there.

That situation remained until Buller (1891; 1892) resurrected the name *Apteryx maxima* for brown kiwis from Stewart Island. But the same specimens were soon after named *Apteryx lawryi* by Rothschild (1893: 575), who argued, 'I most emphatically say that this species can not be *A. maximus* of Verreaux'. Rothschild's main disagreement was that references to *Apteryx maxima* distinctly referred to a bird from the South Island. Rothschild (1893: 575) discussed '*Apteryx maximus*' (apparently he modified the name to conform with the gender of the genus) at a meeting of the British Ornithologists' Club, relegating it to 'almost a fictitious species', although he was 'inclined to agree with Prof. Hutton that it was only an overgrown *A. haastii* [sic].' As discussed below, we fully agree with this latter statement. Buller (1895: 82) gave a useful summary of the kiwi and, in a footnote, agreed with Rothschild that *Apteryx maxima* probably referred to *Apteryx haastii*. Rothschild (1893) made no mention of Sclater & Hochstetter's (1861; 1862) publications, but he was the first to clearly elucidate the obscure origin of the name *Apteryx maxima*, also giving the information needed to attach the status of *nomen nudum* to *Apteryx maxima* Verreaux and to *Apteryx maxima* Bonaparte.

Subsequently, Salvadori (1895: 611) listed '*Apteryx maxima*' as a manuscript name by Verreaux published by Bonaparte (1856: 841), and '*Apteryx maximus*' Rothschild, both as junior synonyms of *Apteryx haastii*, presumably following Rothschild (1893). Salvadori (1895) appeared not to consider Sclater & Hochstetter (1861) as being or providing a valid description, because this reference was listed only as another usage of the name.

Rothschild (1899: 381), in his long revision of the genus *Apteryx*, reverted to the original spelling of '*maxima*', relegating it to a junior synonym of *Apteryx haastii*, and without listing any of the many available references to *Apteryx maxima* other than Bonaparte (1856).

Buller (1905: 27) agreed with Hutton (1871) in that the very large foot of a kiwi described and attributed by the latter to *Apteryx maxima* was, in fact, *Apteryx haastii*. However, Buller did not list the name *Apteryx maxima* under the heading of his *Apteryx haastii* text, as would be expected

for a junior synonym. Furthermore, Buller (1905: 27), when referring to the large foot, erroneously stated that 'Verreaux founded his *Apteryx maximus*' on that foot.

There are several other references to *Apteryx maxima* published in the last four decades of the 19th century, for example, see those cited in Salvadori (1895: 611). However, our examination shows they include the same information as that found in the references discussed above, adding nothing new, and so we do not mention them individually here.

We have found only two references to the name *Apteryx maxima* published during the 20th century, but neither regarded it as valid. Fleming (1986), in a note on T.R. Hackett (a field assistant to Dr James Hector of the Colonial Museum) and kiwi from the Okarito district, discussed the identity of the kiwi that Hackett collected there and sent to the Colonial Museum during the late 1860s. Fleming (1986: 248) mentioned the name *Apteryx maxima* as 'This manuscript name, attributed to Verreaux, cited by Bonaparte, has since been dismissed as a *nomen nudum*, because it was published without a description or indication.' He mainly referred to Buller's 1865 leaflet (see above) and Hutton's (1871) *Catalogue*, but made no mention of Sclater & Hochstetter's (1861) report.

The most recent mention of the name *Apteryx maxima* is by McLennan (1990: 74) in his chapter on the great spotted kiwi, included in a lavishly illustrated monograph on the kiwi. He wrote a short account on the early records and search for *Apteryx maxima* but, again, without reference to Sclater & Hochstetter (1861). Further, McLennan (1990: 74) wrote, 'It took time for some people to accept that *Apteryx haastii* and *A. maxima* were one and the same thing,' but without any reference to support his statement or mention that *Apteryx maxima* had priority over *Apteryx haastii*. In his bibliography, McLennan (1990: 85) erroneously attributed Bonaparte's (1856) publication to J. Verreaux.

### Summarised history of the taxon *Apteryx maxima* (from references discussed above)

*Apteryx maxima* Verreaux. Manuscript name (not published).

*Apteryx maxima* Bonaparte, 1856: 841. *Nomen nudum* (no description).

*Apteryx maxima* Sclater & Hochstetter, 1861: 506. Available name (first valid description).

*Apteryx maxima*; Sclater & Hochstetter 1862: 189.

*Apteryx maxima*; Gray 1862: 233 (listed only).

*Apteryx maxima*; Hochstetter 1867: 180.

*Apteryx maxima*; Buller 1869: 15.

*Apteryx maxima*; Hutton 1871: 23, 75 (first allocation of specimens).

*Apteryx maxima*; Buller 1873: 371 (attributed to 'Hutton 1871', and as a junior synonym of *Apteryx haastii* [sic]).

*Apteryx maxima*; Rowley 1874: 498 (as a 'great and glorious form' yet to be discovered).

*Apteryx maxima*; Rowley 1875: 23 (as a valid species yet to be found).

*Apteryx maxima*; Buller 1888: 330 (attributed to 'Hutton 1871', and as a junior synonym of *Apteryx haastii* [sic]).

*Apteryx maxima*; Buller 1891: 602 (incorrect referral to the Stewart Island kiwi).

*Apteryx maxima*; Buller 1892: 91 (incorrect referral to the Stewart Island kiwi).

*Apteryx maximus*; Rothschild 1893: 575 (not from Stewart Island, probably = *Apteryx haastii*).

? *Apteryx maxima*; Salvadori 1895: 611 (junior synonym of *Apteryx haastii* [sic]).

? *Apteryx maximus*; Salvadori 1895: 611 (junior synonym of *Apteryx haastii* [sic]).

? *Apteryx maxima*; Rothschild 1899: 381 (junior synonym of *Apteryx haastii* [sic]).

*Apteryx maximus*; Buller 1905: 27 (agreement with Hutton that *Apteryx maximus* = *Apteryx haastii*, but only latter name regarded as valid).

*Apteryx maxima*; Fleming 1986: 248 (as a *nomen nudum*).

*Apteryx maxima*; McLennan 1990: 74 (junior synonym of *Apteryx haastii*).

## Status and identity of the taxon

### *Apteryx maxima*

The foregoing history indicates that, while at its inception it was a *nomen nudum*, the name *Apteryx maxima* can be correctly attributed to Sclater & Hochstetter (1861), who clearly identified it as a large kiwi different from *Apteryx australis*, living at higher elevations in the South Island, specifically from the Paparoa Range. This is well known now as part of the range of the great spotted kiwi currently known as *Apteryx haastii*. The lack of a type specimen meant that the identity of the name *Apteryx maxima* was greatly confused and, consequently, its use as a valid taxon was short-lived. However, regardless of its confused status, from a nomenclatorial viewpoint, *Apteryx maxima* Sclater

& Hochstetter, 1861 is an available name under Article 12 of the *Code* (ICZN 1999: 16), even though some workers consider it a *nomen dubium*. If this latter opinion is taken as correct, then there can be no argument that Hutton (1871) clearly eliminated that doubtful status, making *Apteryx maxima* a valid and recognisable species.

Further evidence that the name *Apteryx maxima* refers to the great spotted kiwi can be found in the literature discussed in the historical section above. It was listed as distinct from *Apteryx australis*, which was 'formerly abundant all over the lower scrub-covered districts of the South Island' (Rothschild 1893: 575). We note the statement that *Apteryx australis* was at 'lower' elevations, whereas *Apteryx maxima* was explicitly stated to be from high, or what can be termed as subalpine, elevations. The Paparoa Range, given by Sclater & Hochstetter (1861) as the area where *Apteryx maxima* was stated to occur, is a present stronghold of the great spotted kiwi. Thus, locality data, preference for higher elevations, and its large size also identify *Apteryx maxima* with the great spotted kiwi. The subsequent referral of a specimen from northwest Nelson, and the direct attribution of, at the time, the only two large spotted kiwis in the Canterbury Museum to *Apteryx maxima* by Hutton (1871), confirms our assessment. Furthermore, both Rothschild (1893; 1899) and Buller (1873; 1888; 1905) stated that *Apteryx maxima* was the same as *Apteryx haastii*.

The argument raised by Buller (1873: 372; 1888: 331) that the name '*Apteryx maxima* Bonaparte' referred to a kiwi the size of a full grown turkey and that it could, therefore, not be a synonym of *Apteryx haastii* is easily resolved. The ranges for weight and tarsus length given in Marchant & Higgins (1990: 86) for live female *Apteryx haastii*, and in Marchant & Higgins (1993: 354) for adult *Meleagris gallopavo* Linnaeus, 1758 clearly overlap, leaving no room for further argument that a large *Apteryx haastii* can not be the size of an adult turkey. It is important to clarify that, although Buller (1873; 1888) was emphatic that '*Apteryx maxima* Bonaparte' was not the same as *Apteryx haastii* Potts, he regarded '*Apteryx maxima* Hutton, 1871' as a synonym of *Apteryx haastii*. In this, Buller was certainly correct, since the same specimens were the basis for both Hutton's and Potts's names. However, we can only speculate upon Buller's rationale to give priority to Potts's name when it had been published in 1872, a year later than Hutton's description. Perhaps Buller (1873: 371; 1888: 330) purposely gave the wrong date '1871' for *Apteryx haastii* Potts, to preserve a name that honoured the memory

of Julius von Haast, instead of a name endorsed by Hutton and of uncertain status. In this context we believe that Buller's (1888: 331) words speak for themselves: 'For this reason I have considered it safer to retain the name bestowed upon it in compliment to the late Sir Julius von Haast, to whom the colony is indebted for the establishment of a valuable museum of science and art at Canterbury, as well as for several important topographical and geological surveys in that district.' Fleming (1983) wrote that Buller was irritated with Hutton because of the publication of Hutton's (1871) *Catalogue* just before the appearance of Buller's (1873) major book on New Zealand birds. Relegating '*Apteryx maxima* Hutton, 1871' to a junior synonym, even if it was not, may have been one of Buller's ways to alleviate his irritation. The fact that the name *Apteryx maxima* eventually fell into oblivion, largely as a result of Buller's choice, shows that he achieved his purpose after all.

To conclude, we sustain that *Apteryx maxima* Sclater & Hochstetter, 1861 is an available and valid species name that refers to the great spotted kiwi currently known as *Apteryx haastii* Potts, 1872.

### Designation of a neotype for *Apteryx maxima* Sclater & Hochstetter, 1861

To establish beyond doubt the taxonomic status of the name *Apteryx maxima*, and in the absence of a name-bearing type having been fixed by Sclater & Hochstetter (1861) or, to the best of our knowledge, by any subsequent author, we herewith designate a neotype for the taxon *Apteryx maxima* Sclater & Hochstetter, 1861, complying with the *Qualifying conditions* listed in Article 75.3 of the *Code* (ICZN 1999: 84). The neotype is a specimen permanently held in the collection of the Museum of New Zealand Te Papa Tongarewa. This specimen is the preserved skin of a great spotted kiwi bearing Registration Number 22663, with the following data: adult female, collected near Charleston, West Coast, South Island, New Zealand, on 23 December 1981, by D. Gaddock. The following anatomical data, taken at the time of its preparation as a study skin, are also associated with this specimen: ovary size approximately 21 x 8 mm, bill length 135.9 mm, tarsus length 95.3 mm, middle toe + claw length 101.4 mm, weight 2425 g. The diagnostic features of this specimen are consistent with the original description given by Sclater & Hochstetter (1861), as well as with the subsequent description by Hutton (1871). Also, its collecting locality is placed within the geographical range

given in Schaler & Hochstetter's (1861) original description. The proposed neotype can be distinguished from other nominal taxa included in the genus *Apteryx* by features of its plumage (colouration, texture), size (see above), and locality. Furthermore, the neotype of *Apteryx maxima* fits the concept of *Apteryx haastii* Potts, 1872 as described in its original publication, as well as in many subsequent papers listed in Appendix 1.

Designation of one of the two syntypes of *Apteryx haastii* held in the Canterbury Museum, Christchurch, New Zealand, as the neotype of *Apteryx maxima* would have been a logical choice considering that those syntypes were attributed to *Apteryx maxima* by Hutton (1871: 76) even before they became the syntypes of *Apteryx haastii*. However, the localities of those syntypes (see above and Potts, 1873: 195) are outside the geographical range given by Schaler & Hochstetter (1861) for *Apteryx maxima*. Therefore, neither syntype is suitable to be designated as a neotype of the latter taxon.

### Proposed preservation of the name *Apteryx haastii* Potts, 1872 in accordance with the *Reversal of precedence*

We have shown above that the names *Apteryx maxima* Schaler & Hochstetter, 1861 and *Apteryx haastii* Potts, 1872 are synonyms, not only from an analysis of the relevant literature but also from the examination and comparison of the type specimens of both species. Under the strict application of the *Principle of Priority* as established in Article 23 of the *Code* (ICZN 1999: 24), *Apteryx maxima* is the senior synonym of *Apteryx haastii* and therefore *Apteryx maxima* should take precedence over *Apteryx haastii*. However, Article 23.9 of the *Code* (ICZN 1999: 27) includes a moderation of the *Principle of Priority* termed *Reversal of precedence* by which, in the interest of nomenclatorial stability, the prevailing usage of a junior synonym must be maintained over the senior synonym when (1) the senior synonym has not been used as a valid name after 1899, and (2) the junior synonym has been used as the presumed valid name of the taxon in question, in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years.

To our knowledge, the older name *Apteryx maxima* was last used as valid in 1893 by Rothschild, and the younger name *Apteryx haastii* has been used for the great spotted kiwi, as its presumed valid name, in at least 30 publications by over 40 authors in the last 47 years (see Appendix 1).

Since both conditions (see above) are met, we state that, in accordance with Article 23.9 of the *Code* (ICZN 1999: 27), the junior synonym, *Apteryx haastii* Potts, 1872, is the valid name (*nomen protectum*) for the species known as the great spotted kiwi, and that the senior synonym, *Apteryx maxima* Schaler & Hochstetter, 1861, is an invalid name (*nomen oblitum*).

This conclusion would seem appropriate, in that it preserves a name (*Apteryx haastii*), albeit younger, that was the first published to deliberately describe and properly name the great spotted kiwi as a new species, while it relegates to taxonomic rejection an older name (*Apteryx maxima*) that first appeared without description, then was inadvertently validly described, to be finally left in limbo for over 100 years.

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## Appendix 1

### List of 30 references where *Apteryx haastii* has been used as a valid name for the great spotted kiwi in the last 50 years

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