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The mysterious Miss Rebecca Stone and her collection of birds from Hokianga, 1842: a window into early ornithology in Aotearoa New Zealand

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Abstract: A collection of 16 birds from Hokianga, including the type specimens of banded rail *Hypotaenidia philippensis assimilis* and black petrel *Procellaria parkinsoni*, is recorded as presented to the British Museum in 1842 by a mysterious "Miss Rebecca Stone." She is identified as Rebecca Stones of London, who presented birds brought from Hokianga by her brother William Stones. A further search for the collector in Hokianga, based on the evidence of the specimens and how they were obtained, prepared and documented, points to the Wesleyan missionary William White, and also reveals much about the practices of ornithology of the time. It also reveals that Hokianga Māori, notably Mohi Tāwhai of Waimā, played a significant role in obtaining and naming birds for the collection. The type localities for New Zealand banded rail, black petrel, and *Botaurus melanotus* are restricted to Hokianga, Northland.

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INTRODUCTION

Rebecca Stone is an enigmatic figure, and a rare female contributor, in the early ornithology of Aotearoa New Zealand. The 16 birds from Hokianga, Northland, that she presented to the British Museum in 1842 represented the first significant collection of New Zealand birds seen in Europe since those from the great British and French exploring expeditions, and added five species to the list of New Zealand birds (Watola 2008). Who was Rebecca Stone, and how did she obtain those birds? In setting out to answer these questions we looked closely at the collection of birds that she presented: how they were obtained, prepared as specimens, and conveyed to the British Museum. These investigations helped to identify Rebecca Stone and how she obtained the birds, while also providing insights into the practice of ornithology in that pivotal period between the European exploration and colonisation of New Zealand.

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ANALYSIS AND RESULTS

Rebecca Stone: the published record

We begin with the published accounts of Rebecca Stone and her collection of birds. When she presented them to the British Museum they were hailed as the first New Zealand birds it had received apart from a single kiwi (*Apteryx* sp.) gifted by the Earl of Derby (J.E. Gray 1843). A contemporary observer immediately ranked her alongside Banks, Forster, Dumont d'Urville, and Gould among those

who had elucidated the natural history of New Zealand, with the comment that "the study of natural history is one of the pursuits which does great credit to the female sex. In common with botany, it should be followed by those who have leisure at the antipodes" (E. Wakefield 1844). Since then, Rebecca Stone's contribution has been acknowledged in catalogues of birds in the British Museum (G.R. Gray 1844a, 1844b, 1859; British Museum 1874–1898; Warren 1966), in early species lists of New Zealand birds (G.R. Gray 1843, 1862), and in later accounts of their discovery and naming (Buller 1872-73, 1887-88; Cheeseman 1882; Oliver 1930, 1955; Fleming 1982; Andrews 1986; Medway 1990; Watola 2008).

For all that, however, next to nothing is known about her. The few details that have been published seem contradictory: she has been located both in New Zealand as "an early resident collector" (Gordon 1938) and in London as "Miss R. Stone of the Excise Office" (Warren 1966). Even her name is uncertain: J.E. Gray (1843) and most subsequent authors referred to her as "Miss Rebecca Stone"; however, Godman (1908) and Oliver (1955) referred to her as "Miss Rachel Stone." Fleming (1982) also used the latter name, describing her as "a pioneer of her sex among ornithologists, about whom we would like to know more than we do." Watola (2008) repeated Fleming's comment, while referring to her as "the mysterious Miss Rebecca Stone".

The collection presented by Rebecca Stone

Who was Rebecca Stone, and what were the birds that she presented to the British Museum? We began by examining the original record of that presentation in the register of zoological accessions at the British Museum, which is now held by its natural history successor, the Natural History Museum. The zoological accessions register for 1841–44, now in the museum archives under *DF ZOO/218/1/3*, records, under date "42 / 5.17" (i.e. 17 May 1842), the accession of 16 birds "Presented by Miss Rebecca Stone Excise office Cath. Dock". The entry appears to be in the hand of George R. Gray, the museum assistant responsible for the ornithological collection. He evidently identified and named the birds at accession (there is no sign of later additions or alterations to the names), beginning with the more readily identifiable birds – the first ten in the list are mainly identified to species, with the last six identified to genus only. There are notes with each bird, evidently provided by the collector, giving its locality (all are listed as from "River Hokianga New Zealand"), its Māori name, and its eye colour. Table 1 gives a transcription

Table 1. Transcription of the entries and associated notes in the British Museum zoological accessions register for the 16 birds presented by Rebecca Stones, registered on 17 May 1842. Current names are added in square brackets.

1. Apteryx australis	male	River Hokianga	New Zealand	black eye green pupil 5 lb
2. "	" female	"	" "Kiwi"	
[= North Island brown kiwi, *Apteryx mantelli*]				
3. Falco brunnea		"	" "Kaiaia or Kauaua"	eye dark brown. blk pupil
4. "	"	"	" "	"
[= New Zealand falcon, *Falco novaeseelandiae*]				
5. Athene		"	" Koukou	yellow rim, brown eyes
6. "		"	" "	"
[= Ruru, *Ninox novaeseelandiae novaeseelandiae*]				
7. Callaeas cinerea		"	" Kokako	Black eye
[= North Island kokako, *Callaeas wilsoni*]				
8. Prosthemadera novæzealandia		"	" Tui	Black eye green pupil
9. "	"	"	" "	"
[= Tūī, *Prosthemadera novaeseelandiae novaeseelandiae*]				
10. Ptilotis cinctus	female	"	" Kotihe	Green eye black pupil
[= Hihi, *Notiomystis cincta*]				
11. Eudynamys		"	Kohepuroa	Green eye black pupil
[= Long-tailed cuckoo, *Eudynamys taitensis*]			bird of passage	
12. Platycercus		"	Powaitere	" "
[= Yellow-crowned parakeet, *Cyanoramphus auriceps*]				
13. Charadrius		"	Tuturiwhatu	
[= Pacific Golden plover, *Pluvialis fulva*]				
14. Rallus		"	Katatai	yellow eye green rim
[= Banded rail, *Gallirallus philippensis assimilis*]				
15. Botaurus		"	Matuku	Black pupil yellow rim
[= Australasian bittern *Botaurus poiciloptilus*]				
16. Puffinus		"	Taiko	Dark dun eye, black pupil
[= Black petrel, *Procellaria parkinsoni*]				

of the entries and associated notes in the accession register, with the current identification of each bird provided in brackets. The list numbers, prefixed by the date (in numerical year.month.day format) constitute the Museum's register numbers for the birds: 1842.5.17.1 to 1842.5.17.16.

Fourteen of the 16 birds are still held by the Natural History Museum (no. 1, the male North Island brown kiwi (*Apteryx mantelli*), was exchanged in 1950, and no. 11, the long-tailed cuckoo (*Eudynamis taitensis*), is now missing). There are some notable specimens in the remaining collection:

No. 7, entered in the accession register as "*Calleas cinerea*" is the first recorded museum specimen of North Island kokako (*Calleas wilsoni*). George Gray evidently set out to describe it as a new species (see his entry "Callaeas wilsoni, G.R. Gr. MSS" in G.R. Gray 1862); however, the name *C. wilsoni* was published first by Bonaparte (1850).

No. 10, entered in the accession register as "*Ptilotis cinctus* female", is the first museum specimen of a female hihi, now *Notiomystis cincta* (Fig. 1a). Up to this time the only specimens that had reached Europe had been of the more colourful male, and the descriptions and illustrations of the species (as *Meliphaga cincta* by du Bus de Gisignies 1839, and a few months later as *Ptilotis auritus* by Lafresnaye 1839) were based entirely on the male bird's striking black, white and yellow plumage. How George Gray identified the olive-brown bird in Rebecca Stone's collection as the same species will be discussed further below. In his register entry he listed it as a female, but later described it as a juvenile (G.R. Gray 1845). The sexual dimorphism of *Notiomystis cincta* was not clearly described until Buller (1872-73) and subsequently this specimen became listed again as an adult female (Gadow 1884).

This specimen is also significant as a relatively well-dated and located early record of the species. Hihi were probably already declining in 1840 and disappeared from the north of the North Island by 1870 and entirely by 1885, apart from a relict population on Hauturu/Little Barrier Island (Buller 1887-88; Angehr 1984). Only perhaps 30 specimens of mainland hihi have been preserved and few of these have any definite location (Angehr 1984; Salvador *et al.* 2019). The present specimen from "River Hokianga" collected before 1842, and another in the Muséum national d'Histoire naturelle in Paris collected during the visit of the *Venus* to the Bay of Islands in 1838 (www.gbif.org/occurrence/1042802909, viewed 27 Jan 2025), confirm (against the doubts of Scofield & Stephenson 2013) the historic presence of hihi in Northland.

Figure 1. Some of the birds from Hokianga presented by Rebecca Stones in 1842, now in The Natural History Museum, Tring, UK. The scale mark with each = 10 cm. Photographs: Jonathan Jackson, © Trustees of the Natural History Museum, London.

a. Female hihi, *Notiomystis cincta* (register no. NHMUK 1842.5.17.10).

b. Pacific golden plover, *Pluvialis fulva* (register no. NHMUK 1842.5.17.13) The first New Zealand record of this species.

c. Black petrel, *Procellaria parkinsoni* (register no. NHMUK 1842.5.17.16) The first record and holotype of this species.

No. 13, entered in the accession register under the generic name "*Charadrius*," represents the first documented New Zealand record of Pacific golden plover (*Pluvialis fulva*) (Fig. 1b). This species was evidently an uncommon visitor in the mid-nineteenth century: apart from a specimen in the first Auckland museum in 1855 (Hutton & Buller 1874) there were no further records of Pacific golden plover in New Zealand until the 1880s (Cheeseman (1882). The nomenclatural history of this species is complex. George Gray initially listed this specimen as *Charadrius xanthocheilus* (see G.R. Gray 1843), but following the thinking of the times it was subsequently listed as *C. virginicus* by him (G.R. Gray 1844b), as *C. fulvus* by Buller (1872-73), and as *C. dominicus* by Sharpe (1896). The species is now classified as *Pluvialis fulva* (see Connors 1983).

This species was evidently known to Māori, also under various names. Yate (1835) recorded the name "takahikahi" with a description that fits this species. The name "tuturiwhatu" as given for Rebecca Stone's specimen was also recorded (spelled as "tuturiwatu") for this species by Taylor (1848). However, both these names, takahikahi and tuturiwhatu, are more commonly used for dotterels, particularly New Zealand dotterel, *Anarhynchus obscurus* (see Williams 1971). Pacific golden plover is now more commonly known in New Zealand under another Māori name, kuriri (Miskelly 2022) – borrowing the name used across the South Pacific for the wandering tattler *Tringa incana* (see Emory 1947).

The last three specimens on the list were each named by George Gray as new species:

No. 14, entered in the accession register under the generic name "*Rallus*", with the Māori name "Katatai", is the first museum specimen of banded rail (*Hypotaenidia philippensis*) from New Zealand. G.R. Gray (1843) named it as a new species, *Rallus assimilis.* It is now regarded as the New Zealand subspecies, *Hypotaenidia philippensis assimilis.*

Under his description of *Rallus assimilis* George Gray added notes on its Māori names, beginning with one recorded by Dieffenbach: "Konini of the natives of Cook's Strait" (G.R. Gray 1843). He later misconstrued that note to suggest "Cook's Straits, N.Z." was where the species was recorded from (G.R. Gray 1862). Understandably, this has been taken as the locality of Rebecca Stone's holotype specimen (Warren 1966; Watola 2008), but there is no reason to doubt the locality as originally recorded in the accession register: "River Hokianga". Accordingly, the type locality of the species should be "Hokianga", rather than "Cook's Strait" or "New Zealand" (Checklist Committee 2022).

No. 15, entered in the accession register under the generic name "*Botaurus*", is the first museum specimen of Australasian bittern (*Botaurus poiciloptilus*) from New Zealand. George Gray described it as a new species, *Botaurus melanotus*, and noted that the species was also found in Australia (G.R. Gray 1843). However, he overlooked the name that had already been given to the species there by Wagler (1827). George Gray was normally a careful worker; the reason for his uncharacteristic error here will emerge in our discussion below. Again, the type locality of George Gray's *B. melanotus* should be "Hokianga", rather than "New Zealand" (Checklist Committee 2022).

No. 16, entered in the accession register under the generic name "*Puffinus*," is the first museum specimen of black petrel or tāiko (*Procellaria parkinsoni*) (Fig. 1c). George Gray initially identified it as a white-chinned petrel, *P. aequinoctialis* (see G.R. Gray 1844b: 160); however, 20 years later he described it as a new species, *Procellaria parkinsoni* G.R. Gray, 1862. There is no indication that he had any further specimens by then, and so Rebecca Stone's specimen is the holotype of the species. The type locality of this species can also be refined from "New Zealand" (G.R. Gray 1862; Checklist Committee 2022) to "Hokianga".

We will discuss George Gray's identification of these birds in more detail below. However, first we turn our attention to Rebecca Stone, who presented them to the British Museum.

Identifying Rebecca Stone

We began with the entry in the accession register: "Presented by Miss Rebecca Stone Excise office Cath. Dock". The address "Cath. Dock" evidently refers to St Katharine Docks, on the north bank of the Thames, just below the Tower of London. Searches of the 1841 British census and other records of the time found no Rebecca Stone in that vicinity. However, searches of Excise officers of the period, as listed in *The British Imperial Calendar* (Anon. 1838a and earlier editions), showed a Joseph Stones, a "doorkeeper" in the Excise Office in London. Joseph Stones' will (held in the British National Archives under PROB 11/1894/208) confirms that up to his death in February 1838 he was in the Excise office, living at "Hartshorn Wharf in the parish of St Katharine by the Tower" and that he had a daughter named Rebecca. Perhaps the "Rebecca Stone" in the accession register referred to this Rebecca Stones?

This is supported by further information from shipping records. Here it is relevant that Joseph Stones' will referred also to a son, William Stones. Searches of shipping records found no indication of Rebecca Stones ever travelling to New Zealand, but revealed that her brother William did. In 1838, when he was just 18, he evidently spent some of his inheritance from his father's estate on a passage to New Zealand. William Stones is listed as a cabin passenger on the barque *James*, sailing from Gravesend, London, on 20 Dec 1838, to Hobart, Tasmania, and on to Hokianga, New Zealand (Anon. 1839a)

The arrival of the *James* at Hokianga on 18 Mar 1839 and William Stones' activities there over the next 2 years are recorded mainly in the journals of the Wesleyan missionaries (see the journals of James Buller, John H. Bumby, John Hobbs, Mary Anna Smales, and William Woon, all in the Alexander Turnbull Library, Wellington). William Stones spent time with them but mainly with the timber trader Francis White and his family. He acted as witness for several of White's land purchases (Turton 1882) and assisted his trading operations by sailing with shiploads of kauri (*Agathis australis*) timber to oversee their sale in Sydney or Hobart. After the second such assignment, William Stones sailed on back to London. He departed from Hokianga on 31 Jul 1841, again on the *James* (Anon. 1841a), and after seeing to the final auction of its cargo of timber in Hobart in November (Anon. 1841b), he evidently took another ship back to London. Passenger lists outward from Australia are less well documented than lists inward and we could not find any record of his onward passage from Hobart. However, William Stones was certainly back in London by 27 Sep 1842, when he signed as a witness at his sister Rebecca's marriage to Walter Blanford Waterlow (see the entry in the register of marriages, parish of St George's in the East, Tower Hamlets, available on Ancestry.com). He had arrived probably months earlier, most likely by the *Hebe,* which sailed from Hobart on 19 Dec 1841 and arrived at Gravesend, London on 11 May 1842 (Anon. 1841c; Anon. 1842). William Stones evidently carried the collection of bird-skins from Hokianga to London; they were then delivered to the British Museum and entered in its zoology accession register on 17 May as "presented by Miss Rebecca Stone".

A further line of evidence confirms our identification of "Miss Rebecca Stone" as Rebecca Stones. Some years after William Stones returned to London he wrote a book, *My first voyage; a book for youth* (Stones 1858a), which describes a voyage to Australia and New Zealand. It has been taken as an imaginary voyage (Hocken 1909; Bagnall 1980); however, comparing the incidents of *My first voyage* with those of William Stones' travels to Australia and New

Zealand makes it clear that the book largely relates real events, though with disguised names for the ships and the European people involved. However, real names are used for the Māori people that William Stones encountered. One of these is "Tawhai," who can be identified as Mohi (Moses) Tāwhai, rangatira (chief) of Te Māhurehure hapū of Waimā in Hokianga (Lash & Davidson 2017). One passage in *My first voyage* concerning Tāwhai is particularly relevant:

> "Being desirous of obtaining specimens of those remarkable birds, the Kiwis (Apteryx Australis), inhabiting the mountains at the source of the Waima, we arranged with Tawhai for the purchase of the pair, male and female, which are now in the British Museum" (Stones 1858a: 186).

Checks confirm that the only pair of North Island brown kiwi held by the British Museum at that time are those recorded as "presented by Miss Rebecca Stone" (G.R. Gray 1844b). We conclude that the collection of birds, including the kiwi, were brought from Hokianga to London by William Stones and then presented to the Museum by his sister, Rebecca Stones. Her name was slightly misspelled in the accession register.

To give some further identifying details: Rebecca Stones was born in 1822, married Walter Blanford Waterlow in 1842, and died in 1869. William Stones was born in 1820, married Walter Waterlow's elder sister Mary Valentina Waterlow in 1848, and died in 1866. After returning from New Zealand William Stones kept in contact with friends there and continued to write on "New Zealand (the land of promise)" (Stones 1858b); however, we could find no indication that either he or Rebecca ever had any other dealings with museums or museum specimens or took any interest in natural history.

Tracing the Hokianga collector

Rebecca "Stone", as she has been referred to, has generally been credited as having "obtained" (Watola 2008) or "collected" (Oliver 1930, 1955; Warren 1966; Medway 1990) the birds that she presented to the British Museum (hereafter "the Stones collection"). However, it is clear that she could not have been the collector in the sense of the person who obtained (shot, trapped or perhaps purchased) the birds in the field. And although William Stones evidently conveyed the birds from Hokianga to London, it is doubtful whether he can be credited as having collected them either. By his own account he was involved in purchasing the pair of kiwi, but it seems unlikely that he had the skills or the experience to obtain the other birds in the collection or to prepare them as museum specimens. Given that he was in New Zealand in total for little more than a year and was unfamiliar with any of the local birds, it is unlikely that he could have made such a select collection as this, bypassing the common and conspicuous birds and concentrating on those that were not often seen, being either cryptic (banded rail, bittern, black petrel), occasional (Pacific golden plover), or less conspicuous (the female rather than male hihi) – all birds that no previous European collector in New Zealand had managed to obtain. William Stones, if he was involved at all, was probably assisting someone with more experience and skill in obtaining and preparing bird specimens.

In the following discussion we refer to this person as the "collector", but must note the problems with this term. It is ambiguous, referring either to the person who obtains the bird in the field (a "field collector"), or the person who assembles a collection of bird specimens (a "cabinet collector") (Lucas & Lucas 2014). And the account of William Stones and his companions obtaining kiwi specimens by purchasing them from Tāwhai raises the issue of whether the Māori hunter who initially captured the birds as traditional game should be credited as the (field) collector, or the European who purchased them as specimens. There is a long history of ignoring the role of indigenous helpers and hunters in supplying specimens to European "collectors". As Lucas & Lucas (2014) comment, "we see no good reason for refusing to designate ... the anonymous hunters as collectors, but in much literature the hunters would be ignored. Yet they were clearly a vital part of the supply chain of specimens". In the following discussion we will attempt to include and acknowledge all the different parties in the supply chain which brought the birds from the wild in Hokianga to the British Museum in London; however, for simplicity we will continue to use the term "collector" for the compiler of the collection of birds, who obtained them somehow, had them prepared and preserved as specimens, and consigned the collection to the museum.

The following investigation into who this Hokianga collector might have been strays rather far from Rebecca and William Stones, but in the process does reveal much about the practice of ornithology in New Zealand and specifically in Hokianga in 1835–41, at a time of social and ecological change as New Zealand became a British colony.

We took two approaches to the search:

Known collectors in Hokianga

We first checked the known collectors of birds in northern New Zealand at the time. The naturalists of the four exploring expeditions (American, British, and two French) that visited New Zealand in 1838–41 all collected birds in the Bay of Islands; however, they did not venture further to Hokianga (Andrews 1986). Ernst Dieffenbach, the naturalist employed by the New Zealand Company, collected widely in New Zealand at this time and did pass through Hokianga, in early February 1841 (Dieffenbach 1843). However, he was not in Hokianga long enough to have made the collection of birds there and, even if he did, there is no indication that he was acquainted with William Stones to have him convey them to London. Dieffenbach is most unlikely to have been our collector.

Then there are the lesser-known collectors. Searches of journals and correspondence of early visitors and settlers in Hokianga, and also records of New Zealand bird specimens received in Britain in the 1830s and 40s, identified five visitors or settlers who are recorded as collecting or presenting birds from Hokianga at that time. All five primarily collected kiwi. Although it may not be directly relevant to our search, this does call for some explanation.

The quest for kiwi is a well-known chapter in the history of ornithology in New Zealand. The kiwi had puzzled European naturalists ever since they first learned of it when a skin reached London in 1813. That specimen was later acquired by Lord Derby, the president of the Zoological Society of London, and in 1833 he exhibited it at a meeting of the society for the reading of a paper by William Yarrell confirming, against doubts expressed by some Continental naturalists, that it was a real bird, and summarising the little that was known about it (Yarrell 1833a). Yarrell concluded with an appeal to Britons abroad in New Zealand: "it is hoped that some of our enterprising countrymen in that quarter may, ere long, succeed in acquiring additional specimens and additional knowledge, as regards both the habits and the structure of this curious race" (Yarrell 1833b). And indeed enterprising countrymen in New Zealand heard the call and made special efforts to obtain kiwi specimens and send them to Yarrell or to Derby.

This story has been told many times (Rothschild 1899; Andrews 1986, 1990) – but what has gone unremarked is just how many of the kiwi specimens sent back to Britain in this period came from Hokianga. Of the eight skins and preserved kiwi examined by Richard Owen in 1838 for his classic paper on its external and internal anatomy (Owen

1840), we can determine from his notes and other records that at least six came from Hokianga, sent by four different collectors. One further collector of kiwi from a few years later can also be identified. Here we summarise the available information on these five collectors of kiwi from Hokianga, both as possible candidates in our search for the collector of the birds of the Stones collection, but also as illustrating the role of the colonial collector in general at that time, and some of the ways the relationship operated between the leading men of science in London who wanted specimens of new and interesting birds, and the collectors out in the farthest reaches of the known world who supplied them.

1. William White was a Wesleyan missionary and then timber trader in Hokianga from 1830 to about 1845 (Clover 2018). In that time he twice returned to England; on the second visit he is recorded as bringing specimens of kiwi and tūī (*Prosthemadera novaeseelandiae*) which were "presented, through the kindness of the Rev. Mr White, by the New Zealand Association, to the Zoological Society, in October 1837" (E.G. Wakefield 1837: 332 fn, 335). Apart from that brief note, White appears to have received no thanks or acknowledgement for gifting the specimens. When they reached the Zoological Society the pair of kiwi in particular were admired as "very perfect skins" (Anon. 1838b) and were immediately borrowed by John and Elizabeth Gould to draw the well-known illustration of kiwi in their *Birds of Australia and the adjacent islands* (Gould 1838). Sixty-five years later the kiwi from White were still given special mention in the Zoological Society's history (Scherren 1905). But each time they were credited as "presented by the New Zealand Association" without any mention of White.

2. Thomas McDonnell, a timber trader in Hokianga for many years from 1831, was a more mercenary character (Lee 1997). During one of his visits back to Britain, McDonnell was asked by the Earl of Derby if he could send him birds from New Zealand. Derby especially wanted kiwi – live kiwi – for his private menagerie at his Knowsley estate near Liverpool. To make clear what he wanted, Derby gave McDonnell a picture – evidently the illustration of kiwi from Yarrell's paper. McDonnell didn't know the bird at all; indeed on returning to Hokianga in 1835 he told Derby that "none of the Europeans here, about eighty, have ever seen the species before". But "I have shewn the drawing of your bird the Kévé to several of the Native Chiefs who immediately recognized it". McDonnell managed to persuade them to provide him with a pair of kiwi, for a price ("I had some trouble but a present had its effect"), and promised to send the birds to Derby alive (McDonnell 1835).

McDonnell took the opportunity to gain a favour from Derby in return. Even before the kiwi arrived, Derby, rather unwisely, was persuaded to use his influence at the Colonial Office to have McDonnell appointed as "Additional British Resident in New Zealand" (see Spring-Rice 1834; McDonnell 1836). It did not work out well. McDonnell gained the status he craved but in practice was always at odds with the main British Resident in New Zealand, James Busby, and was soon forced to resign the position. And Derby did not get his promised kiwi. It seems they died on the voyage. McDonnell tried again: in 1837 he sent Derby a shipment of skins of kiwi and other birds, and a whole "pickled" kiwi – and again promised to send live kiwi (McDonnell 1837). The skins and pickled kiwi arrived safely (Derby passed the latter to the Zoological Society for Owen to examine – see Anon. 1838c) but nothing more. Derby never saw a live kiwi – it was not until after his death in 1851 that, with better care than McDonnell managed, one reached London to become the main attraction at the Zoological Society's gardens, the "Zoo" (Mitchell 1852).

3. Less is known about the "Dr Logan, R.N." who was acknowledged by Owen (1840) as the donor of a partial preserved kiwi received in 1838. From shipping records we identify him as Dr Francis Logan, a Scottish naval surgeon, who sailed to Sydney in 1837 as surgeon superintendent on a convict ship and then on his return voyage spent several months in Hokianga when his ship called there to take on a cargo of timber (see records of Dr Logan and the *John Barry* in Anon. 1837a, 1837b, 1838d). It appears that while in Hokianga, Logan obtained and preserved what Owen (1840) described as "the abdominal viscera, with the bones and tendons of the feet of a female Apteryx" – or in other words the discarded offal from a kiwi that had just been skinned and gutted. It is not clear how Logan had got the message that even such scraps of kiwi were wanted, but they fortuitously provided Owen with the only anatomical material he had at that time of the organs of a female kiwi, and he duly acknowledged Logan who had so "liberally presented" them to him (Owen 1840).

4. Allan Cunningham, a well-known botanical collector, spent 5 months in New Zealand in 1838 and left with a collection of plants and "also a specimen of that rarest of all the birds of New Zealand, the Kiwi (*Apteryx australis*), which I shall forward home to Mr Yarrell, for the Zoological Society" (Cunningham 1838a). He sent both the skin and the preserved body of the kiwi, noting that it had been obtained by Māori "on the Hokianga river" (Cunningham 1839).

Cunningham was duly acknowledged by the Zoological Society for the kiwi specimens, and his enclosed "Rough notes ... on the habits of the Apteryx Australis" were read at a meeting of the Society and printed in its *Proceedings* (Cunningham 1839). And although Owen had completed his paper and it was already with the printer, he did manage to have a late footnote added to it drawing one final conclusion about kiwi morphology from Cunningham's preserved kiwi, and acknowledging him for it (Owen 1840: 297). Cunningham thus had the thanks of the leading men of science, but in the gentlemanly correspondence with the Zoological Society he did not mention how much the kiwi had cost him. As he privately told a friend he had had to pay his Māori supplier £1/8/- (equivalent to about $NZ450 today) for it (Cunningham 1838b).

5. Another Hokianga collector a few years later was not responding directly to the appeal from the Zoological Society. Richard Day, an Irish doctor, briefly visited Hokianga in 1838-39 (Anon. 1838e, 1839b) and later settled there as tutor to the mission children (Clover 2018). In 1846 he sent a kiwi specimen from Hokianga to the Cuvierian Society in his home town, Cork (Anon. 1846).

Might any of these collectors of kiwi have also collected the birds presented to the British Museum by Rebecca Stones? That collector must have been in Hokianga long enough to have obtained all the birds in that collection, and to become acquainted with William Stones during his time in New Zealand in 1839–41 to entrust him with conveying the collection to London. On this basis Cunningham and Logan can be immediately ruled out: they each had left Hokianga well before William Stones arrived. McDonnell was not in Hokianga when William Stones was there: McDonnell had left in 1838 (Anon. 1838e) before William Stones arrived and did not return until just after he left in July 1841 (see records of McDonnell on *Sir James Falstaff* and William Stones on *James* in Anon. 1841a, 1841d). Richard Day can also be ruled out: he had been in Hokianga for a few months when William Stones arrived on 18 March 1839, but he left with the *Coromandel* only 7 days later (Anon. 1839c) and did not return to Hokianga until after William

Stones had left in July 1841. William White, however, after returning on the *Coromandel* in December 1838, was based in Hokianga during the time William Stones was there, although he did much travelling beyond the district (Gittos 1982). In fact, William Stones spent much of his time there living with White's brother and close neighbour Francis White. Thus, of the five known collectors of kiwi in Hokianga only William White could also have been the collector of the Stones collection.

Evidence from the bird specimens and how they were obtained, prepared, documented and despatched

In deciding whether William White, or some other collector active in Hokianga at this time might have been the collector of the Stones collection, we considered what further evidence about the collector could be drawn from the birds themselves and the notes about them in the Museum accession register. This examination also reveals much about the practices of ornithology of the time. The following discussion is organised around the processes involved in collecting a bird specimen: obtaining the bird in the field, skinning and preserving it, recording field notes on its locality and other details, and packing and consigning it.

1. Obtaining the bird. Some of the birds in the collection would have only been obtained with the assistance and assent of local Māori. Clearly this was the case with kiwi. As the accounts of the early collectors of kiwi indicate, "without the aid of the New Zealander [i.e. Māori] it cannot be obtained" (Cunningham 1839). From the number of kiwi that were collected in Hokianga it appears that Māori there – perhaps Mohi Tāwhai and his Te Māhurehure hapū – were more amenable than those elsewhere to providing kiwi to favoured pākehā (European) friends. However, as Tāwhai told the group William Stones came with when they asked for kiwi, the birds were highly valued and were not to be taken without consent, or without payment:

> "Being noble birds, the price demanded was one English sovereign in gold for each specimen, as chief's royalty, and remuneration of one dollar for the man ordered to catch them... [Tāwhai] intimated that the price would henceforth be higher, he having tapued the Kiwis in that range of mountains ... so that no one in future would dare to kill a Kiwi without his authority" (Stones 1858a: 186).

One gold sovereign plus one dollar was much the same price as the £1/8/- paid by Allan Cunningham for his kiwi in Hokianga in 1838. Perhaps Tāwhai supplied that one as well, and had a standard price for them. But he did not provide kiwi to any pākehā who asked for one. Ernst Dieffenbach, for instance, was unable to obtain kiwi anywhere, even in Hokianga, despite offering "a liberal reward to any native who would bring me one". He blamed this on "the indolence of the natives" (Dieffenbach 1843: 230); however, it was more likely that they could not be induced to transgress tapu for him without their rangatira's assent. William Stones, or someone in his group, must have had a better understanding and a closer relationship with local Māori, and Tāwhai in particular, to be provided with kiwi.

Black petrel or tāiko was another bird that would probably have been supplied by Māori. The species was unknown to European visitors or settlers of the time. For instance, Richard Taylor, missionary at Waimate North from 1839–43, recorded the name "taiko" for "a sea bird" but thought it was synonymous with "takupu" – the Australasian gannet (*Morus serrator*) (see Taylor 1848). However, tāiko were well-known to Māori. Its nesting colonies had traditionally been a valued food resource and the rights to them were jealously guarded. In Hokianga an incident from several generations earlier was still recalled when a trespasser had taken birds from the nest burrows on Panguru mountain in defiance of Ngāti Manawa's protective prohibition or rāhui over it; he was pursued and killed for that transgression (Tate 1986: 7). If, as appears likely, the tāiko in the collection was obtained from local Māori, our collector must again have had a close relationship with them for this to be allowed.

In Hokianga, Kiwi were hunted by Māori at night (Cunningham 1839), and tāiko were taken from their nest burrows; however, the other birds in the collection would probably have been obtained by shooting. This would have required skill with a "fowling piece," as it was called at the time – a muzzle-loading gun designed for game-shooting. The European settlers and missionaries were accustomed to shooting birds, particularly New Zealand pigeon (*Hemiphaga novaeseelandiae*), as food. The missionary William White had not been in New Zealand very long when he bragged to a friend that "I begin to feel my ability in shooting ... I went out on Friday to shoot pigeons – shot ten and two ducks, which will supply us with fresh meat for three or four days" (White 1823). Māori had also become adept with the fowling piece. "They are excellent marksmen," a visitor to the Bay of Islands noted in 1833; "The natives shoot hundreds [of pigeon] with small pebbles which are used as a substitute for shot" (Hodgskin 1841: 13, 28). It is certainly possible that other birds in the collection, especially those that were uncommon or unusual at that time, may also have been obtained by Māori and offered to the European collector as someone known to be interested in such things – much as happened with the young Walter Buller, growing up on the Wesleyan mission station in Kaipara in the 1850s (Buller 1871).

2. Preparing the bird as a museum specimen. After the bird was obtained, whether by a Māori hunter or directly by the European collector, it had to be prepared as a museum specimen. This was not necessarily done by the collector, but if it was a different person they must have been someone closely associated, as it had to be done soon after the bird was killed.

Preparing a bird as a museum specimen required a particular procedure that would not have been known to Māori, or to many of the European settlers and missionaries. At this time museum specimens were expected to be stuffed and mounted for display: European museums, including the British Museum, still followed the old tradition of putting on display as many as possible of their specimens, especially the rarer ones (Sharpe 1887). The procedure for preparing a bird as a museum specimen was thus intended to make it ready for stuffing and mounting, and was set out in popular manuals of taxidermy of the time, written "for the use of travellers, conservators of museums and private collectors" (Brown 1833; see also Anon. 1820 and Swainson 1822).

The first step was to carefully skin the bird, keeping the feathers clean and undamaged while removing the body, leaving the disembodied skin with its head and beak, legs, wings, and tail all intact and attached. There was a specific procedure for achieving this, set out in the taxidermy manuals. An important part of the procedure was the removal of any residual soft tissue from the skin and remaining bones. If this cleaning was not done carefully, the specimen would soon decompose, as shown by the first kiwi received by the Zoological Society after William Yarrell's appeal in 1833. Given the great interest in kiwi, William Yate of Waimate had sent the skin "as it is", explaining that "One of my [Māori] boys took off the skin" but before long "the legs rotted off" (Yate 1834).

Then there was a further step to try to ensure the preservation of the specimen. Even with careful skinning and cleaning, bird skins or stuffed birds were very vulnerable to insect attack. Up to the 1820s the curators of the natural history collections at the British Museum had held regular bonfires of bird specimens that had become too moth-eaten or disintegrated to leave on display (Stearn 1981). However, a new preservative preparation developed in France promised to overcome this problem. From 1820 the British taxidermy manuals included the use of the French "arsenical soap," and gave recipes for making it (Anon. 1820; Swainson 1822). In 1825 another equally toxic preservative, "corrosive sublimate" (mercury dichloride) was promoted by the eccentric traveller and taxidermist Charles Waterton (Waterton 1825), and this also became widely used. The most popular taxidermy manual of the time (Brown 1833, reprinted at least 30 times to 1899) gave recipes and instructions for using either or both arsenical soap and corrosive sublimate. The use of these preservatives became standard practice for collectors and museums in Britain and beyond (Rookmaaker *et al*. 2006). Even in Hokianga: in 1835 Thomas McDonnell assured Lord Derby that the bird-skins he was sending from there had been "preserved with arsenical soap" (McDonnell 1835).

Examination of the birds of the Stones collection still held in the Natural History Museum confirms that the skins had been expertly prepared, and well preserved. They remain in good condition (Fig. 1). Whoever prepared them clearly had some skill and experience in the procedure of preparing and preserving bird-skins.

3. Documenting the specimen. The mode of documenting museum specimens was also set out in the taxidermy manuals of the time: "A journal ought to be kept detailing all ... the places in which they were killed, and the colour of their eyes, together with any information that can be procured of their habits from the natives" (Brown 1833). Then, to link these notes with the particular specimen they referred to, the notes for each bird were to be numbered, and a tag with the same number indelibly inscribed on it attached to the corresponding specimen (Anon. 1820; Brown 1833). This procedure appears to have been followed with the Stones collection: although no separate journal of notes or numbered tags or other labels have been preserved, the notes recorded in the museum accession register do appear to have been transcribed from such a journal. In our search for the collector of the birds these notes have proven to be particularly informative.

As recommended by the taxidermy manuals, the notes give eye colour for most of the birds. This was wanted for the purposes of taxidermy: so that the bird-skins could be given artificial eyes of the right colour when they were set up and mounted for display. For our purposes, the notes on eye colour are significant because they were necessarily recorded when the bird was fresh or being skinned, which gives some confidence that the notes were indeed made by the collector or preparator rather than added later.

The notes record that all the birds were from "River Hokianga", which, in the terminology of the time, referred to the wider Hokianga area. The restriction to that area suggests the collector and preparator were probably resident there.

The notes also identify each of the birds by its Māori name. No English names are given. In this regard the notes to the Stones collection may be compared with the list of the birds sent by McDonnell to Derby in 1837, which has a mix of Maori and English names: "Ká Ká, Duck, Pigeon, 2 Birds of Passage ... Owl, Tui, ... Peewáká wáká, New Zealand Paroquet" (McDonnell 1837). By contrast, the names in the notes to the Stones collection are all Māori names, indeed standard Māori names for the birds, as still used today. Some of the birds were then unknown to European science; however, they were all known and named by Māori. The black petrel for one could only have been identified by name, tāiko, by Māori. The recorder of these notes clearly had some proficiency in the Māori language and a close relationship with local Māori to be given the names of the birds.

Furthermore, again by contrast with McDonnell's list, the Māori names in the notes to the Stones collection are written in the standard spelling as used today. The recorder of these notes was familiar with the latest orthography of Māori – the way the language was put into written form and spelled using the English alphabet. The orthography of written Māori had been developed by the missionaries in New Zealand, with the help of the Cambridge linguist Samuel Lee (Kendall & Lee 1820), and by the 1830s the orthography they used in their publications was much as it is today, apart from one change pioneered by the Wesleyan missionaries in Hokianga – the use of the letter combination or digraph "wh" to distinguish and represent a distinct sound or phoneme in spoken Māori. The "wh" first appeared in material printed by the Wesleyan mission press in 1841 and did not become more widely used until several years later (Williams 1924; Parkinson & Griffith 2004). It is significant therefore that one of the names of the birds as recorded in the accession register in 1842 is written as "tuturiwhatu" rather than "tuturiwatu" as it was usually written at that time, for instance by the Church Missionary Society (Anglican) missionaries Yate (1835) and Taylor (1848). The names of the birds may well have been provided by Māori but they were probably written down by someone associated with the Wesleyan mission in Hokianga.

Finally, to complete this survey of the process of making museum specimens:

4. Packing and despatching the collection. As the taxidermy manuals put it: "We must now speak of the method of packing zoological objects, so that they may arrive in Europe in a good state of preservation" (Anon. 1820):

> "...attention is required to see that [the skins] are well preserved from the attacks of insects... They are then slightly packed with cotton, but just sufficient to prevent the inside of the skins from pressing on each other. ... they should be each wrapped in paper, and closely packed in a box; and camphor, preserving powder, and strong aromatics, strewed amongst them, to prevent them being attacked by insects ... The box in which they are packed must be pitched all over to prevent damp and air from reaching the inside"
>
> "... when the cases are filled, closed and covered with pitch, they should be enveloped in an oiled canvas, and placed in a part of the vessel ... sheltered as much as possible from excess heat, and out of reach of rats" (Brown 1833; Anon. 1820).

The present good condition of the birds of the Stones collection held in the Natural History Museum confirms not only that they had been well prepared and preserved but also that they were well protected from insect and rodent attack and all the other perils of a long sea voyage. Someone in Hokianga knew not only how to prepare and preserve them, but also how to pack them well, before William Stones stowed them on the *James* as far as Hobart, and then on another ship to carry them safely to London.

When the collection was received at the British Museum most of the birds would have been mounted and put on display, as was the normal practice at that time. Examination of the birds confirms that although all are now skins, at least six of the 14 now remaining had originally been mounted for display (many have holes in the feet from the wires used in mounting). However, years

later museum practice changed toward more naturalistic displays, with smaller groups of birds set in dioramas representing their appropriate natural habitats. The British Museum progressively dismantled its old display cabinets and took down most of the mounted birds and converted them back to skins, which have since then been stored out of the light to preserve them for scientific study (Sharpe 1906; Stearn 1981). An indication of when this was done can be gained from the *Catalogue of the birds in the British Museum* (British Museum 1874–1898) which recorded the entire museum bird collection during this period with an indication whether each specimen was then "standing" (i.e. mounted) or a skin; the entries for the birds of the Stones collection show that the process of converting them from mounts back to skins was under way by 1884 but was still not completed in 1895. Most of them had thus been on display for 40–50 years before they were taken down and stored in more favourable conditions. However, the bird-skins have lasted surprisingly well. After being prepared in Hokianga some time before 1842, they survived the sea voyage to London and then years on display exposed to the light, but now, after more than 180 years, they are still in good condition.

The probable collector

From all the evidence from the bird specimens and the notes about them we can draw some inferences about who obtained, prepared and documented them. At least some of the birds were obtained by Māori in Hokianga, but all were prepared and preserved as museum specimens by someone with some skill and experience in European taxidermy procedures. And they were documented with details of their location, eye colour, and Māori name by someone who had close relations with local Māori and proficiency in oral and written Māori language – probably someone associated with the Wesleyan mission in Hokianga.

This description points again to William White, perhaps in association with others of his extended family living in Hokianga: his self-effacing and capable wife Eliza, and his brother Francis White living close nearby with his wife Jane, their sons William jnr, 20, and Titus, 19, and six younger children. And William Stones, who lived for much of his time in Hokianga with Francis White's family, evidently also played a part in making the collection.

William White had been a Wesleyan missionary in New Zealand since 1823 and leader of the Hokianga mission from 1830. He was a hot-tempered man who fell out with his own mission colleagues, but developed close relations with local Māori and made himself very unpopular with the more mercenary of the local settlers (especially McDonnell), by taking the side of Māori against them (Gittos 1982). White was proficient in the Māori language both as an orator and in writing, and had been one of the first to use the "wh" digraph in written Māori (see his contribution on Māori language in E.G. Wakefield 1837: 299–301). And, as shown above, he had previously presented bird skins in London, skins that were judged "very perfect". He, or someone close to him, was skilled in preparing bird skins. Even the absence of any indication naming the collector of the birds presented to the British Museum in 1842 is consistent with White, who as noted above had presented those bird skins in London in 1837 without seeking any acknowledgement and had allowed others to take the credit for them.

William White had returned to Britain in 1837 primarily to face charges concerning his conduct in Hokianga, which resulted in him being dismissed from the Wesleyan mission (Gittos 1982). He then sailed back to Hokianga in 1838, just ahead of William Stones. In fact, White's declared plan to join in the lucrative trade in kauri timber from Hokianga and Kaipara may have been what inspired young Stones with the idea of going there in the hope of making his fortune too. However, William White's enterprise did not prosper – he lost a whole shipload of kauri timber, and almost his life, when the ship he had chartered to carry his cargo to Britain was wrecked on the Kaipara bar in April 1840 (Gittos 1982).

William Stones did not make his fortune in New Zealand either. He took a small role in Francis White's timber business; however, by April 1841 he was reduced to appealing to the new Governor of New Zealand for a paid position: "More than two years have elapsed since my arrival in this Country, but not finding my situation answer my expectations, I am induced to apply to your Excellency for an appointment to some vacant Clerkship in the Government service" (Stones 1841). He was offered a position as "extra clerk at five shillings a day" (which puts into context the price Tāwhai demanded for kiwi – nearly a week's work for each one). However, William Stones decided to return home to London instead. He left in August 1841, evidently carrying the collection of bird-skins to present to the British Museum.

DISCUSSION

Why was the collection presented to the British Museum?

If it was William White who assembled the collection, why was it presented to the British Museum rather than the Zoological Society where his kiwi had gone earlier? This was in fact a time of contrasting fortunes for these two institutions. The Zoological Society had received so many donations of zoological specimens that its museum collection was growing beyond the Society's capacity to display and care for it. In 1841 the museum collection was put into storage while the Society's Council considered how to proceed (Scherren 1905). The British Museum on the other hand, after years of somnolence and decay (especially of the bird collections), was beginning a period of rapid growth and development. A searching parliamentary inquiry in 1835-36 into the museum's "condition, management and affairs" had forced its governing Trustees to make some changes, particularly in its natural history department (Gunther 1980). In 1837 that department was divided into separate mineralogy, botany, and zoology branches, each with increased funding. Registers of Accessions were initiated to document and keep track of all specimens received. And J.E. Gray, a junior wage-worker in the museum who had proven himself to be the most knowledgeable and insightful of all the witnesses questioned by the parliamentary inquiry, was finally given an official appointment as an Assistant in the zoology branch. Even before he became the Keeper (head curator) of the zoological branch after the retirement of the incumbent in 1839, Gray set out to improve and enlarge its collections of mammals, birds, and other animals to make them greater than any in Europe, even if he sometimes had to spend some of his own (or his wife's) money when the government funding was insufficient (Gunther 1980). He purchased many specimens and collections for the museum, and he found donors who gave many more. It was probably at his recommendation that in December 1837 the Museum Trustees made a general appeal for more natural history specimens for the museum. This appeal was communicated through the governors of all British colonies, Royal Navy captains, and others, along with instructions for potential collectors on "the selection and preservation of mineralogical, zoological and botanical specimens," including the making and use of arsenical soap. The appeal for specimens and the instructions for collectors were duly printed in newspapers in colonies as far as Australia (Anon. 1838f).

Whether that appeal reached Hokianga just as the earlier appeal for kiwi specimens for the Zoological Society had done is not clear. But there must have been some communication regarding specimens for the British

Museum. William White and his family, or whoever the collector in Hokianga was, would hardly have spent so much time and money obtaining and preparing the birds and conveying them half way round the world unless they knew the museum wanted them.

Adding to the first list of the birds of New Zealand

What was the significance of the Stones collection presented to the British Museum in 1842? From the British perspective, it was just one among many sent back from the colonies – part of the great imperial scientific enterprise in which British travellers, naval officers, colonial administrators and colonists around the world collected specimens of plants and animals and sent them back home for study and display. Specimens flowed to the Zoological Society, to the Royal Navy's Haslar Hospital Museum, but especially, once it began its reorganisation, to the British Museum, which, as J.E. Gray (1843) described it, was "the National Collection of the mother country, which should be the richest in the natural curiosities of its different colonies."

Among this great influx of specimens from around the world, the arrival of the birds from Hokianga in May 1842 was particularly timely. New Zealand plants and animals were of special interest to British naturalists at that time, not only because they were new and unusual but also because they were expected to soon disappear. Just as had been seen in other isolated island territories such as Mauritius or Saint Helena, it was expected that European colonisation of New Zealand would bring displacement and extinction of the native plants and animals (Hooker 1844), and especially the peculiar flightless birds – that the kiwi would disappear like the dodo (Strickland 1844.) With this in mind, the British Association for the Advancement of Science (BAAS) had commissioned two experts to survey "the present state of our knowledge of the Zoology of New Zealand" (British Association for the Advancement of Science 1842: xx). Dr J. Richardson of the Haslar Hospital Museum was to survey the fishes, and J.E. Gray of the British Museum the mammals, birds, reptiles and invertebrates. As Richardson (1843) explained, "It is of importance to zoology that the number, range and habits of the animals should be ascertained and recorded before the din and bustle of civilisation scare them from their native haunts".

The bird section of the survey was compiled by the British Museum assistant in charge of the bird collection, J.E. Gray's younger brother George Gray. Initially it was entirely a book exercise, as the British Museum then had no New Zealand birds apart from the kiwi presented by Lord Derby in 1838. George Gray scanned the literature describing species of birds from New Zealand, and also two recent books about the country by a missionary (Yate 1835) and a settler (Polack 1838), which gave accounts of the birds. George Gray was a very conscientious worker and expected to have his section of the survey ready for his brother to present at the BAAS meeting in June 1842.

However, in May, only a few weeks before the BAAS meeting, Rebecca Stones arrived at the Museum with the collection of birds from Hokianga. George Gray hurriedly examined them to find whether there were any more species to add to his list of New Zealand birds. Most of the birds in the collection could be readily identified as known species, although three of these had not been recorded from New Zealand before: long-tailed cuckoo, Pacific golden plover and black petrel (initially identified as a white-chinned petrel *Procellaria aequinoctialis*, not previously recorded from New Zealand). Other birds in the collection were more difficult to identify. The Māori names they came with were helpful here, as they enabled George Gray to match the birds with the accounts by Yate (1835) and Polack (1838), who used the Māori names. This appears to have helped him identify the hihi in particular. As noted above, only the striking black, white and yellow male hihi had been seen in Europe up to this time and the description of the species (as *Meliphaga cincta* by du Bus de Gisignies 1839) was thus based on the male. The bird in the Hokianga collection looked like a *Meliphaga* (a honeyeater), and it had the prominent rictal bristles like whiskers around its beak as described for *Meliphaga cincta*. However, its olive-brown plumage was quite different from the description of that species. It appears that the Māori name the Hokianga bird came with, "Kotihe", led George Gray to the account by Yate (1835) of a bird under this name, which noted that "The male is considerably larger than the female; and has a much more beautiful plumage" and then gave a description of the male which matched du Bus' description of *M. cincta*. George Gray thus identified the Hokianga bird as a female of this species.

Then there were two birds which appeared to be entirely new species, or at least birds which were "undescribed": not having been given scientific names. George Gray quickly named the banded rail as *Rallus assimilis* and the bittern as *Botaurus melanotus* and added them to the list of New Zealand birds as well. Another bittern specimen had just arrived at the museum in a collection from Adelaide, South Australia (specimen NHMUK 1842.6.29.45) which was clearly the same species as the Hokianga, New Zealand specimen, and so he added a note that his *B. melanotus* was "Also found on the Murray, South Australia" (G.R. Gray 1843). In the rush to name these species and complete the list he had neglected his usual checks and overlooked the fact that in Australia the bittern had already been named, as *Ardea poiciloptila* by Wagler (1827), which had precedence over his name. However, under either name it was still new to the New Zealand list. It made five species from the Stones collection added to the list of New Zealand birds.

Shortly after the Stones collection, even more New Zealand birds arrived: 38 specimens collected by Dr Ernst Dieffenbach and presented to the British Museum by his employer, the New Zealand Company (J.E. Gray 1843). By the time George Gray had added the new species from this collection as well, his list of the birds of New Zealand had reached 84 species. It was too late for the BAAS meeting (and new material had also delayed other sections of the survey) and so J.E. Gray arranged to have the whole survey published instead as an appendix to Dieffenbach's forthcoming book on New Zealand, which came out in January 1843 (Dieffenbach 1843). The birds from the Stones collection were thus incorporated in this first published list of the birds and other animals of New Zealand – a baseline list of the known fauna before the full impact of European colonisation.

The Māori contribution

The Stones collection differs from other collections from New Zealand at that time not only by being assembled by a resident European settler rather than a visiting explorer or commercial collector, but also for the significant assistance from Māori in obtaining the birds. With Māori assistance the settler collector was able to obtain more of the occasional, inconspicuous and cryptic birds that passing explorers and visitors had missed, and to record them all by their Māori names. The record of Māori involvement is of particular interest in that, most unusually in the records of early ornithology in New Zealand, one of those Māori is known by name. Mohi Tāwhai arranged the capture of the kiwi and perhaps other birds for the collection, and charged a fair price for them. He may have also been the source of kiwi obtained earlier by other collectors in Hokianga, for the same price.

Tāwhai was a significant figure in Hokianga as rangatira of his Mahurehure people, respected as a peacemaker in

wider disputes among iwi, while meeting the challenges of the new Pākehā world as well. He was among the rangatira who signed He Whakaputanga (the Declaration of Independence of the United Tribes of New Zealand) in 1836 and Te Tiriti (the Treaty of Waitangi) in 1840 (Lash & Davidson 2017). He maintained notably friendly relations with the missionaries and settlers and their children in Hokianga. Hannah, Francis White's young daughter, always remembered how as her father was leaving to sail back to Britain in 1840 he turned to Tāwhai and said "Now, Moses, you take care of my wife and children while I am away." And he did (Martin 1991).

Tāwhai's role in making the Stones collection of birds was recorded only in William Stones' fictionalised account of his time in New Zealand (Stones 1858a). When the collection was received by the British Museum no record was kept or acknowledgement made of any of those, Māori or European, who had been involved in obtaining and preparing the birds. The museum customarily recorded the person or organisation who presented specimens – often it would be an aristocratic donor who would expect due acknowledgement and to see their gift on display – but the lower classes whose efforts had provided and prepared the specimens generally went unnoticed. If there were any labels or other documentation with the Stones collection they were not retained, apart from the notes of eye colour and Maori names, and those were ignored when George Gray gave scientific names to the new species. That process and the place of indigenous names in zoological nomenclature will be the subject of another paper.

CONCLUSION

In summary then, the "mysterious Miss Rebecca Stone" who presented the collection of birds from Hokianga to the British Museum in 1842 is identified as Rebecca Stones, later Waterlow, of Hartshorn Wharf, St Katharine by the Tower of London. And it was not her, but her brother William Stones, who visited Hokianga and returned with the collection of birds.

From the brief account in William Stones' lightly fictionalised account of his time in Hokianga, taken together with all the circumstantial evidence from the bird specimens and the notes on them as recorded in the museum accession register, we can reconstruct much about the processes and the people involved in obtaining, preparing, documenting and delivering the birds to the British Museum. For the pair of kiwi and probably others, it began with the Māori hunters who were sent by their rangatira, Mohi Tāwhai of Waimā, to obtain the birds to provide (for a price) to the pākehā collector. We suggest that this was most likely to have been the former Wesleyan missionary in Hokianga, William White. We suggest that he, or someone close to him, skinned, cleaned and preserved the birds as museum specimens, and made notes on them, identifying them by their Māori names as provided by Tāwhai or some other Māori informant. They were then carefully packed away to be conveyed to London. This role fell to the visitor, William Stones, who had spent much time with the White family. When he decided to return home, he evidently took the package of birds as he sailed from Hokianga to Sydney and Hobart and on to London. There it was his younger sister Rebecca Stones who took the birds across the city to the British Museum in Bloomsbury, where on 17 May 1842 they were entered into the accession register as presented by her.

Altogether, the Stones collection epitomises the mode of ornithology of that time, centred in Europe: a collector in the colonies or further afield obtaining birds (usually by shooting them) and preparing them as specimens to provide to naturalists back in one of the metropolitan centres of Europe, in this case London, where they would be classified and named according to the conventions of Linnaean zoological nomenclature. The collection of birds from Hokianga was one small part of the European scientific enterprise to collect, classify and name plants and animals from all around the world.

The Stones collection also provides a valuable record and reminder of some of the birds that were present in Hokianga in 1841. At the time, the collection provided records for the first list of the New Zealand avifauna compiled by George Gray in 1843, which was intended as a baseline list of the birds of New Zealand before the rising tide of European colonisation swept them away. However, the process of displacement and extinction of native species has not been quite as rapid nor as complete as the naturalists in Britain then expected. Not one of the birds of the Stones collection is yet extinct, although New Zealand falcon (*Falco novaeseelandiae*), hihi, yellow-crowned parakeet (*Cyanoramphus auriceps*), long-tailed cuckoo and tāiko are no longer found in the Hokianga region (Robertson *et al.* 2007). In fact, with the assistance of growing conservation efforts, half of the birds found in 1841 are either still common there (tūī, ruru, banded rail), or declining but still present (bittern, North Island kokako, and even kiwi). Despite all the early predictions of their imminent demise, kiwi still survive in the hills overlooking Waimā, where 180 years ago Tāwhai's hunter found the pair that Rebecca Stones presented to the British Museum.

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