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Bronze as a non-customary intervention
in the interpretation of insects from the natural world
of Māori

VOLUME ONE

An exhibition report presented in partial fulfilment
of the requirements for the degree of

Doctor of Philosophy
in
Fine Arts

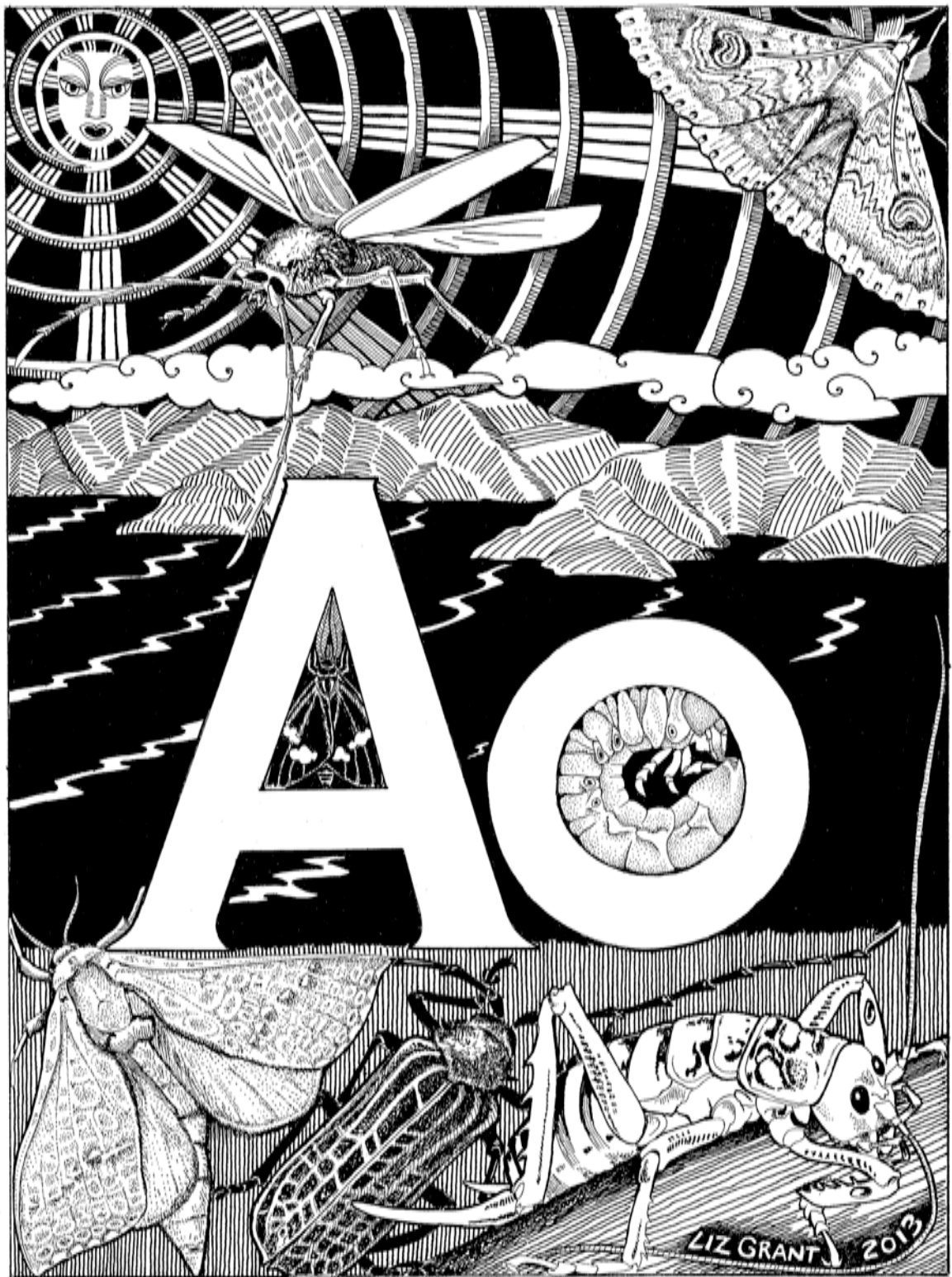
at Massey University, Palmerston North
Aotearoa, New Zealand.

Elizabeth Anne Grant

2014

Art lies in nature

Dürer



Abstract

Without insects the world as we know it would not exist. Insects are essential for life on earth, and yet they invoke from us, a gambit of emotions ranging from fear to fascination. The way in which insects impact on our lives is both surprising and diverse, and yet, in spite of their importance, insects are primarily overlooked as members of our natural world because they are small and inconspicuous.

For Māori, insects are part of ngā tamariki a Tāne, borne from the union between Tāne Mahuta and Punga. But, the distraction associated with colonisation, has faded much of the mātauranga (knowledge) and oral story telling associated with insects from Te ao Māori.

For this reason, this thesis focuses on insects recognised by Māori and considered significant to Māori around the time of European colonisation as based on written documentation (mostly European) derived from colonial field work observations, dictionaries, missionaries and researchers both Māori and non Māori during the nineteenth, twentieth and twenty first centuries. Set within a scientific framework, the topics covered, range from cosmo-genealogical entomology, through to entomophagy.

Using bronze, the thesis exhibition will visually present the diverse ways in which insects were significant to Māori. Given the inherent fragility of the invertebrate fauna and the strength and durability of bronze, this constitutes an ideal medium to interpret their life histories. Concurrently this work seeks to promote an aesthetic appreciation for insects by displaying their diverse forms and colours.

The intended outcome is to be both informative and visually stimulating.

Preface

The perceived value of insects in a modern world is small. For early Māori, who relied heavily on the surrounding world of nature to survive, insects played a great and varied role in sustaining the people both physically and spiritually.

This thesis will consider the importance and significance of insects within the natural world of Maori around the time of European colonisation. It will conclude with an artistic interpretation that processes insects in a colonial New Zealand manner, but will particularly reflect the perspective of a cultural Aotearoa. The work also aims to promote an aesthetic appreciation of insects. This ethno-entomology will necessarily include considerations and discussions of entomophagy (eating insects), academic entomology (scientific entomology) and cultural entomology where insects are associated with musical, cosmo-logical and traditional story telling.

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Ko Pikitū rāua ko Poupatate ngā marae
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Chapter One

Bronze as a non-customary intervention in
the interpretation of insects from the
natural world of Māori



Chapter 1: Thesis preview

1.1 Volume and chapter summary

This exegesis for this doctoral study in Fine Arts is divided into three volumes with pagination that runs consecutively. The first volume lays the theoretical foundation and the second volume discusses the art praxis: translating theory into practice; and articulating the method of production. The third volume is a summation of theory and praxis; the conclusion with references, appendices and glossaries.

The exegesis constitutes 40% of the Doctoral thesis as a whole while the exhibition accounts for 60%.

For the purposes of this thesis, the 'natural world' constitutes the native fauna and flora of Aotearoa, New Zealand.

Volume One comprises chapters One and Two, and represents both the scientific framework and kaupapa Māori context for the insects.

Chapter One presents the foundation for this thesis. It provides an overview of the unique biology of prehistoric New Zealand and the changes that took place with human occupation and intervention. It discusses the relationship between Māori and nature, including discussions of cosmo-genealogical connections and perceptions.

This is followed by the 'back story' that briefly examines why insects were collected in Europe and how the collecting attitudes were incorporated into exploratory 'conquering' attitudes of firstly the maritime, then colonial exploration of New Zealand. This provides an insight into the artistic approach taken to reveal the insects that in some way had significance for Māori around the time of European settlement.

Chapter One also poses the questions to be considered upon which this thesis and artistic exhibition is based. The art praxis is expressed through a re-contextualisation of a series of bronze entomological specimen drawers.

Chapter Two is the largest of the chapters. In line with a Māori world-view and the order of creation, the insect family is considered prior to a consideration of people because insects are the tuakana (older siblings) in terms of whakapapa (genealogy). The chapter begins with key entomological concepts and terminology. A table that

identifies general Māori terms for insects is followed by a series of important narratives that account for the origins of particular insects. The main body of Chapter Two reviews the multitude of insects 'collected.' Each insect entry consists of a brief biology followed by the supporting documented evidence that places each insect species or insect group, within te ao Māori (the Māori world). The insects specifically listed are those that have been created out of wax and cast in bronze using the lost wax process, and used as the foci within a series of specimen drawers in which the insects are displayed.

Volume Two consists of Chapters Three, Four and Five, and represents the art praxis component of the thesis.

Chapter Three acknowledges Māori artists whose practices have also included the use of bronze. This is followed by an examination other artists whose work directly connects with mine, and this by necessity, covers a wide range of disciplines.

The methods used to create each piece, the problems encountered and their resolution, are discussed and illustrated in Chapter Four, together with the themes and justifications for the arrangement of insects within each of the drawers.

Chapter Five is the discussion and analysis chapter. The rationale for the type of material examined is explained as well as the possible implications of the work and the findings. The work produced for exhibition is compared and contrasted with the work of other artists. The thesis proposes that this art represents a pedagogically accessible platform for cultural concepts, while simultaneously promoting a relationship between art and science.

Volume Three comprises Chapter Six, the final chapter, which reviews the thesis outcomes and summarises it visually. It critiques the artwork presented and its relative success or otherwise, based on personal interpretation and viewer response. This chapter also substantiates the uniqueness and contribution this thesis makes to Māori and world knowledge.

Volume three also includes References, and Appendices that include coloured photographic images of the insects featured within volume one (Chapter Two), as well as working technical drawings for drawers and cabinets. Waiata and karakia referenced in Chapter Two are also located here in their entirety so that the excerpts

and lines quoted can be contextualised with the full text of the song or chant. There is also a glossary of Māori terminology and a separate glossary of common terms. The location of these components in a separate volume allows all the references, images, drawings, waiata and glossaries to be more conveniently accessed and facilitate the navigation of volumes one and two.

1.2 Text conventions

Macrons will be used in the body of the text to indicate the accentuated long vowels in Māori words. They will not however appear in quotes if they do not appear in the original document.

1.3 Photographic images and illustrations

The photographic images that appear throughout the thesis and in the appendices are my own, with the following exceptions:

Fig. 3.1 (Volume 2, p. 137) 'Chapman's Homer' is courtesy of Regan Balzer.

Fig. 3.2 'Personaggio' (Volume 2, p. 139) is out of, Bignardi, M. (2004). *Joan Miro: Alchimista del segno*. Frosinone, Italy: Bianchini.

Figs. 3.3 and 3.4 'Painted bronze' (Volume 2, pp. 140, 141) are out of, Varnedoe, K. (1996). *Jasper Johns: A retrospective*. New York, United States: The Museum of Modern Art.

The cabinets and drawers, figs. 4.27, 4.28, 4.29, 4.30, 4.31, 4.32, 4.33, 4.34, 4.35, (Volume 2, pp. 168, 171, 172, 174, 176, 178, 180, 182, 186) are courtesy of Brad Boniface and were 'cut' from the back ground by Jono Williams.

Fig. 4.42 (Volume 2, p. 192) is courtesy of Brad Boniface.

The last three images (Volume 3, pp. 347, 348) are courtesy of Richard Grant

The black and white illustrations of insects in Chapter Two, are out of, Grant, E.A. (1999). *An illustrated guide to some New Zealand insect families*. Lincoln, New Zealand: Manaaki Whenua Press.

The front illustrations for each of the three volumes, and those for the chapter dividers were designed and created expressly for this thesis by myself, Eilizabeth A. Grant.

Bronze as a non-customary intervention in the interpretation of insects from the natural world of Māori

1.4 Introduction

Insects have always impacted upon human life either directly or indirectly. There are more insects in this world than any other organism and while people generally benefit from their presence, human activity over the last several hundred years has been detrimental to their diversity. It is likely that thousands of insect species have been made extinct before their presence has been recorded and before their significance in maintaining the balance of nature has been established. They are largely the overlooked members of our natural world because the great majority are small and inconspicuous.

This thesis and exhibition, investigates and represents insects that had significance for Māori during the nineteenth century when European colonisation of Aotearoa, New Zealand had its greatest impact. This 'evidence' has been collated from European written documentation, derived from colonial fieldwork observations, Missionary recordings and translations, and from published documentations derived from experience gained and then recorded by pioneers who immersed themselves within Māori life and society.

1.4.1 Background: The science

Modern bio-geographers have termed the original earth landmass that once existed on earth, Pangaea. This super continent existed around 250 hundred million years ago and over 200 million years ago it began to split and incrementally drifted apart to form two landmasses. The northern continent was known as Laurasia, and the southern continent, to which Aotearoa belonged, was named **Gondwana**. This 'great southern land' comprised Antarctica, Aotearoa, Australia, Africa, South America and India. In turn each of these two continents further fractured and drifted apart to form the continents we know today. This progressive movement is termed the 'continental drift.'

Scientists have estimated that Aotearoa separated from Gondwana approximately 80 million years ago, and neither mammals nor marsupials were on board (Gibbs,

2006). Without connection to any other major landmass, Aotearoa after this time developed a unique biota. In terms of the fauna, Aotearoa was essentially a land of birds. Mammals were represented only by sea lions and two species of bat. Since there were no mammalian predators, birds and other animals were free to occupy all ecological niches from the ground up. As a consequence, there was little need for flight amongst bird and insect species and gigantism was common (Parsons & Galbraith, 2006). Without browsing mammals the bush was dense and full of ferns. Most of the flowering plants are unique to Aotearoa. However, with human occupation and its concomitant intervention, Aotearoa began to change.

Māori came to Aotearoa *circa* thirteenth century introducing selected food plants such as the kūmara (*Ipomoea batatas*) the gourd plant (*Lagenaria siceraria*) and animals such as the kuri or Polynesian dog (*Canis familiaris*) and the kiore, or Polynesian rat (*Rattus exulans*). Both of these four-legged mammals will have initiated a change in the biota of Aotearoa by exerting predatory pressure on the vulnerable ground dwelling vertebrates and invertebrates. Together with fire and land clearance for habitation and agriculture by Māori, the environment began to change and the natural world was irrevocably modified.

By necessity, Māori lived close to nature, tracing and responding to the changing seasons. This natural world provided the exigencies of life. Nature was not only a source of food and medicine, but supplied the raw materials for clothing, shelter and transport. The reliance upon the natural world was highly significant on an emotional and spiritual level as well, because of a more fundamental and intimate connection.

This emanates from the belief that Māori share a common ancestry with forest trees, shrubs, birds, insects and other small animals. This kindred whakapapa (ancestry) relates to a world-view or cosmo-genealogy¹ that asserts that nature and humans are collectively the creation of the god Tāne Mahuta.

¹ Cosmo-genealogy is a term first introduced by Robert Jahnke as a substitute for myth and cosmology, since Māori encapsulate the origin and evolution of the universe in a genealogical system in which all matter; animate and inanimate, is genealogically interconnected.

1.4.2 Background: The cultural canon

This ontological proposition arises from knowledge and understanding of the Māori Separation story and the subsequent entering of light and knowledge into the world.

For Māori there are three states of existence - Te Korekore (realm of potential being), Te Pō (the night and the world of becoming), and thirdly, Te Ao Mārama (or the world of being – of light and of existence, (Marsden, 1975, pp. 160-162). In Te Pō, the two lovers, Ranginui (sky father) and Papa-tūā-nuku, earth mother, were in a perpetual embrace. However, the many restless children between them had grown tired of their dark existence. Tū-matauenga (god of war and man) recommended that the parents be killed but it was Tāne Mahuta (god of forests, birds and insects) that argued that they only be separated. Many tried, and failed. When the task fell to Tāne Mahuta, he devised to place his shoulders to the earth and his feet to Ranginui. With great effort and thrust, a breach was achieved and poles were set in place to maintain their separation. And, from the opening fissure, light and knowledge was permitted entry into this world. This in turn, created an opportunity for new life and growth. Again Tāne rose to the challenge. He adorned his father with ngā whetu (the stars), te rā, (the sun) and te marama, (Rona) the moon. He then sought to clothe his mother. This 'clothing' took the form of the many children produced by Tāne's union with a multitude of female entities. These were the forest plants and animals known as 'ngā tamariki a Tāne' the children of Tāne, and collectively constitute 'Te wao-tapu-nui-a-Tāne', the great sacred forest of Tāne.

It was some time later, that Tāne desired an earthly female companion, but since none existed, he fashioned one from the red earth of Papa-tūā-nuku. The action of blowing into her nostrils evoked a life signalling sneeze referred to as 'Tihei mauri ora' or the sneeze of life. This first female form was named Hine-ahu-one (also, Hine-hau-one, Buck, 1950, p. 451), and it is from her union with Tāne, that Māori (and all people) are ultimately descended (Smith, 1913, p. 137).

Chronologically the children of Tāne, (the forest trees, shrubs, birds, insects and other small animals), appeared before humans, therefore they constitute tuakana, or older siblings and as such, warrant appropriate respect. They are also the progeny of a deity and are therefore, taonga (treasures). Only people however, were born with

the likeness of Tāne and his brothers, (Grey, 1885, p. 9) and for this reason, permitted a certain degree of dominion over them.

This authority or dominion over the natural world also came about because of what ensued after the separation of the primal parents. Of the original gods, only Tāwhiri-mā-tea (god of wind and storms), had dissented to the parents being separated. In retaliation to the act, he sent great storms to break and twist the forests of Tāne, to be “dashed to the earth, with boughs and branches torn and scattered, and lying on the earth, trees and branches all alike left for the insect, for the grub, and for the loathsome rottenness” (Grey, 1885, p. 4). Tāwhiri-mā-tea then vented his anger against Tangaroa (god of the sea), who fled through the seas to avoid attack. His children however, in the confusion separated. Some fled deeper into the sea to become the fish we see today, others fled ashore to become the reptiles now found on land. This meant that Tāne was now guardian of some of Tangaroa’s children and this caused great conflict between them.

The other gods were then attacked by Tāwhiri-mā-tea, but it was only the god of war and ‘man,’ Tū-matauenga, who stood his ground against the god of the wind, and, over time Tāwhiri-mā-tea’s anger ceased.

However, now Tū-matauenga felt contempt for his brothers, Tāne, Tangaroa, Rongomā-Tāne (god of cultivated food) and Haumia-tikitiki (god of uncultivated food) because they had not stood with him, to face the wrath of Tāwhiri-mā-tea. So he created nets, baskets and snares to gather the children of these gods, so that man may eat them, and thus also established Tū-matauenga’s dominance over the other gods, (Grey, 1885, pp. 3-9). As articles of food Tū-matauenga had therefore rendered them noa or common (Smith, 1974, p. 44).

Since ‘man’ was subsequently charged with standing as the kaitiaki, or guardian for Te wao-tapu-nui-a-Tāne, the harvesting of these forest plants and animals has involved appropriate ritual and ceremony from Māori, to ensure a positive outcome, guarantee future successes and in particular, appease the god of the forest, Tāne (Clarke, 2007, p. 149). As well, restrictions in the form of a rahui (prohibition), and placements of tapu (sacredness) were set in place as regulators on harvesting, (Clarke, 2007, p. 136).

1.4.3 European colonisation

European colonisation of Aotearoa occurred mainly in the nineteenth century. Along with this colonisation came new technologies, Christianity and a new attitude towards Te wao-tapu-nui-a-Tāne. Māori saw many of their customs flouted and rituals disregarded, with apparent impunity (Clarke, 2007, p. 11).

Wide scale forest destruction, burning and land clearance took place, to change this once nourishing body of land. Great stands of tall forests, supporting vast biological diversity, were reduced to smouldering rubble, to be followed by a low growing monoculture of grassland. Habitat loss for the indigenous biota was extensive.

Foreign plants and animals were freely and liberally introduced to re-create a mini England. Where once there were no predators, the land now abounded with a multitude of faunal killers and herbaceous competitors. The indigenous flora and fauna now had to cope with deer, sheep, cows, stoats, weasels, ferrets, pigs, cats, hedgehogs, magpies and a variety of other birds, possums, rats, rabbits, hares, Trout *and* the Victorian collectors.

Many could not and did not cope. Animals like the huia (*Heteralocha acutirostris*) were rendered extinct through over collecting and habitat loss. Populations of giant land snails (*Placostylus* spp.) and giant wētā (*Deinacrida* spp.) have been severely reduced through habitat loss and predation from rats and pigs.

1.5 From Europe to New Zealand: Collecting insect images and specimens

The notion of collecting insects and images of insects in Europe has altered over the centuries and was variously linked to education, accumulation of wealth, fashion and to the discovery of 'new worlds.' A number of prominent Europeans influenced the way insects were viewed, collected, housed, categorised and classified.

Prior to the sixteenth century the natural sciences in Europe comprised random collections of observations and studies. Insect images in medieval times were immersed within elaborate floral illuminated borders that bounded important documents.

According to Neri (2011, p. 3) it was from the late 1400's to early 1500's that Europeans began to consider insects as subjects "for artists, naturalists, and other

practitioners as part of the rising interest in classifying, collecting, and representing the natural world.”

This was visually consolidated in 1505, when German artist Albrecht Dürer (1471-1528) painted his observation of a large stag beetle with its ‘antlers’ raised in a defiant and aggressive stance. The plain background is only interrupted by the beetle’s shadow, a join in the paper, the date and the artist’s insignia.



Fig. 1.1 Stag beetle. Three-dimensional rendition of Dürer’s painting.

Janice Neri (2011, p. xii) referred to this representation as ‘**specimen logic.**’ She further commented that this isolation of subject,

Turns nature into object by decontextualizing select creatures and items – that is, by removing them from their habitats, environments, and settings. Conversely, only those creatures and items that can be depicted or displayed as objects, those that possess clearly defined edges or contours and those whose surfaces are visually distinct, are suited to the aims of specimen logic.

She continued, “Insects – or rather, certain types of insects – meet the criteria of specimen logic and were thus well suited to the broader impulse to visualize nature as collections of objects.”

Dürer's beetle drawing, not only served to inspire other artists to adopt the topic of insects, but even renditions of 'his' stag beetle, were made by artists like Joris Hoefnagel (1542-1601). The period became known as the '**Dürer Renaissance**' and such detailed life-like paintings were popular amongst wealthy collectors. Hoefnagel's insect works were 'collected' by patrons such as the Holy Emperor Rudolf II of Prague who was widely known to have the most extensive private collection in his 'cabinet of curiosities,' - a room dedicated to the study of unusual and intriguing items of all natures, and collected from around the world.

Mauriès (2002, p. 50) in his review of 'cabinets of art and curiosities' noted that,

In fourteenth-century France, the precursors of these cabinets were termed estudes, and in Italy in the fifteenth and sixteenth centuries they became known as studioli. In about 1550, the word Kunstkammer ('chamber of art') appeared in German, to be joined soon afterwards by Wunderkammer ('chamber of marvels').

He also described the underlying features of these cabinets of curiosity (*Ibid.*, pp. 34-35) saying that,

Symmetry also established itself as the ruling aesthetic principle governing the settings in which objects were enshrined; for the cabinet of curiosities was nothing more nor less than a sequence of containers holding within them yet more containers in diminishing order of size, in the ceaseless quest for the allusive essence of a particular realm of knowledge. These boxes and caskets were themselves contained within drawers: drawers which together formed – on an architectural model resembling a monument in miniature – the elements or furnishings of the cabinet of curiosity.

Early engravings show that artworks and mounted heads or fully taxidermied animals decorated the walls and sometimes the ceilings of the *Wunderkammer*. Smaller items rested on wooden shelves or were contained within glass jars while the 'insect' fauna sat within columns of wooden drawers. Over time these cabinet rooms were scaled down to ultimately become specialised stand-alone pieces of wooden furniture with doors and partitions. Made of painted or varnished wood, like Brazilian or Honduran mahogany (*Swietenia macrophylla* or Caribbean mahogany *S. mahagoni*), these display cases were still referred to as specimen 'cabinets' or *schränke*.

Those made specifically for collections of insects still consist of a series of shallow, sometimes glass-topped drawers usually white paper lined to enhance the insect forms. Typically the insects are arranged in horizontal lines of duplicated specimens. Sometimes they may be contained within smaller shallow cardboard trays or units to demarcate different specimens and allow closer 'inspection' by being able to be lifted out.

In 1602 the Italian naturalist, Ulisse Aldrovandi published his seventh volume, of *Tavole di animali* titled, *De animalibus insectis* (all volumes corresponded to and visually encapsulated his extensive natural history collection). *De animalibus insectis* was based on his work from the late 1500's while he was professor of natural history at University of Bologna (Italy) with most of the insects drawn by Cornelius Schwindt (1566-1632). Published images of insects had not been seen in Europe prior to this time and permitted multiple views of insect specimens including larvae (Neri, 2011, pp. 27-33).

Later, artists included insects as 'incidental objects' within still life paintings. They were procured through trade and regarded as 'extravagant and curious.'

Exploration was via the sea and the discovery of new lands provided new opportunities for trade and profit. Trade consisted of highly valued commodities like spice but also of highly collectible items from nature. Travels to other countries ensured a ready supply of 'curiosities' and fanciful stories for the wealthy collectors and their *Wunderkammer*.

At this time, the long held belief was that there must be a landmass in the South as "a necessary counterpoise to the great landmasses of the north and a place of marvellous geographic fantasies" Salmon (1991, p. 71). And, with the Northern hemisphere reasonably well 'discovered,' Europeans mounted explorative expeditions into the hitherto unknown and uncharted South Pacific. The Dutch were viewed as being the best cartographers at the time, as well as great navigators and seamen according to Salmon (1991, p. 69).

As a member of the Dutch East India Company, the Dutch Captain, Abel Tasman was instructed to set forth in search of the 'Unknown South land.' In 1642, he sighted land and mapped part of the coastland but did not circumnavigate it. This coastland

was later registered as, Zeelandia Nova - New Zealand. This 'new land' however, was actually 'old land' because it had already been colonised by Māori, who had not only occupied it for several centuries but they had named it, - Ao-tea-roa – Long white cloud.

Almost two decades later, in 1660, the Royal Society was established in London and their knowledge-seeking mission was guided by scientific investigation.

As an indicator of wealth and success, natural history collections until this time were contained in private hands, on private property, for selective private viewing. Collections did not become available for viewing in a public space, until the opening of the Ashmolean Museum in Oxford, 1683.

The ardent collector, naturalist and Irish doctor, Hans Sloane (1660-1753) was ultimately to contribute significantly to the opening of the British Museum in London. As a physician, Sloane's interest extended to botany because of its intimate link with medicine, but he also collected many other things in nature. While employed as personal physician to Duke of Albemarle (who was appointed Governor of Jamaica) Sloane was also able to record and collect extensively. Along with his botanical specimens, Sloane's collection consisted of many zoological specimens including thousands of insects. This extensive collection travelled with him when he returned to London where he became a member of the Royal Society (Rice, 2010, pp. 14-21).

Amongst Sloane's art collection were works by the two German artists, Albrecht Dürer and watercolour paintings by Maria Sibylla Merian (1647-1717).

From 1699 to 1701, Merian spent time in Surinam, Holland, painting moths and butterflies, but in particular her work encapsulated insects and their metamorphosing life cycles, amongst their verdant host plants. Her interest and spectacular images represented visual summaries of the life cycles of mostly moths, butterflies and beetles, as well as scatterings of other fauna. Some years later in 1736, Sloane (then 76) and his extensive and eclectic collection were 'inspected' by a young Swedish Botanist and Physician, Carl Linnaeus (Karl von Linné) (Rice, 2010, p. 20).

At this time Linnaeus (1707-1778) had already formulated his own theory of classification and, although it initially focused on botanical specimens, it was later also applied to fauna as well as geology. Although the invention of binomial

nomenclature has been attributed to Linnaeus, it was the earlier work of Tournefort that established “the evolution of a generic concept” while zoologist/botanist John Ray is credited with the introduction of “a species concept” (Linsley and Usinger, 1959, p. 39). But it was the way Linnaeus modified and developed these ideas that was revolutionary.

As described by Stearn (1959, p. 6),

His achievement was to take systems of procedure which his predecessors had used incidentally or piecemeal or on a very small scale, to analyse and evaluate them from a standpoint of their practical usefulness, and then to apply them consistently, methodically, and on a large scale to the whole living world as then known.

In the first edition of his *Systema Naturae* (published in 1735) Linnaeus employed the additional format for naming that listed the plants and animals with a readily palatable system of binomial nomenclature. Up until this time, specimens had been largely ‘identified’ by a series of lengthy descriptive phrases (polynomial nomenclature).

Stearn (*Ibid.*, p. 6) argued that,

Linnaeus did not invent binomial nomenclature: he did not abandon polynomial nomenclature ... for diagnostic purposes; he introduced a dual system of nomenclature which led to the replacement of diagnostic polynomials by merely designatory binomials.

The relevance here of this naming approach, is that in the following chapter, there are many examples of a parallel, but independent use of binomial nomenclature accredited many insects by Māori, where the first part of the name is generic for the group of insects to which the insect belongs, - and a second part which more accurately identifies the species. Examples include **pepe**, as a general term for moths, **pepe tuna** for the pūriri moth, and **pepe atua** for the owl moth (wattle moth). For flies, the general term is **rango**, and **rango pango** for the blue bottle fly. There are also other examples where polynomial nomenclature is used, where three or more words have been used to specifically identify an insect, as in **rango tua maro** for the yellow/brown blowfly.

When the British Museum opened to the public in London in 1759, it was the purchase of Hans Sloane's collection after his death that was to make up a significant proportion of the Natural History section.

As part of their advocacy to expand scientific knowledge, the Royal Society of London appointed James Cook (1728-1779) to Captain the Whitby collier, the *Endeavour* to participate in the international observation of the Transit of Venus, which for Cook, meant sailing to Tahiti (The 'transit' was observed again in 2012).

He was to receive further confidential instructions to continue south, as recorded in Salmon, (1991, p. 99),

Attaining a Knowledge of distant Parts which though formerly discover'd have yet been but imperfectly explored, will redound greatly to the Honour of this Nation as a Maritime Power, as well as to the Dignity of the Crown of Great Britain, and may tend greatly to the advancement of the Trade and Navigation thereof ...

You are to proceed to the Southward in order to make discovery of the Continent above-mentioned until you arrive in the Latitude of 40° unless you soon fall in with it. But not having discover'd it or any Evident signs of it in that Run, you are to proceed in search of it to the Westward between the Latitude before mentioned and the Latitude of 35° until you discover it, or fall to the Eastern side of the land discover'd by Tasman and now called New Zealand.

It was during this voyage that Captain James Cook's succeeded in 'rediscovering' New Zealand in 1769. The land was circumnavigated and mapped, thereby determining it as separate from Nova Hollandia and not part of the great Terre Australe that was suggested by Tasman's original coastal trace lines.

Also consistent with the mission, a closer European 'look' was conducted of the land, the people, the fauna and the flora. This meant landing many times to encounter, 'sample' and map New Zealand. The ship was well endowed with expertise on board to observe, record, collect, and illustrate the 'findings' such as the wealthy Englishman and naturalist, Joseph Banks (1743-1820). As described by Fortey (2011, pp. 189, 190) the amassed flora and faunal specimens collected by Banks from this and subsequent Cook voyages, "contributed to the evolution of collections

for scientific ends” and when displayed in London, they became “vouchers for the truth, and as such acquired permanent value.”

As part of Joseph Banks’ scientific retinue there were Swedish born Daniel Carl Solander (1733-1782), a Linnaean student and naturalist, the artist Sydney Parkinson (1745-1771) whose role was to visually capture the form and colour of specimens (mostly plants) collected before they were otherwise preserved. Alexander Buchan (?-1769) who was taken along as assistant draughtsman, and Hermann Spöring (1733-1771) who also produced many zoological illustrations (Andrews, 1986, p. 7).

In a letter by John Ellis (a British merchant and amateur naturalist) addressed to Linnaeus, it was said that Joseph Banks’ party could not be better prepared for this pioneering adventure of discovery.

According to Morrell, (1958, p. 15) Ellis wrote,

No people ever went to sea better fitted out for the purpose of Natural History; they have all sorts of machines for catching and preserving insects ... They have many cases of bottles with ground stoppers of several sizes, to preserve animals in spirits.

Born in Denmark, Johan Christian Fabricius (1745-1808) was a student and proponent of Carl Linnaeus’s theory of classification. Upon the *Endeavour’s* return from the South Pacific, it was Fabricius who described the insects in Bank’s collection including those collected from New Zealand. These appeared as part of the published tome of 832 pages, called *Systema entomologiae* (1775).

The first New Zealand insect (and listed 12th in the book) to be described and ascribed the Linnaeus system of classification, was the large sand scarab, then named *Scarabaeus truncatus* and now, *Pericoptus truncatus*. About forty specimens were identified as having their “Habitat in nova Zelandia.” Although this number may be higher as it seems likely that some specimens may have had their ‘habitat’ mistakenly recorded as in ‘nova Hollandia,’ the name given to Australia at this time.

The following table lists all the New Zealand insects that appeared and were described in *Systema entomologiae* by Fabricius. The common names are terms in current use, and the page numbers refer to the actual publication. Names in bold are referred to elsewhere in the thesis.

Table 1.1: The ‘true’ insects collected on Cook’s first voyage to New Zealand that were described and ascribed the Linnaeus format of binomial nomenclature by Johan Christian Fabricius and published in *Systema entomologiae*, 1775.

Modern, common name	Page	Original scientific name (Fabricius)
Order: Coleoptera – Beetles		
Large sand scarab	p. 6	<i>Scarabaeus truncatus</i> - now, <i>Pericoptus truncatus</i>
Tanguru chafer	p. 34	<i>Melolontha suturalis</i> - now, <i>Stethaspis suturalis</i>
Manuka beetle	p. 36	<i>Melolontha festiva</i> - now, <i>Pyronota festiva</i>
Plain manuka chafer	p. 36	<i>Melolontha laeta</i> - now, <i>Pyronota laeta</i>
Pill beetle	p. 53	<i>Hister detritus</i> ² – now <i>Saprinus detritus</i>
	p. 54	<i>Apate minutus</i>
	p. 55	<i>Dermestes carniforus</i>
Flour beetle	p. 56	<i>Dermestes navalis</i> -now, <i>Tribolium castaneum</i>
	p. 57	<i>Dermestes scaber</i> - now, <i>Pristoderis scaber</i>
Ladybird	p. 87	<i>Coccinella leonina</i> ³
	p. 124	<i>Lagria lineata</i>
Giraffe weevil (male)	p. 134	<i>Curculio barbicornis</i> - now, <i>Lasiorhynchus barbicornis</i>
Giraffe weevil (female)	p. 134	<i>Curculio assimilis</i> - now, <i>Lasiorhynchus barbicornis</i>
Two-spined weevil	p. 136	<i>Curculio bidens</i> - now, <i>Nyxetes bidens</i>
Weevil	p. 152	<i>Curculio acuminatus</i> -now, <i>Rhadinomus acuminatus</i>
	p. 170	<i>Lamia crista</i> - now, <i>Hybolasius crista</i>)
Lemon tree borer	p. 184	<i>Saperda hirta</i> now, <i>Oemona hirta</i>
	p. 185	<i>Saperda lyncea</i> - now, <i>Xylotoles lynceus</i>
	p. 186	<i>Saperda grisea</i> - now, <i>Xylotoles griseus</i>
Two-toothed longhorn	p. 186	<i>Saperda tristis</i> - now, <i>Ambeodontus tristis</i>
Variegated longhorn	p. 189	<i>Callidium variegatum</i> - now, <i>Coptomma varigatum</i>
Lax beetle	p. 189	<i>Callidium lineatum</i> - now, <i>Thelyphassa lineata</i>
Striped longhorn	p. 189	<i>Callidium sulcatum</i> - now, <i>Navomorpha sulcata</i>
Flower longhorn	p. 192	<i>Callidium minutum</i> - now, <i>Zorion minutum</i>
Tiger beetle	p. 225	<i>Cicindela tuberculata</i>
Devil’s coach-horse	p. 265	<i>Staphylinus oculatus</i> - now, <i>Creophilus oculatus</i>
Order: Hymenoptera – Wasps, bees and ants		
Ichneumon wasp	p. 329	<i>Ichneumon luctatorius</i>
Ichneumon wasp	p. 330	<i>Ichneumon lotatorius</i>
Ichneumon wasp	p. 332	<i>Ichneumon sollicitorius</i> - now, <i>Degithina sollicitoria</i>
Ichneumon wasp	p. 333	<i>Ichneumon decoratorius</i> - now, <i>Levensa decoratoria</i>
Ichneumon wasp	p. 341	<i>Ichneumon luteus</i> ⁴ - now, <i>Ophion luteus</i>
Hunting wasp	p. 350	<i>Sphex fugax</i> - now, <i>Sphictostethus fugax</i>)
Hunting wasp	p. 351	<i>Sphex nitida</i> ⁵ - now, <i>Sphictostethus nitidus</i>
Order: Lepidoptera – Butterflies and moths		
Red Admiral	p. 498	<i>Papilio gonerilla</i> - now, <i>Vanessa gonerilla gonerilla</i>
Yellow Admiral	p. 498	<i>Papilio itea</i> - now, <i>Vanessa itea</i>
Order: Hemiptera - Bugs		
Clapping cicada	p. 680	<i>Tettigonia cingulata</i> - now, <i>Amphisalta cingulata</i>
Red-tailed cicada	p. 680	<i>Tettigonia cruentata</i> - now, <i>Rhodopsalta cruentata</i>
Variable cicada	p. 681	<i>Tettigonia muta</i> - now, <i>Kikihia muta</i>
Order: Diptera - Flies		
Beach stilleto fly	p. 757	<i>Bibio bilineata</i> - now, <i>Megathereva bilineatus</i>)
Hoverfly	p. 766	<i>Syrphus trilineatus</i> (now, <i>Helophilus trilineatus</i>)
Hoverfly	p. 767	<i>Syrphus cingulatus</i> - now, <i>Helophilus cingulatus</i>

² This specimen was recorded as “Habitat in nova Hollandia” but is an endemic New Zealand species according to Kuschel (1987, pp. 56-57).

³ This specimen was recorded as “Habitat nova Hollandia” but is native to New Zealand.

⁴ This specimen was recorded as “In nova Hollandia, Zealandia” but maybe a mistake.

⁵ This specimen was recorded as “Habitat in nova Hollandia” but is endemic to New Zealand.

Also described in *Systema entomologiae* were crustaceans (including two from New Zealand) spiders and scorpions, which is testimony to how broad the European interpretation and categorisation of 'insects' was still at this time.

Since the 'crew' of this and other ships had to approach land via the coast it is not surprising that many of the insects first collected, were coastal dwelling species or those which included the coast within their habitat range. Always however, land visits were relatively brief.

Cook noted in his diary on his return to New Zealand (1772-75 on H.M. Barks Resolution and Adventure) that,

The most mischievous animals here are the small black sand-flies, which are very numerous, and so troublesome, that they exceed everything of the kind I ever met with; wherever they bite they cause a swelling, and such an intolerable itching, that it is not possible to refrain from scratching, which at last brings on ulcers like the small-pox (Reed, 1969, p. 178).

And during his third voyage to New Zealand (1776-1780) the ship's surgeon and naturalist William Anderson (1750-1778) of the *Resolution* noted,

Insects are very rare. Of these, we saw only two sorts of dragon-flies, some butterflies, small grasshoppers, several sorts of spiders, some small black ants, and vast numbers of scorpion flies, with whose chirping the woods resound. The only noxious one is the sand-fly, very numerous here, and almost as troublesome as the mosquito (Reed, 1969, p. 246).

Ultimately most of Banks' collection became a part of those held in the British Museum of Natural History.

In spite of several designated 'collecting' expeditions launched from Europe to New Zealand during the first half of the nineteenth century (such as the French ship *L'Astrolabe* under Dumont d'Urville's command that landed in 1827, and the British ships *Erebus* and *Terror* under James Clarke Ross command in 1836), relatively few insects were collected. This is testimony perhaps to their inconspicuousness - or possibly to the lack of energy that went into fossicking for them. However, as a land of birds, it is not surprising that the visiting naturalists and scientists, took far greater notice of New Zealand's bird life, - initially at least, than in the insect life.

For a greater appreciation and observation of the invertebrate fauna of New Zealand, a far longer term of stay in the country was required. And notably, those insects that were collected and recorded by Europeans thus far had only been ascribed scientific and 'common' names. None of the names attributed to insects by Māori, had been recorded.

This changed in 1831 when the London born Jewish man, Joel Samuel Polack (1807-1882) came to live a few years in New Zealand. He recorded his experiences with not just the land but also with the indigenous people. In his two-volume set, *New Zealand: Being a narrative of travels and adventures during a residence in that country between the years 1831 and 1837* (published in 1838). His comment (Polack, 1838/1974, p. 319) "the entomology of the country is somewhat spare" - somewhat reiterates Banks' earlier journal entry regarding the apparent lack of diversity in the New Zealand insect fauna. However Polack immediately followed this statement with his experience with a 'limited number of insects.' Of greatest significance is that the common names used, were associated with their Māori nomenclature, and likely constitutes the earliest documentation to do so. That these insect names rose to historical prominence is only by virtue of their nuisance value because they were all considered pests. The names recorded by Polack (1838/1974, pp. 319-320) were **namu** (sand-fly), **waiwai roa** (mosquito), **kikārāru** (cockroach), **keha** (flea) and **kutu** (lice). Such records also reflect what appears to be a common human response to record negative interactions, before registering a positive reaction, and in this case, towards insects.

Ernst Dieffenbach (1811-1855) came to New Zealand from Germany in 1839 as a naturalist and medical doctor, but his position in New Zealand was as a surveyor for the New Zealand Company. He travelled extensively and published his observations in two volumes, entitled *Travels in New Zealand* and published in 1843. In the 'Fauna of New Zealand' section, (volume two) Dieffenbach made many scientific descriptions of insects, and documented a few cultural associations, but essentially the Māori names, only cite Polack's 'findings.'

Many more 'new' Māori names appeared in the published writings of Reverend Richard Taylor who also arrived from England in 1839 and resided initially in Paihia,

Bay of Islands. He was later appointed missionary at Putiki Wharanui in Whanganui. In the insect section of his booklet *A leaf from the natural history of New Zealand* (1848) Taylor alphabetically listed 84 Māori terms. Included in this ‘insect’ list however, were two names for slugs, three for spiders and one term for a worm.

Taylor followed this publication, with his book *Te Ika a Maui*, in 1855. He published a scattering of Māori names for insects, interspersed with common English names and a small amount of biological information together with some limited cultural material within the *Natural History* chapter. While some of his biological descriptions may have been questionable, the indigenous information is valued for being an early record of colonial history. And, it was Māori with whom he spent much time, who purportedly respected him, and, who supplied Taylor with this information.

Taylor produced eight coloured plates for *Te Ika a Maui*. The first two were of insects. According to Andrews (1986, pp. 108, 109) Taylor’s image of the pūriri moth was the first illustration of this species and the first New Zealand natural history book to use the chromolithography process. It is likely that some of the other images were also new to the audience, although some criticism was made towards his writing and illustrations claiming there were inaccuracies with the “illustrations that might have been tolerated earlier, but which were not now acceptable in a serious scientific work” (*Ibid.*, p. 108). While this criticism may be valid, the images have merit because they provide insights into his perceptions and observations at this time.

In Plate I, the two images of the large green moths (top, No.1 and bottom left, No.6) are both of the pūriri moth *Hepialus virescens*,⁶ although the large female at the top was annotated *Hepialus rubro-viridans*. This exemplifies how sexual dimorphism can lead to mistaken identity, just as Fabricius incorrectly described the female giraffe weevil with her shorter rostrum, as *Curculio assimilis* and the male, as *Curculio barbicornis*⁷ in 1775 (See Table 1.1, p. 16).

Taylor conveyed additional information by illustrating the male moth at rest with its ‘tent-like’ wing position. However, the inclusion of a rolled up proboscis is inaccurate,

⁶ Now *Aenetus virescens*.

⁷ Now *Lasioryhynchus barbicornis*

because pūriri moths lack mouthparts and cannot therefore feed. This demonstrates a flaw in his deductive logic, which allowed him to conclude that just because some moths have a proboscis, then all do, – a mistake unlikely to be made by a ‘serious scientist.’ The two illustrations (dorsal and ventral views) of the self-introduced northern wattle moth (owl moth) from Australia, *Dasypodia cymatodes* (No. 2) offers for the first time a visual connection with its Māori name, **Pari kori taua** in the annotations for the *Colored [sic] Plates*. While the scientific name was not included in the text, the illustrations are sufficient to link this image with the North Island species. Taylor did note (1855/1974, p. 421) that “The Nyctemera is also found in New South Wales” thereby recognising its ‘likeness’ with the Australian species.

While it is agreed that the accuracy of detail may not be evident in Taylor’s illustrations, Plate I provided the interested reader with a variety of New Zealand moth species to admire, as well as presenting a sense of size relativity and colour.

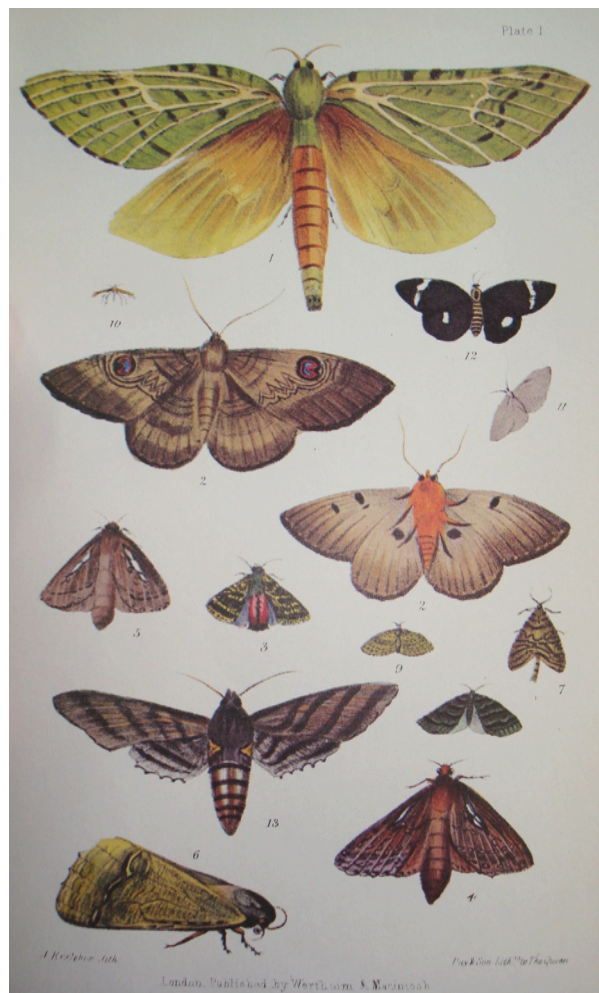


Fig. 1.2 Plate I, from Rev. Richard Taylor’s *Te Ika a Maui*, 1855/1974.

The second plate of insect images shows mainly a collection of butterflies, but there are also beetles. Of the two larger beetle images, the elongated giraffe weevil *Nemocephalus barbicornis*⁸ Brentus is No.8 at the bottom of the page. Taylor's image of this beetle (or a rendition of it) appeared again in White's *Illustrations prepared for White's Ancient History of the Māori*, (1891, p. 99). Of note is White's caption "**God of new-made canoe** (*Nemocephalus barbicornis* Brentus)."

It is not until later that the Māori names **tūwhaipapa** and **tūwhaitara** became directly associated with *Lasiorrhyncus barbicornis*, in Williams (1917, p. 543).

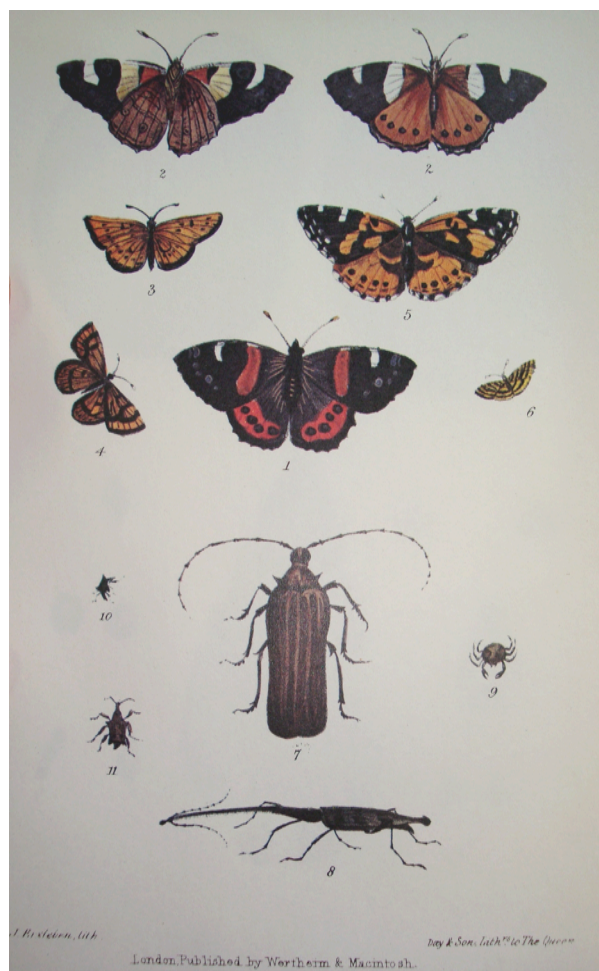


Fig. 1.3 Plate II, from Rev. Richard Taylor's *Te Ika a Maui*, 1855/1974.

Also of merit in *Te Ika a Maui* are extensive biological descriptions and cultural information regarding the vegetable caterpillar (pp. 422-425) as well as the Māori names **aweto** and **hotete**. Taylor included information relating to other insects found

⁸ *Lasiorrhyncus barbicornis*

parasitised including the sand scarab, **mumutaua**, as well as information about similar occurring ‘vegetating caterpillars’ elsewhere in the world, with a fine engraving of three specimens.

The first half of the nineteenth century saw the publication of two editions of William Williams’s *A dictionary of the New Zealand language, and a concise grammar; to which is added a selection of colloquial sentences*, with the first edition published in 1844 in Paihia, New Zealand, and the second in 1852, in London, England. In these and the many successive editions, by their very nature, were more Māori names pertaining to insects.

The narrowing and specialising of scientific knowledge also largely took place in the nineteenth century and with this, came the establishment of many entomological societies. Insects became more specifically defined to the exclusion of spiders, centipedes, and scorpions and other small invertebrates formerly regarded as crouching under the umbrella of the term ‘insect.’

1.6 PhD study

The vertebrate component of ‘ngā tamariki a Tāne’ are generally well documented and feature extensively in many forms of art. Less conspicuous however, are the range of insects and other small creatures borne from the union between Tāne and Punga.

Traditionally, Māori did not differentiate insects from other invertebrates like spiders and centipedes. These were grouped under the collective term, **ngārara**, which also includes small reptiles. However for the purposes of this thesis and as the focus for my artistic direction, I will only consider the **insect** portion of ngārara, (as scientifically defined, - refer to p. 26).

Many are now endangered and at risk of extinction through habitat loss, over collecting, and predation from introduced animals. The subject is relevant to my personal interests, to earlier publications and is an area that I was professionally involved in, while a staff member at Massey University (Palmerston North).

The primary medium I will be using is bronze.

1.6.1 Investigatory questions and aims

With a few exceptions, insects by their very nature are relatively small, well camouflaged and secretive. Not surprisingly therefore, they seldom feature in the public consciousness and are not immediately considered as candidates for preservation. Historically as a nation we do not have a great reputation for being respectful conservationists. If insects were viewed in a public space such as in an art gallery, and given more than a biological context, then they may be better understood and valued. Elevating their profile and 'worthiness' is the first step towards promoting their conservation.

There are two parts to this investigation:

1. **Which insects were recognised by, and have significance for Māori, - why and in what way?**

The principal focus in this study will be on insects **recognised by Māori** and **significant for Māori** around the time of European colonisation as documented by biologists, dictionaries, missionaries, tohunga (experts) and interpreters, both Māori and non Māori during the nineteenth, twentieth and twenty first centuries. See Chapter Five for discussion of this form of documentation.

The extent to which insects were 'recognised by Māori' and 'significant for Māori' within the context of this study, may vary greatly. Insects may have been a source of food, or may have been a pest in some way or have simply been assigned a name. In the latter case, the assignation of a name is an acknowledgement of the organism's existence and therefore meets the criteria for being 'significant.' Further, in some instances Māori applied generic terms to groups of insects with similar characteristics, rather than identifying and naming individual species within the group. This being the case, any member of this generic group may be selected and represented, if viewed as artistically relevant. Each insect species identified, will be accompanied with a relevant synopsis of aspects of its life history within this study.

It is intended that this document and the artwork produced in response to the information gathered, will refocus the importance of insects for Māori, by placing them within a cultural context.

I wish to acknowledge David Miller's, *The insect people of the Māori*, published in 1952 that provided an excellent starting point for this investigation.

2. How can these insects be visually presented to effectively and uniquely allude to this cultural significance of insects for Māori, while also contesting historical colonial and curatorial strategies?

The challenge is to take the subject of insects, (which for many people is unappealing) and create an art form, or collection of forms that is relevant to today but still references the past.

For this second part of the research question, the insects identified will be displayed within a series of insect collector's drawers. It is the possession of an exoskeleton that allows the adult insect to be successfully dried with minimal shrinkage or distortion that allows storage within collections.

Collector's drawers are iconographic of the time. While Europeans were documenting mātāuranga Māori (Māori knowledge) and 'incidental' Māori relationships with insects during the nineteenth century New Zealand, they were also collecting New Zealand insects for display within elaborate drawers and cabinets, and as specimens for museums. These insect collections were viewed as evidence of new lands discovered, described, dominated, and delivered as trophies for display and deliberation.

Carl Linnaeus' development of the system of binomial nomenclature, uniquely and globally identifies all known organisms within the scientific world (See Chapter Two, 2.2.1, pp. 27, 28 for detail) and so the insects gathered could be subsequently organised and filed within collections based on scientific identification and order.

Deitz (1984, pp. 120-124) discussed the layout of insect collections and their relative merits. And while alphabetical assembly and displays based on geography are options, in general, curators use the systematic arrangement, whereby biologically related insects are displayed together to assist the process of identification and retrieval of specimens for study. This scientific regimentation however, by its very nature disengages them from their connections to the indigenous people and country of origin, and therefore ignores their cultural value and significance.

By contrast, the artwork produced for this thesis, will re-organise the insects identified to reflect their associations with Māori, and enable cultural significance to over-ride scientific accumulation.

While still utilising the conventional 'housing' of insects within cabinets and drawers, further manipulation will be achieved by altering the perspectives of these geometric components to ensure that the viewing experience is both enhanced and liberated by their configuration. The series of illusionary techniques employed, comprise strategic trompe-l'oeil-painting and contrived linear perspectives combined with distortion and compression to facilitate the viewing of the insects within their allocated drawers and associated cabinets. This will make them conspicuous and accessible.

The arrangement and display of insects will also challenge entomological conventions at a fundamental level. Since the medium is bronze, preservation practices can be defied to more thoroughly showcase life histories and the diverse forms that exist within the insect world of Aotearoa, New Zealand. The artwork produced will be multidisciplinary in presentation by its amalgamation of sculpture, painting, entomology, culture and visual deception. The outcome will be unique and educational as well as visually stimulating.

1.7 Objectives of the investigation

Bronze is a compelling and powerful medium because it is durable, tactile and inherently valued. It is therefore also an ideal medium to portray these members of our natural world that are fragile and mostly under valued. The works will give the silent ones a strong voice and the fragile, great strength. While reflecting my own observations of insects and interest in entomology, the ultimate aim is to facilitate respect for insects, to resurrect and revitalise the cultural narratives and reinstate insects as taonga.

And, because a considerable amount of information has been amassed, this thesis will help prevent the existing knowledge from being lost, and draw attention to the complex cultural profiles of an essential aspect of our environment.

Chapter Two

Entomological practices; The insects
Historical and cultural evidence



LIZ GRANT 2014

Chapter 2: Entomological practices; the insects; Historical and cultural evidence

2.1 Introduction

This chapter observes Māori cosmo-genealogical succession where the insects are examined prior to a review of artists working in bronze because in narratives of succession, insects preceded humans. A general 'formal' overview of insects is provided and then the insects identified and selected for this artistic study are examined. This comprises a brief biology followed by citations of cultural significance.

2.2 Entomology - The study of insects

Insects belong to a class of animals called Insecta (in sections) contained within the invertebrate phylum, Arthropoda, (jointed legs). Two diagnostic features, differentiate insects from other members of the phylum. These are, six legs and a body divided into three parts (head, thorax and abdomen). By contrast, spiders have a body comprising two parts (cephalothorax and abdomen) and eight legs.

Consistent with other Arthropods, insects have an exoskeleton. Growth from an immature to mature stage therefore requires a series of moults whereby the external 'skin' splits dorsally to allow the enlarged body to 'escape.' During its life, an insect may also undergo various levels of body transformations, and this process is termed metamorphosis.

Complete metamorphosis exists when the morphology (outward appearance) of the larval stage differs from the adult. This is usually interceded by an inactive, but internally body modifying chrysalis or pupa stage, also visually different to the adult. The life cycle of a moth exemplifies this process. Once hatched from the egg, a voracious and highly mobile caterpillar represents a phase of rapid growth, followed by a sedentary chrysalis stage. Development stops once the adult moth emerges. Time as a winged adult may be short compared to the caterpillar stage because its primary function is reproduction.

Incomplete metamorphosis identifies insects whose immature stages are more or less miniature versions of the adult, as exemplified by earwigs and wētā.

2.2.1 Entomology terms and conventions

To avoid confusion and maintain consistent nomenclature, some terminology requires clarification. The young stage of an insect that undergoes complete metamorphosis is referred to as a *larva* (plural *larvae*). The term *caterpillar* refers to the larvae of moths and butterflies and *maggot* to the larvae of flies. The young stage of an insect that undergoes incomplete metamorphosis is described as *immature*. For some aquatic insects the immature stages are referred to as *nymphs*. The sedentary stage is termed *pupa* (plural *pupae*) for most insects, but *chrysalis* or pupa when referring to moths and butterflies. This will be true with the exception of comments or descriptions contained within quotation marks.

Animals come under the kingdom **Animalia** from which there is a series of **phylum**, **classes**, **orders** and **families**. Each is a subset of the other and members within exhibit biological relatedness. The grouping of organisms with a shared likeness constitutes a *taxonomic classification* otherwise known as *systematics*.

This ranking system continues to **genus** and **species**. Both are written in Latin and together, constitute the binomial nomenclature developed by Carl Linnaeus. Common names however, are not unique and may be shared with other insects or organisms. For example, the New Zealand glow-worm is not a true worm, but the maggot of a fly. Common names therefore require further biological reference to be reliable.

The convention for writing scientific names is a capital letter for genus, and a lower case for species. Both are in italics, for example, *Aenetus virescens*. Sometimes the genus is known, but not the species, in which case the convention is to write *Aenetus* sp. This species name cannot stand-alone and must be preceded by the genus name. If more than one species is referred to within a paragraph but related to the original genus, then the second reference is denoted by its capital letter only, followed by the species name. For example, the New Zealand pūriri moth is *Aenetus virescens* and one Australian species is *A. eximus*.

Fig. 2.1 An example of taxonomic ranking

Kingdom: Animalia

Phylum: Arthropoda

Class: Insecta

Order: Lepidoptera

Family: Hepialidae

Genus: *Aenetus*

Species: *virescens*

Binomial name: *Aenetus virescens*

2.3 General Māori names for insects and insect origins

The following table documents names recorded in European literature.

TABLE 2.1 Non specific names attributed to insects and insect groups

Māori name	Meaning	Author
Ngārara; Wenewene	A general name for all insects; An insect.	Taylor, 1848, pp. 5, 6
Ngārara; Papakura	A reptile; an insect; An insect.	Williams, 1852, pp. 92, 110
Ngarangara; Ngārara; Papakura	Anything small; Reptile; insect; An insect.	Williams, 1871, pp. 96, 108
Potipoti	A general term for swarming and destructive insects.	Tregear, 1891, p. 358
Ngaio; Ngarangara; Ngārara; Papakura	A small grub; Anything small; Reptile; insect; An insect.	Williams, 1892, pp. 109, 111, 126
Manumanu, ngārara	Generic terms for insects.	Best, 1908, p. 238
Ngārara	Insect and small reptilia.	Stowell, 1911, p. 109
Te aitanga-pekepeketa; Te whanau-a-Torohuka; Mokamoka	Insects of all kinds; Reptiles and insects, the lice of the earth mother; An insect.	Smith, 1913, pp. 117, 136, 157
Ngaio; Ngarangara; Ngārara	A small grub; Anything small; Reptile; insect.	Williams, 1915, pp. 105, 106
Te aitanga a Punga; Mū; Ngaio; Ngarangara; Ngārara; Nihinihi; Papata; Te aitanga pepeke; Toropakahi	Insects; An insect; A small grub; Anything small; Insect; An insect; An insect; The insect family; An insect	Williams, 1917, pp. 6, 247, 264, 267, 257, 313, 320, 516
Whanau aka-aka, Whanau a Peketua, Te aitanga pepeke	The repulsive ones. The offspring of Peketua (lizards and insects). Insect family.	Best, 1982, p. 319
Pukawerewere; Karara	Specifically for spiders, but a general term to roughly include all insects; Any lizard or insect was a karara in Nelson. (Note, karara is the South Island dialect variation of the term ngārara).	Beattie, 1920/2009, pp. 186, 509

Williams (1917, p. 247) listed **mū**, for “An insect,” followed by,

*Koia nei te timatanga o nga mea katoa i te ao nei, ahakoa tarutaru, rakau, kohatu, nga ika, nga manu, nga **ngarara**, nga papa, nga puwerewere, nga **mu**, nga **purerehua**.*

Miller, (1952, p. 25) recorded Apirana Ngata’s translation of this as,

This is the origin of all things in this world, whether plants, trees, stones, fish, birds, vermin, lizards, spiders, insects, moths.

The following series of narratives include entries that account for the origins of particular insects.

1. Of the five gods that tried, it was Tāne-Mahuta who successfully separated the primal parents. Gudgeon (1885, pp. 98, 99) noted that another of the brothers, Tāwhirimātea (god of wind) who was unhappy with the outcome, subsequently formed a war party to attack the five perpetrators. Meanwhile, each ‘perpetrator’ had morphed. Tāne’s form was a tree, and as such, became the father of birds and trees. But Tāwhirimātea sent one of his children, Te Apuhau (god of gales) to attack Tāne, causing his form to split and fracture. Inside, other children of Tāne’s were discovered. These were the **huhu** (grub) and **pepe** (butterfly).

2. The account given by Grey (1885, pp. 69-71) documented how Rata had selected and felled a tree to make a canoe. But **Te Tini o te Hakuturi**⁹ who had observed this, were horrified. When Rata returned the following day to continue his work, the tree was standing again. Somewhat bewildered, he felled the tree a second time, removed the branches, and went home to rest. When he returned, the tree stood once more intact. Rata felled the tree for a third time, but this time did not go home. Instead, he hid amongst the ferns with a view of ‘his’ fallen tree. From there he saw the insects, birds and spirits frenetically rebuild his tree. Angrily he leapt out to confront the offenders. However, the offspring of Hakuturi adamantly rebuffed Rata’s challenge and instead reprimanded him for the disrespect he’d shown for inappropriately felling this forest god. Astonished, Rata felt immediately shamed and embarrassed. The **tini o te Hakuturi**, now appeased by Rata’s contrition, instructed him to return home, and re-carved his canoe.

⁹ These are the many offspring of Hakuturi, who are the multitude of insects, birds and spirits.

3. White (1887, p. 172 (Māori), p. 189 (English)) recorded the Ngāti Porou explanation concerning the arrival of particular insects to Aotearoa,

*He korero tenei mo te waka nei mo Manga-rara mo te waka nana i kawē mai nga ngarara ki enei motu ki Ao-tea-roa-nei ... Na te waka nei i uta mai te Tuatara ... Ko etahi ano hoki enei o ngā ngarara i utaina mai ki taua waka, he weri, he **whee**, he **we-ta**, he **kekere-ngu**, me te tini noa atu o te **ngarara** e ngaoki ana i te whenua.*

White's English translation reads,

This is the account of the canoe for Manga-rara (dry twig),¹⁰ in which reptiles and insects were brought to these islands (New Zealand) ... In this exceedingly large canoe was brought the tuatara ... These insects were also brought in that canoe: the weri (centipede), the whee (caterpillar), weta, kekere-ngu, and other kinds which crawl on the ground.

4. The disharmony between the brothers Tāne and Whiro-te-tipua was described in Smith (1913, pp. 128-133). Tāne was the younger of the two but was chosen to ascend the 12 heavens to the realm of Io, to retrieve three baskets of knowledge and two sacred stones. This had made Whiro jealous and angry. In retribution, he sent a war party, **Te Tini-o-Poto**, to attack and prevent Tāne from achieving his goal. This group included, the **naonao**¹¹ (mosquito), the **rō** (ants), the **pepe-te-muimui** (huhu beetles), and the **pekepeke-haratua** (crane flies). However, strong winds held the war party back, and Tāne successfully reached the upper most heaven. On his descent however, Tāne was again attacked, but the war party was defeated and Tāne took many as prisoners. These prisoners, said to be the grandchildren of Kēurangi (hawk), included, **waeroa** (mosquito), **namu-poto** (little sandfly), **wētā** (wingless locust), **pepe** (butterfly), **naonao** (sandfly), **rō** (ant), **rango**, (blowfly) and **kawhitiwhiti** (grasshopper) and "other insects of that nature." As prisoners, they were brought down to earth to reside.

¹⁰ White (1887, p.189) has interpreted Manga-rara as 'dry twig' by the placement of the hyphen and without macrons. However, Haami (2010, p. 129) in his use of this name removed the hyphen and included macrons, to produce Māngārara. This could change the meaning, and purely as speculation I wonder if the translation could therefore be 'Insect ancestors' since ngārara means insect (Williams, 1917, p. 267) and Mā (*Ibid.*, p. 188) can be a diminutive of manga for 'branch of a tree' (as interpreted by White) or 'river.' This meaning could also have been used more liberally to mean ancestral branch or lineage, especially given that certain insects were deliberately brought aboard this waka. And, if the hyphen was reinstated, then the name would be - Mā-ngārara.

¹¹ In Smith's account, naonao was initially described as the mosquito, but later referred to as the sandfly.

5. Smith (1913, pp. 157, 159) also translated Whatahoro's various accounts for the origin of insects and noted that amongst other animals, the union between Peketua and Mihamiha produced the **moka-moka** (an insect), the **whē**, (caterpillar), the **pepe**, (butterfly), **pu-rehurehu** (moth), and other insects of that sort. And, "all insects that can be seen," originated from the marriage between Hine-peke and Tu-te-ahunga (Tu-te-ahuru).

6. Insects included in cosmo-genealogy, were referred to as **Te whānau a Torohuka** and recorded by Best (1982, pp. 267-268) as being formed after trees and other vegetation. These insects however,

*Were viewed as the **kutukutu** or vermin infesting the body of the Earth Mother. Then Ruatau and Rehua of the upper most heaven said to Tāne: 'Treat kindly the offspring of Torohua and Muhumuhu that they may serve as companions for you all.' Those offspring are of different natures, some are desirable while others are not. That remark of the whatukura¹² was in reference to insects and reptiles, which preceded other things.*

7. Best, (1982, p. 267) documented a variation to the insects brought to earth by Tāne in the aftermath of the battle with Whiro's war party, and listed **waeroa** as the mosquito, **namu-poto** as the sandfly, **naonao** as the midge, **ro** as the stick insect, the **wētā**, **pepe** as a moth, **rango** as the fly and the **kowhitiwhiti** as the grasshopper. For exhibition purposes, insects from both narratives concerning Whiro will be included artistically.

8. According to Tunuiarangi of Wairarapa, the **whe** (stick insect) "that is seen on manuka," the **rororo**, (ant) "that dwells in the ground" and the **kekerewai** (manuka beetle) "that is seen near water" were the offspring of Tuwhaipapa, Ratorua and Kuranui-hipa. The term **Tini o te Ponauwe** was applied to these three insects when seen in great numbers, and were governed by the mist maid Hine-takohu-rangi (Hine-makohu or Hine-pukohu) who would only come down to feed them at night (Best, 1982, p. 268).

¹² According to Smith (1913, p. xiv), the whatukura are male gods that live in the penultimate heaven and often act as messengers. A select few such as Ruatau and Rehua dwelt in the uppermost heaven.

9. Best (1982, p. 271) recorded that the offspring of Tāne's union with Punga were "the kotukutuku and patate trees, and also all insects."

10. Best (*Ibid.*, p. 319) also noted that the smaller forms of ngārara (reptiles and insects) originated from Toro-i-waho¹³ one of the original offspring of Rangi and Papa.

11. Andersen (1942, p. 344) documented that the offspring from Tāne's mating with Hine-ata-uira (daughter of the gentle lightening) were the **Tahu-whakaaro**, - the "(beloved or family diminished), that is, minute insects."

12. Reference was made to **ngārara** in a karakia delivered after success in battle as recorded by Best (2001, p. 194). The words spoken were,¹⁴

Koia nei te mana o te iwi Māori i te ao nei. Koia nei te pūtake mai o te ure tāne. Koia nei te pūtake o te tore wahine i te ao nei – e haere nei i te tangata, i ngā manu, i ngā ika, i ngā ngārara.

13. Smith (1913, p. 117) translated the teachings of Te Matorohanga and relayed how it was Ranginui who created the first insects. He wrote that after Ranginui had taken Papa-tūā-nuku as his wife he then placed plants to cover her naked body and,

*After that the smaller trees to clothe them both ... Subsequently he placed the upstanding trees of the forest, and now Papa felt a great warmth, which was all embracing. After this were placed the insects of all kinds, the **aitanga-pekepeketaua** [the ancestors of the tuatara, great lizard], appropriate to the recesses of the smaller vegetation [sic].*

Then the many god children were created, but, because "Rangi-nui over-laid and completely covered Papa-tua-nuku, the growth of all things could not mature, nor could anything bear fruit [or increase]; they were in an unstable condition, floating about the Ao-pouri [world of darkness]."

¹³ This minor god is listed as number 33 of the children of Rangi and Papa, Smith (1913, p. 118).

¹⁴ Translates to "For such is the power or the prestige of the Māori people in this world. Such is the origin of the male and female organs possessed by all living things."

2.4 Te aitanga pepeke – The insect family

For this thesis, the entry for each insect will begin with the common English name (or names), followed by the scientific name and brief biology. The Māori name (or names) will follow together with cultural details.

2.4.1 Order Lepidoptera – Moths and butterflies

Moths are generally ‘earthy’ in colour, nocturnally active and hold their wings flattened over their body at rest, or tent-like. The immature stage is a caterpillar.

Reverend Wohlers of Ruapuke, Southland, noted that the souls of the dead went to Reinga, where they may die again up to ten times. Some reappear “again in our upper world ... as candle-moths” known as **wairua tangata** (soul of man) (1875, p. 111).

TABLE 2.2 Moths, butterflies and caterpillars

Māori name	Meaning	Author
Huhu; ¹⁵ Pepe	Moth.	Taylor, 1848, pp. 5, 6
Pēpepe; Pūrehūa, ¹⁶ purēhurēhu	A butterfly, a moth; A large moth.	Williams, 1852, pp. 118, 133
Pepe	Lepidoptera.	Taylor, 1855/1974, p. 420
Pepepe, pepe atua; Pepe	Butterflies. Moths.	Taylor, 1870, p. 644
Pepe, pēpepe; Pūrēhua, pūrehurehu	Moth, Moth or butterfly; Moth.	Williams, 1871, pp. 114, 126
Pepe	A moth.	Tregear, 1891, p. 333
Purerehua; ¹⁷ Tarapoa	A generic term for moths, and possibly includes butterflies not brightly marked; A large moth.	Best, 1908, p. 239
Pūrehurehu	Moth.	Stowell, 1911, p. 109
Pu-rehurehu	A moth.	Smith, 1913, p. 157
Pepe; Pēpepe; Pūrerehu; Pūrēhua, pūrerehua; Tarapoa	Moth; Moth, butterfly. Moth; A large brown moth.	Williams, 1917, pp. 322, 364, 454
Wairua-tangata ¹⁸	A general name for moths.	Beattie, 1920/2009, p. 185
Pukupuku	A kind of caterpillar.	Tregear, 1891, p. 371
Koroitaka; Pukupuku	A caterpillar. Caterpillar.	Williams, 1917, pp. 168, 359

¹⁵ Connecting this term with moths appears anomalous, but huhu (beetles) may have been ‘identified’ with moths because they are also flight active at night.

¹⁶ According to Williams (1852, p. 133) this is an East Cape dialect.

¹⁷ Best (1908, p. 238, noted that pūrerehua ‘sprang from fu-te-hue (origin of the hue, or gourd)’ which suggests that this term may better refer to the sphinx moth. (fu-te-hue may be a spelling mistake). An earlier account by Best (1902, p. 62) noted that the ancient name for hue is **Pū-tē-hue**, and one of the offspring of Tane.

¹⁸ This is a South Island term, given as a general name for moths “because the old belief that they are the souls of persons who have passed away” (Beattie, 1920/2009, p. 185).

Family: Hepialidae

1. The **pūriri** or **ghost moth**, *Aenetus*¹⁹ *virescens* is the largest native moth and found only in the North Island. Differences in colour and size are indicators of sexual dimorphism. The patterned forewings of the smaller male, exhibit subtle shades of lime green and white, with plain cream-white hind wings sometimes tinged blue. Occasional specimens are yellow (Bennett, 1984, p. 89). The forewings of the females are mottled green and brown, and the plain hind wings range from a deep copper-pink through to tan. (Appendix 1a & 1b, p. 247) The degree of forewing patterning is highly variable for both sexes. The moths lack mouthparts and live only long enough to mate and lay eggs.

Aenetus virescens is also unique by being the only timber-boring moth in New Zealand and after initially feeding on dead wood and fungi the growing caterpillar makes its way to a host tree (Grehan, 1987, p. 209). The caterpillar drills a horizontal tunnel that changes direction to become a downward 45-degree bore. The result is a '7'-shape tunnel with a silk operculum at the point of direction change. (Appendix 2b, p. 248) The caterpillar can live up to 5 years attaining a length of over 100mm. As well as the pūriri tree (*Vitex lucens*) the caterpillar feeds on houhere (*Hoheria populnea*), puta-puta-wētā (*Carpodetus serratus*) and beech (*Nothofagus* spp.) It has also adapted to introduced species like gum (*Eucalyptus* spp.) and oak (*Quercus* spp.).

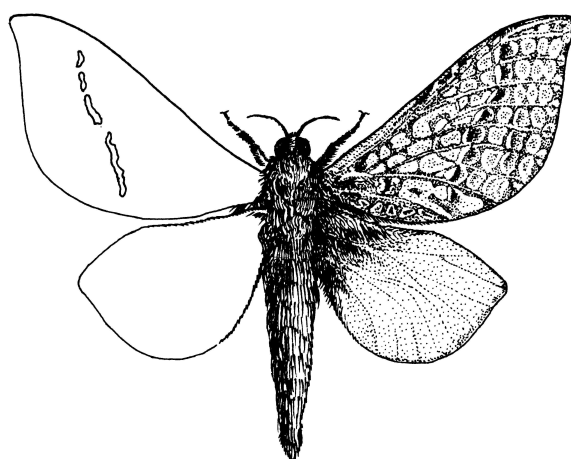


Fig. 2.2 Pepe tuna, *Aenetus virescens*

¹⁹ Formerly *Hepialis*.

TABLE 2.3 Pūriri moth and caterpillar

Māori names	Meaning	Author
Moth		
Pepe tuna	A species of large green moth.	Tregear, 1891, p. 333
Caterpillar		
Anuhe ²⁰	A large caterpillar.	Williams, 1852, p. 5
Mokoroa	A small insect which bores its way into forest trees.	Tregear, 1891, p. 250
Mokoroa ²¹	A grub found in houhi, mako, and kaiwētā trees. ²²	Best, 1908, p. 238
Mokoroa	Hard wood grub.	Stowell, 1911, p. 109
Ngutara	A grub found in trees.	Williams, 1917, p. 275
Anuhe	A large caterpillar, larva of <i>Sphinx convolvuli</i> ; also larva of <i>Hepialis virescens</i> .	Williams, 1957, p. 10

Taylor (1855/1974, p. 130) provided the following whakataukī,

He iti hoki te **mokoroa**, nana i kakati te kahikitea — Small and insignificant as the mokoroa (a grub) is, yet he eats the kahikitea.²³

Best (1902a, p. 63) noted that Tūhoe collected and ate the anuhe while in its,

***Mokoroa** or grub, stage of growth. In this state it bores holes in logs and ensconces itself therein, covering the mouth of the hole with a sort of lid. To take them this lid is lifted and water poured into the hole, when the grub climbs out and is deposited in the stomach of the Potiki a Tamatea.*

While many moths flying at night indicated a good night for eel fishing (Best, 1902a, p. 67), according to Crowe (2002, p. 19) pūriri caterpillars were used as eel bait, as alluded to in the name of the moth, pepe tuna (eel moth).

Downes (1937, pp. 208, 209) noted that Māori of the Whanganui River area believed that a lizard formed inside the chrysalis (of the sphinx moth), then grew into the awheto and under fog conditions, flew up then came down and destroyed the kūmara. Interestingly, Grehan (1987, p. 211) noted that in flight, the elongated abdomen of the female pūriri moth is “held in nearly vertical position.” So if observed under low light conditions this moth may plausibly resemble a ‘flying lizard’ therefore rendering the above account as one of misassociation of moth species with a ‘lizard.’

²⁰ Noted as an East Coast term.

²¹ Best (1982, p. 320) listed Mokoroa as the personified form of wood grub.

²² Houhi is the tree *Hoheria populnea*, mako is the Māori name for the wineberry *Aristotelia serrata*, and kaiwētā is one Māori term for the marbleleaf tree, *Carpodetus serratus*. All are host plants for the puriri caterpillar.

²³ So, in spite of the kahikitea or white pine (*Dacrycarpus dacrydioides*) being our tallest native tree, it can be brought down and consumed by a small grub. And in war, we should not dismiss an enemy, however puny he may appear. Essentially, this proverb is saying, looks can deceive!

2. The **vegetable caterpillar** begins life as a ground dwelling caterpillar but changes into a ‘vegetable’ when, according to Salmon (1951, p. 2), a spore from the fungus, *Cordyceps robertsii* makes contact with the head or “between the head and second segment,” then germinates and sprouts hyphae. Once inside, hyphae rapidly penetrate the caterpillar’s body consuming and ultimately killing it. The dense mass of hyphae (mycelium) fills the entire body so completely that it becomes ‘mummified.’ Either a single or multi branched fruiting body ‘sprouts’ from the caterpillar’s head, up and beyond the ground’s surface. The upper portion is encrusted with perithecia,²⁴ and elevated for aerial dispersal of spores. (Appendix 3a & 3b, p. 249)

TABLE 2.4 Vegetable caterpillar

Māori names	Meaning	Author
Aweto, hotete	The bulrush caterpillar, <i>Sphaeria Robertsia</i> . ²⁵	Taylor, 1855/1974, p. 422
Hotete	The vegetating caterpillar.	Taylor, 1870, p. 645
Awhato; Awheto	A fungus which is parasitic on a kind of caterpillar, <i>Sphaeria Robertsii</i> .	Williams, 1871, p. 13
Āwhato; Āwheto; Hawhato	A fungus, parasitic on a kind of caterpillar (<i>Cordiceps robertsii</i>). The caterpillar itself; (<i>Cordiceps robertsii</i>) a genus of Ascomycetous fungi, which attacks the caterpillar of the Ghost moth (<i>Hepialus</i>).	Tregear, 1891, pp. 35, 36, 59
Āwhato, Awheto	A fungus which is parasitic on a kind of caterpillar; <i>cordiceps Robertsii</i> [sic].	Williams, 1892, p. 15
Aweto, hotete	Vegetable caterpillar.	Robley, 1896, p. 57
Anuhe	The vegetable caterpillar. <i>Cordiceps robertsii</i> .	Andersen, 1907, p. 601
Awhato, hawato, weri	Vegetable caterpillar.	Stowell, 1911, p. 109
Āwhato, awheto; Nutara	A fungus which is parasitic on a kind of caterpillar (<i>Cordiceps robertsii</i>); Vegetable caterpillar, so called.	Williams, 1917, pp. 29, 262
Tutaekereru ²⁶	Vegetable caterpillar.	Beattie, 1920/2009, p. 186
Awhato, awheto, horuhoru	A fungoid growth on a species of caterpillar.	Best, 1942, p. 97

Taylor (1855/1974, p. 422) documented that, “when fresh, they have the flavour of a nut. The natives eat them, and likewise used them when burnt as colouring matter for their tattooing, rubbing the powder into the wounds, in which state it has a strong smell.”

²⁴ Perithecia are spherical vesicles containing the spores.

²⁵ Later renamed *Cordyceps robertsii*.

²⁶ The vegetable caterpillar was called tutaekereru “from its general appearance to the excrement of the native pigeon” (Beattie, 2009, p. 186).

Documentation of its use by Māori as an alternative moko pigment was also provided by Robley (1896/1969, p. 57) along with an early view of the biology of the vegetable caterpillar. He wrote,

***Aweto Hotete**, or vegetable caterpillar, burnt, was also sometimes employed. This plant is a native of New Zealand, and amongst the most remarkable productions on the border line between vegetable and animal kingdoms. The caterpillar burrowing in the vegetable soil gets a spore of a fungus between the folds of its neck; and, unable to free itself, the insect's body nourishes the fungus which vegetates and occasions the death of the caterpillar by exactly filling the interior of the body with its roots, always preserving its perfect form. The stem grows up like a little bulrush, six to ten inches in height; after being dried, it is burnt into a coal giving an excellent black pigment.*

Best, (1904, p. 169) also noted the use of the awheto for tattooing, saying it “was sometimes burned and used for tattooing on the limbs or body, but the pigment was not black enough to be used for face tattooing.”

According to Relph (1991, p. 119),

A number of specimens would be collected and, after being hung up to dry, they were burnt and pulverised. The resulting black powder was then mixed with fat and water to produce a black paste. After the tattoo pattern had been marked out, the skin was severed by hitting the back of the tattooing tool. Then a second implement, the uhi puru, was dipped in the black paste, placed on the cut and also struck, forcing the pigment into the wound where it left a permanent mark.

For the purposes of this thesis, the vegetable caterpillar will be associated with the terms **tutaekereru** and **aweto** (and its variants awheto, awhato, 37omm.37o). But it may be possible that the fungus *Cordyceps robertsii* invades several species of caterpillar, including the spinx moth caterpillar that has also been associated with the latter terms. See Table 2.7 Spinx moth caterpillar, p. 42.

Family: Psychidae – Bag moths

The leathery silk cocoon of the **bag moth**, *Liothula omnivorus* is home for both the active caterpillar and the metamorphosing pupa. Often furnished with small sticks, the grey-brown tapered and elongated cocoon hangs from small branches of kānuka, *Kunzea ericoides*, mānuka, *Leptospermum scoparium*, and totara, *Podocarpus totara*. (Appendix 4a, p. 250) The flexible top opening allows the caterpillar to protrude both head and legs to simultaneously move and forage while holding onto the host plant. The male develops into a winged moth, but the female, at all stages, remains confined to the cocoon.

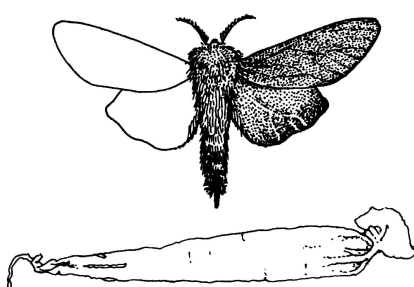


Fig. 2.3 Pepe and pū a Raukauri, *Liothula omnivorus*

TABLE 2.5 Bag moth cocoon

Māori name	Meaning/significance	Author
Kopi	Bag moth cocoon.	Taylor, 1855, p. 420
Whare atua	Beautifully formed case [of the mantis].	Taylor, 1870, p. 643
Rakataura	A goddess of the powers of the air.	Gudgeon, 1885, p. 172
Raukauri, pū a Raukauri	Bag moth cocoon.	Williams, 1917, p. 383
Whare atua	Cocoon of bag moth.	Miller, 1955, p. 16

In 1855/1974 (pp. 419-420), Taylor wrote,

*The case of the imperfect insect is curiously made of little twigs glued together, forming a kind of sack, which the inmate has the power of moving about at pleasure, from place to place. It is called **kopi**, from its power of shutting itself up in a bag.*

Although Taylor (1870, p. 643) refers to the ‘mantis,’ his subsequent description clearly identified the bag moth cocoon. He wrote,

*The grub of the mantis lives in a beautifully formed case, **Whare Atua**, constructed of small twigs, cemented together externally, but internally lined with the softest silk, it forms a perfect bag, the top is drawn tight by a string, which also encircles the twig it feeds on, one end of the string being attached to the insect ...*

Gudgeon (1885, pp. 172, 173) contributed the following,

She [Rakataura] is in New Zealand a goddess of the 'powers of the air,' and to her all sudden and unintelligible noises are attributed. She is also the goddess of music, and used formerly as her flute the tough leathery cocoon of a kind of caterpillar, which may not infrequently be found upon manuka and other trees; but subsequently she took up her abode in this cocoon, and having thus lost her flute, she confines herself to these aerial noises.

In his book, *Maori life in Ao-tea*, Andersen (1907, p. 143) similarly wrote,

Over the mountains, or in forests deeps, floating along the vales, sudden strange sounds were borne, and no form seen: this was the spirit-voice of RAKA-TAURA, goddess of air, daughter of TANE. She at one time breathed music from her flute, the long cocoon now seen on manuka; but left the air, and made her flute her home: in this she still abides, and make her presence known by strange aerial noises.

And in the same way, Tregear (1926, p. 474) noted that,

***Rakataura** was a goddess of the air. She presided over music, and long ago played on a flute wrought from the tough cocoon of a certain caterpillar, but later on lost her flute and was heard only in sudden and unintelligible noises.*

Williams (1917, p. 383) provided the alternative spelling, **Raukatauri**, and added that this is “the cocoon of *Æoeticus omnivorus*, found hanging on branches of trees and shrubs, which is also called **pū a Raukatauri**.” This latter name connects with the previous narratives, since ‘pū’ is a diminutive of pūtōrino, a variety of wooden flute uniquely Māori in origin (Melbourne, 1991). The differential tapering of the pūtōrino largely conforms to the form of the bag moth cocoon. (Appendix 4b, p. 250)

In another account, the kokako was granted three wishes by Māui because it brought him water when called for, after his altercation with Mahuika, goddess of fire. One wish was to have a beautiful voice like that of Raukatauri. So Māui advised the kokako to consume the cocoons of the bag moth within which Raukatauri resides. This is said to be why the voice of the kokako is so pure and flute-like (Flintoff, 2004, p. 65).

Goldie (1904, p. 72) noted that one remedy for curing toothache (niho-tunga) was the “application to the affected tooth of a piece of the tough, leathery cocoon of a certain caterpillar, which is found attached to the branches of the manuka shrub.”

Family: Tortricidae – Leaf rollers

The common name **leaf roller**, describes the way the caterpillar conceals itself within folded or rolled up leaves upon which it feeds. The overall wing shape of this relatively small brown moth confers a bell-like appearance when at rest and characterises the family.

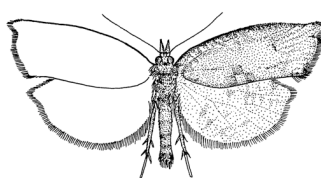


Fig. 2.4 Moka

TABLE 2.6 Leaf rollers

Māori names	Meaning	Author
Moka	A kind of caterpillar.	Williams, 1871, p. 85
Moka	A caterpillar...	Best, 1902, p. 63
Moka ; ²⁷ Mokamoka ; Tikopa	A kind of caterpillar; A caterpillar; A caterpillar which was sometimes eaten, similar to moka, but larger; possibly so called from its cocoon, which was made from a folded leaf.	Williams, 1917, pp. 240, 489

Best (1902a, p. 63) further elaborated with his reference to **moka** saying it was,

A caterpillar which settles itself on the leaves of several plants, including potato, and draws the edges of the leaves in to form a shelter for itself, and then closes the apertures with some whitish substance. There it remains until its wings grow. It also was eaten formerly, before plenty, in the form of the potato, arrived in the land.

Best (1908, p. 256) also quoted a Ngāti Awa elder as saying, “The ancestors who live in the sky are Whaititi, **Nuhe**,²⁸ **Toronu**, **Moka**, and Hukuai,” and noted in parentheses, that the three middle names are the names of “three species of caterpillar that when they appeared on the kumara plants were said to have come from the sky.”

For the purposes of this study, the green-headed leaf roller, *Planotortrix excessana* will exemplify this family, since it is larger than some other tortricids, and common.

²⁷The term toromoka in Williams (1917, p. 516) was defined as a ‘bone pin for fastening a garment; sometimes used as a needle,’ and could also easily apply to the leaf rolling caterpillar.

²⁸ Refer to the narrative regarding the origins of these three insects on earth, under the entry for sphinx moth, p. 44.

Family: Sphingidae – Hawk moths

The moderately large, mottled brown and grey **sphinx moth**, *Agrius convolvuli*,²⁹ is also known as the **convolvulus hawk moth**. It has a distinctive bullet-shaped body, is a strong flier, and can hover in front of flowers from which it extracts nectar, using a very long proboscis. Outstretched wings reveal a band of alternating pink and black patches edged with white, running down either side of the abdomen.

The brown or green caterpillar is variously patterned with back sloping pale stripes, and can attain a length of 90mm when mature. A large terminal horn readily differentiates this caterpillar from others.

This insect was the most significant insect for Māori in pre-European times because the caterpillar fed on the kūmara plant, which was the most valued and staple food cultivated by Māori. Large infestations would have had a major impact upon the plantations, so those iwi (tribes) with a mara kūmara (sweet potato plantation), would have needed to recognise and name all parts of the life cycle.

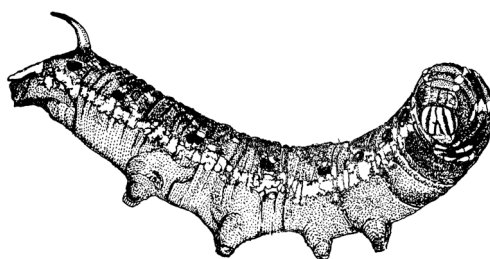


Fig. 2.5 Anuhe, hōtete, *Agrius convolvuli*

While they were pests, the presence of such insects, were also crop indicators. As quoted in Moon (2005, p. 65) the Tuhoe tohunga, Hohepa Kereopa, said,

And how did we know it was a good crop? Well I haven't seen them lately, but in the old days, you would see kumera [sic] bugs – these were a sort of caterpillar, and when you saw them, you knew it would be a good crop. A really good crop.

²⁹ Formerly *Sphinx convolvuli*.

TABLE 2.7 Sphinx moth caterpillar

Māori names	Meaning	Author
Anuhe; Hotete; Whe	A large caterpillar (East Coast dialect). A caterpillar. A caterpillar.	Williams, 1852, pp. 5, 28, 226
Awato	The grub of a sphinx moth, which preys on the kumara.	Taylor, 1855/1974, p. 118
Aweto	Caterpillar of <i>Sphinx convolvuli</i> .	Taylor, 1870, pp. 644, 645
Anuhe; Hotete; Whē	A large caterpillar; Caterpillar.	Williams, 1871, pp. 6, 31, 200
Anuhe, awhato, hawato, hotete	A large larva of one of our largest moths.	Colenso, 1880, p.11
Whe ³⁰	Caterpillar.	White, 1887, p. 3
Hōtete	The name of a large caterpillar.	Tregear, 1891, p. 85
Anuhe; Hotete; Whē	A large caterpillar, the same as hotete; A large caterpillar; Caterpillar.	Williams, 1892, pp. 7, 35, 234
Hotete	A caterpillar about 2 1/5 in. to 3 in. long, the larva of a large moth.	Walsh, 1902, p. 20
Hauwaha; Awheto, hotete	Caterpillar; Large caterpillar.	Stowell, 1911, p. 109
Anuhe; Āwhato, awheto; Hōtete; Kauā, kauwaha	A large caterpillar, larva of <i>Sphinx convolvuli</i> ; Ditto; Ditto; A large kind of caterpillar.	Williams, 1917, pp. 12, 29, 73, 123
Awheto; Ngurengure, ³¹ tungoungou	A large green or brown caterpillar, about the size of a man's little finger, with a spike on its tail, which fed on kūmara plant; Destructive pests.	Best, 1925, p. 111 (quoting Percy Smith).
Awheto	A larva which flies up and comes down in the early mornings in the fog when it destroys the kumara.	Downes, 1937, p. 208
Anuhe; Hōtete; Huarangi; Muwharu, muharu ³²	A large caterpillar, larva of <i>Sphinx convolvuli</i> , Also larva of <i>Hepialis virescens</i> ; A large caterpillar, larva of <i>Sphinx convolvuli</i> ; Ditto	Williams, 1957, pp. 10, 62, 65, 215

Taylor (1855/1974, p. 118) noted that “the pukeko, the rat, the green paroquet, the moeone ... the **awato** ... the kumara, the karaka and the calabash” were carried on board the Aotea waka by the chief, Turi.

Colenso (1880, p. 11) wrote the following about the kūmara,

*It had, however, one potent enemy of the insect tribe, in the form of a large larva of one of our largest moths. This larva was named **anuhe**, **awhato**, **hawato**, and **hotete**, and it rapidly devoured the leaves of the young kumara, it was quite abhorred by the Māoris [sic], who always believed that they were rained down upon their plants. Sometimes their numbers were almost incredible, as some of us have also seen in the abundance of the more common caterpillar pests in certain seasons. I myself have often marvelled at them in their number, and where they could possibly*

³⁰ See White's record of a karakia chanted while planting kūmara, p. 44.

³¹ Both ngurengure and tungoungou are said to be Ngati Porou terms (Best, 1931, p.1).

³² Refer to Footnote 56, p. 49

come from; baskets full being carefully gathered from the plants, and carried off and burnt. The job of gathering them, though necessary, always greatly disliked.

Colenso also recounted that on his settling in Hawke's Bay (*circa* 1846) his neighbours, the tribe of the chief Karaitiana, once borrowed his flock of turkeys to clear their kūmara plantation of "those destructive creatures."

White (1887, p.1, English, p. 3 Māori) provided and translated a karakia that was chanted while planting kūmara. Lines 10 – 11 read,

I hara te taua, koia Ru My enemies are these:

*Koia **Whe**³³ Koia **Potipoti**. The earthquake, and the caterpillar, and all devouring insects.*

To read these lines in context of the complete karakia, refer to p. 308 (Vol.3) of thesis.

Reference was made to the patterned **anuhe** in a tumoto waiata (avenging song) composed by Hine-i-turama,³⁴ (Best, 1897, pp. 57-58). Lines 11-12 read,

Ki a Tawhaki³⁵, ki te kiri ra, *On Tawhaki with the handsome appearance*
*Whakataua ki te **anuhe** tawatawa.* *For beauty likened to the patterned caterpillar.*

To read these lines in context of the complete waiata, refer to p. 309 (Vol.3) of thesis.

The entry for Walsh (1902, p. 20) further noted that “with the exception of the hotete, a caterpillar about 2 ½ in. to 3 in. long, the larva of a large moth, the kumara does not seem to have had many enemies amongst the insect world.”

³³ This karakia was chanted during kūmara planting time and since the most significant pest of the kūmara was the sphinx moth caterpillar then I would assume that the term 'whe' relates to this caterpillar.

³⁴ Hine-i-turama was the wife of the Arawa chief, Te Hurinui, who was killed in the battle against Tuhoe.

³⁵ Tawhaki was reputed to be very handsome. Tawhaki's narrative according to Grey, 1885, pp. 36-48 is that one day the brothers of his first wife Hinepiripiri, murdered him, but he was later found still alive by his wife and nursed back to health. He left that place and by calling upon the gods, successfully destroyed all people in a huge flood. Then together with his younger brother, Karihi, they annihilated the Ponaturi people who had sometime earlier taken their mother as a prisoner after first killing their father. This accomplished, Tawhaki took another wife, Tongatonga, whose home was in the heavens. She gave birth to a daughter but after Tawhaki had said it smelt badly, took their daughter and fled back to heaven. A regretful Tawhaki ascended to that heaven via a creeper whose roots were lodged in the earth. After firstly casting himself in the appearance of an old man, Tawhaki ultimately found his wife and daughter. He remained with them.

McGregor (1898, pp. 83, 84) originally published the following lament where its collection was attributed to Elsdon Best. Lines 14 and 15 of Percy Smith's later version (1905, pp. 148, 149) appear below. This lament is "by a Ngati-Ruanui" who found that his kumara plantations had been eaten "by the vermin – the **awheto**, the **moeone**, the **moka**, the **kowhitiwhiti** and others – through the work of Maru, so there was nothing but stalks without leaves left." (Refer to p. 310 (Vol.3) of thesis).

Ka hinga te kauwaha, ka hinga te moe-one
*Ka hinga te **awheto***

Then fell the kau-waha, fell the moe-one
*Destroyed was the **awheto***

Best (1908, p. 238) recorded that, "**Anuhe** sprang from Nuhe. It was Nuhe who saw the fine markings of the tawatawa (mackerel), a descendant of Tangaroa, and forcibly took some of those markings for himself: hence the fine appearance of the **anuhe**."

The concurrent appearance of the kumara and its associated insect pests was accounted for in the following narrative. Rongo-māui had ascended the heavens to appeal to his brother Whānui (the star Vega) for some of his tamariki kumara (kumara children) to accompany him to earth. When Whānui dissented, Rongo-māui stole a few and returned to earth and to his wife Pani.³⁶ Unbeknown to her however, Rongo-māui had placed pieces of the tamariki kumara strategically within himself so that after coupling and pregnancy, Pani gave birth to kumara children on earth. Whānui was understandably angry to learn of this and in due course avenged Rongo-māui's theft by sending down **Nuhe**, **Moka** and **Torongū** to destroy the tamariki kumara children. These became the three caterpillar pests that now attack the kumara plants, Best (1925, pp. 50, 51).

Both **muharu** (See greasy cutworm, pp. 48, 49) and **hotete** are referenced in a whakaoriori (lullaby) published in Grey (1898, p. 47). The composer is Taoho,³⁷ and a translation appeared in Ngata (1961/1974, pp. 194 - 197). Lines 42 - 45 read,

Mahi atu tāua ki te tukou no kai, e,
*E nohoia mai ana e te **muharu**,³⁸*
Mahi atu tāua ki te tukou no Rongo,³⁹ e,
*E nohoia mai ana e te **hotete**.⁴⁰*

If we were to grow the tukou⁴¹ for food,
The muharu will bide his time;
If we were to grow the tukou for Rongo,
The hotete will bide his time.

³⁶ According to Best (1925, p. 50) who documented the East Coast version, Pani was the sister of Tangaroa-i-te-rupetu who was the father of the Māui boys.

³⁷ Taoho was a paramount chief of the Ngāti Whatua, and the lullaby was composed for his son, Raeroa.

Being such an important pest, the caterpillar required a number of methods for removal. Best (1925a, p. 111) recorded how women hand collected then destroyed the awheto, or sometimes a seagull was tamed to feed on them. Lumps of kauri gum or the wet leaves and branches of kawakawa, *Macropiper excelsum*, were burned to create a pungent insecticidal smoke.

As informed by Karanga Te Kere of Whanganui, Downes (1937, p. 209) noted that, “at times the caterpillars were gathered from the kumara and eaten. The Maori considered that there was some connection between these green caterpillars and the flying lizards that lived in the air.” Refer back to p. 35 for an alternative identification.

TABLE 2.8 Whakataukī (proverbs) that reference the sphinx moth caterpillar

Māori	Translation	Documented by
Ka mahi te awhato hohonī paenga.	Bravo! Great caterpillar eating around the edge of the leaf!	Colenso, 1879, p. 121
Awhato kai paenga. ⁴²	Edge eating caterpillar.	
Awhato ngongenga roa.	Ugly great caterpillar, always slowly nibbling.	
Te anuhe tawatawa. ⁴³	The mackerel patterned caterpillar?	Grey, 1885, p. 31 (Māori).
He Awhato koe na, Kia Tukeri iho, ka puta ake, Ara! He Kūmara!	Thou art a caterpillar. To dig down (sink) then reappear. Well, well, as a Kūmara!	Stowell, 1911, p. 128
E tupu atu kūmara, e ohu e te anuhe .	The growing kūmara, is brought down by the anuhe.	Williams, 1917, p. 12

³⁸ Ngata (1961, pp. 195-197) offered a bil-lingal explanation for muharu, as, “he ngārara kai i te kūmara (An insect that eats the kūmara), ki te pākehā he ‘caterpillar’.” The English translation was noted simply as ‘caterpillar’.

³⁹ Rongo is the god of cultivated food.

⁴⁰ Hotete, is also explained bi-lingually as “Ki ētahi iwi he anuhe. He caterpillar ano ki te pākehā” and translated as, “Called anuhe by some tribes. Another name for the caterpillar of the European.”

⁴¹ Williams (1917, p. 529) listed tukou as a variety of kūmara.

⁴² This whakatauki and the one above, reference the caterpillar that eats around the edges of the kūmara leaf, leaving the middle untouched, and is said of a greedy person who eats from basket to basket selecting only the best bits.

⁴³ This expression comes from the narrative concerning Māui’s attempt to enter Hine-nui-te-pō. According to Grey (1885, pp. 31, 32) before he entered her, “ka marere ngā kakahu - ano te kiri! Me te anuhe tawatawa ngā mahi a te kauri, ngā uhi matarau a Uetonga.” Grey (1885, p. 35) translated this as he “stripped off his clothes, and the skin on his hips looked mottled and beautiful as that of a mackerel, from the tattoo marks cut on it with the chisel Uetonga.” This English translation, omits the reference to the caterpillar. Perhaps a better translation would be *his skin is like the mackerel patterned caterpillar*.

Also omitted in Grey’s translation was the reference to kauri. Thornton (1992, pp. 111, 112) with reference to Te Rangikāheke’s words noted that the soot used in the tattooing process was obtained by burning kauri gum. However, ‘te anuhe tawatawa’ may reference the tattoo pigment made from the vegetable caterpillar, also termed anuhe in Andersen, (1907, p. 601).

TABLE 2.9 Sphinx moth chrysalis

Māori names	Meaning	Author
Tungongo	Chrysalis.	Williams, 1852, p. 187
Tūngoungou; Whangawhanga	Chrysalis of a large moth; Chrysalis of whē.	Williams, 1871, pp. 181, 197
Pūngoungou; Tūngoungou	A kind of chrysalis; The chrysalis of a certain large moth.	Tregear, 1891, pp. 375, 554
Tūngoungou; Whangawhanga	Chrysalis of a large moth; Chrysalis of 'whē.' (Also, small green caterpillar, which has feet near the ends of its body, and progresses by looping itself).	Williams, 1892, pp. 213, 231
Tūngoungou	Larva, grub.	Stowell, 1911, p. 109
Tūngoungou	Chrysalis of the moth <i>sphinx convolvuli</i> ; Chrysalis of whe.	Williams, 1915, pp. 204, 221
Tīngoungou, tīngoi; Tūngoungou	Chrysalis of <i>Sphinx convolvuli</i> , a large moth.	Williams, 1917, pp. 492, 534

Downes (1937, pp. 208-209) also provided an account concerning the tūngoungou. He noted,

*The lizard at times also hides or lives in the fog. It takes shape in a chrysalis called **Tūngoungou**⁴⁴ and grows into the **āwheto**, a larva which flies up and comes down in the early mornings in the fog when it destroys the kūmara. This grub⁴⁵ has the power of answering questions when held by the tail head up⁴⁶. If asked a question it will move its head slowly forward, backwards, or sideways, and from the movements made, the answer was gathered. On being questioned further my informant stated that it was a flying lizard that came and went with the fogs, and unless the proper karakia was recited the kūmara runners would be eaten bare at night.*

Stowell (1911, p. 126) recorded and translated the following whakataukī referencing tūngoungou,

Kā hou ki te whenua, he **Tūngoungou**: ka puta ki te rangi he Pepe — Sink into the earth as a chrysalis; emerge (therefrom) to the sky (heaven), as a butterfly.⁴⁷ Said of body and soul.

⁴⁴ Williams (1852, p. 187) listed 'tungou' as the verb 'to nod.'

⁴⁵ Here, the reference more logically applies to the chrysalis, not to the caterpillar.

⁴⁶ The reference to holding the 'tail' is misleading and actually relates to the 'exposed' proboscis section of the head of the chrysalis. The perceived 'head' is therefore the mobile, segmented abdomen.

⁴⁷ While Stowell interpreted the emerging insect as a butterfly, both Tregear (1891, p. 333) and Taylor (1848, p. 6) listed pepe as a moth.

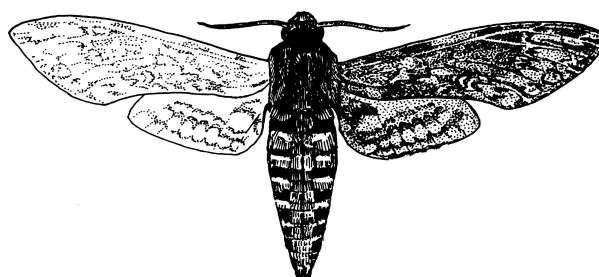


Fig. 2.6 Hīhue, *Agrius convolvuli*

TABLE 2.10 Sphinx moth

Māori names	Meaning	Author
Wenewene	An insect.	Williams, 1871, p. 194
Wenewene	The name of an insect.	Tregear, 1891, p. 599
Wenewene	A large moth.	Williams, 1892, p. 227
Hihue (purerehua)	The hawkmoth ...	Best, 1908, p. 239
Wenewene	A large moth.	Williams, 1915, p. 217
Hīhue; Kōwenewene; Wenewene ⁴⁸	<i>Sphinx convolvuli</i> , a large moth. <i>Sphinx convolvuli</i> , a large moth.	Williams, 1917, pp. 58, 177, 566
Hihue ⁴⁹	Hawk moth, <i>Sphinx convolvuli</i> .	Best, 1925, p. 112

Best (1908, p. 239) further elaborated upon **hīhue** and noted that,

When it acquires its wings it is found upon the white blossoms of the hue or gourd-plant (but not on those of pumpkins). Natives state that it thrusts its proboscis down into the flowers in order to draw up the liquid therein, and that it receives its name from this act (hi, to draw up).

Hue, kowenewene and wenewene, were names for the gourd plant, with the latter two terms used particularly by Māori from the East Coast, (Best, 1925a, p. 129). Gourds were also cultivated and when immature, the fruit was used for food, and as containment vessels for food and water, when mature.

Also according to Best (1925a, p. 131) the white female flowers of the plant were artificially fertilised by Māori. But, given that Māori knew that the moth visited the gourd flowers for nectar, Best's observation is surprising. It is however possible, that no connection was made between the moth and pollination. The outcome then, is

⁴⁸ According to Williams, (1917, p. 566) wenewene is also *Lagenaria vulgaris*, calabash – gourd, and other creeping plants.

⁴⁹ According to Best (1925, p. 112) hīhue translated as 'sucking (or drawing up) from the gourd, because these moths were often observed feeding from the flowers of the hue or gourd plant.

that *Agrius convolvuli* played two important roles in Māori society, - one as a destructive pest, and two, as a beneficial pollinator.⁵⁰

Family: Noctuidae – Owlet moths

Moths from this family are mostly of medium size with a robust body.

1. The **greasy cutworm** caterpillar, *Agrotis ipsilon aneituma*, is a common nocturnal garden pest that severs the stems of young growing plants. During the day the caterpillar rests concealed within foliage and will curl up if disturbed. (Appendix 5b, p. 251) The moth has mottled black and brown wings (Appendix 5a, p. 251) and readily flits a short distance if disturbed.

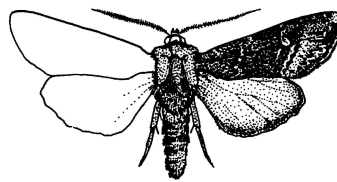


Fig. 2.7 Pepe, *Agrotis ipsilon aneituma*

Reverend Wohlers (1874, pp. 10, 36) collected a number of “tales” during his time in Southland. One account recalled the narrative concerning Māui who was once an apprentice for several sky deities. Being of a mischievous disposition Māui one day cast snow onto Marutewareaitu’s plantation and damaged it. In response “Ka tukua e Maru ki te toroku kia mate te Maui mahinga kai” – Marutewareaitu put caterpillars onto Māui’s plantation and these **toroku**⁵¹ destroyed his crop.

Māui killed Marutewareaitu in retaliation.

⁵⁰ This latter role of pollinator would have been superseded with the introduction of the honeybee (*Apis mellifera*).

⁵¹ This is a Ngai Tahu term.

The connection between the greasy cutworm caterpillar, *Agrotis ipsilon aneituma* and the following Māori terms is based on its life history and broad palate for cultivated crop seedlings.

TABLE 2.11 Greasy cutworm caterpillar

Maori names	Meaning	Author
Kuwharu	A grub. ⁵²	Williams, 1852, p. 66
Toroku	Caterpillar.	Wohlers, 1874, pp. 10, 36
Kuwharu; Toroku	The name of a species of grub; A kind of caterpillar.	Tregear, 1891, pp. 188, 536
Kuwharu; Torongū	A grub. Caterpillar, grub.	Williams, 1892, pp. 80, 206
Toronu	A species of caterpillar; Pest of kumara	Best, 1908, pp. 239, 241
Kuwharu, kuharu; Mūharu; Muwharu; Torongu, tōtorongu	A grub formerly eaten by the Natives; Caterpillar, grub.	Williams, 1917, pp. 187, 248, 251, 516
Torongū, tupeke ⁵³	Some form of caterpillar pest of kumara.	Best, 1925a, p. 112
Ngurengure, ⁵⁴ tungoungou torongu, tupere ⁵⁵	Destructive pests of the sweet potato.	Best, 1931, p. 1
Muwharu, ⁵⁶ muharu	Caterpillar, grub.	Williams, 1957, p. 215
Ngūharu, mūharu, mūwharu	Greasy cutworm, <i>Agrotis ipsilon aneituma</i>	Crowe, 2002, p. 26

Refer to p. 44 (sphinx moth caterpillar) for reference to **muharu** in a whakaoriori.

Best (1908, p. 241) noted that,

*The **toronu** is a kind of caterpillar which formerly infested the kumara plants, and gave considerable trouble to the Neolithic agriculturalist. A day was set apart by the sorcerer priests for the destruction of this pest. It was brought about by means of a rite known as **ahi patu toronu**.*

When the skills of a tohunga were employed, this person,

Would undertake to abolish them by means of charms and certain ceremonies of magic import. Thus the Awa folk of the Bay of Plenty district are said to have destroyed them by means of a performance styled the ahi torongu (torongu fire). An expert would kindle fire by friction and cast a few of the creatures into the fire, reciting

⁵² The term 'grub' is usually attributed to the immature stage of beetles but occasionally also to caterpillars.

⁵³ Both torongu and tupeke are said by Best (1931, p. 1) to be terms from the Bay of Plenty district.

⁵⁴ A Ngāti Porou term.

⁵⁵ This is a Waikato term (Best, 1931, p.1).

⁵⁶ Both muwharu and muharu appear in the 6th Edition of Williams (1957, p. 215) and are defined as "Caterpillar, larva of *Sphinx convolvuli*, however given the importance of the Sphinx moth caterpillar, the importance of identifying it and the many other common early terms for the caterpillar, it would seem that attributing both muwharu and muharu to the Sphinx moth caterpillar, at this late time may be incorrect.

at the same time a charm that had the effect of slaying the whole of the pests in the field (Best, 1941, p. 388).

Best (1925a, p. 112) described this rite as,

A magic act, and, next morning, the caterpillars would be seen past all help, hanging from the leaves of the plants.

The greasy cutworm caterpillars, **mūwharu** (**ngūharu**, **mūharu**) were a serious pest of kūmara crops according to Crowe (2002, p. 26) and likely to be one of the three pests recorded in narratives that caused strife for Māori growing plantations of kūmara.

For the purposes of the exhibition and thesis, the terms **torongū** and **muwharu** will identify the greasy cutworm caterpillar, *Agrotis ipsilon aneituma* and **pepe** for the moth.

2. The self-introduced large **northern wattle moth**, *Dasypodia cymatodes* or **owl moth** came from Australia. The caterpillar feeds exclusively on wattle foliage (*Acacia* spp.) and only became established in New Zealand when the host plant was introduced. This species is now common in the North Island and a second species *D. selenophora* is common in the South Island. Each forewing features a distinctive blue-ringed eyespot set against intricate rippling shades of brown. (Appendix 6, p. 252)

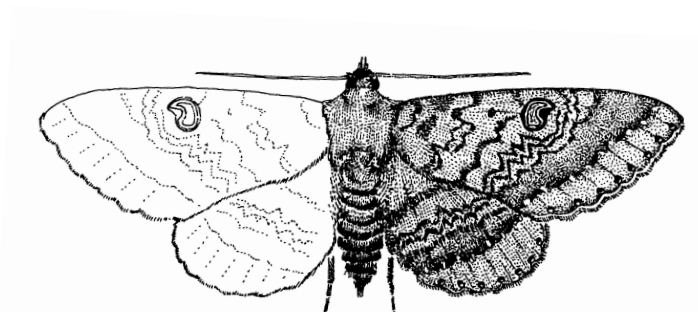


Fig. 2.8 Pepe kehua, *Dasypodia cymatodes*

TABLE 2.12 Owl moth

Māori name	Meaning	Author
Pari kori taua	(An illustration, PLATE 1)	Taylor, 1855/1974, p. 421
Pari kori taua	Moth. Conspicuous with eyespots on its wings.	Taylor, 1870, p. 644
Tarapoa	A large brown moth.	Williams, 1917, p. 454
Pepe kēhua, pepe⁵⁷ atua,⁵⁸ pari kori taua	Owl moth, <i>Dasypodia cymatodes</i> .	Lessiter, 1989, p. 17

Best, (1973, p. 16) recorded the belief that moths represented the physical presence of wairua (spirit of the dead) and particular ones ‘he wairua no te kēhua’ (souls of ghosts).

Lessiter (1989, p.17) stated that, “In Māori belief ancestral spirits may appear in the form of this moth. If it flies inside it is carefully carried outside and released.”

The eyespots on the wings of this moth look superficially like paua. Conjecturally this feature may have conferred a greater than usual significance for Māori because paua shell was, and is used widely by carvers to highlight the eyes on figurative carvings. And, these carvings are customarily depictions of ancestors.

The owl moth will be associated with the terms, **pari kori taua** and **pepe kēhua**.

The following three caterpillars and moths (flax notcher, flax looper, and cabbage tree looper) are logical additions to this research although there is no past documentation that recorded specific Māori names.

3. The feeding behaviour of the **flax notcher** caterpillar, *Tmetolophota steropastis* is recognised by the removal of large triangular areas or notches along the edge of the flax leaf. (Appendix 7, p. 253) This insect would have been ‘important’ for Māori, because these notches interrupt the long fibres of the flax *Phormium tenax* (harakeke). Flax is the primary source of muka (fibre) used by weavers to produce a multitude of items.

The general term **pepe** will be attributed to the moth, and because the caterpillar consumes sizeable areas of flax leaf, the term **pukupuku⁵⁹** will be associated with the caterpillar.

⁵⁷ Pepe is defined in Williams (1917, p. 322) as ‘flutter.’

⁵⁸ Atua is defined in Williams (1852, p. 9) as “God,” while Williams (1871, p. 11) defined atua as “God, applied also to any object of superstitious regard.”

Family: Geometridae – Looper moths

At rest, the wings of Geometridae moths lie flat and form a broad-base triangle. The wings are intricately patterned in varying shades of brown and sometimes green.

The common name **looper** refers to the distinctive forward movement of the caterpillars.

TABLE 2.13 Looper caterpillars and moth

Māori name	Meaning	Author
Caterpillar		
Makokorori	A caterpillar.	Williams, 1852, p. 70
Makokorori; Ngata	The name of a caterpillar, the Looper caterpillar (Geometrina); Looper caterpillar.	Tregear, 1891, pp. 200, 279
Whangawhanga	Small green caterpillar, which has feet near the ends of its body, and progresses by looping itself.	Williams, 1892, p. 231
Moko-tawhana	Caterpillar.	Best, 1908, p. 238
Whangawhanga	Small green caterpillar which progresses by looping itself.	Williams, 1915, p. 221
Mokotāwhana; Tāwhana, tāwhanawhana,⁶⁰ tāwhangawhanga; Whangawhanga	Caterpillar; Bent like a bow. Caterpillar; A small green caterpillar; A small caterpillar which progresses by looping its body.	Williams, 1917, pp. 241, 477, 573
Moth		
Pepe⁶¹ tāwhanawhana	Species of moth.	Williams, 1917, p. 322

1. The eating pattern of the **flax looper** caterpillar, *Orthoclydon praefectata*, characteristically comprises elongated ‘windows’ along the blade of the flax leaf. (Appendix 8a & 8b, p. 254)

The significance for Māori again arises from the damage caused to the flax leaf and the associated diminished quality of fibre available for weaving purposes. Invariably the flax plant is subjected to insect damage from both the flax notcher and flax looper caterpillar. So the combination of leaf notching and ‘window making’ results in the entire leaf blade being rendered useless for weaving.

The general term **pepe tāwhanawhana** will be attributed to the moth and **tāwhanawhana** to the looper caterpillar. (See p. 203 for discussion on terminology).

⁵⁹ Puku means “stomach” or “appetite” according to Williams (1917, p. 359) and Tregear (1891, p. 371) listed pukupuku as “A kind of caterpillar.”

⁶⁰ Williams (1917, p. 477) translated tāwhanawhana as “bent like a bow.”

⁶¹ Williams (1917, p. 322) translated **pepe** as ‘flutter’ and in view of the terms for the looper caterpillar then **pepe tāwhanawhana** logically extrapolates to the moth of a looping caterpillar.

2. The **cabbage tree looper** caterpillar, *Epiphryne*⁶² *verriculata* is pale green with stripes (Appendix 9b, p. 255) and feeds on the leaves of the cabbage tree, *Cordyline australis* (Tī kōuka). The pale brown moth has fine dark brown parallel lines running the length of the wings (Appendix 9a, p. 255), and the “moth always rests on the dead leaves keeping its wings in such a position that lines are continuous with the parallel veins of the dead leaf, which they precisely resemble” (Hudson, 1898, p. 53).



Fig. 2.9 Pepe tāwhanawhana, *Epiphryne verriculata*

Cabbage tree leaves were used in weaving and as “thatch on rain cloaks” according to Pendergrast (1987, p. 12). They were also used to make a rope (called tau-whenua) that was used to secure timber to battens inside a whare (Best, 1941, p. 565). The feeding damage caused by the cabbage tree looper will have diminished the quality of fibre and those leaves therefore avoided.

For the purposes of the exhibition and thesis, the general term **pepe tāwhanawhana** will be attributed to the moth and **tāwhanawhana**⁶³ to the looper caterpillar.

3. The **Aristotelia looper caterpillar**, *Epiphryne xanthaspis*, feeds on the leaves of makomako (wineberry) *Aristotelia serrata*. The bark of this tree was used by Māori to produce a blue-black dye for flax (Cooper & Cambie, 1991, p. 10). The relatively small moth has bright yellow forewings and for the purposes of the exhibition and thesis, will be associated with the general term **pepe**. The caterpillar will take the term **ngata**, since Tregear (1891, p. 279) listed **ngata** as a term for a looper caterpillar, and Andersen (1907, p. 88) wrote, when “its [mako-mako] slender boughs [were] shaken, showers of arching caterpillars, of **ngata**, would fall from its variegated leaves.”⁶⁴

⁶² Formerly *Venusia*.

⁶³ Both the flax looper caterpillar and the cabbage tree looper caterpillar will take the same term **tāwhanawhana**. They appear similar, and both host plants are monocotyledons, - that is, have leaves with parallel venation. Both moths therefore take the same term **pepe tāwhanawhana**.

⁶⁴ I also observed (13. 2. 14), that when disturbed, these “arching caterpillars” will wriggle violently off the leaf to dangle vertically by a silk thread.

4. The **kawakawa looper** caterpillar, *Cleora scriptaria*⁶⁵ is primarily responsible for creating the distinctive holes in kawakawa leaves (Appendix 10a & 10b, p. 256). Kawakawa was and is, an important rongoa Māori (medicinal plant) and according to Foster, (2008, p. 136) and Regan Balzer (2010, pers. 54omm..) the preferred leaves for harvesting are those with the holes. Kawakawa locally produces anti-insect compounds in response to the feeding that encourages the caterpillar to move off to another position on the leaf thus creating a multiple pattern of holes (Hodge, Barron, Wratten, 2000, p. 91).

The caterpillar is usually bright green and because Williams (1892, p. 231) glossed **whangawhanga** as a “small green caterpillar, which has feet near the ends of its body, and progresses by looping itself” the term will represent this caterpillar. The general term **pepe** will be associated with the moth.

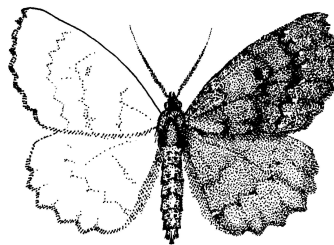


Fig. 2.10 Pepe, *Cleora scriptaria*

Family: Arctiidae

The day flying **Magpie moth**, *Nyctemera annulata*, is conspicuous for its contrasting black and white wing markings and striped yellow and black abdomen. The furry black and yellow caterpillars are referred to as **woolly bears**.

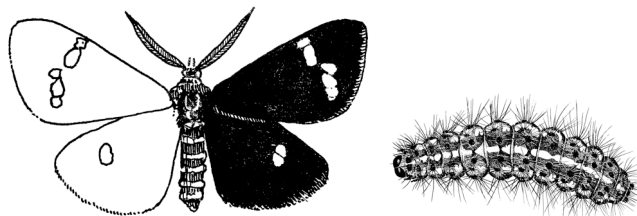


Fig. 2.11 Mokarakara and makokōrori, *Nyctemera annulata*

⁶⁵ Formerly *Selidosema panagrata*. Some caterpillars turn brown as they develop.

TABLE 2.14 Magpie moth and caterpillar

Māori names	Meaning	Author
Magpie moth		
Mokarakara	A butterfly. ⁶⁶	Tregear, 1891, p. 249
Mokarakara ⁶⁷	Black and spotted butterflies.	Beattie, 1920, p. 65
Caterpillar		
Makokorori	A caterpillar.	Williams, 1852, p.70
Makokōrori	Caterpillar.	Williams, 1871, p. 73
Makokōrori	Caterpillar.	Williams, 1892, p.84
Makokōrori; Tuahuru; Tūpeke ⁶⁸	A caterpillar, larva of <i>Nyctemera annulata</i> ; A hairy kind of caterpillar; ⁶⁹ A hairy caterpillar, larva of <i>Nyctemera annulata</i> .	Williams, 1917, pp. 199 521, 535
Toroku	Black and hairy caterpillar (South Island Murihiku term)	Beattie, 1920/2009, p. 186
Tuahuru	Possibly the caterpillar of <i>Nyctemera annulata</i> .	Miller, 1952, p. 48

Family: Gelechiidae

The first tubers of the white potato, *Solanum tuberosum* were probably introduced to New Zealand in the eighteenth century. Captain Williams observed vast plantations in 1813 (Druett, 1983, p.14). It is possible that some of these tubers also contained the burrowing caterpillars of the ubiquitous **potato moth**, *Phthorimaea operculella*. For this study, this caterpillar will be associated with the term **tuiau**, for the following reasons. Williams (1917, p. 527) gave the 3rd meaning for the term **tuiau** as a “Grub.” The sentence that followed to elucidate its meaning is, “He parareka pokapokanga na te ngarara tuiau.” Parareka in Williams (1917, p. 308) is given to mean not only the king fern *Marrattia fraxinea* (now *M. salicina*) which was eaten by Māori, but also the potato. Pokapoka (Williams, 1917, p. 335) means to “pierce with a number of holes.” Given the popularity of the high yielding white potato and its ultimate supersedence over the kūmara by being easily grown in cold situations, it is conceivable that **tuiau** related to the caterpillar of the potato moth rather than an insect that bores into the rhizome of the rare king fern. So the translation would be “A potato perforated by the tuiau insect.”

⁶⁶ Since the magpie moth is a daytime flier, it could have easily been mistaken for a butterfly.

⁶⁷ Beattie (2009, p. 185) also gave this term for “red and black butterfly” which would more aptly describe the red admiral butterfly.

⁶⁸ This term was also applied to the greasy cutworm caterpillar. Best (1925a, p. 112) noted it was “some form of caterpillar” and that Te Manihera Waititi claimed it was “the same as that called toronu in the Bay of Plenty district.”

⁶⁹ This would equally describe the hairy black caterpillar of the red admiral, *Vanessa gonerilla gonerilla*, (kahukura) or the caterpillar of the yellow admiral, *V. itea*.

Most **butterflies** are brightly coloured and fly during the day. At rest, their wings are held together, above the body.

TABLE 2.15 Butterflies and chrysalis

Māori names	Meaning	Author
Butterflies		
Pēpepe	A butterfly; a moth.	Williams, 1852, p. 118
Pēpepe	Moth or butterfly.	Williams, 1871, p. 114
Mokarakara; ⁷⁰ Pēpepe, pepeatua	A butterfly. A species of butterfly.	Tregear, 1891, pp. 249, 333
Purerehua	Generic term for moths and possibly includes butterflies not brightly marked.	Best, 1908, p. 239
Pepe	The butterfly.	Smith, 1913, p. 157
Pēpepe; Wairua, wairua atua	Moth, butterfly; An insect. A butterfly.	Williams, 1917, pp. 322, 560
Mokarakara	A general name for all kinds of butterflies.	Beattie, 1920/2009, p. 347
Chrysalis		
Kihikihi	Chrysalis.	Taylor, 1848, p. 5
Kihikihi	Chrysalis.	Williams, 1852, p. 48

Commenting on New Zealand butterflies, Polack (1838/1974, p. 319) disparagingly noted that, “various papelias, or butterflies, are to be found, but of very minor pretensions to beauty.”

Best (1900, p. 181) presented the cultural view and noted that the “wairua of the dead were said to have sometimes returned to this world in the form of butterflies, a form of belief in transmigration. In Samoa they are said to return in the form of moths.” He defined ‘wairua’ (p. 178) as “the spirit of man ... the astral body, an intelligent spirit or essence, a sentient spirit ... [and] the wairua can leave the body without injury when that person is dreaming.”

Goldie (1904, p. 19) also recorded that “ghosts of the dead were said to have returned to this world in the form of butterflies.”

The following Māori terms appeared in Best (1924a, p. 299),

*The spirits or souls of the dead were believed to return to, or remain in this world in the form of butterflies and moths, at least in some cases, hence butterflies are sometimes termed **wairua** or **wairua atua**. I have heard them described as “he wairua no te kehua” or spirits of ghosts, which is a double abstraction.*

⁷⁰ Refer to entry for magpie moth, p. 54 and Footnote 66, p.55. This day flying moth could easily have been mistaken for a butterfly.

Family: Nymphalidae

The **red admiral**, *Vanessa gonerilla gonerilla*, is a common and swiftly flying butterfly. The upper wings appear superficially black with a red-orange splash. The underside of the wings is intricately patterned. (Appendix 11a & 11b, p. 257) The forelegs are greatly reduced and usually held close to the body. Adults feed on nectar, and may over winter.

The spiny caterpillars feed on nettles like ongaonga (*Urtica ferox*) and fold the leaf tips around themselves, to feed from within.

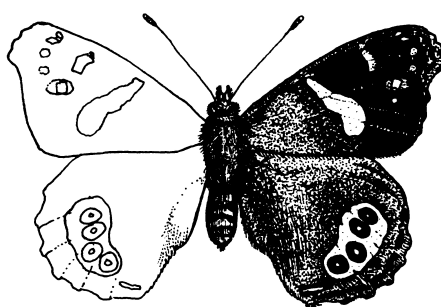


Fig. 2.12 Kahukura, *Vanessa gonerilla gonerilla*

TABLE 2.16 Red admiral butterfly and caterpillar

Māori names	Meaning	Author
Butterfly		
Kahukura	Butterfly. Possibly applied only to bright-coloured species.	Best, 1908, p. 239
Kahukura	Butterfly.	Williams, 1917, p. 100
Kahukura	The red admiral.	Miller, 1955, p. 10
Mokarakara	Red and black butterfly. ⁷¹	Beattie, 1920/2009, p. 185
Caterpillar		
Tuahuru	A hairy kind of caterpillar. ⁷²	Williams, 1917, p. 521

The kahukura was one of four messengers sent by Hine-nui-te-pō to gather Māui's hau (life essence). According to Best, (1925b, p. 944), Māui's ultimate demise was brought about by this interaction. The relationship was never amicable for many reasons. Māui had not only destroyed Mahuika's fire children (Mahuika was Hine-nui-te-pō's sister), but he had also slain Hine-nui-te-pō's lover, Tuna, the eel god. For

⁷¹ This is a South Island term, and has also been attributed to the magpie moth.

⁷² The term tuahuru and the description 'A hairy kind of caterpillar' has been associated with the caterpillar of the magpie moth, *Nyctemera annulata*. But, both caterpillars look so similar that the term should also apply to the red admiral caterpillar.

these acts along with numerous others, Hine-nui-te-pō was determined to destroy Māui.

Hine had also heard that Māui wished to abolish death (which had been made permanent by herself and Whiro) and had been observed by the offspring of Peke-rau (insects and others) descending into the underworld. Aware that she was the target of attack, Hine “sent the Peke-rau folk back to obtain a drop of the blood of Māui to serve as a medium between her magic and their objective” (Best, 1982, p. 378). So she first sent the butterfly, **kahukura**, to obtain this ohonga (something personal) from Māui. But when Māui saw the butterfly, he slapped and killed it. Next the **tuia** (midge) was sent but it too was killed. Yet another messenger, the night active **waeroa** (mosquito) was dispatched, but because Māui heard the whine of the waeroa, it was also killed. The defeat of these messengers was known as *Paihau-ka-roha* (the wings spread out) according to Smith (1913, p.146). Finally Hine-nui-te-pō sent the **namu** or sandfly. This fly, silently and successfully pierced Māui’s forehead, extracted a drop of blood, and delivered it back to Hine. This captured ‘life-essence’ enabled her strong powers to connect with him and ultimately ensure that in due course, he would be slayed and mortality would continue to exist in the world. See pp. 121,122, for conclusion.

2. The **forest ringlet**, *Dodonidia helmsii* is not common. This colourful swift flying butterfly is only occasionally seen on bright sunny days in bush clearings. (Appendix 12a & 12b, p. 258)

Best (1905, p. 225) recorded that the “spirits of the dead are said to sometimes return here in the form of butterflies or moths.”

Tregear (1891, p. 333) listed **pepe atua** for “a species of butterfly” and Williams (1917, p. 560) the term **wairua atua** for a “butterfly” (under the term wairua for “an insect”).

For the purposes of this thesis and exhibition, the terms **pepe atua** and **wairua⁷³ atua** will represent the forest ringlet butterfly, because rarely encountered pepe are often regarded as spirit mediums.

⁷³ Wairua was defined in Williams (1852, p.197) as “A spirit; a shadow.”

2.4.2 Order Coleoptera – Beetles

Beetles comprise the largest group of insects. They are sometimes referred to as **hard-backs** because the first pair of wings (elytra) is strongly sclerotised (hardened) and not directly used for flight. They are instead elevated to allow the flight wings to ‘operate’ unimpinged. At rest these elytra conceal and protect the folded flight wings.

Reference was made to beetles in the first few lines of a waiata⁷⁴ recorded by Ngata (1961, pp. 234, 235). Refer to p. 314 (Vol. 3) of thesis for complete waiata.

<i>E tu ra, e whare e,</i>	<i>Remain there, O house,</i>
<i>Ka mahue koe,</i>	<i>You are now to be abandoned,</i>
<i>Tarei ra, e te pepeke.</i>	<i>Bore on O beetle,</i>
<i>Whaihanga a, e te tuturi, e;</i>	<i>Spin on O spider;</i>
<i>Ka tau te tini o te Hakuturi.</i>	<i>Should the myriads of Hakuturi chant.</i>

Family: Cerambycidae – Longhorn beetles

Beetles in this family generally have antennae that are longer than the length of their bodies. Taylor (1870, p. 641) listed five names for the ‘Cerambyx’ although their species identity was not known. These are, **tapoi**, **kaka**, **kapapa**, **karewarewa** and **koroi-pepe**.

1. The brown **huhu beetle**, *Prionoplus reticularis*, is New Zealand’s largest beetle. The wing covers are distinctively reticulated with cream coloured veins. Each side of the pronotum (first section of thorax) bares a sharp outward facing spine concealed within pale brown ‘fur.’ The antennae are very long with a backward facing spine on each segment. In the short two – three weeks of adult life, the beetle mates and lays eggs but does not feed. The large fleshy grubs live and feed on the rotting logs of many trees including maire, (*Eugenia maire*), rimu, (*Dacrydium cupressinum*) and kauri, (*Agathis australis*). They are also readily found in logs of introduced trees like pine, (*Pinus* spp.).

Emergence of adults must coincide with that of others to maximise the opportunity to mate and lay eggs before dying. This can be triggered by weather conditions, as observed by Jahnke (2011, pers. comm.). New Year’s Eve 2010/11 on the East Coast of the North Island was warm and clear, and large numbers of adults were noticed flying, and attracted to nightlights. The day following the observation, the

⁷⁴ This song was called, He tangi mo tōna whare, (A lament for his house).

weather changed dramatically becoming windy and cool, with no further adults observed. This suggests that clear warm weather conditions were perfect for a mass emergence of beetles.

Dieffenbach (1843/1974, p. 46) recorded that “among the delicacies,” Māori enjoyed eating orchid tubers, and, “Nor do they disdain the fat grub of some coleopterous insect which they find in rotten trees.”

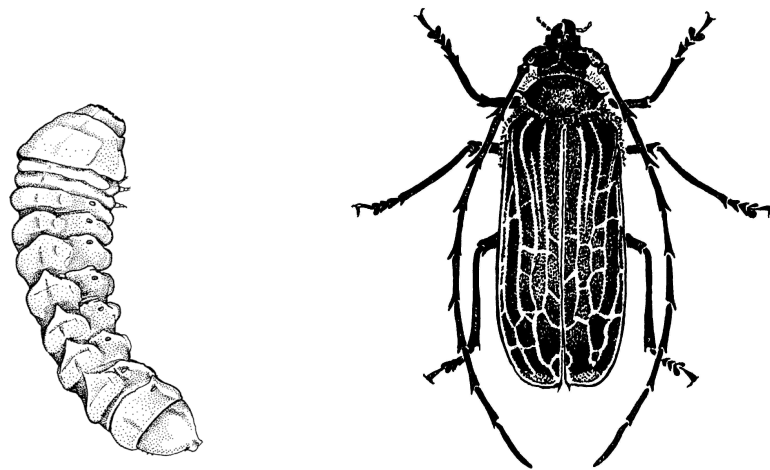


Fig. 2.13 Huhu, tunga-rakau, and pepe-te-muimui, *Prionoplus reticularis*

Toothache (niho-tunga, tunga-raupapa) according to Goldie (1904, p. 72) “was attributed by the Māoris ... to the gnawing of a grub, worm, maggot, or insect. The **tunga** is the grub of a species of beetle inhabiting decayed wood, and *niho-tunga* is the term applied by the natives to both toothache and decayed teeth, while *tunga-puku* is an alveolar abscess or gum boil.” Refer to p. 39 where the bagmoth cocoon is used as a remedy for toothache.

As noted, the huhu grub is found in rotten wood and this association with decay appeared in the ‘separation’ narrative in Grey (1885, pp. 1-9 English, pp. 7-12 Māori) where Tāwhirimātea in his anger at Tāne-mahuta for wrenching apart the primal parents, sent gale-force winds to snap and break his tree forms, and,

*Anana! Whati poro; tana
hinganga ki raro me nga manga
ana, takoto ana ki te whenua;
anana! Ma te **huhu**, ma te popo,
ma te hanehane.*

*Alas! They are rent to atoms, dashed to the earth,
with boughs and branches torn and scattered, and
lying on the earth, trees and branches all alike left for
the insect, for the grub, and for the loathsome
rottenness.*

TABLE 2.17 Huhu grub, pupa, and beetle

Māori names	Meaning	Author
Grub		
Huhu ; ⁷⁵ Pepe	A grub living in rotten wood. A grub living in wood.	Williams, 1852, pp. 30, 118
Pepe ; Tunga	A grub found in rotten wood; Grub of a species of beetle, found in decayed wood.	Williams, 1871, pp. 114, 181
Huhu, tunga rakau, tunga haere	The wood-boring grub found in logs or dead trees of matai, rimu, and kahikatea.	Best, 1902a, p. 64
Huhu, tunga, tunga-rakau	<i>Prionoplus reticularis</i> . A grub.	Best, 1908, pp. 238, 239
Huhu; tunga	Grub; Soft wood grub.	Stowell, 1911, p. 109
Huhu; Mokoroa	Larva of the beetle <i>Prionus reticularis</i> , found in decayed timber; A large white grub probably the larva of <i>Prionus reticularis</i> , which attacks kahikatea (white pine) and other trees. ⁷⁶	Williams, 1917, pp. 78, 242
Tukarakau; Huhu, tuka	Fat white grub with a blackish head that is to be found when pine trees are felled. (Murihiku term) Māori ate it either raw or cooked in the ashes; Big fat white grub found in pine trees. Known as tuka in Canterbury and huhu in Nelson.	Beattie, 1920/2009, pp. 186, 509
Huhu, tunga-haere	The grubs.	Miller, 1955, p. 26
Pupa		
Tataka, pepe	The grub ceases to bore, remains in a cell, and casts its skin. The wings and legs develop [sic]. Colour still white.	Best, 1902a, p. 64
Pepe, tataka	The huhu at one stage of development. When its wings are formed, though still white; When the huhu grub ceases to bore, remains in a cell, and casts its skin.	Best, 1908, p. 239
Tataka	Huhu pupae.	Miller, 1955, p. 26
Beetle		
Kapapa	<i>Prionoplus reticularis</i> , a large cerambyx, whose grub is very destructive to fruit trees.	Taylor, 1855/1974, p. 421
Huhu	A beetle found in rotten timber.	Williams, 1871, p. 32
Tunga rere	[Huhu] emerges from cell and flies abroad, a brown cockchafer.	Best, 1902a, p. 64
Kapapa	A beetle (<i>Prionoplus reticularis</i>). The largest of beetles, most destructive to rimu and matai.	Andersen, 1907, p. 607
Pepe-te-muimui ⁷⁷	<i>Prionoplus</i> .	Smith, 1913, p. 128
Huhu	A beetle found in rotten timber; <i>prionus reticularis</i> .	Williams, 1915, p. 35
Pepe te muimui, tunga-rere	Huhu beetle.	Miller, 1955, p. 26

The huhu grub was used as bait when night fishing for eels in a practice called *toi* or eel-bobbing. As described by Best (1929, p. 121), a fine manuka branch was used as a rod to which fibres of the cabbage tree leaf, flax leaf or lengths of inner bark from the ribbonwood tree *Hoheria* sp. were tied. Huhu grubs were in turn attached to these

⁷⁵ Today, the term **huhu** is more generally used now to denote all stages of development.

⁷⁶ I recommend that this latter attribution is anomalous and mokoroa is likely the grub/caterpillar of the pūriri moth.

⁷⁷ Percy Smith (1913, p. 128) recorded **pepe-te-muimui** as one of the insects comprising the war party sent by Whiro to destroy Tāne on his ascent to the heavens. See p. 30 for account.

fibres and then dangled in the water. The entire device is called a *tui huhu*. When caught, the eel was swung out of the water and onto land for dispensing and processing.

The following excerpt is from a conversation (in 2011) between Peter Feran and Peter Grant⁷⁸ that recalled the latter's childhood experiences. We were handed a,

*Big powdered milk tin with a wire handle by the Aunties and told to get **huhu grubs** and not to come back until the tins were full. Once we had our full tins which by now were quite heavy we reported to the old 'chooks' who in the meantime had stripped out long threads of flax with a mussel shell and black horny fingernails. With the flax threaded onto a sacking needle they would start to thread the Huhu grubs lengthways onto the flax thread. Once several strings had been threaded they would roll up the strings of grubs into a ball maybe 3 inches in diameter. Jimmy's dad used some modified milk powder tins with candles inside to be our 'torches' for that night. The old girls lowered the grub ball into the water and we waited for the action, sticks raised and ready. The eels made the water boil within seconds of the bait entering the water. The first old girl hoisted the rod over her head and two eels went flying into the grass and with our torches we chased after the thrashing eels and whacked them before stuffing them in the bag. The principle was that the eels got their teeth caught in the flax thread and it was the special flick that Aunty did that made them let go and fly through the air.*

The larvae also constituted a large portion of the diet of the huia, *Heteralocha acutirostris*. Bird pairs bonded monogamously and the sexual bill dimorphism, allowed mutual assistance with feeding. The white tipped black tail feathers are a taonga (treasure) and only worn by people of high rank. Māori exploited the huia's fondness for huhu, by tying the grub with flax fibre and using it as part of a snare to entice and catch the highly prized bird (Phillipps, 1963, p. 48).

In a whakataukī recorded and translated by Dieffenbach (1843/1974, pp. 308, 309) reference was made to a lazy person eating the roasted huhu grub,

Na **huhu** na wera to kai e mangere na – Take grubs from the fire; that is thy food, lazy fellow.

⁷⁸ Peter Grant was born in 1938, and a son of the school principal of Himitungi School, north of Te Kuiti. This account is based on his life when he was about eight years old and was recorded by Peter Feran.

Best (1902a, p. 64) wrote that “the wood-boring grub found in logs or dead trees ... known as huhu, is eaten, either raw or roasted, in its first two stages of growth.”

As an item of food, Tregear (1926, p. 109) similarly noted that, “A certain larva (**huhu**) found in rotten timber was much relished by the Maoris.”

At the time that the grub has stopped eating and before metamorphosis into a pupa is when the grub is said to be particularly tasty (Miller, 1984, p. 78).

The Tuhoe tohunga, Hohepa Kereopa commented that even the adult beetle was at one time eaten. As recorded by Moon (2005, p. 100) he said,

Some of our parents would eat them when they started to get hair on them, and even when they had wings, they would still eat them. And they were ugly looking things. They would go a bluey colour when you cooked them.

2. The **kānuka longhorn**, *Ochrocydus huttoni*, is smaller than the huhu, with golden brown elytra lacking obvious venation. (Appendix 13a & 13b, p. 259) The larvae tunnel into the living wood of both kānuka and mānuka. Both trees were extensively used by Māori to create tools, but timber with grub tunnels is weak. In this situation they could be regarded therefore as a pest.

But conversely, Hohepa Kereopa as cited in Moon (2005, p. 99) explained,

And we used to eat the huhu grubs from the manuka. Sometimes on the tree, you will see a hole and it's got bits of rot in it. That's where you will find the best grubs. They are different to the ones in the pine trees. So the ones people like the most were those in manuka⁷⁹, but if you found them in a matai tree, then you could get enough sometimes to feed the whole hapu. You look for a little cut or split in the wood. Then you break that piece of wood and they all fall out, and you can fill a whole basket with them sometimes.

Because of its overall similarity to the huhu (*Prionoplus reticularis*) at all stages, and for the purposes of this thesis, the term **huhu** will be applied to the grub and **kapapa** to the beetle of the kānuka longhorn.

⁷⁹ According to Miller (1955, p. 27) the presence of the wood boring larvae was indicated by an exudation of sap from the tree. This was referred to as pia manuka, and was once eaten by Māori.

Family: Scarabaeidae

These beetles have stout oval bodies. The clubbed antennae consist of a number of moveable segments. The soft-bodied larvae characteristically curl into a 'C' pose.

1. The **mānuka beetle**, *Pyronota festiva*, is small, bright metallic green (Appendix 14, p. 260) and feeds on mānuka foliage, while the ground dwelling larvae feed on tree-roots.

TABLE 2.18 Mānuka beetle

Māori names	Meaning	Author
Kiriwai manuka	A small green beetle, abounding in the summer amongst the manuka trees.	Taylor, 1855/1974, p. 421
Kiriwai	A very beautiful metallic green [beetle], with red streaks, [and] visits the manuka trees.	Taylor, 1870, p. 641
Kiriwai, kekewai, keke-rewai, 'The bird of Rehua' ⁸⁰	An insect (<i>Pyronota festiva</i>). A green beetle found on flowering manuka in early Summer.	Andersen, 1907, pp. 49, 64, 610
Kekerewai, Manu a Rehua	They were both [tutaeruru (grass grub) and kekerewai] eaten.	Best, 1902a, p. 110
Kēkerewai	A small green beetle seen on manuka.	Best, 1908, p. 238
Kerewai, kēkerewai, reporepowai; Ngutu-tawa; Tutae-ruru	<i>Pyronota festiva</i> ; a small green beetle. <i>Pyronota festiva</i> , a small green beetle [<i>sic</i>].	Williams, 1917, pp. 134, 275, 541
Kekerewai	They also esteemed as food the small green beetle (kekerewai) found on the tea-tree (manuka) shrub. It was called as a compliment Te manu a Rehua , "the bird of Rehua" – Rehua was a god.	Tregear, 1926, p. 109
Tutaeruru, kekerewai, Manu a Rehua, kerewai, kiriwai, reporepowai	Small green beetle; <i>Pyronota festiva</i> .	Best, 1942, p. 69
Tini o Ponauwe; Tuwhaipapa	Possibly the multitudes of kekerewai; Possibly the personification of kekerewai.	Best, 1982, p. 268

Andersen (1907, p.64) noted that the green keke-rewai, when "ground down and dried, formed an appetising food." Similarly Best, (1942, p. 69) described how they were made into a type of bread. Large numbers were collected, "pounded in a wooden vessel, then mixed with the raupo-pollen and the compound was then put into small baskets and cooked in a steam oven, which is the tapora mode of cooking."

2. The **grass grub**, *Costelytra zealandica*, is a small brown beetle. On dusk in rural areas, they can be heard flying about from October through to December. The grubs feed on plant roots. (Appendix 15, p. 261) Although a native, the grass grub quickly

⁸⁰ Best (1972, p. 56) recorded that Rehua is the summer star Antares, and "Rehua is a star, a bird with two wings; one wing is broken, the other whole. Under the unbroken wing is the Waka o Tama-rereti (Tail of the scorpion)."

adapted to feeding on the roots of introduced pasture plants during colonial times when large areas of land was converted to grassland. They are now pasture pests.

TABLE 2.19 Grass grub

Māori names	Meaning/Significance	Author
Papa papa	A small brown beetle, very abundant on a summer's evening.	Taylor, 1855/1974, p. 421
Papa papa	The name of a small brown beetle.	Tregear, 1891, p. 317
Tutaeruru	Flies about in the evening, making a booming sound. The term manu a Rehua applies to both [kekerewai and tutaeruru], and they were both eaten.	Best, 1902a, p. 110
Tutaeruru; Manu a Rehua	Some form of winged insect, perhaps a beetle, which flies around in the evening with a booming sound. This species and the kekerewai were sometimes called manu a Rehua . They were both eaten in former times.	Best, 1908, pp. 238, 241

3. The **mūmū chafer**, *Stethaspis longicornis*, is a medium sized green beetle that feeds on the foliage of native trees. (Appendix 16, p. 262)

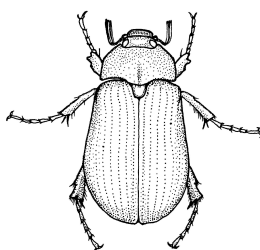


Fig. 2.14 Mūmū, *Stethaspis longicornis*

TABLE 2.20 Mūmū chafer

Māori names	Meaning	Author
Mūmū	A large green beetle, found in the forest.	Taylor, 1855/1974, p. 421
Mū, mūmū; Pāiru, pauru	An insect. A large green beetle; Green beetle.	Williams, 1917, pp. 247, 291

Tregear (1891, p. 258) listed '**mumuwharu**' for a species of beetle. The term 'mumu' under the term 'mu' (p. 256) was defined as "a gentle noise; to murmur; to hum." And 'wharu' (p. 596), as a South Island term for eight, which is January on the Māori calendar. This term could therefore apply to summer flying beetles that 'hum' in flight like the mumu chafer and grass grub.

4. The **tanguru chafer**, *Stethaspis suturalis*⁸¹ is differentiated from the mūmū chafer by its glossy elytra, and the presence of a fine yellow line on the inner edge of the elytra. The mumu chafer inhabits northland bush while the more common tanguru

⁸¹ Formerly *Chlorochiton suturalis*.

chafer inhabits bush ranging from the lower North Island to the upper South Island. They produce a deep-toned hum in flight.

TABLE 2.21 Tanguru chafer

Māori names	Meaning	Author
Tanguru	In summer ... a large green beetle ... is found in the forest.	Taylor, 1870, p. 641
Tanguru	A species of dark-green beetle.	Tregear, 1891, p. 467
Howaka; Papahu	A beetle? <i>Stethaspis suturalis</i> . A large white grub, the larva of <i>Stethaspis suturalis</i> .	Williams, 1917, pp. 75, 289 (under pahu)

5. The **sand scarab**, *Pericoptus truncatus* is a large, oval black beetle that inhabits sand dunes. (Appendix 17a, p. 263) It is a nocturnal insect, seen only during the day when found dead amongst driftwood debris. Sexual dimorphism is evident. The large, fleshy larvae live under and within, large pieces of driftwood above high tide. (Appendix 17b, p. 263)

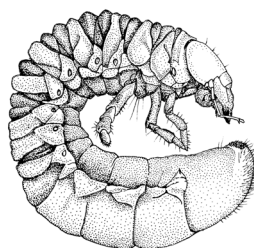


Fig. 2.15 Papahu, *Pericoptus truncatus*

TABLE 2.22 Sand scarab

Māori names	Meaning	Author
Mumutaua, Mumuwaru	A large beetle found on the sand hills. A large brown beetle.	Taylor, 1848, p. 5
Mumutaua	A large beetle found in the sand hills. The elytra are remarkably soft.	Taylor, 1855/1974, p. 423
Mumutawa	The largest beetle of New Zealand, takes up its abode in the sand hills near the sea, it is remarkable for its thick round form, and the weakness of its elytra.	Taylor, 1870, p. 641
Mumutawa, ngungutawa	The name of a large brown beetle (<i>Pericoptus punctatus</i>).	Tregear, 1891, p. 258

Most of these names are dialect variations. The spellings of the two similar sounding terms mumutaua and mumutawa, reflect variations in the European ‘ear.’

Taylor (1855/1974, p. 423) commented that, “I have also met with a kind of beetle, the ‘**mumutaua**,’ abounding amongst the sandhills in the vicinity of the sea, which frequently undergoes the same vegetative change...”⁸²

⁸² Here, Taylor is referencing the attack from a fungus like the one that invades the vegetable caterpillar.

Since beetle larvae, like the huhu grub were eaten, it seems conceivable that the large larvae of mumutaua were also encountered and ‘sampled’ by Māori. That there is no evidence supporting this, suggests that any name and/or significances have either been lost, or this grub was unpalatable. For this study it will also be associated with the term **papahu** because it is probable that papahu is a dialect term for the whole group of curl grubs from the family Scarabaeidae.

Family: Brentidae

Giraffe weevils, *Lasiorrhyncus barbicornis*, are not true weevils because they do not have elbowed antennae. Sexual dimorphism is evident. The male rostrum (snout) is exceptionally long with antennae situated near the tip. The body is uniformly narrow, but the elytra tip narrows to a waist then flares out. The body of the female is similarly long and narrow but the elytra taper to a point. The female has a shorter rostrum and antennae arise midway along its length. (Appendix 18a & 18b, p. 264) The wood boring larvae feed on a variety of native trees including lacebark, rimu and pigeonwood.

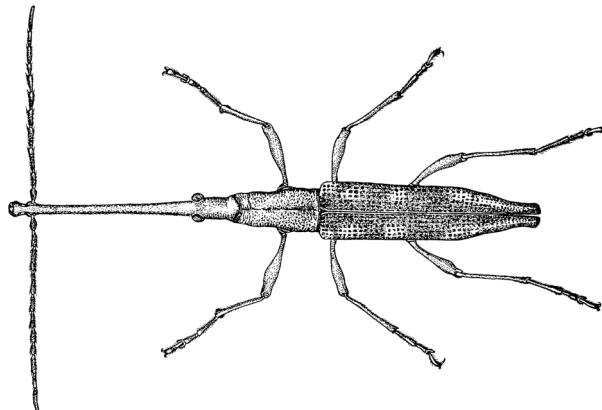


Fig. 2.16 Tūwhaipapa, *Lasiorrhyncus barbicornis*

Taylor (1855/1974, p. xiii) labelled his depiction (Plate II) of the giraffe weevil, *Nemocephalus barbicornis* Brentus. A similar illustration appeared in White (1891, p. 99) and was annotated “**God of new-made canoe** (*Nemocephalus barbicornis* Brentus).”

Williams (1917, p. 543) listed **tūwhaipapa** and **tūwhaitara**, for *Lasiorrhyncus barbicornis*. And, according to Tunuiarangi, Tūwhaipapa was the offspring of Tūwhaitara-ki-te-rangi (Best, 1982, p. 268).

Family: Cicindelidae – Tiger beetles

The adult **tiger beetle** or **butcher beetle**, *Cicindela tuberculata* is small and predatory. It has very long, slender legs, and is commonly seen running across open areas on hot days. The elytra of some species have a distinctive white and metallic bronze pattern.

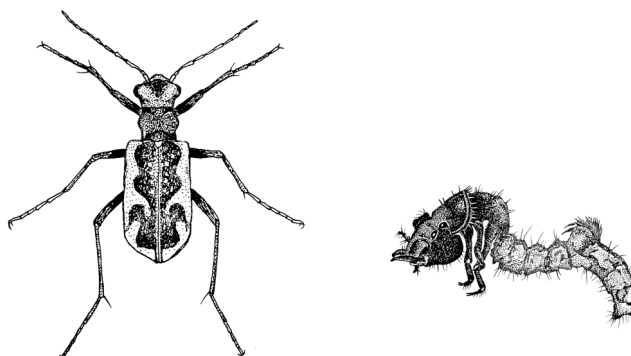


Fig. 2.17 Pāpapa and kui, *Cicindela tuberculata*

The elongated predatory larvae inhabit tunnels within clay banks and wait at the entrance for unsuspecting prey insects to pass by. The two curved hooks that project from a small dorsal hump ensure a good grip inside the tunnel, when hauling in prey. The head and first thoracic segment are highly specialised. They have merged into a flattened, circular disc that fits neatly within the perimeter of the tunnel entrance, rendering it seamless with the substrate. Sharp mandibles ensnare any passing victim.

TABLE 2.23 Tiger beetle and larva

Māori names	Meaning	Author
Moeone	A species of grub.	Williams, 1852, p. 84
Moeone	A small bronze beetle.	Taylor, 1855/1974, p. 118
Moeone	A beautiful bronze-spotted active little beetle, which burrows in our garden walk and is always on the look out for its prey.	Taylor, 1870, p. 641
Moeone; Muremure	A kind of grub; A grub.	Williams, 1871, pp. 85, 88
Kui; Moeone; Muremure	A small insect which burrows in the ground; A kind of grub, the larva of the Butcher Beetle.	Tregear, 1891, pp. 180, 247, 259
Moeone, Moeoneone; Muremure	A kind of grub; A grub, the same as moeone.	Williams, 1892, pp. 98, 102
Kui, moeone	When Maui fished up the land he gave it to Kui as his possession ... he changed into an insect called moeone.	Andersen, 1907, pp. 511, 512
Hapuku, kūī; Moeone,⁸³ moeoneone; Pāpapa	Larva of <i>Cicindela tuberculata</i> ; A kind of grub; <i>Cicindela tuberculata</i> , an insect.	Williams, 1917, pp. 43, 180, 238, 302

⁸³Best, (1925, p. 112) recorded that the moeone was also a pest of the kūmara plant. But, the tiger beetle larva is carnivorous, so this correlation must be either incorrect, or, the term included another ground dwelling grub.

According to Taylor (1855/1974, p. 118) “the **moeone** (A small bronze beetle)” was one of a number of animals brought to New Zealand in the Aotea waka, by its chief, Turi. Taylor (*Ibid.*, p. 156) also noted that the term **moeone** for “a lively little grub” was sometimes a mother’s first name for her chiefly baby son.

Tuputupuwhenua (Tumutumuwhenua), also known as Kui (Tregear, 1891, pp. 558-559) “is now incarnate as a little insect.” It was said that after Māui had caught his great fish, the North Island of New Zealand, he gifted the land to **Kui** and his descendants. Sometime later, this land was taken over by the Tutu-mai-ao and Turehu⁸⁴ people. **Kui** alone escaped by burrowing down into the ground to live.

Andersen’s expanded version (1907, p. 512) claimed that,

*It is said that on the people of Kui being dispossessed and dispersed by the ‘Tutu-mai-ao’, he changed into an insect called **moeone**, which lives in a burrow in the ground: these burrows may be plentifully seen during the warm days of Raumati. To him sacrifices are made on the completion of a new whare; and should any man dream of seeing him come from the ground it is an omen of evil, signifying that the people will die and the land forsaken.*

Smith (1905, pp. 148, 149) implicated the **moe-one** as one of the vermin that attacked the kūmara plant (See p. 44 of thesis). However, since the beetle is carnivorous, this association seems unlikely, but may indicate how the term has been used generally to include other ground-associated insects.

Andersen (1907, p. 171) also wrote that, “Upon the completion of a whare, blades of grass were offered to the little insect bearing a lump on its back, found in holes in the earth during Rau-mati: this is **Kui**, a child of the wife of Tupu-tupu-whenua.”

For the purposes of this thesis the adult beetle will be associated with the term **pāpapa** and the larva, **kūī** and **moeone**. However, Taylor’s reference above suggests that **moeone** may also refer to the beetle. This term will therefore identify the adult beetle in ‘Cabinet one, drawer two,’ that depicts insects associated with travel.

⁸⁴ Tregear (1891, p. 562) under the term Turehu, defined them as ‘fairies’, and cited White’s Ancient history of the Māori (iii, 189) that “these supernatural beings are probably the traditional remembrance of some former inhabitants of New Zealand. It is said that when Māui pulled up his great ‘fish,’ the North Island, he gave the land to the descendants of Kūī. The Kūī people were conquered and superseded by the Tutu-mai-ao, and these by the Turehu, who came from the other side of the ocean. Then the Māori people came and disposed the Turehu, who were conquered, intermarried with, and absorbed by the victors forty-six generations (about 1000 years) ago.”

Family Carabidae – Ground beetles

Ground beetles have a regular body form and are usually black (sometimes tinged metallic green) or brown. Many have parallel grooves or lines that run the length of the oval elytra. They are active, mostly nocturnal predators, but during the day retreat beneath logs. All have strong, forward pointing jaws and head (prognathous), and large specimens can bite. They may also produce an unpleasant odour if disturbed.

The North Island species *Megadromus capito* has been chosen to represent this family. (Appendix 19, p. 265)

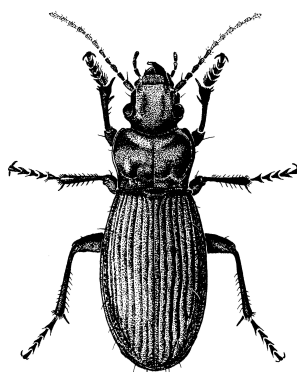


Fig. 2.18 Kurikuri, *Megadromus capito*

TABLE 2.24 Ground beetle

Māori names	Meaning	Author
Kurikuri	A grub which makes a small hole in the earth, and afterwards turns into a green bronzed beetle specked with white. ⁸⁵	Taylor, 1848, p. 5
Kurikuri	To smell badly, to stink, as a dirty dog.	Tregear, 1891, p. 186
Kurikuri	Fusty, evil smelling. A beetle.	Williams, 1917, p. 185

Family: Anobiidae – Borer beetles

The native **borer beetle**, *Hadrobregmus magnus* will be used to exemplify the family. The small dark brown beetle has a cylindrical body, and hood-like pronotum. Larvae bore into and feed on rimu and totara wood, and riddle the timber with complex galleries.

To attract a mate an adult beetle taps its head against the wood, giving rise to the term, **deathwatch beetles**, because this is mostly heard at the night.

⁸⁵ As Miller (1952, p. 21) commented, this could convincingly describe the tiger beetle larva and adult. However, there are already several names that clearly identify the tiger beetle larva, such as kūī, which sounds similar to 'kuri'.

Māori extensively used totara for building whare (houses) and waka (canoes). Timber that was riddled with bored galleries is compromised. Dampness can penetrate the wood rendering it vulnerable to decay.

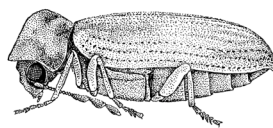


Fig. 2.19 Tākituri, *Hadrobregmus magnus*

TABLE 2.25 Borer beetles

Māori names	Meaning/Significance	Author
Tākituri	Death-watch beetle.	Williams, 1871, p. 149
Tākituri; Uhu	Death-watch beetle; Larva of a small beetle which infests dry timber.	Williams, 1892, pp. 173, 218
Kiori ti, Kiore tangiwairuru, tākituri	Death-watch beetle.	Stowell, 1911, p.109
Moko-tā, toke-whenua; Tākituri; Tokerangi, tokere; Uhu	Sort of death-watch, said to live in the thatch of houses, never seen but if heard regarded as an aitua; Death-watch beetle; Death-watch (an insect), to hear which was regarded as an ill omen; Larva of a small beetle which infests dry timber.	Williams, 1917, pp. 241, 435, 508, 546,
Moko-ta, ⁸⁶ tokerangi	It is unlucky to hear the chirping of the moko-ta, some kind of insect or reptile that lives in the thatch of houses, but is never seen by mortal eyes;	Best, 1925, pp. 1009, 1010

Best (1925b, pp. 1009-1010) documented that,

When in a house, you sometimes hear a sound like unto the ticking of the white man's watch, the name of that thing is tokerangi. Its sound is ominous. Arise at once and leave that place. Do not remain there. Go elsewhere.

Family: Coccinellidae – Ladybirds

Ladybirds are small domed beetles, often with contrasting dots on the elytra. Both adults and larvae eat aphids. The native **orange-spotted ladybird**, *Coccinella leonina* is black with orange spots and will represent this family. (Appendix 20, p. 266)

Stowell (1911, p. 109) listed the term **mūmūtawa**⁸⁷ for ladybird.

An aged Māori informed Beattie (1920/2009, p. 348) that, “the only name he knew [for ladybirds] was **hakopa**.” Beattie was not receptive to this being a genuine old term.

⁸⁶ Andersen (1907, p. 211) wrote of the moko-ta as being a ‘house lizard.’

⁸⁷ This may relate to the term being associated with round beetles like the sand scarab.

2.4.3 Order Odonata – Dragonflies and damselflies

Dragonflies and damselflies look superficially similar to each other, but **dragonflies** are larger, have robust elongated bodies and **hold their wings horizontally**.

Family: Petaluridae

The **giant dragonfly** or **Devil's darning needle**, *Uropetala carovei*, has contrasting black and yellow markings on the thorax and along the abdomen. (Appendix 21, p. 267) They cruise noisily along stream edges and wet areas within their territory. They are aggressive predators able to snatch insect prey from mid-air. Males have large terminal flaps on the abdomen (claspers) that hold the neck of the female during copulation.

The nymphs inhabit tunnels in wet mossy areas of the forest floor. They are also aggressive predators with specialised mouthparts. The lower jaw (labium) consists of two sections 'hinged together' with one end hinged to the upper jaw. This renders the jaw retractable and extendable when required to seize prey, and terminal grasping pincers on the lower jaw ensure a positive hold.

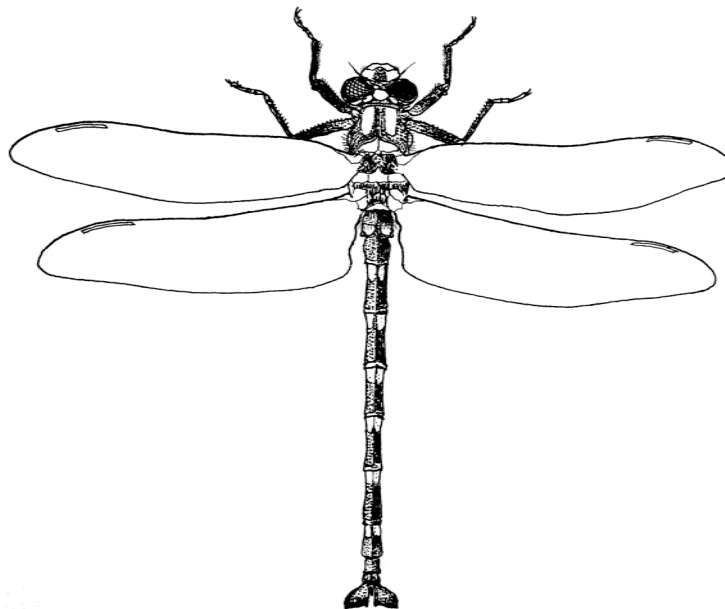


Fig. 2.20 Kapokapowai, *Uropetala carovei*

TABLE 2.26 Dragonflies

Māori names	Meaning	Author
Dragonfly		
Kapokapowai	Dragonfly.	Taylor, 1848, p. 5
Kapowai	Dragonfly.	Williams, 1852, p. 41
Kapokapowai, kekewai	A large dragonfly.	Taylor, 1855/1974, p. 420
Kapokapowai	Dragonfly; is often seen from 4.5 to 5 inches in length.	Taylor, 1870, p. 643
Kapowai	Dragonfly.	Williams, 1871, p. 44
Kapowai	Dragonfly.	Tregear, 1891, p. 126
Kapo-wai	Black and yellow dragonfly (<i>Uropetala carovei</i>).	Andersen, 1907, pp. 97, 607
Titīwaiaora, kapowai	Dragonfly.	Stowell, 1911, p. 109
Kapowai, kapokapowai; Uruurororoa	Dragonfly.	Williams, 1917, pp. 114, 552
Kikihiwaru ⁸⁸	Dragonfly (<i>Uropetalia</i>).	Beattie, 1920/2009, p. 186
Nymphs		
Pokopoko	Nymphae.	Williams, 1917, p. 337

An implied association was made between diminished numbers of kapowai⁸⁹ flying during ngāhuru (autumn) and the time to harvest kūmara being imminent (Andersen, 1907, p. 97).

Miller (1984, p. 55) noted that in Māori legend, a particular chief sent “legions of the Devil’s Darning-Needle to exterminate his enemies and lay waste their habitations.”

Damselflies are small and delicate with a slender body. The **wings** are **drawn together** over the back of the body at rest.

Family: Lestidae

The largest is the **blue damselfly**, *Austrolestes colenisonis*. Males are striking for their bright sky-blue and black colour banding (Appendix 22a, p. 268) while the females have green-blue and black markings. Adults are common around still bodies of water like swamps and lakes. The nymphs are entirely aquatic and when mature, climb out onto vegetation to ‘vacate’ their old skins. This is called emergence (Rowe, 1987, p. 39).

⁸⁸ This term appears anomalous, and is perhaps a case of mistaken identity. It is remarkably similar to another South Island term, **kikiwaru** that identifies the katydid (see p. 88). Beattie’s informant was “a Maori of eighty summers,” and accompanied him to the Otago museum to assist with the naming of specimens within the collection.

⁸⁹ It is important to remember that New Zealand originally had extensive wetland areas that provided ideal habitats for dragonflies (and damselflies). Encountering dragonflies would therefore have been commonplace. Today 90% of New Zealand’s wetlands have been drained for farming.

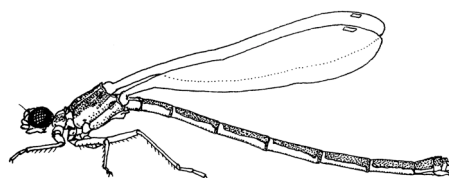


Fig. 2.21 Kēkēwai, tiēmiemi, *Austrolestes colensonis*

TABLE 2.27 Blue damselfly

Māori names	Meaning	Author
Kekewai	Dragonfly. ⁹⁰	Taylor, 1848, p. 5
Kekewai	A bright blue one [dragonfly].	Taylor, 1870, p. 643
Kekewai	Name of a small dragonfly.	Tregear, 1891, p. 143
Tiēmiemi	A small species of dragonfly.	Williams, 1917, p. 485
Kekewai, tiēmiemi	<i>Austrolestes colensonis</i> .	Miller, 1955, p. 56
Kēkēwai, kapowai	<i>Austrolestes colensonis</i> , the slender blue-bodied dragonfly.	Williams, 1957, p. 113

Family: Coenagrionidae

The **red damselfly**, *Xanthocnemis zealandica* occupies a similar habitat to the blue damselfly. The male is bright red (Appendix 22b, p. 268) and the female is black-copper.

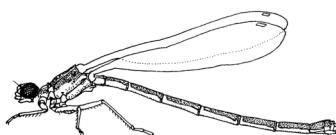


Fig. 2.22 Kihitara, *Xanthocnemis zealandica*

TABLE 2.28 Red damselfly

Māori names	Meaning	Author
Kikitara	Dragonfly.	Taylor, 1848, p. 5
Kihitara	A small red-bodied [dragonfly].	Taylor, 1870, p. 643
Kihitara	A small red-bodied dragonfly.	Tregear, 1891, p. 147
Kihitara	The small red Dragonfly (<i>Telebasis zealandica</i>).	Andersen, 1907, p. 610
Kihitara	<i>Xanthocnemis zealandica</i> , bright red with black markings.	Miller, 1955, p. 55
Kihitara	<i>Xanthocnemis zealandica</i> , common redcoat damselfly.	Rowe, 1987, p. 73

Andersen (1907, p. 49) wrote that when “Raumati [summer], too was at hand ... the red flashing **kihitarā**, darted here and there in damp open places.”

⁹⁰ Early accounts do not make a distinction between dragonflies and damselflies. This is supported by Taylor’s comment (1855/1974, p. 420) that “there is also a small blue and red dragonfly, similar to the English kinds.” This is a likely reference to the common blue damselfly, *Austrolestes colensonis*, and the red damselfly, *Xanthocnemis zealandica*.

2.4.4 Order Megaloptera – Dobsonflies

Family: Corydalidae

The only species of **dobsonfly** in New Zealand is *Archichauliodes diversus*. The adult is short lived, does not feed and although the wings are relatively large, it is a poor flyer.

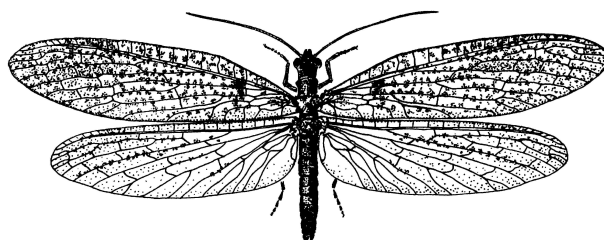


Fig. 2.23 Pepe, *Archichauliodes diversus*

Like many aquatic insects, the dobsonfly spends most of its time in its larval phase. The large larvae, called a **toe-biter** or **black-creeper**, look superficially like centipedes with eight pairs of bare gill filaments being of similar size, length and shape to the six legs. (Appendix 23a & 23b, p. 269) They are nocturnally active, and feed on other aquatic larvae like mayflies. When mature, the larva leaves the water to occupy a space beneath a large stone beyond the river's edge (Hudson, 1904, pp. 45 - 47).

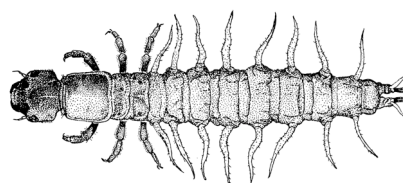


Fig. 2.24 Puene, *Archichauliodes diversus*

TABLE 2.29 Dobsonfly and mayflies

Māori names	Meaning/Significance	Author
Puene	A little creature having six legs [and] is eaten by children.	Best, 1902, p. 79
Puene, pūeneene	A small creature having six legs, found under stones in streams.	Williams, 1917, p. 353
Puene, pūeneene	Larva of <i>Archichauliodes dubitatus</i> , and the larvae of stoneflies and mayflies.	Miller, 1952, p. 38

Dobsonfly larvae represent sustenance for other nocturnal predators like tuna (eel), which have traditionally represented an important and reliable food source for Māori.

Given the confusing appearance of the many gill filaments of *Archichauliodes diversus* it is my view that the historical documentation “six legs” better describes larvae like stonefly nymphs (Order Plecoptera). Nymphs from this group are common and relatively large like *Stenoperla prasina*. See below.

But, for the purposes of this thesis, *Archichauliodes diversus* will be associated with the terms **puene** and **pūeneene**.

2.4.5 Order Plecoptera – Stoneflies

Family: Eustheniidae

The nymphs of *Stenoperla prasina* are moderately large, aquatic, and vivid green (occasionally yellow). They are found under submerged stones or wood. The body is elongated and dorso-ventrally flattened, enabling them to ‘hug’ the substrate. The well-developed prominent legs are similar in size and there are five pairs of short abdominal gills. The antennae are long and the abdomen bares two long cerci. Older nymphs exhibit obvious wing pads. These and other larvae, contribute to the diet of tuna.

Stenoperla prasina will represent this family and will be also associated with the terms **puene** and **pūeneene**. Refer to Table 2.29, p. 75.

2.4.6 Order Orthoptera – Wētā, crickets and grasshoppers

Family: Anostomatidae

These wingless, nocturnally active insects, mostly feed on plant foliage, but will eat other insects if provided the opportunity.

TABLE 2.30 Wētā

Māori name	Meaning	Author
Weta	An insect.	Taylor, 1848, p. 6
Weta	An insect.	Williams, 1852, p. 199
Weta	<i>Deinacrida</i> ; Weta, forest cricket, which may be almost termed a giant; the body being often 3 inches long ... found in the forest amongst dead timber.	Taylor, 1870, p. 643
Wētā	An insect.	Williams, 1871, p. 194
Weta	A large beetle ... lives in rotten wood and under the bark of trees.	Buller, 1880, p. 18
Wētā	The name of an insect.	Tregear, 1891, p. 601
Wētā	An insect.	Williams, 1892, p. 227
Wētā	New Zealand tree cricket.	Stowell, 1911, p. 109
Wētā	<i>Deinacrida megacephala</i> , an insect.	Williams, 1915, p. 218
Wētā	<i>Deinacrida megacephala</i> and other species; insects.	Williams, 1917, p. 567
Weta	<i>Hemideina ricta</i> .	Beattie, 1920/2009, p.186

Taylor. (1855/1974, p. 419) had the following to say about wētā,

One of the largest insects is the weta, which is found in the forest, amongst decayed timber; It has powerful serrated legs, with which it seizes its prey, and crushes it with its joints, wounding with its sharp spines; it is otherwise harmless.

White (1887, p. 172) recorded wētā as one of the insects carried to Aotearoa on the Ngāti Porou waka. Smith (1913, p. 132) listed wētā as one of Whiro's war party, taken prisoner by Tāne (See 3 & 4, p. 30 for both accounts).

1. **Giant wētā**, *Deinacrida heteracantha* have a large pear-shaped body and a head narrower than the pronotum. Auditory tympanal organs are present on the forelegs. They are the heaviest of all wētā and one of the heaviest insects⁹¹ in the world. They would once have been well distributed over mainland North Island, but since the introduction of two large species of rats in particular, they are restricted to offshore islands. Giant wētā are docile, mostly freeranging and without a permanent refuge (Gibbs 1998a, p. 163) and “their large claws are adaptations for tree climbing, needed by a weta that lives above ground in the tall forest which includes the mighty kauri trees” (Gibbs, 1998b, p. 42).

⁹¹ Similar in weight to the blackbird, *Turdus merula*.

Dieffenbach (1843/1974, p. 281) under his entry for the giant wētā *Deinacrida heteracantha* recorded, that “Deinacrida, according to the Maouries [*sic*], generally keeps high up on the trunk, which the natives are afraid to climb, as the insect, especially the dark headed, long jawed male,⁹² bites severely.”

Buller (1870, p. 34) described this wētā as,

(“**Weta-punga**” of the natives) ... Abundant in the forests north of Auckland; but of late years it has become extremely rare. The natives attribute its extermination to the introduced Norway rat, which now infests every part of the country and devours almost everything that comes in its way.

The term **wetapunga** appeared in Tregear (1891, p. 601) as “The name of an insect,” while Williams (1917, p. 567) gave the specific name, *Deinacrida heteracantha*.

As part of the creation narrative, Tāne, in his search for a woman, mated with many female forms like Punga, who gave birth to many small creatures including insects. However, these offspring were considered ugly, and of all them, the giant wētā the ugliest. This wētā was consequently given the name wētā punga, (Orbell, 1994, p. 144).

2. The **tree wētā**, *Hemideina thoracica*⁹³ and *H. crassidens*, are the two most common species and the most often found within piles of wood, or holes vacated by the larva of the pūriri moth. Such constricted habitat sites are territorially defended and habitually occupied after foraging. This is also called ‘refuge fidelity’ (Gibbs 1998, p. 163).

Most males have large heads and will ‘command’ a harem of females. The tibia of the powerful hind legs, are strongly spined along their length. Auditory tympani are present on the forelegs and females have a long egg laying ovipositor. When threatened, tree wētā aggressively flick these hind legs backward over their body to ‘spike’ the intruder. (Appendix 24a & 24b, p. 270) These wētā will readily jump.

⁹² The reference to the ‘dark headed, long jawed male,’ more aptly applies to the tree wētā, *Hemideina* spp.

⁹³ Formerly *Deinacrida megacephala* (big head).

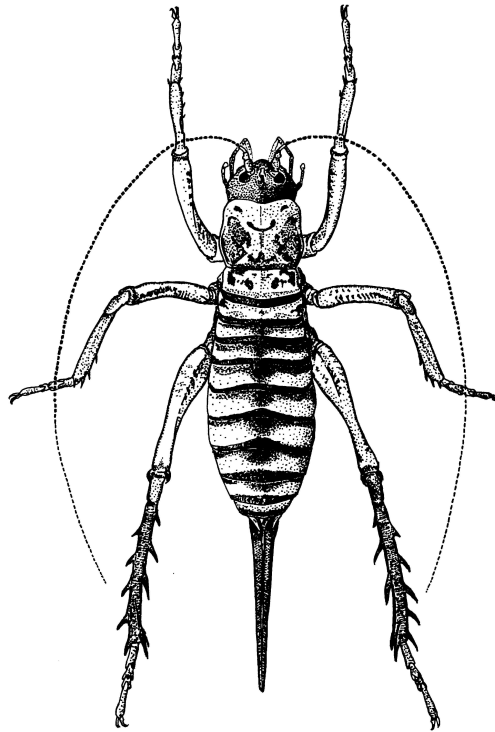


Fig. 2.25 Pūtangatanga (female), *Hemideina crassidens*

The name of one tree in particular has been associated with wētā in the North Island. This is Puta-puta-wētā (*Carpodetus serratus*), a medium sized tree with white scented flowers. The name is translated as ‘full of wētā holes.’ It is also called Puna-wētā,⁹⁴ and Tūhoe call it Kai-wētā,⁹⁵ (Laing and Blackwell, 1940, p. 194). The wētā holes are usually the exited holes made by the wood-boring caterpillar of the pūriri moth,⁹⁶ and are only secondarily occupied by wētā. (Appendix 2b, p. 248)

Miller (1955, pp. 52, 53) documented how Māori were fearful of wētā because they were considered taepo⁹⁷ and, any ‘whispering’ wētā living in the thatch of a wharenuī (meeting house) could be called upon as a ‘medium’ by a tohunga. Reference was also made to the narrative concerning Māui who tricked his ancestress Mahuika, (goddess of fire) into giving him fire. And, how Mahuika in retaliation, had thrown the last at Māui, to burn him. He had escaped by calling the gods to send rain to quench the fire. However, the last fire traces were saved and concealed within wētā holes in the kaikomako tree (*Pennantia corymbosa*) and is purportedly the reason why fire can be created from this wood using friction and karakia.

⁹⁴ Wētā hole.

⁹⁵ Wētā food.

⁹⁶ The pūriri moth is only found in the North Island of New Zealand. See pp. 34, 35 for biology.

⁹⁷ Tregear (1891, p. 440) gave Taepo for ‘goblin, a spectre’ and Tae, ‘to arrive’; and pō, ‘night’.

The existence of 'wētā holes' in trees not only enabled Mahuika's fire children to be preserved, but has largely contributed to how the **pūtangatanga** has survived an onslaught from rodent predators. As discussed by Gibbs (1998a, pp. 161-166) the use of these tree holes by the slim bodied tree wētā has provided solid protection with a small entrance. This, when coupled with site loyalty, has afforded the tree wētā considerable safety, when compared to the large, round bodied wētāpunga that has no fixed abode.

In the 'Index of natural objects' Andersen (1907, p. 637) defined the weta as "An insect; the Wood Devil (*Deinacrida megacephala*)."

Williams (1917, p. 368) listed **pūtangatanga** for *Deinacrida megacephala*.

Best (1902b, pp. 147-148) recorded and translated a reference to wētā, in line 24 of a kai oraora,⁹⁸

*Te kaha tā te **wētā** piri rākau*

(Against those) tree-adhereing wētā.

To read this line in context of the complete waiata, refer to p. 315 (Vol.3) of thesis.

⁹⁸ Tamaku of Ngāti Awa composed this kai oraora (A song of curses, – 'eat-you-alive' song), after Tuhoe defeated her iwi in the battle of Te Kauna.

Family: Rhaphidophoridae – Cave wētā

Cave wētā have hunched bodies, fine legs and particularly long, hind femur and tibia. They like dark, damp habitats and although those species that live in or near cave entrances may appear in large numbers, they are solitary in their behaviour (Richards, 1961, p. 80). They feed on both plant and animal matter. *Gymnoplectron waitomoensis* is a large species found in the Waitomo cave system and surrounding Waikato area.

Tregear (1891, p. 529) listed **tokoriro**⁹⁹ for “the name of an insect, a variety of *weta*.” Williams, (1917, p. 510) however, defined tokoriro as “*Hemideina megacephala*; an insect.” Given the meaning in te reo, the logical attribution of tokoriro is to the cave wētā, and is the term used by Miller (1984, p. 136).

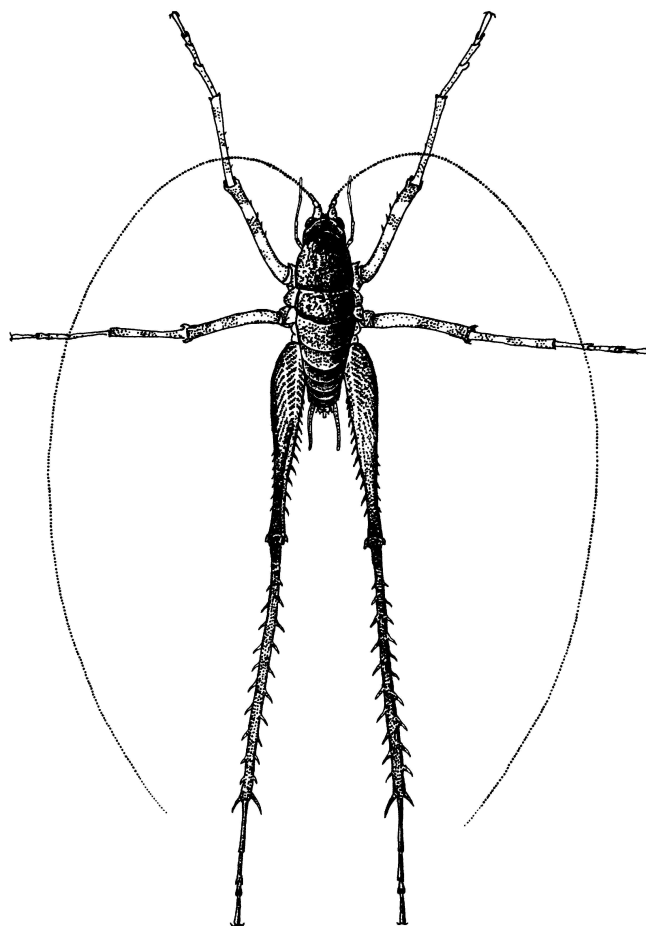


Fig. 2.26 Tokoriro, *Gymnoplectron waitomoensis*

⁹⁹ *Toko* means, pole, rod or stilt, and *riro*, is an intensive, so ‘very long stilts’ would most appropriately refer to long-legged cave wētā.

Family: Gryllidae – Crickets

1. The **black field cricket**, *Teleogryllus commodus* is a common pastoral insect that lives beneath flat objects and within ground crevices. It feeds on pasture plants. The male's shrill mating call is produced when elevated wing cases are rubbed over each other.¹⁰⁰

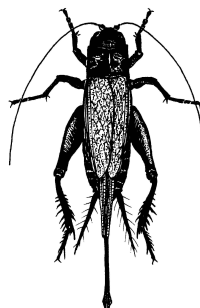


Fig. 2.27 Pihareinga, *Teleogryllus commodus*

TABLE 2.31 Black crickets

Māori name	Meaning	Author
Piharenga, pirenga	Field cricket; its chirrup resembles the singing bird.	Taylor, 1870, p. 642
PIHAREINGA	Cricket.	Williams, 1871, p. 115
Piharenga,	The Field-Cricket.	Tregear, 1891, p. 335
PIHAREINGA ¹⁰¹	Cricket.	Williams, 1892, p. 134
Piharēinga	Cricket.	Stowell, 1911, p. 109
Pihareinga	Cricket (insect; said to be from <i>bushranger</i>). ¹⁰²	Williams, 1917, p. 589
Pihareinga, Manu a Rehua	Cricket.	Hongi, 1918, p. 226
Piharenga	A black cricket, seen around the street lamps at Napier.	Beattie, 1920/2009, p. 346
Pihireinga	Small ground-cricket.	Andersen, 1926, p. 206
Areinga	Cricket.	Downes, 1937, p. 208
Areinga	Black crickets.	Miller, 1955, p. 49
Areinga	A cricket, <i>Gryllulus</i> ¹⁰³ species (Whanganui dialect).	Williams, 1957, p.15
Rirerire	Cricket. (North Auckland Ngāpuhi dialect)	Williams, 1971, p. 342

Downes (1937, p. 209) documented information given by the Whanganui people and Karanga te Kere in particular, said that, “the areinga (cricket) came about in vast numbers during a wet season but did no harm [to the kūmara].”

¹⁰⁰ The wing venation configuration forms a ‘file’ and ‘scraper’ and each is a mirror image of the other. Sound is produced when the wings are rapidly drawn across each other and the process is called stridulation.

¹⁰¹ Williams noted that this term was of ‘foreign origin.’

¹⁰² Brock (2002, p. 243) cited Biggs as saying the connection between pihareinga and bushranger originated from the comparison made between the flirtatious ‘ranging’ behaviour of unmarried girls in Ruatoria and their singing at night.

¹⁰³ *Gryllulus* became *Teleogryllus*.

2. The **small field cricket**, *Bobilla* sp. is also black and commonly seen jumping amongst paddock and roadside grasses. (Appendix 25a & 25b, p. 271) The mating call is a slightly different pitch to the black field cricket.

The terms **pihareinga**, **piharenga** and **areinga** are most likely dialect variations for the black field cricket and the term **pihareinga** will be used in the artwork. The small field cricket will be identified with the term **rirerire** (as suggested by Wendy Pond¹⁰⁴ pers. comm. April 2014).

TABLE 2.32 Whakataukī that reference crickets

Māori	Translation	Documented by
Ko te pihareinga kei te noho māire; mo te raumati ki tangi ai.	The cricket remains quiet until summer where it sings constantly.	Williams, 1871, p. 115
Te tatarakihi, te pihareinga , ¹⁰⁵ ko nga manu ena o Rehua . Tangi e te Pihareinga , Tohu o te raumati.	The locust ¹⁰⁶ and the cricket are the (singing) birds of Rehua. Sing on, O ye crickets, Sign of the summer.	Hongi, 1918, p. 226

Family: Gryllotalpidae

The **mole cricket**, *Triamescaptor aotea*, is dark brown and wingless. Both thorax and abdomen are clearly defined and loosely ‘articulated.’ The powerful spade-like forelegs facilitate burrowing within the sandy soils it inhabits. There is only one species in New Zealand and is these days seldom encountered.¹⁰⁷ The female will nurture the young.

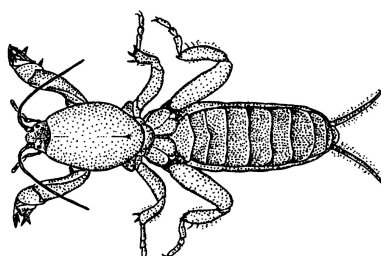


Fig. 2.28 Honi, *Triamescaptor aotea*

¹⁰⁴ Wendy Pond spent time with the Muriwhenua tribes during the 1980's. As yet her fieldwork is unpublished.

¹⁰⁵ Brock (2002, pp. 239 - 248) examined the various Māori names for crickets and their historical references, including Hare Hongi's support for the term **pihareinga** as a genuine Māori term (Hongi, 1918, p. 226) owing to its appearance in these two whakatauki.

¹⁰⁶ This is a folk term for cicada.

¹⁰⁷ Its distribution is restricted to the Whanganui area, around lake Wairarapa and inland Hawke's Bay.

TABLE 2.33 Mole cricket

Māori name	Meaning	Author
Honi	The Gryllotapa, mole cricket, is a large and singular insect, seldom met with unless in digging, as it lives under ground.	Taylor, 1870, p. 643
Honi	The mole cricket, <i>Gryllotalpa vulgaris</i> . ¹⁰⁸	Tregear, 1891, p. 80
Honi	The mole cricket, <i>Gryllotalpa vulgaris</i> or <i>Triamescaptor aotea</i> . Probably subterranean weta, <i>Onosandrus</i> spp.	Williams, 1957, p. 58

Family: Acrididae – Short-horned grasshoppers

These grasshoppers have short antennae and jump well. They include winged and non-winged species. The female has a short ovipositor.

TABLE 2.34 Short-horned grasshoppers

Māori name	Meaning	Author
Kakaraiti, kihikihi, koeke	Grasshopper.	Taylor, 1848, p. 6
Kihikihi; Koeke	Grasshopper.	Williams, 1852, pp. 48, 50
Mawitiwiti	There are many varieties of grasshopper.	Taylor, 1855/1974, p. 419
Mawitiwiti	The locust, grasshopper, mawitiwiti, is a numerous family, some attain a considerable size.	Taylor, 1870, p. 642
Koeke	Grasshopper.	Williams, 1871, p. 55
Koeke	Grasshopper.	Williams, 1892, p. 63
Toetoe	Grasshopper.	Beattie, 1920/2009, p. 186
Tukarakau	Crickets or grasshoppers.	Beattie, 1918/2004, p. 99

The name **tukarakau** for ‘crickets or grasshoppers’ appeared in an account given by an elderly friend of Beattie (1918/2004, p. 99) who described an event that took place in 1848, involving two tohunga. One was from the North Island and Pokihi came from the South Island. The North Island tohuka¹⁰⁹ claimed that, “the south had no gods” and challenged Pokihi to prove otherwise. An angry Pokihi recited a karakia and plunged a stick into a fire. Although the day was reportedly fine, thunder was heard and a heavy rain shower ensued. With the rain came crickets and grasshoppers (tukarakau) and caused great fear among the onlookers. A plea to Pokihi to stop saw him plunge the stick back into the fire and the ‘insect rain’ stopped. The North Island tohuka conceded to the superior powers of the South Island tohukas.

However, Biggs as cited in Brock (2002, p. 244) pertinently noted that **tukarakau** is actually the South Island dialectal variation of **tunga-rakau** (larva of huhu beetle, *Prionoplus reticularis*) and was therefore misapplied to crickets and grasshoppers.

¹⁰⁸ *Gryllotalpa vulgaris* is the English species and is not found in New Zealand.

¹⁰⁹ This is a South Island term for tohunga where the ‘ng’ is replaced with a ‘k’.

1. The mottled green/brown **migratory locust**, *Locusta migratoria*¹¹⁰ is New Zealand's largest grasshopper, and although a native, is found around the world where it can reach plague numbers.

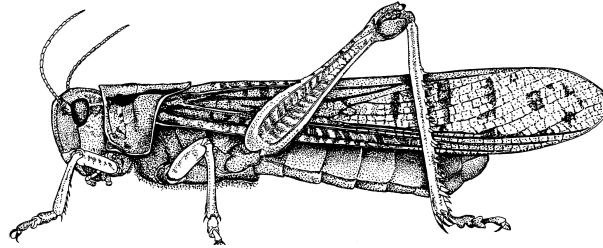


Fig. 2.29 Kapakapa, *Locusta migratoria*

TABLE 2.35 Locust

Māori name	Meaning	Author
Pakauroaroa	One of the largest, pakauroaroa, is a bright green colour. ¹¹¹	Taylor, 1855/1974, p. 419
Pakau roa-roa	A large flying locust, [that] is periodically troublesome, at other times scarcely seen.	Taylor, 1870, p. 642
Pākauroaroa	Winged grasshopper.	Williams, 1871, p. 105
Pākauroaroa	Winged grasshopper.	Williams, 1892, p. 122
Pakaurere	Winged grasshopper.	Best, 1908, p. 238
Pākauroaroa	Winged grasshopper.	Williams, 1915, p. 117
Kapakapa; Pākaurere, pākauroharoha;¹¹² Rangataua; Whitiwhiti	<i>Oedipoda cinerascens</i> , locust; <i>O. cinerascens</i> , winged grasshopper; ¹¹³ <i>O. cinerascens</i> , large grasshopper; Grasshopper, locust.	Williams, 1917, pp. 112, 293, 376, 585
Pakau	The long-legged grasshopper.	Beattie, 1920/2009, p. 346

According to Williams (1917, p. 112) kapakapa is a frequentive of kakapa, to 'flutter.' Associated with this term was the sentence, "Ka marere ki te mania, ka ngau i te **kapakapa, kowhitiwhiti, rangataua**, ka huaina ko Ngau-kapakapa-a-Kahu," which Miller (1952, p. 13) translated as, "He dropped down to the plain and attacked the fluttering, leaping grasshoppers, hence the name the biting-of-grasshoppers-by-Kahu."

¹¹⁰ Formerly, *Oedipoda cinerascens*.

¹¹¹ This broad description 'of a bright green colour' could easily describe the katydid, however later, more specific entries for the term pakauroaroa, suggest that the term is correctly applied to the locust, but the description is misleading.

¹¹² Pakau means 'wing' and roharoha, is the verb meaning to 'flutter' according to Williams (1917, pp. 293, 401).

¹¹³ The inclusion 'winged grasshopper,' Williams (1917, p. 293) differentiates the locust from the other native shorthorn grasshoppers since the latter are alate (wingless).

2. The **large grasshopper**, *Sigauss piliferus* is found around Tongariro National Park, Coromandel and East Cape. It is not found in the South Island. For this study, it has been associated with the term, **kawhitiwhiti** and **kowhitiwhiti**.

TABLE 2.36 large short-horned grasshopper

Māori name	Meaning	Author
Kowhitiwhiti	A grasshopper.	Williams, 1852, p. 63,
Kōwhitiwhiti	Grasshopper.	Williams, 1871, p. 67
Kōwhitiwhiti	Grasshopper.	Tregear, 1891, p.179
Kōwhitiwhiti	Grasshopper.	Williams, 1892, p. 77
Kawhitiwhiti	Grasshopper. (Member of Whiro-te-tipua's war party)	Smith, 1913, p.132
Kauwhitiwhiti, Kōwhitiwhiti	Grasshopper.	Williams, 1917, pp. 128, 179
Kowhitiwhiti	Small sized [grasshopper when it was compared with pakau]. See Table 2.35 Locust.	Beattie, 1920/2009, p. 346
Kowhitiwhiti	Grasshopper.	Best, 1925, p. 112

White, (1887, pp. 191-193, English; pp. 174-176, Māori) provided the Ngāti Porou narrative concerning Kai-awa and his daughter Po-nui-a-hine. After the captain of the Ma-ngarara, Wheke-toro, had arrived on the shores of Aotearoa, he made the island Whanga-o-keno sacred for his cargo of reptiles, birds and other animals. Kai-awa sometime later decided to remove this tapu and went over to the island with Po-nui-a-hine who was to assist him and represent the female gods. With her eyes unshielded however, her eyes engaged with those of the dog called Moho-rangi. After various karakia and offerings were made, Po-nui-a-hine went to sleep and Kai-awa went to light the sacred fires to break Wheke-toro's spell. When he returned however, Kai-awa discovered his daughter missing. "Kia kite aia i te **Kowhitiwhiti**, e mahitihiti haere ana i tana aroaro, ka tahi aia ka titiro ki waho ki te moana, ka kite atu i taua kotiro ki waho ki te moana, ka kite atu i taua kotiro kua kowhatutia" - His attention was then attracted to the movements of a lively grasshopper at his feet and when he raised his eyes again, he saw that Po-nui-a-hine had been turned into a rock, at sea.

Smith (1913, p. 132) recorded the **kawhitiwhiti** as being one of the captured party of insects sent by Whiro to attack Tāne on his ascent of the heavens. Best (1982, p. 267) recorded the spelling variation, **kowhitiwhiti** and earlier noted that the **kowhitiwhiti** or grasshopper was a pest in the kūmara fields (Best, 1925a, p. 112).

3. The very common **small grasshopper**, *Phaulacridium marginale* is rarely winged (Bigelow, 1967, p. 109) and highly variable in colour. (Appendix 26, p. 272)

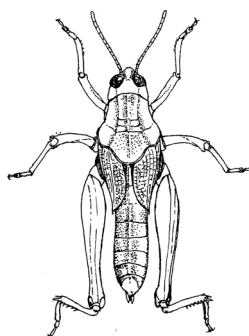


Fig. 2.30 Mawhitiwhiti, *Phaulacridium marginale*

Table 2.37 Common small short-horned grasshopper

Māori name	Meaning	Author
Kowitiwiti; Mamahiti; mawitiwiti	Small grasshopper; Grasshopper	Taylor, 1848, p. 6
Mawhitiwhiti	Grasshopper.	Williams, 1852, p. 81
Mawitiwiti	There are many varieties of grasshopper.	Taylor, 1855, p. 419
Mawhitiwhiti	Grasshopper.	Williams, 1871, p. 82
Mamawhiti	A species of small grasshopper.	Tregear, 1891, p. 202
Māwhitiwhiti	Grasshopper.	Williams, 1892, p. 95
Māwhitiwhiti	Grasshopper.	Stowell, 1911, p. 109
Māwhitiwhiti, mowhitiwhiti ¹¹⁴	Grasshopper.	Williams, 1917, pp. 231, 128 (under kauwhitiwhiti)
Mahitihi ¹¹⁵	Grasshoppers.	Beattie, 1920/2009, p. 508

Andersen (1907, p. 49) wrote that when “Raumati [summer], too was at hand ... innumerable ma-whiti-whiti arose from the grass at one’s feet on the warm days.”

The terms ‘small’ or ‘large’ are relative terms, however for the purposes of this thesis and exhibition, the term **mawhitiwhiti** will be associated with the common small grasshopper *Phaulacridium marginale*. See Chapter Five, p. 204 for discussion.

It has been recommended that both **kawhitiwhiti** and **mawhitiwhiti** are dialect variations and all grasshoppers were classified together under any one of the names (Wendy Pond, pers. comm. April 2014).

¹¹⁴ Williams, (1917, p. 247), listed mōwhiti, as the verb, ‘to jump.’

¹¹⁵ A Maori informant living in Nelson provided Beattie this term.

Family Tettigoniidae – Long-horned grasshoppers

The bright green plant feeding **katydid**, *Caedicia simplex*¹¹⁶ has an angular upper body, fine legs, long hair-like antennae and long leaf-like wings. (Appendix 27, p. 273) Adults produce a ‘Zzittt’ sound.

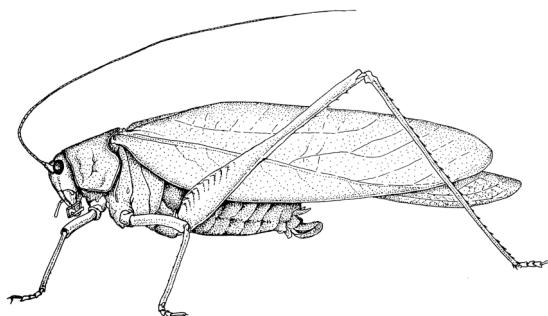


Fig. 2.31 Kikipounamu, *Caedicia simplex*

TABLE 2.38 Katydid

Māori name	Meaning	Author
Tititi-pounamu	Katydid.	Best, 1908, p. 239
Kikipounamu	<i>Xiphidium maoricum</i> , a green insect.	Williams, 1917, p. 138
Kikiwaru ¹¹⁷	A green kind of butterfly, a sort of cricket.	Beattie, 1920, p. 65

Reference was made to katydid (and cicada) in a Tūhoe waiata as recorded by Ngata (1928, pp. 26-27) where it was titled ‘He matakite.’ It was later translated to English in Ngata (1959, pp. 69-71) where the title was lengthened to, ‘He matakite mo te pou Urutake.’ Lines 14-17 read,

<i>Kia kata noa mai te kikitarā</i>	<i>That the cicada may freely cackle,</i>
<i>Kotikotipa, kohurehure</i>	<i>The bush wrens laugh</i>
<i>Kiki pounamu!¹¹⁸</i>	<i>And the green insects too,</i>
<i>E tangi ana ki tona whenua.</i>	<i>Lamenting over the fate of their land.</i>

To read these lines in context of the complete waiata, refer to p. 316 (Vol.3) of thesis.

¹¹⁶ Formerly *Xiphidium maoricum*.

¹¹⁷ This is a South Island term.

¹¹⁸ Within the 16th footnote to the song, the term kiki pounamu is expanded to ‘he ngarara’ (an insect). Ngata (1959, p. 71) noted that Percy Smith had rendered kiki pounamu as ‘green cicadas.’ The equivalent notes in te reo, p. 70, defined kiki pounamu more generally as ‘he ngarara, he kakariki te ahua’, - an insect, green in appearance.

2.4.7 Order Hemiptera – Bugs

Family: Cicadidae

Cicadas vary in size and have transparent cellophane-like wings. Circular flaps (tympanal organs) overlie cavities at the base of the male's abdomen and pulsate to produce sound followed by wing 'clapping.' (Appendix 28a, p. 274) Large numbers of chorus cicada congregate on 'singing platforms' like tree trunks.

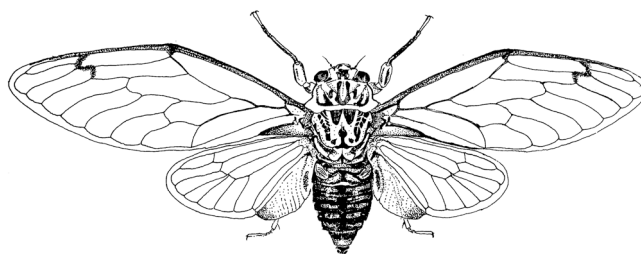


Fig. 2.32 Kihikihi wawā, *Amphisalta zelandica*

TABLE 2.39 Cicada adult

Māori name	Meaning/Significance	Author
Tarakihi, tatarakihi	Locust. ¹¹⁹	Taylor, 1848, p. 6
Tatarakihi	A locust.	Williams, 1852, p. 163
Tarakihi	Cicada. There are four varieties.	Taylor, 1855/1974, p. 419
Tarakihi	The cicada, Tarakihi, is everywhere met with in summer, and, indeed, is to be viewed as the harbinger of it.	Taylor, 1870, pp. 643, 644
Kihikihi; Tātarakihi	A kind of locust or cicada; Cicada; locust.	Williams, 1871, pp. 53, 158
Kihikihi; Tarakihi; Tātarakihi	A kind of locust or cicada; Cicada; Cicada, locust.	Williams, 1892, pp. 61, 181, 184
Kikihi, kihikihi, kikihitara	Cicada or singing locust.	Best, 1908, p. 240
Tātarakihi	Locust (Refer to footnote 119).	Stowell, 1911, p. 109
Kīkihi; Kihikihi, kihikihi wawa, ¹²⁰ kihikihi kai, kihikihitara; Kīkihitara; Kīkītara; Tarakihi; Tātarakihi	<i>Cicada</i> ¹²¹ <i>cingulata</i> and <i>C. muta</i> ; Cicada, tree locust. <i>Cicada cingulata</i> . <i>Cicada muta</i> , the smaller species, was mashed into a paste and used as an article of diet; The cry of the cicada; Tree-locust so-called; Cicada, as above.	Williams, 1917, pp. 137, 138, 453
Kihikihi, kikiawaru (kihikihiwaru); Terakihi	Cricket; Canterbury terms for cricket. (See Footnote 125, p. 91 of thesis, where the term cricket is acknowledged as a folk word to denote cicadas. Also p. 92 for expansion on South Island terminology.	Beattie, 1920/2009, pp. 346, 348

¹¹⁹ While Taylor (1848, p.6) associated these terms with 'locust' it is clear from his description (1855/1974, p. 419) that the reference is to the common grass cicada (*Kikihia muta*), which is from the Order Hemiptera. This confusion arises from the use of the folk term 'tree locust' for cicada and highlights the problem with using common names for identification.

¹²⁰ The **clapping cicada** *Amphisalta cingulata* and the **chorus cicada** *A. zelandica* are very similar in appearance and the term kihikihi wawā will be applied to either.

¹²¹ Have been since re-named, *Amphisalta cingulata* and *Kihia muta*.

Grey (1853, p. 380) documented the following waiata that made reference to **tarakihi** (cicada) and their song, in lines seven to ten. Refer to p. 317 (Vol. 3) of thesis for complete waiata.

<i>Taria, e hara mai ki konei,</i>	<i>Wait, coming this way</i>
<i>Whakakita</i>	<i>Chirping is the cicada</i>
<i>Ai, te tarakihi,</i>	<i>Chirp, chirp</i>
<i>Kita, kita</i>	

Also about adult cicada Taylor, (1855/1974, p. 419) elaborated further,

*There are four varieties of the **tarakihi** (locust); these lively and noisy insects are only heard in summer: one is very beautiful, being of a light green colour, streaked with silver bands,¹²² and all have three bright red spots on the forehead, disposed in the form of a triangle, which shine like little rubies.*

Davis (1855, pp. 188-199) recorded and translated the following waiata,

<i>He waiata na te popokorua raua ko te tatarakihi.</i>	<i>A song of the locust and the ant</i>
Tatarakihi.	
<i>Hohoro mai e te hoa!</i>	<i>Come hither quickly, O my friend,</i>
<i>Kauaka e whakaroa, oi,</i>	<i>And to my urgent call attend:</i>
<i>Arara! Ka turua ta te popokorua,</i>	<i>Thy work, O Ant, is wondrous fair,</i>
<i>Rawe noa ta nga taki whakahau.</i>	<i>And thy commanders act with care</i>
Popokorua.	
<i>U mai ki te kerī,</i>	<i>Come hither, thou, and dig the ground,</i>
<i>I te rua mo te ua o te rangi.</i>	<i>And raise with me a spacious mound,</i>
<i>No te makariri, wero te po nei, e.</i>	<i>Where we may house us from the rain</i>
<i>Me te kōhi mai ano i te kakano, e.</i>	<i>Of heaven, and hide our stores of grain</i>
<i>Heio ake ma tama roto</i>	<i>As food, when each successive blast,</i>
<i>Kia ora ai, e, i.</i>	<i>Of winter's dreary night, sweeps past.</i>
Tatarakihi.	
<i>He pai aha koia taku? He noho noa,</i>	<i>But is this not my sole delight,</i>
<i>Piri ake ki te peka o te rakau, e!</i>	<i>To bask in sunbeams, warm and bright?</i>
<i>Inaina noa ake ki te ra e whiti nei</i>	<i>To rustle with my wings and cling</i>
<i>Me te whakatangi kau i aku paihau, e.</i>	<i>To some high branch and gaily sing?</i>

¹²² Describes the little grass cicada, *Kihia muta*.

Grey (1885, p. 177, Māori) documented a narrative¹²³ that included the line, “He mano te patupaiarehi kei te **tarakihi**,”¹²⁴ and translated (1885, p. 183, English) this, “The fairies are a very numerous people; merry, cheerful, and always singing, like the cricket.”¹²⁵

Best (1908, p. 238) noted that the **kihikihi** were offspring of **Hikawaru**, and Best (1982, p. 320) listed Hikawaru as the “personified form of the cicada.”

Quoting the words of an “aged Maori” Best (1908, p. 240) also wrote,

I will give you the song of a certain people of this world: those people are the kihikihi. They are exceedingly numerous people. During the waru potote (eighth month of the Maori year) those people cling to their ancestor, Tane-mahuta (settle on trees), and sing lustily. Here is the song of those people. Lines one – four read (translation by Hone Morris). Refer to p. 318 (Vol. 3) of thesis for complete waiata.

<i>Kaore te waru nei</i>	<i>This is indeed the eighth month</i>
<i>Ka piri au ki a Tane-mahuta</i>	<i>When I cling to Tane-mahuta</i>
<i>Ki toku tupuna</i>	<i>To my ancestor</i>
<i>Tu takere! Tu takere! Iere nui au</i>	<i>And sing lustily</i>

Williams (1915, p. 114) listed papā as the verb, to “stridulate, as the cicada.”

Williams (1917, p. 138) under ‘kīkītara’ quoted lines from an unspecified song,

*He ruru tana kai, e, ko te kai ra tena i te kiki ai te kikitara o te **tarakihi** i te waru –*
(Food for the morepork, that's the food when the cicada is in full cry in summer)

According to Andersen (1923, p. 756), Māori enjoyed hearing cicada because they symbolised summer, a time of warmth and plenty of food. Considered to have a fine cadence, cicada inspired a kaitito (poet) to compose a haka utilising its metrical song.

Andersen (1923, pp. 760-761) continued,

The following is an extremely popular haka, based on the shrill summer singing of the tarakihi (cicada). This is the song that came to the Maori poet, wandering on a summer afternoon in search of inspiration. Approaching a grove of mahoe, in a sequestered, romantic nook, he was suddenly aware of the delirious joy-song of the

¹²³ ‘Ko te kitenga a te Kawana i te patupaiarehe’ (Te Kawana and the fairies).

¹²⁴ These lines are also quoted under ‘tarakihi’ (Williams, 1917, p. 453, 2nd meaning) where the term was more specifically attributed to ‘*Cicada cingulata* and *C. muta*; tree-locust so called.’

¹²⁵ Brock (2002) noted that the use of ‘cricket’ was a folk word used to denote cicadas.

assembled tarakihi throbbing in the air. At once he composed an introductory stanza followed by a chorus of tarakihi,

<i>E whakarongo ai au,</i>	<i>Oh, my fancy listening</i>
<i>Ki te tangi mai,</i>	<i>To the song of songs</i>
<i>A te manu nei,</i>	<i>Of this singing bird,</i>
<i>A te tarakihi</i>	<i>Of the tarakihi,</i>
<i>I te weheruatanga o te po:</i>	<i>In my dreams in the midst of the night.</i>
<i>Ta ra ra-ta, ki-ta, ki-ta,</i>	<i>Ta ra ra-ta, ki-ta, ki-ta,</i>
<i>Ta ra ra-ta, ki-ta, ki-ta,</i>	<i>Ta ra ra-ta, ki-ta, ki-ta,</i>
<i>Wiri opapa, toene, toene,</i>	<i>O quivering sides, sound the refrain.</i>
<i>Wiri opapa, toene, toene,</i>	<i>O quivering sides, sound the refrain.</i>
<i>Hope whai a ke</i>	<i>And with waist supple,</i>
<i>Turi wha tia,</i>	<i>And bended knees</i>
<i>Ei, ei, ha!</i>	<i>Ei, ei, ha!</i>

And, the following denoted the rhythm for the chorus,



Beattie's principal informant in the South Island, was Tikao who claimed that,

*There were two kinds of crickets – one sings “in the holes in its sides” by flapping its wings in and out. It is nice singing and in summer it makes a big volume of sound. Its name is **kihikihi** or **kikiawaru** ... He had heard it said that it commenced singing just at the sowing time for potatoes. This was the eighth month, hence part of the cricket's appellation (Beattie, 1920/2009, p. 346).*

The second cricket referred to, is the black cricket called **piharenga** (Refer back to Table 2.31 Black crickets, p. 82).

Best, (1925b, pp. 990-991) provided the next narrative for the cicada and the ant. Each day during summer, the ant would ceaselessly forage in order to store underground provisions for winter, while the cicada sat singing, basking lazily in the hot sun. When encouraged by the ant to be mindful of the changing seasons the cicada remained complacent and critical of the ant for not enjoying life. When cold weather arrived however, the cicada fell dead, while the ant lived on in warmth, surrounded by food.¹²⁶

About how Māori viewed the **tarakihi**, Andersen (1926, p. 204) wrote,

As the warmth of December intensifies to the heat of January and February, the air becomes vibrant and alive with the song of the tarakihi, rejoicing in the cloudless sunshine of the long days. This, to the Māori, is the sweetest singer of the New Zealand song-birds; it is their best beloved, and they call it “the bird of Rehua,” – Rehua being the lord of kindness and plenty. This bird Europeans call a cicada, nor do they regard its shrill stridulation as song.

Pomare and Cowan (1930, p. 69) recorded comments made by Te Wheoro that similarly referenced the tarakihi,

*Listen to that bird, the **tarakihi**, said Te Wheoro (the Maori always regards the cicada as a manu). Listen to **Raukatauri**, how she sings. How she loves the sun! That is the spirit of Raukatauri, who taught our people all our games and their most amusing hakas long ago in Hawaiki. That is her aria (personification, embodiment), the chanting tarakihi.*

A translated waiata of Ngāti Porou origin¹²⁷ appeared in Ngata (1959, pp. 72-73) that also made reference to cicadas. Lines seven and eight read,

<i>E tangi ra koe e te kihikihi</i>	<i>Sing your song, oh cicada</i>
<i>Tenei koe ka rite mai ki ahau.</i>	<i>You are in like case with me.</i>

To read these lines in context of the complete waiata, refer to p. 319 (Vol.3) of thesis.

¹²⁶ This narrative was used as a metaphor for the differences in human activity and productivity, and may have originated from the waiata p. 90

¹²⁷ The title of the waiata is, ‘He tangi nā te turoro’ (A soliloquy of an invalid).

TABLE 2.40 Whakataukī that reference cicada

Māori	Translation	Documented by
Taria, i haramai ki konei, whakakita ai te tarakihi , kita, kita.	Wait, the stridulating cicada came here, singing.	Grey, 1853, p. 386
Me te tarakihi e papa ana i te waru. ¹²⁸	Like locusts chirping in the eighth month, or spring. ¹²⁹	Taylor, 1855/1974, p. 134
He kihikihi tara ki te waru.	The 'kihikihi' is noisy in the eighth month. ¹³⁰	Shortland, 1856/1980, p. 315 Under 'tara', To make a noise like a grasshopper or cricket.
He reo kihi kihi . Me he kihi kei te waru.	The cicada's language. ¹³¹ Like the cicada in summer. ¹³²	Taylor, 1870, p. 644
He tarakihi e papa ana i te waru.	A singing cicada of the eighth month.	Williams, 1915, p. 114
Kia tangi noa mai te kikihi pounamu . Mehemea ka tae ki te waru, ka piri taua iwi, te kihikihi , ki to ratou tupuna ki a Tane. – He kihikihi tara ki te waru. E kita nei hoki te tarakihi . Ko te kai ra tena i kiki ai te kikitara o te tarakiki i te waru.	The green cicada always singing. When the eighth month arrives, that tribe, the cicadas, cling to their ancestor Tane. – The singing cicada of the eighth month. Singing just like a cicada (Said of a hungry man when food is scarce). That's the food when the cicada is in full cry in summer.	Williams, 1917, p. 137 under the term kikihi and the 4 th meaning, specifically mentions <i>Cicada singulata</i> and <i>C. muta</i> . ¹³³ Under the entry for kihikihi, p. 137 Under the noun kitā p. 141 'to chirp, sing, stridulation of the cicada,' Under the noun, tarakihi, p. 453
Te tatarakihi , te pihareinga; ko nga manu ena o Rehua. ¹³⁴	The cicada and the cricket are the (singing) birds of Rehua.	Hongi, 1918, p. 226
Pakeha he kihikihi .	Pale-head, making hissing sounds like cicada.	Sharell, 1971, p. 114

¹²⁸ January and February, - January being the eighth (waru) month of the Maori calendar. Cicadas are generally most common in summer and early autumn.

¹²⁹ Cicadas were at the time described as 'tree locust' and it is over the summer season that most cicada are heard, not spring. Andersen (1926, p. 206) noted that this proverb was a reference to how "when there is much food there is also much talking."

¹³⁰ In 2012, cicadas were most numerous and audibly noticeable in the ninth month, or February and March.

¹³¹ Māori compared the sound of the cicada with the unintelligible sound of the English language, and therefore nick named Europeans 'he kihikihi' - a cicada (Taylor, 1870, p. 644).

¹³² A proverb said to reference to a noisy party (Taylor, 1870, p. 644).

¹³³ Miller (1952, p. 17) however argued that the term is more likely an equivalent term for kiki pounamu, because the first meaning of kikihi is 'rustle, make a faint sound' which would more appropriately describe the katydid. However, this term may just describe the colour of the cicadas.

¹³⁴ Hongi (1918, p. 226) claimed Rehua to be the star Sirius, "which being on the meridian on midsummer evenings, is personified as summer; and it is at that time that these 'singing birds' raise their song choruses." However, according to Best (1972, p. 56) who was informed by East Coast Maori and Matatua, the star Antares is Rehua.

The white subterranean nymphs feed on tree roots and once mature, take on a translucent brown appearance before ascending above ground to continue their metamorphosis. Large numbers of the brown and ‘crunchy’ discarded exoskeletons can be seen on fence posts and tree trunks, from late January onwards. (Appendix 28b, p. 274)

TABLE 2.41 Cicada nymph

Māori name	Meaning/Significance	Author
Kihikihi	Chrysalis. ¹³⁵	Taylor, 1848, p. 5
Kihikihi	Chrysalis.	Williams, 1852, p. 48
Kihikihi	Larvae ¹³⁶ of insects of the family called cicads.	Shortland, 1856/1980, p. 295
Kihikihi	Chrysalis.	Stowell, 1911, p. 109
Matua kihikihi; Ngengeti	Larva of cicada; Pupa of tatarakihi (Cicada), and cast off skin of the same.	Williams, 1917, pp. 226, 272

Shortland (1856/1980, p. 295) provided the following account,

*I have also met with the larvae of insects of the family called cicads, which is nearly allied to the grasshopper, from whose bodies grew a fungus which had killed them by a like process.¹³⁷ The larvae were dug up in a potato garden by a native, who gave them to the Rev. T. Chapman, of Rotorua, from whom they came into my possession. The natives call the insects **Kihikihi**.*

Downes (1937, p. 210) documented how an atua named Mata-o-te-rangi, had foretold Matakaha (from Whanganui) that if she bore a son, he would emerge from between her shoulders, like the tarakihi (cicada) emerges from its shell, and she would die. As was predicted, purportedly came true.

Enting (1976, p. 77) noted that, “Maoris [*sic*] ate the developing nymphs.”

The little grass cicada, **kihikihi kai**, *Kihia muta* and the large, louder chorus cicada, **kihikihi wawā**, *Amphisalta zelandica* will represent this family. (Appendices 28a & 29, pp. 274, 275)

¹³⁵ While the use of the term ‘chrysalis’ by Taylor would be better applied to the pupal stage of Lepidoptera (moths and butterflies) it nevertheless indicates that the reference is to the immature stage of the cicada.

¹³⁶ Again, the term ‘larvae’ is incorrectly used, but does indicate the term refers to the immature stage of the cicada.

¹³⁷ Scientists have identified the fungus responsible, as *Isaria sinclairii* and these cicada, are referred to as ‘vegetable cicadas.’

Family: Pentatomidae – Shield bugs, vegetable bugs

Shield bugs like the native green **vegetable bug**, *Glaucias amyoti* have a distinctive body shape. They will emit a strong offensive smell if handled, giving rise to another common name, **stinkbug**.

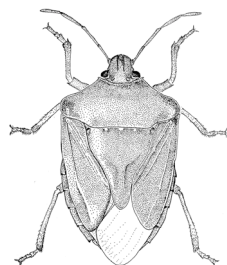


Fig. 2.33 Kiriwhenua

Taylor, (1848, p. 5) recorded **kiriwenua** for “garden bug”¹³⁸ and **kiri whenua**, (1855/1974, p. 420) for “a garden bug: several varieties are found in the woods and in the fern.” In his later edition, Taylor (1870, p. 644) further noted in reference to the “large black forest bug, ke keriru, ... there are several smaller kinds, **Kiriwhenua**, all more or less distinguished by their odour.”

2.4.8 Order Phasmatodea – Stick insects

Family: Phasmatidae

All New Zealand stick insects are wingless. Their elongated bodies and legs make them convincingly stick-like and cryptic shades of brown, grey or green, camouflage them amongst tree foliage. They are nocturnal plant feeders. Generally mānuka and kānuka will support all species of stick insects (Salmon, 1991, p. 17) although many have long-term preferences for the foliage of rata, *Metrosideros* spp., totara and also lacebark. Introduced plants such as roses (*Rosa* spp.) and blackberry (*Rubus fruticosus*) will also support their feeding habits. Sexual dimorphism is strongly expressed, with females often twice to three times the size of males.

The green smooth form of *Acanthoxyla prasina inermis* (Appendix 30, p. 276) will exemplify this family. This species is parthenogenetic.¹³⁹

¹³⁸ This is likely a reference to the common shield bug. Taylor would have been familiar with this ‘garden bug’ from his home country where such shield bugs are common.

¹³⁹ Does not require a male to reproduce.

TABLE 2.42 Stick insects and praying mantids

Māori name	Meaning	Author
Ro	An insect.	Williams, 1852, p. 144
Wairaka, ro	Mantis, ¹⁴⁰ some of these interesting insects are of considerable size, and of a bright green colour. ¹⁴¹	Taylor, 1855/1974, p. 419
Ro, wairaka	There are several kinds of Mantis ... green, red, and brown, the largest are nearly four inches long.	Taylor, 1870, p. 643
Rō	Mantis; an insect.	Williams, 1871, p. 137
Rō	The name of an insect, the <i>Phasma</i> , or stick insect (Ent. <i>Acanthoderus</i> sp.).	Tregear, 1891, p. 420
Rō; Whē ¹⁴²	Mantis; an insect; Mantis; an insect.	Williams, 1892, pp.160, 234
Rō	Mantis, jackstraw.	Stowell, 1911, p. 109
Rō; Whangawhanga; ¹⁴³ Whē	<i>Acanthoderus</i> sp., <i>stick insect</i> ; Pupa of the stick insect <i>Acanthoderus horridus</i> ; <i>Acanthoderus horridus</i> , <i>stick insect</i> .	Williams, 1917, pp. 401, 573, 579
Ro, whe	Ro is the stick insect and the whe is like the ro but not so long.	Beattie, 1920/2009, p. 347
Rō, ro, ¹⁴⁴ Whē	<i>Acanthoderus horridus</i> , and other stick-insects; <i>Orthodera ministralis</i> , <i>praying mantis</i> , an insect.	Williams, 1957, pp. 344, 493

Best (1906, p. 3) made reference to whē being both the mantis and by inference the stick insect, but the presence of either, had particular significance for Māori woman,

*If a **whe** (the mantis insect) is seen upon a woman, it is a sign that she has conceived and, according to which kind of whe it is, people know whether the child will be a male or a female. There are two creatures termed whe by the natives. One is wingless, but is bountifully supplied with legs, and is often found on the manuka tree. The other has wings, and is found on logs, especially so on the prostrate trunks of tawa.*

¹⁴⁰ Taylor's documentation (1855/1974, p. 419) is confusing. While he uses the term "Mantis," the description that followed, more aptly applies to stick insects, which can indeed vary greatly in size and colour. Ramsey (1990, p. 10) clarified this by noting that mantids (praying mantids) and phasmids (stick insects) were at one time scientifically grouped together, with many phasmids ascribed the genus 'Mantis.' Ramsey (*Ibid*) noted that this changed in 1813, when Dutch scientist Stoll, separated the two into 'Mantis' and 'Phasma.'

¹⁴¹ At this time there was only one species of mantid in New Zealand and it is green, but the reference to some being of considerable size more aptly describes stick insects.

¹⁴² Williams (1871, p. 200) listed whē as 'caterpillar.' White, (1887, vol 2, p. 172) in te reo, recorded that the whē (whee) was one of the original insects carried on the Ngati Porou waka, to Aotearoa and the term was also translated (*Ibid.*, p.189) as 'caterpillar.' See, p. 30 of thesis for complete entry.

¹⁴³ Stick insects undergo incomplete metamorphosis, so there is no pupal stage, only smaller versions of the adult. Associating whangawhanga with the stick insect is therefore misleading. Williams possibly extrapolated from the term 'whe' when associated with 'a caterpillar' that undergoes complete metamorphosis, thus allowing him to conclude that whangawhanga (for pupa or chrysalis) also applies the stick insect. See Table 2.9 Sphinx moth chrysalis, p. 46.

¹⁴⁴ Of note here, is the distinction made between the stick insect and the mantis by virtue of the inclusion of the macron. This does not appear in the earlier 5th edition (1917).

According to Early (2009, p. 50) a sacred place was indicated by wairaka falling onto a person, and if whē were found in an area, then it was unsuitable for a garden.

The South Island Māori interpreted seeing either the stick insect or praying mantid quite ominously as recorded by Beattie (1920/2009, p. 347),

A Rapaki lady said the big stick insect was ro and a small kind whe and to see the former in certain ways meant death to an adult relative and if it was the whe you saw it meant death to a juvenile relative.

Best (1982, p. 267) recorded the **rō** (stick insect) as being one of the captured party of insects sent by Whiro to attack Tāne on his ascent of the heavens. A subsequent reference (p. 268) noted that the stick insect, **whē**, was one of the offspring of Tuwhaipapa, Ratorua and Karanui-hipa. (See 7, 8, p. 31) and represented a member of the **Tini o Ponauwe** when seen in great numbers.

Wendy Pond (pers. comm. April, 2014) noted that **whē** and **rō** are dialect variations and **wairaka** should more correctly be spelt **waeraka** (wae – leg). This mistake has arisen from the inability of the European ear in distinguishing ‘wai’ from ‘wae.’

2.4.9 Order Mantodea – Praying mantids

Family: Mantidae

The **praying mantid**, *Orthodera novaezealandiae* has a mobile, triangular head. The forelegs are raptorial (grabbing) and usually withdrawn in preparation for attack. (Appendix 31a & 31b, p. 277)

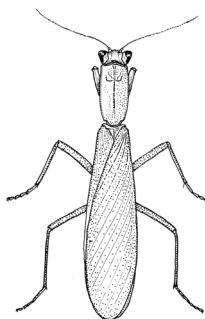


Fig. 2.34 Rō, whe, *Orthodera novaezealandiae*

The whe (mantis) was recorded as the visible, physical entity (ariā¹⁴⁵) of one of the inferior gods, **Te Ihi-o-te-ra** by both Buck (1950, p. 467) and Best (1976, p. 219). Ramsey (1990, p. 10) amended the term to **Te-Ihi-o-te-Rangi**.

¹⁴⁵ Defined in Williams (1917, pp. 18-19) as 1. Appear; be seen indistinctly. 2. Likeness, resemblance. 6. The visible material emblem or representative of an atua, or of a person of importance.

2.4.10 Order Blattodea – Cockroaches

Family: Blattidae

The endemic wingless **black cockroach**, *Platyzosteria novaeseelandiae*¹⁴⁶ is dorso-ventrally flattened and has an oval, shiny black body. It inhabits and feeds on rotting wood and vegetation in coastal and lowland bush situations. It will emit a strong and unpleasant smell if disturbed, giving rise to its common name, **black stink roach**.

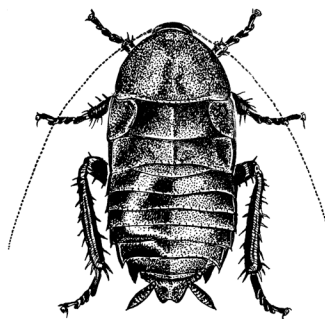


Fig. 2.35 Kēkerengū, *Platyzosteria novaeseelandiae*

TABLE 2.43 Black cockroach

Māori name	Meaning	Author
Kikārāru	Disgusting insects.	Pollack, 1838/1974, p. 320
Kekereru	A black beetle.	Williams, 1852, p. 46
Kekeriru	<i>Cimex nemoralis</i> . ¹⁴⁷	Taylor, 1855/1974, p. 420
Mata; Ke keriru	The Blatta, or cockroach; A large black forest bug, ke keriru, is fully an inch-and-a-half long. There are several smaller kinds, Kiriwhenua, all more or less distinguished by their odour. [Cockroaches were incorrectly grouped under the order of true bugs, Hemiptera, and for kiriwhenua, refer to p. 96, shield bugs].	Taylor, 1870, pp. 642, 644
Kēkererū	Black wood-bug.	Williams, 1871, p. 51
Kēkererū	The black wood bug, which emits a fetid odour.	Tregear, 1891, p. 143
Kēkererū	Black wood-bug.	Williams, 1892, p. 59
Kēkererū	Black bug, cockroach.	Stowell, 1911, p. 109
Kēkererū	Black wood-bug.	Williams, 1915, p. 56
Kēkerengū, ¹⁴⁸ Kēkererū; Pāpapa	<i>Periplaneta fortipes</i> , black wood-bug, Māori bug; <i>Periplaneta fortipes</i> , so-called Māori bug.	Williams, 1917, pp. 133, 302
Mata; Kekerengu	A big black beetle with a hard back; Is a small insect and if you handle it with your fingers it leaves a very bad smell.	Beattie, 1920/2009, pp 186, 347
Kekerengu	Black stink-roach.	Miller, 1955, p. 48

¹⁴⁶ Formerly *Periplaneta fortipes*.

¹⁴⁷ *Cimex* (now *Calocoris*) *nemoralis* is the name of a true bug (Order Hemiptera, Family Miridae) and was misapplied to this cockroach. This exemplifies how common names like wood-bug can be misleading.

¹⁴⁸ White, (1887, vol 2, p. 172) documented the kekerengu as one of the original insects carried on the Ngati Porou waka, to Aotearoa, (see p. 30).

In Polack's early reference (1838/1974, p. 320), he wrote, "The most disgusting insects in nature exist amongst the spear grass, called toitoi, of the swamps and plains; it is called **kikararu**. Its odour is disgustingly offensive, and it is often found in rush and other dwelling-houses."

Taylor (1855/1974, p. 420) similarly noted that, "The **kekeriru** (*Cimex nemoralis*¹⁴⁹) is a large black one chiefly inhabiting the forest, but found in wooden and raupo buildings. The smell of this insect is intolerable." Taylor (1870, p. 644) reiterated that, "the effluvia emitted by it is extremely powerful and offensive."

2.4.11 Order Dermaptera – Earwigs

Family: Labiduridae

Our largest earwig is the wingless **seashore earwig**, *Anisolabis littorea*.¹⁵⁰ Adults have golden brown/orange legs and a shiny black body. They are found near the seashore, beneath large pieces of driftwood or debris above the high tide line. The abdomen terminates in a pair of forceps used for capturing prey and sexual dimorphism is expressed in their shape.¹⁵¹ Females will nurture the eggs and young for a short period. (Appendix 32, p. 278)

Williams (1917, p. 216) listed **matā**¹⁵² to denote "*Forficesila littorea*, earwig; an insect."

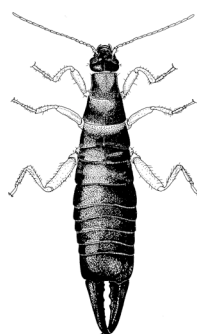


Fig. 2.36 Matā, *Anisolabis littorea*

¹⁴⁹ *Cimex* (now *Calocoris*) *nemoralis* is the name of a true bug (Order Hemiptera, Family Miridae) and was misapplied to this cockroach. This exemplifies how common names like wood-bug can be misleading.

¹⁵⁰ Formerly *Forficesila littorea*.

¹⁵¹ The female bares long, evenly sized forceps while those of the male are short and asymmetrical.

¹⁵² Williams (1917, p. 216) also listed the term 'matā', as the shiny black volcanic rock, obsidian, traditionally used for cutting. This term may therefore concurrently reference the shiny black body of this large earwig, and the forceps appearing as though they could 'cut' like obsidian. However, since Beattie (1920/2009, p.186) noted 'mata' as a term for a "big black beetle" (possibly the black cockroach, *Platyzosteria novaeseelandiae*, p. 99) the link between the shiny blackness of obsidian and two black insects is reinforced.

2.4.12 Order Diptera – Flies

All winged insects have two pairs of wings, except flies. The second pair has been reduced to halteres (wing stalks) located behind the wings, that act as balancers in flight. They are particularly obvious on crane flies. Larva is a maggot. (Appendix 33, p. 279)

TABLE 2.44 Flies (stout or round bodied flies - Brachycera)

Māori name	Meaning/significance	Author
Hurangi, ngaro	Fly.	Taylor, 1848, p. 5
Hurangi	Fly.	Williams, 1852, p. 32
Hurangi; Ngaro; ¹⁵³ Rango	Fly; Fly; Fly.	Williams, 1871, pp. 34, 96, 130
Hurangi; Ngaro; Rango	A fly; A fly (a transposition of rango); A fly.	Tregear, 1891, pp. 95, 278, 394
Hurangi; Ngaro; Rango	Fly; Fly; Fly.	Williams, 1892, pp. 39, 111, 152
Ngaro	Fly, offspring of Moenganui.	Best, 1908, p. 238
Hurangi; Ngaro; Rango	Fly; Fly (transposed from rango); Fly.	Williams, 1915, pp. 36, 107, 147
Hurangi; Ngaro; Rango	Fly; Fly, blow-fly; Blow-fly.	Williams, 1917, pp. 84, 268, 378

In a korero purakau (legendary narrative) Grey (1885, Māori p. 14; English, pp. 11, 12) recorded how Māui, the youngest of five brothers, proved to his mother, his right to be part of the family. He recalled how after his birth, she had wrapped him in a topknot of her hair and cast him out to sea. Then,

*A tau mai ana te tini o te **ngaro** ki te karamuimui i a au, me nga manu hoki, ka puta mai hoki toku tupuna, a Tama-nui-ki-te-Rangi, ka kitea ki te ngaro, me nga manu, e karamui ana i runga i nga tawhaowhao, ka rere mai taua tupuna nei, ka heua ake, ara! he tangata.*

Myriads of flies alighted on me to buzz about me and lay their eggs, that maggots might eat me, and flocks of birds collected round me to peck me to pieces, but at that moment appeared there also my great ancestor, Tama-nui-ki-te-Rangi, and he saw the flies and the birds collected in clusters and flocks above the jelly-fish, and the old man ran, as fast as he could, and stripped off the encircling jelly-fish, and behold within there lay a human being.

Grey (1885, Māori, p. 96; English, p. 116,) recorded and translated another korero purakau concerning the boy Hatupatu who was killed by his brothers for stealing and

¹⁵³ Williams, (1871, p. xii) made an exemplary note for ngaro as a case of transposition for the term rango; and is used as a synonymous term in the same rohe (area).

eating all the preserved birds. His distressed parents sent a spirit messenger to search for his body,

*Haere ana taua **ngaro** nei, ko te ingoa ko **Tamumu-ki-te-rangi**,¹⁵⁴ haere ana, a rokohanga atu e tanu ana; ka kitea, ka mahia e ia, ka ora.*

So they sent one, and the spirit went. Its form was that of a blowfly, and its name was Tamumu-ki-te-rangi, or He-that-buzzes-in-the-skies, and it departed and arrived at the place that Hatupatu was buried, and found him and performed enchantments, and Hatupatu came to life again.

In a narrative provided by White (1887, pp.16, 17), two brothers, Hua and Whiro–tipua-mana-tu had argued over the ‘ownership’ of a totara tree. It was the older Hua however, that felled and partly carved it into a waka. He then left the almost finished waka on the wood chips and went in search of food. He also requested that Whiro and his people help drag the waka to the water. Whiro however, diverted the waka to his own village and although Hua believed the waka to be his, he nevertheless provided Whiro’s people and those working on the waka, with food. But Whiro noticed how Hua’s son, Tau-ma-kati, always selected the tasty bits. One day while lacing the sideboards, Whiro beckoned Tau-ma-kati for help and by trickery strangled him with the lashing and buried his body in the wood chips. In due course, Hua noticed his son was missing and when he also noticed a fly hovering over the woodchips next to the waka, discovered the body. A great battle ensued but it was Hua and his people who were killed.

White (1887, pp. 186, 187) recounted how in Hawaiiki, before the great migration to Aotearoa, Tu-te-nana-hau (ngana) the young son of Manaia had been accidentally killed during the construction of one of the waka. Because his body had been hidden beneath wood chips, the offence went undetected. Most of the waka then left and crossed the sea to Aotearoa. Only later was the body discovered, “by an ancient god who assumed the appearance of a large fly called **Tu-parau-nui** (shed power in vain), who made a low murmuring sound over the grave of the child, and showed where the corpse was” to those who had still not left.

¹⁵⁴ Williams (1917, p. 441) listed the verb ‘tamumu’ to ‘hum, buzz’ and quoted a line from a song from the Supplement to ‘Popular Maori songs’ by MacGregor (1898), E tamumutia nei e te ngaro o te waru, The buzzing fly of the eighth month.

In a similar narrative, Best (1922, pp. 113-115) also recorded how Whiro-te-tipua had killed his nephew Tao-makati while lashing cords to a newly made canoe and then hid his body beneath wood chips. The boy's body was revealed to his father Hourangi, by the humming, hovering presence of a fly called, Te Potiki a Pohau, the child of Pohau.

Tregear (1891, p. 258) defined the term **mui** as "to swarm around, to infest." A second meaning was, "to be lighted on by swarms of flies; to be fly-blown," and was coupled with the phrase, "Kua mate, e muia ana e te **rango**," (When dead, then swarmed upon by flies). This is compared with **karamuimui** (1891, p. 128) "to swarm upon" and **pōkai** (1891, p. 347) for "A swarm of flies."

Flies mostly appear in accounts of makutu (revenge). Smith (1894, p. 174) translated Takaanui Tarakawa's account of flies used as agents of death. The event involved two tohunga (priests), Mokai-tuatini and Te Wheuki from Te Whanau-a Apanui. Te Wheuki, who was in a state of tapu and unable to prepare food, asked the children of Mokai-tuatini for some of theirs. When they refused, Te Wheuki kicked dust onto them and within an hour they were dead. When Mokai-tuatini discovered them, he suspected treachery, but in silence, carried their bodies home. Meanwhile, Te Wheuki who anticipated repercussions protected himself with karakia (prayers). So any karakia makutu (incantations) that Mokai-tuatini recited, failed. Mokai-tuatini buried his children and with his wife moved from the area. As time passed, Te Wheuki forgot his crime, but Mokai-tuatini could not, and when a fly landed on a fern stalk, he conceived of an opportunity for revenge. He trapped the fly inside a gourd along with three others, sealed the lid and chanted his karakia. Within three months, Te Wheuki and his family were dead, and the original offence avenged. This practice was referred to as "a gathering in of the hau."¹⁵⁵

Tregear (1926, p. 473) listed **Tuatini-ariki** as the god of flies.

Best (1982, p. 320) listed **Moenganui** as the personified form of flies.

¹⁵⁵ Here hau means the essence or vitality of a person.

When a person's sickness was thought to be the result of witchcraft, a particular kakakia was chanted to bring death to the offending tohunga. The following karakia made reference to both flies and maggots as recorded by Goldie (1904, p. 46) and translated by Hone Morris.

<i>Haere i te po uriuri</i>	<i>Go to the dark of the night</i>
<i>Haere i te po tangotango</i>	<i>Go to the deepest dark of the night</i>
<i>Haere i te po te hoki mai</i>	<i>Go to the night and never return</i>
<i>Haere i te po te oti atu</i>	<i>Go to the night and be gone for ever</i>
Muimui te ngaro	Gathered are the flies
Totoro te iroiro	Swarming are the maggots
<i>Mau ka oti atu</i>	<i>You will disappear forever</i>
<i>Oti atu ki te po.</i>	<i>Gone forever to the night</i>

A comparison was made between the wind blowing through the branches of a Pohutukawa tree¹⁵⁶ growing on the banks of Lake Rotoiti and the sound of flies, being indicators of good weather. Cowan (1930, p. 252) wrote, "If its branches sang a gentle 'Mu-mu, mu-mu,' like the murmuring of a ngaro or fly, everything was calm and the lake would be smooth for canoeing and fishing."

TABLE 2.45 Maggots (Appendix 33, p. 279)

Māori name	Meaning/significance	Author
Heiro, ¹⁵⁷ ketoketo, kutukutu	Maggot.	Taylor, 1848, p. 5,
Iroiro, ketoketo, Kutukutu	A maggot; A maggot; A maggot.	Williams, 1852, pp. 35, 47, 66
Iro; Ketoketo; Kutukutu	Maggot; Maggot; Maggot.	Williams, 1871, pp. 39, 51, 69
Iro; Ketoketo; Kutukutu	A maggot, fly-blow; A maggot.	Tregear, 1891, pp. 108, 145, 187
Iroiro	Maggots, offspring of ngaro .	Best, 1908, p. 238
Iro, kutukutu	Maggots.	Stowell, 1911, p.109
Iro, iroiro; Ketoketo; Kutukutu	Maggot.	Williams, 1915, pp. 41, 56, 76

Wohler (1874, English, p. 6) gave an account that referenced maggots. The narrative told of Te Roiroiwhenua, whose father Tutakahinahina, had died after he was born and was buried face down in a fenced area inside the house, next to a wall. Before his death, Tutakahinahina had instructed his people to gather plenty of food and

¹⁵⁶ This particular tree was called 'Tapuae' and grew on a cliff adjacent to Lake Rotoiti where the Kakanui pa was located. This tree was also known as a tohu-hau (wind-omen) and the various sounds produced by its branches in the wind, foretold the impending weather conditions for the people.

¹⁵⁷ This term appears out of place against subsequent entries. I speculate this may be a mis-interpretation of the words said, - with 'He' being 'a' and iro 'maggot', and the complete translation being - 'a maggot.'

firewood. However, Kumeateao, Kumeatepo and Unumiatekore prevented the sun from rising and the people could no longer see to carry out his instructions. Instead, they used the wood of the house for a fire. Then, Te Roiroiwhenua heard his father speak to him and,

He heard a gnawing inside the grave; it was the maggots, gnawing at his father. Then he saw two of them crawling out of the grave inside the fence, a male and a female. He caught the male, to be roasted in an oven; but the female he let go.

Ka puta nga iro o Tutakahinahina ki reinga, (the maggots of Tutakahinahina appeared from the underworld). (Wohler, 1874, Māori, p. 32).

Then, when Tumatea¹⁵⁸ shook the oven, daylight appeared again.

Williams (1917, p.185) listed the term **kurekure** for “Blow” as of flies, and the sentence,

*Ko nga iwi o te ao ki te pao, ki te kai, ko nga **ngaro** o te ao ki te **kurekure**,
The tribes of the world must strike to eat, the flies of the world, blow.*

Williams (1917, p. 315) listed **pātiki** as a “fan to keep flies from a corpse.”

Williams (1957, p. 271) also listed pātiki similarly, with **patu-ngaro** and **papakirango** as synonymous terms.

Miller, (1971, p. 89) documented that Māori used the patu-ngaro¹⁵⁹ to ensure flies did not land on a person of mana.

Under the term **rango**, Williams (1957, p. 324) noted that **papakirango** was also a “fly switch, pattern in reed work,” and according to the University of Auckland publication, *Tane-nui-a-Rangi* (1988, p. 27) this tukutuku pattern is also called **patungarongaro** and

Is a symbol for mourning and lamentation. It is based on the fly swat which was used in ancient times to keep flies away from the deceased during the tangi, or to prevent the discomfort of a supreme chief. The pattern is formed by using single stitches to create rectangles, squares and lozenges.

¹⁵⁸ Wohler (1874, p. 6) suggests that Tamatea is possibly identical with Tawhirimatea, god of wind.

¹⁵⁹ A length of plaited flax bound to a [wooden] handle.

A particular karakia (Refer to p. 320 (Vol. 3) for complete karakia) chanted prior to battle was intended to demoralise an enemy (Best, 2001, pp. 34, 35). Line eight reads,¹⁶⁰

*Muimui te **ngaro**, totoro te **iro***

Gathered are the flies, crawling are the maggots

Tregear (1891, p.108) listed the term ‘whakairo’ under the term ‘iro’ (a maggot, blowfly) and defined Whaka-IRO as “to carve, to adorn with carvings; carved, ornamented.” He further speculated that the association could arise “perhaps through some fanciful resemblance between carving and worm-eaten wood?”

Tregear (1891, p. 606) further defined whaka as “a prefixed causative” so it follows that when combined with **iro** (maggot), **whakairo** means, - to make (patterns) like a maggot.

While fly maggots are not commonly associated with wood, there are many wood eating beetle larvae that are whitish and maggot like in appearance, and those that live between bark and tree wood, can produce a pattern of eating that is highly decorative.



Fig.2.37 The ‘carved’ pattern produced by beetle larvae beneath the bark of a dead Eucalyptus branch.

¹⁶⁰ This line has been used in other karakia such as the one recorded by Goldie (1904, p. 46). See p. 104 of thesis.

To exemplify the various techniques and patterns used in Māori carvings, the Arawa carver, Anaha Te Rahui was seconded by Augustus Hamilton to produce 15 small panels for the Dominion Museum, in 1905. As described by Phillipps (1941, pp. 28, 29) the ninth panel depicts a particular spiral that is categorised as “He Whakaironui,” with the meaning “literally to construct a large maggot or worm.” The design shows a zigzag style of notching that is suggestive of the segmentation of both maggots and worms and was said to feature mostly on pataka. Referred to as tara tara o kai or tara tara a kai (peaks of food), Phillipps speculated that this notching was symbolic of “abundance in the pataka.”

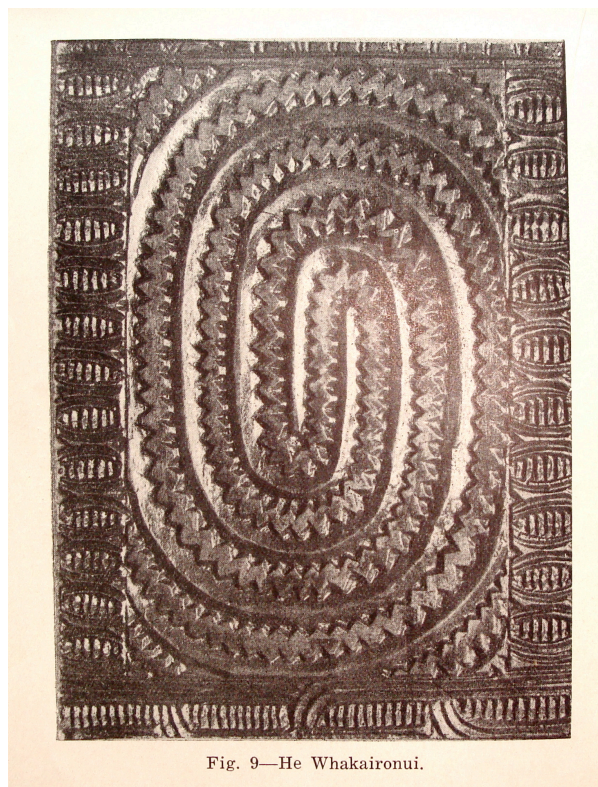


Fig. 9—He Whakaironui.

Fig.2.38 The carved pattern ‘He whakaironui,’ from Phillipps, *Maori Carving*, 1941, Fig. 9, p. 28.

The connection between patterns created by ‘maggots’ in wood and the work of the carver, is highlighted in the whakataukī recorded by Best (1975, p. 60),

Nga mahi whakairo, nga mahi a Rua¹⁶¹ – The art of carving, the art of Rua.

¹⁶¹ Rua is the ancestor and creator of woodcarving.

Family: Calliphoridae – blowflies

Blowflies have a stout body and fly during the day. Their maggots feed on carrion and dung but some feed on live flesh, such as those that cause fly strike in sheep.

Early (2009, p. 130) included a whakataukī that referenced the maggots of blowflies. It was directed at someone who was a fussy eater,

Iro te iro, homai kia kainga, ka kai hoki ia i a au – Maggoty or not, bring it to me to eat; they will also eat me.

1. The native **bluebottle fly**, *Calliphora quadrimaculata*, is bright metallic blue-black and produces a loud buzz. (Appendix 34, p. 280)

TABLE 2.46 Bluebottle fly and maggots

Māori name	Meaning/significance	Author
Bluebottle fly		
Rango	A large meat fly.	Williams, 1852, 137
Rango pango, patupaearehe	Blue bottle fly.	Taylor, 1855/1974, p. 419
Rango	[One of two] large meat flies, the blue and yellow-bodied, rango and patupaearehe are both said to be introduced from New South Wales.	Taylor, 1870, pp. 645, 646
Rango	A large rango (blue fly).	Mair, 1904, p. 156
Pairu	Humming fly.	Stowell, 1911, p. 109
Pairu nui	A large fly like a blowfly, but with a metallic sheen.	Williams, 1917, p. 291
Rako	Bluebottle-fly.	Beattie, 1920, p. 65
Rako	Blowfly or bluebottle. Said to be the only fly in New Zealand in pre-pakeha days as far as the old people knew.	Beattie, 1920/2009, p. 185
Maggots		
Iro	Eggs and maggots.	Beattie, 1920, p. 65
Tutaerako, iro	'Blow' [that] produced the maggot which was called iro.	Beattie, 1920/2009, p. 185

According to Taylor (1855/1974, p. 419), the **rango pango** (and patupaearehe),

Is considered an aitua, or omen of death, and very naturally, for being a meat fly, it scents diseased persons, who being never washed as they approach their dissolution, become most foetid.

Comments made by Taylor's 2nd edition (1870, pp. 645, 646) in the above table suggest that the blue **rango** could be the introduced blue blowfly, *Calliphora vicina*.

Revered Wohlers of Ruapuke, Southland, noted that sometimes souls, after they have died up to ten times in Reinga, "made their reappearance again in our upper world [and] some in the shape of blue-bottle flies" (1875, p. 111).

Beattie (1920/2009, p. 185) recorded the view of an informant from the South Island,

*The “blow” of the big **rako** never became alive but remained white and finally dried up. The “blow” of the smaller flies came to life and from this he concluded that the big **blue rako** were the male flies and that the smaller, more dull coloured ones were the female.*

Captain Gilbert Mair (1904, pp. 156,157) documented an account where the **rango** acted as a matataua (scout). A father grieved for his missing daughter, Papa, while also holding the suspicion that her husband Tama-kohuruhuru was responsible for her disappearance. One day, a large blue fly, repeatedly landed on his right hand. Viewed as more than a coincidence, the old man questioned the fly about the whereabouts of his daughter. In response the fly buzzed, then lead the man to a large old tree. There, in a hollow, was his daughter’s body. The old man sought the assistance of a well-known warrior who eventually took pity and gathered his many men to avenge the man’s loss. Tama-kohuruhuru’s tribe was virtually annihilated. Those that survived left the area and eventually settled on the Chatham Islands.

2. The yellow-brown **blowfly**, *Calliphora stygia* is smaller than the bluebottle and not native. (Appendix 35, p. 281) It is believed to have been introduced by way of contaminated meat and fly blown livestock during early colonial settlement (Druett, 1983, p. 217).

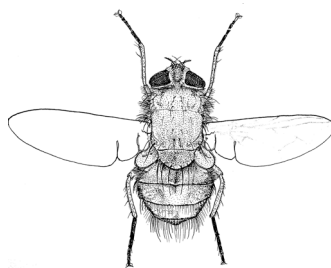


Fig 2.39 Ngaro, *Calliphora stygia*

TABLE 2.47 Golden brown blowfly

Māori name	Meaning	Author
Ngaro	The common meat fly.	Williams, 1852, p. 92
Rango tua maro	The large yellow-bodied meat fly.	Taylor, 1855/1974, p. 419
Patupaearehe	Yellow-bodied [meat fly].	Taylor, 1870, p. 645
Ngaro iro	The common blowfly.	Hongi, 1898, p. 37
Ngaro	Common fly.	Stowell, 1911, p. 109

Hongi (1898, p. 37) documented an account concerning a grieving father who used two flies as scouts to search for the body of his son, slain by Whiro. The first, was the ‘humming fly’ **rango tamumu**¹⁶² which did not find the boy. The second was the **ngaro iro** that found the body beneath wood chips produced during the making of a canoe. By way of retribution the father sought to kill Whiro’s son, but was unsuccessful and a great battle ensued. Most challengers were killed.

That the blowfly **ngaro iro** found the boy’s body is consistent with its lifecycle since blowflies actively seek dead and decaying flesh for their maggots to feed on. The humming **rango tamumu** however, was destined to fail as a scout because it is attracted to flowers not flesh.

Williams (1852, p. 122) offered the phrase, “Me te **ngaro** e pohuhu nei” – “They cluster round like flies,” under the word **pohuhu**, “To cluster around.”

Williams (1917, p. 268) noted under the term ‘ngaro,’ that the fly during makutu or black magic incantations (See p. 111 for examples), was sometimes given a name that represented the spirit of the person for whom the ‘spell’ was intended. Examples given are **ngaro ruahine**, **ngaro tamumu**, **ngaro tane** and **ngaro tara**.

Sharell (1971, p. 171) quoted an unsourced line, “A ka tainumu te **ngaro**” – “The blowfly murmurs now!” and commented that these flies denoted death.

Family Tachinidae – Bristle flies

Flies belonging to this family are typically bristly and their maggots are parasites of other insects and spiders. A particularly large species is the golden/orange *Prothistricia alcis*. (Appendix 36, p. 282)

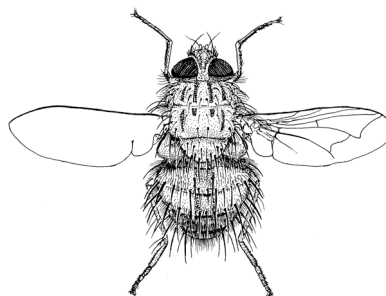


Fig. 2.40 Ngaro tara, *Prothistricia alcis*

¹⁶² See entry for metallic blue hoverfly, p. 112.

Although no Māori name was included, Taylor (1855/1974, p. 419) noted, “There is also a very fine large forest fly, covered with great bristles; it is rarely seen.” In his 2nd edition, Taylor (1870, p. 646) similarly wrote that, “The true New Zealand musca is a denizen of the forest, a very fine large fly with a golden hue, covered with hair, and is by no means numerous.”

The reference to “great bristles” and “covered with hair” is more suggestive of a member of the bristle family of flies, (Tachinidae) than a fly belonging to the Muscidae family that includes the introduced house fly, *Musca domestica*.

Williams (1917, p. 291) listed **pāiru** and **pauru**, for “a red fly.”¹⁶³

Tregear (1926, p. 510) noted the term **ngaro tara** as a fly with “a reddish hue and is one that never lands on food” (this could refer to *Prothistricia alcis*)¹⁶⁴ and was associated with makutu. The fly was thought to personify a “malignant wizard.” If revenge was desired, or if the powers of a particular tohunga wished to be opposed, then a mound of soil in the form of the person was created (ahupuke). A stone was then used to strike the ‘earthly’ form to create a hole (rua-torino) and simultaneously the name of the person chanted. The summoned fly entered the hole and was sealed inside with further pounding, thus bringing harm or death to the person. If the powers of the person or ‘wizard’ were very strong, the fly would not enter the hole.

In an earlier account, Goldie (1904, p. 37) described this practice as a rua-iti (small pit) ritual whereby “symbolic magic” was used to slay a person. His account follows,

The sorcerer secretly digs a small hole in the ground and places in it, or mounds at the bottom of the pit, a mound of earth in the form of a human body. Taking a cord in his hand, and standing over the hole, he allows one end of the cord to hang down in the hole. He then repeats potent incantations to cause the wairua (dream-ghost) of the doomed person to descend by way of the cord into the hole, where it is destroyed by means of another powerful karakia known as whakaumu. In some cases the cord seems to have been dispensed with, and the wairua is then seen to enter the hole in the form of a fly (rango), such a fly being the ahua (semblance) or aria (form of incarnation) of the spirit of the victim.

¹⁶³ The female of the blossom fly, *Dilophus nigro stigma* has a red thorax and the crane fly *Leptotarsus ferruginosus* is a striking orange-red, but it is unlikely that the reference ‘reddish hue’ relates to either of these.

¹⁶⁴ Miller (1952, p. 30) believed it to be the hoverfly, *Helophilus trilineatus*, which has prominent stripes on the thorax, but these are not mentioned in any description.

Family Syphidae – Hoverflies

The body shape of hoverflies is variable. All are fast, strong flyers, and able to hover.

1. The **metallic blue hoverfly**, *Helophilus hochstetteri* looks superficially like the bluebottle fly only smaller, and the scutellum (the half round lobe on the hind edge of the thorax, in front of abdomen) is orange. It is only attracted to flowers. (Appendix 37, p. 283)

Hongi (1898, p. 37) recounted a narrative that included the **rango-tamumu** that was used as a scout (Refer to the blowfly entry, p. 110).

Stowell (1911, p. 109) listed rango-tamumu for a humming fly.

According to Tregear (1926, p. 473) not only was **Tuatini-ariki** the god of flies, but also the guardian of “the large metallic-looking fly (Rango-tamumu).”

2. The **Rat-tail hoverfly**, *Helophilus trilineatus*, is large and distinctively marked. It feeds on pollen and nectar, and therefore represents an important pollinator. The term rat-tail is a reference to the ‘aquatic’ maggot that breathes in stagnant water by way of a siphon. (See Appendix 38, p. 284)

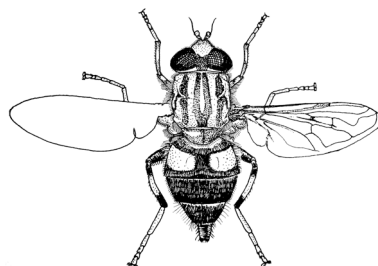


Fig. 2.41 Ngaro tara, *Helophilus trilineatus*

Smith (1894, p. 173) translated another black magic practice that involved a reddish fly of ‘considerable size’ that would not land on “foul matter” and “when it enters a house, its buzz will be heard thus: “Kopio te whare, kopio ia” – “The house is abuzz, circulating.” He described its ability to remain “stationary in the air, whilst its wings constantly vibrate.”¹⁶⁵ This latter observation describes the flight behaviour of a hoverfly, but earlier (1894, p. 172) it is referred to in brackets as ngaro-tara, *Tabanus impar*?¹⁶⁶ An illustration of *Tabanus impar* appeared in Hudson’s Manual of

¹⁶⁵ Miller (1952, p. 30) considered this description more closely aligned with *Helophilus trilineatus*.

¹⁶⁶ This is a fly from the Tabanidae family with the synonymous name *Dasybasis sarpa*.

Entomology (1892, plate V1, fig. 6) and shows a great likeness to the bristle fly *Prothistricia alcis*. Therefore, both *Prothistricia alcis* and *Helophilus trilineatus* will be associated with the term **ngaro tara**.

The following flies belong to a more primitive group called Nematocera that are often small with narrow bodies.

Family: Simuliidae – Black flies, sandflies

These small black ‘biting’ flies have relatively short legs and robust, hunched bodies. The common North Island species is *Austrosimulium australense* and the West Coast species is *A. unguatum*.



Fig. 2.42 Namu, *Austrosimulium australense*

TABLE 2.48 Sandflies

Māori name	Meaning	Author
Namu	Sandfly.	Polack, 1838/1974, p. 319
Namu	A sandfly.	Williams, 1852, p. 88
Namu	Simulium. Little black sand-fly.	Taylor, 1870, p. 645
Namu	Small fly.	Williams, 1871, p. 89
Namu	A small fly, the sandfly.	Tregear, 1891, p. 262
Namu, nāenāe ¹⁶⁷	Sandfly.	Stowell, 1911, p. 109
Namu; Ongaonga	<i>Simulia australiensis</i> , sandfly; Sandfly.	Williams 1917, pp. 253, 279
Namu	Sandfly.	Beattie, 1920/2009, pp. 186, 347

Polack (1838/1974, p. 319) documented **namu** for sandfly and wrote,

The most disagreeable, in their acquaintance, is the namu, or sand-fly; these little creatures are mischievously troublesome; they have no particular choice as to what part they alight on the human body – the forehead or the ankle. They contrive, with their minute invisible feelers, to make a small puncture, which soon swells, causing an itching almost intolerable. These diminutive flies are easily killed, but are seldom caught, until gorged with the blood of their victims. The namu are most numerous on the borders of streams or marshy places, and appear in myriads before rain. These

¹⁶⁷ The inclusion of the term ‘naenae’ for sandfly appears anomalous and would be better attributed to a mosquito as Williams has done in the various publications of his dictionary. See Table 2.50, p. 116

insects are absolutely cruel to the ladies, whose apparel is of a less guarded nature to that worn by the opposite sex.

When a grave was to be dug for a chief, the kaheru (spade) that was made for the purpose was rendered sacred by the recital of a karakia (Refer to p. 321 (Vol. 3) for complete karakia). Lines nine – eleven of one translated karakia (Taylor, 1855/1974, p. 98), made reference to the sandfly,

<i>Ko te kai, kai namu,</i>	<i>Your food to feed you is the fly,</i>
<i>Ai, kia wangi ia,</i>	<i>Eat it in Pairau your abode</i>
<i>Kai namu ki pai-rau ru</i>	

Sandflies were said to be “the food of spirits” according to Taylor (1870, pp. 191-192) and were made reference to in the following very similar karakia chanted by a priest to bring about success in war. Cooked food was offered the priest to tear apart during its recital.

<i>Ko pi, ko pi te ata, ka kai ana</i>	<i>Dark dark the morning when you shall eat,</i>
<i>Kia kai koe i te kai ngaki o tou wanaunga</i>	<i>And you shall eat of the food your fathers have planted,</i>
<i>Tenei tou kai i kai namu ai,</i>	<i>This is your food, the sand fly shall you eat,</i>
<i>Kia wangaia kai namu ai.</i>	<i>The sand fly shall be your nourishment.</i>

Beattie (1920, p. 65) noted that the South Island locality, Kai-namu, was so named because it had so many sandflies that they would enter ones mouth while food was eaten.

Mead & Grove (2001, p. 101) recorded the following whakataukī,

He **namu** pehea ahau! – Perhaps I will be like the sandfly.¹⁶⁸

The **namu** was the only one of Hine-nui-te-pō’s messengers to successfully extract a drop of Māui’s blood. For narrative, see entry for red admiral butterfly, kahukura, pp. 57, 58.

¹⁶⁸ This is a reference to the annoying and persistent behaviour of the sand fly and is a similie for the human character, that is determined to achieve a particular goal.

Family: Ceratopogonidae – Biting midges

These very small flies can inflict a powerful bite. The wings of *Styloconops myersi* are pale compared to the tiny black thorax and head, reducing their apparent size further and giving rise to its colloquial name ‘**no-see-ums**.’

TABLE 2.49 Biting midges

Māori name	Meaning	Author
Namu-poto	Little sandfly.	Smith, 1913, p. 132
Tuiaua	Small white sandfly.	Williams, 1917, p. 527
Namu-poto	Sandfly.	Best, 1982, p. 267

Smith (1913, p. 132) listed the **namu-poto** as one of the insects taken to earth by Tāne as a prisoner after his altercation with his older brother Whiro. For the purposes of this thesis the term **namu-poto** will be attributed to the biting midge *Styloconops myersi*.

Family: Culicidae – Mosquitoes

The adult female **vigilant mosquito**, *Culex pervigilans* is well known for her whining presence at night. Mouthparts comprise of stylets and a narrow tube designed for piercing and sucking. Adults are associated with damp areas and eggs are laid on still water. Larvae are called wrigglers and tumblers. (See Appendix 39a & 39b, p. 285, for the striped mosquito, *Aedes notoscriptus*)

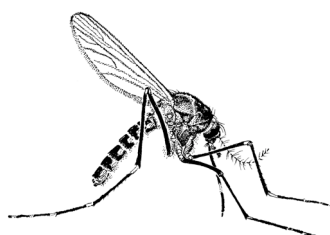


Fig. 2.43 Waeroa, *Aedes notoscriptus*

The earliest reference was provided by Polack (1838/1974, p. 319) who noted that “the mosquito, or **waiwai roa**, abound amid the innumerable swamps of the country.” Polack’s spelling here would make more sense if he spelt it ‘wae’ for ‘leg’ (roa means long) rather than ‘wai’ for water and again represents the recording of a poor ear. The painting of red ochre on the body, as well as being used for ceremonial purposes, “is also said to prevent the mosquitoes and sand-flies from biting” according to Dieffenbach (1843/1974, p. 54).

TABLE 2.50 Mosquitoes

Māori name ¹⁶⁹	Meaning	Author
Mosquito adult		
Waiwai roa	Mosquito.	Polack, 1838/1974, p. 319
Naenae, ngairoa; Wairoa	Mosquito.	Taylor, 1848, pp. 5, 6
Waeroa	A mosquito.	Williams, 1852, p. 195
Waeroa	A musquito.	Taylor, 1870, p. 645
Naenae, naeroa; Waeroa	Musquito; Musquito	Williams, 1871, pp. 89, 190
Naenae, naeroa; Waeroa	Mosquito; A mosquito (<i>Culex acer</i>).	Tregear, 1891, pp. 261, 586
Naenae, naeroa; Waeroa	Mosquito; Mosquito.	Williams, 1892, pp. 103, 222
Wāeroa	Mosquito.	Stowell, 1911, p. 109
Naonao ¹⁷⁰	Mosquito.	Smith, 1913, p. 128
Naenae, naeroa; Ngaeroa; Waeroa	Mosquito. Mosquito.	Williams, 1917, pp. 252, 263, 555
Keroa	Mosquito. (South Island term).	Beattie, 1920, p. 65
Naeroa, waeroa, keroa	Mosquitoes were called naeroa in Nelson, waeroa in the North Island and keroa in Murihiku.	Beattie, 1920/2009, p. 509
Namu katipo	Mosquito.	Williams, 1957, p. 217
Larvae		
Ngarangara ¹⁷¹	Mosquito larvae.	Miller ¹⁷² , 1952, p. 28

Both the small sandfly (**namu poto**) and the mosquito (**waeroa**) were referenced in a tangi tawhiti¹⁷³ that was recorded by Best (1901, pp. 85, 86), and was loosely translated by Hone Morris. Lines 19 - 21 read,

<i>I tukua mai nei ki āna karere,</i>	<i>She sent her messengers,</i>
<i>Ki te waeroa, ki te namu poto</i>	<i>The mosquito and sandfly,</i>
<i>Hai kakati i te rae</i>	<i>To sting his forehead</i>

To see these lines within the context of the full tangi tawhiti, refer to p. 322 (Vol. 3) of thesis.

¹⁶⁹ It is important to note that the Māori language was never originally a written one. The many terms recorded here, have different spellings but sound the same or similar. These like sounding terms are likely variations in interpretation and recording of the spoken word, or, they may represent dialectical or tribal variations.

¹⁷⁰ Although Smith (1913, p. 128) identified **naonao** as the mosquito, this same term (*Ibid.* p. 132) was later listed as the sandfly. However, it is my belief that the term should be attributed to the midge (see pp. 118, 119) just as Best (1982, p. 267) does. Midges like *Chironomus zealandicus*, look superficially like mosquitoes, and the spelling of naonao resembles terms for mosquito, like naenae, so mistaking the two is plausible. The name **namu** appears to be a well-established term for the sandfly (see Table 2.48, p. 113) so Smith's connection of naonao with the sandfly seems less than convincing.

¹⁷¹ Williams (1871, p. 95) defined **ngarangara** as "anything small."

¹⁷² Miller (1952, p. 28) listed ngarangara for mosquito larvae and as being a Ngāpuhi term (from lake Ngatu). W. J. Phillipps provided Miller this term in correspondence.

¹⁷³ A malevolent spell (intended to bring about death) delivered in the form of a song and directed at an absent or distant person.

The mosquito was one of four messengers sent by Hine-nui-te-pō to gather Māui's hau (To read full narrative, see entry for red admiral butterfly, pp. 57, 58). The previous tangi tawhiti makes reference to this narrative.

A translation of the following whakataukī associated the term **namu** with mosquitoes,

He ra ki te awatea, he **namu** ki te po – The sun during the day and mosquitoes at night (Mitchell, 1944, p. 127).

Best (1925b, p. 778) noted that mosquitoes were the offspring of Mokehu (the young frond of the bracken fern, *Pteridium esculentum*) and together with sandflies, represent the grandchildren of Haumia, god of fern roots.

Namu-iria was the son of namu and according to Best (1908, p. 241), responsible for stealing the hau (life essence) of Tū-matauenga (god of war and 'man'). For this, Namu-iria was killed, and a war against man was declared. Best (1925b, pp. 991-994) documented how another of the sandflies had suggested to the mosquito family that the retaliation would be strengthened if both families attacked man. This agreed, the mosquito recommended that nighttime would be safest because during the day they would be seen, and killed. The sandfly acknowledged this, but replied that this was acceptable providing man's blood was drawn, and warned that at night, they could be destroyed by smoke. With the discussion unresolved, the two flies departed. The sandflies left to attack during the day and as predicted, were seen by Tū and many were destroyed. At nightfall when the mosquitoes attacked, many succumbed to smoke. But this was said to be how the differing day and nighttime activities of the mosquito and sandfly became established.

Sharell, (1971, p. 171) provided the following whakataukī,

Haere kia pokaia koe e nga **ngaeroa** o Hurihuri – Go, that the mosquitoes of Hurihuri may infest you.

Family: Chironomidae – Midges, gnats

The **common swarming midge**, *Chironomus zealandicus*, looks superficially like a mosquito but lacks the piercing mouthparts. Adults are usually found near bodies of still water where they breed. At dusk they can form very active mating swarms composed primarily of males (Hudson & Ordish, 1975, p. 1503).

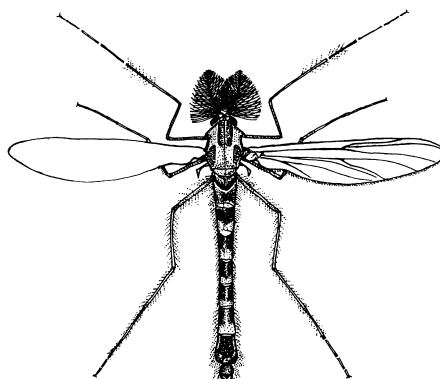


Fig. 2.44 Pongarongaro, naonao, *Chironomus zealandicus*

In a waiata¹⁷⁴ documented by Grey (1853, p. 347), lines 10 – 11 read,

*Ka muia koutou, e te **pongaringaro** – You will [all] be beset, by a swarm of midges.*

TABLE 2.51 Midges, gnats

Māori name	Meaning	Author
Naonao, ngaungau	Small moth; midge.	Taylor, 1848, p. 5
Naonao	Small moth, midge.	Williams, 1871, p. 90
Naonao	Small moth, midge.	Tregear, 1891, p. 263
Neinei	Midge.	Stowell, 1911, p.109
Nahonaho; Naonao; Pōngarongaro	Midge; Midge, small moth; Midge.	Williams, 1917, pp. 252, 254, 339
Naonao; Pongarongaro	Midges; Little gnats or midges.	Beattie, 1920/2009, pp. 186, 509
Naonao	Midge.	Best, 1982, p. 267

Williams (1915, p. 100) followed his entry for the term ‘**naonao**’ with the line,

Kei te pokai naonao te ahua – the appearance of a swarm of midges.

Herries Beattie spent many months visiting and recording information given to him by the Māori of the South Island. Terms for insects often came with additional habitus information. For example, associated with the term **naonao**, Beattie (1920/2009, p. 186) noted that these are “the swarms of midges which sometimes come out at eventide” and with the term **pongaringaro**, Beattie (1920/2009, p. 509) noted that these are “the little gnats or midges which fly about at dusk.”

Miller (1952, p. 27) thought the term **naonao** when defined as ‘small moth’ or ‘midge’ (as glossed in Williams (1871, p. 90) and Tregear (1891, p. 263)) referred to the common small moth flies (Family Psychodidae) or, to the sandfly *Austrosimulium*, or,

¹⁷⁴“*He waiata tawhito, no Namata, na Tapore*”. Refer to p. 323 to read this line within the context of the full waiata.

to the biting midge, *Acanthoconops* (now *Styloconops*) *myersi*. However the additional behavioural descriptions such as the appearance in “swarms” and “at dusk” lead me to conclude that these terms more correctly identify midges like the common swarming midge, *Chironomus zealandicus*.

Best, (1982, p. 267) identified **naonao** as a midge, and as a member of Whiro’s war party sent to attack Tāne. Refer to pp. 30, 31 for narratives.

Family: Tipulidae - Crane flies

This large family of flies varies in size, but the body form is characteristically long and narrow. The legs are extremely long and fine. Many **crane flies** (also often called daddy-long-legs) are seen in autumn and often mating. The green *Leptotarsus viridis* will represent the family. (Appendix 40, p. 286)

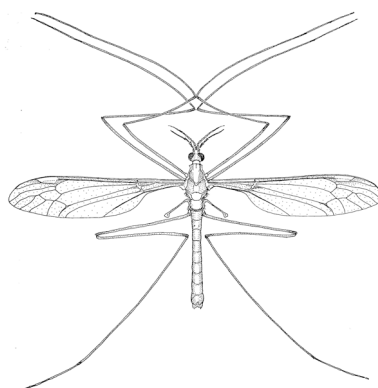


Fig. 2.45 Pekepeke-haratua, *Leptotarsus viridis*

TABLE 2.52 Craneflies

Māori name	Meaning/Significance	Author
Matua wairoa	Tipula, Daddy Long-legs	Taylor, 1870, p. 645
Pekepeke-haratua	Craneflies, [one of the] Tini-o-poto [Whiro’s war party].	Smith, 1913, p. 128
Pekepeke-haratua	<i>Tipula holochlora</i> , daddy-long legs; an insect.	Williams, 1917, p. 320
Te-tatau-o-te-whare-o-Māui	Daddy-long-legs, ‘The door of the house of Māui.’	Beattie, 1920, p. 65
Te-tatau-o-te-whare-o-Māui; Kohitihiti, wairoa; Keroa	The insect called daddy-long-legs by the pakeha; Daddy-long-legs (Canterbury term); Daddy-long-legs (Nelson term).	Beattie, 1920/2009, pp. 186, 347, 508
Matua wairoa	Craneflies or daddy-long-legs (Tipulidae).	Miller, 1955, p. 29
Pekepeke-haratua	Craneflies, daddy-long-legs, <i>Macromastic holochlora</i> .	Miller, 1984, p. 149

Both Taylor and Miller’s spelling, **matua wairoa** would make more sense if the ‘i’ was replaced with an ‘e’ as in **matua waeroa** – Daddy-long-legs.

Te-tatau-o-te-whare-o-Māui is a South Island Murihiku term, and according to Beattie (1920/2009, p. 186),

Tradition said it was connected with the story of Māui, the demigod ... It had something to do with the hole in the floor of the house when the pole was moved to let Māui down into the world below.

There are various versions of this narrative. Wohler (1874, pp. 11, 12) related how Māui had secretly waylaid his father (whom he had not yet met) by hiding his maro (waist apron). This allowed Māui to observe his father moving one of the pou aside and disappearing into a hole beneath and into another world. Māui was to do this himself in order to visit his father and make his existence known to him.

And in another account, Tregear (1926, p. 422) noted that,

When Māui wished to visit the Spirit Land he pulled the centre post of the house to one side, and felt the winds of Hades blowing up through the aperture. "Looking down, he saw fire, men, trees and ocean; he also saw men busily employed in the pursuits of their several occupations in this world."

Family: Mycetophilidae - Fungus gnats

The fly *Arachnocampa luminosa*¹⁷⁵ is better known for its bioluminescent **glow-worm**. The elongated predatory maggot lives within a slimy 'sleeve' baring many cascading threads studded with sticky droplets. Small insects become ensnared in these threads when attracted to the emitted light and are subsequently hauled up and consumed. (Appendix 41, p. 287)

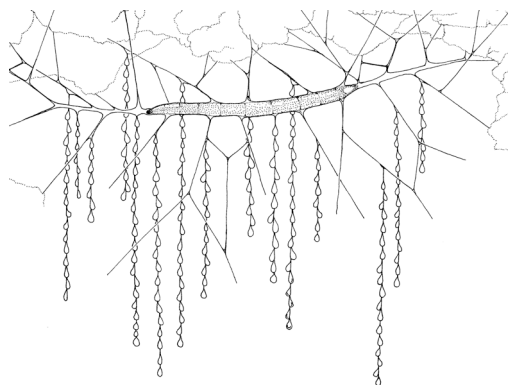


Fig. 2.46 Pūrātoke, *Arachnocampa luminosa*

¹⁷⁵ Formerly *Bolitophila luminosa*.

TABLE 2.53 Glow-worms

Māori name	Meaning	Author
Titiwai	A small luminous earthworm.	Taylor, 1848, p. 6
Puratoke	A glow-worm.	Williams, 1852, p. 133
Pūrātoke	Glow-worm. Anything glistening in the dark.	Williams, 1871, p. 126
Pūrātoke	A glow-worm. Anything glistening in the dark.	Tregear, 1891, p. 376
Pūrātoke	Glow-worm.	Stowell, 1911, p. 109
Titiwai	<i>Bolitophila luminosa</i> , glow-worm.	Williams, 1917, p. 499
Moko-huruhuru	Personified by some form of glow-worm, or luminous caterpillar.	Best, 1924a, p. 177

Line 16 from a lament composed by Te Rangikaheke (Grey, 1853, p. 49) reads, (Refer to pp. 324, 325 (Vol. 3) for complete waiata)

*Kia kite iho tāua, i te **titiwai**, e-e – So we can view the glow-worm from above.*

Sharell, (1971, p. 171) was provided the following unsourced expression, by David Miller: “E kore e ngaro tona pouritanga i te marama o te **titiwai**” – “Darkness cannot be dispelled by the the light of the glow-worm.” This may be a reference to a time when darkness prevailed in the world. Best (1924b/1976, p. 89) noted that the “only form of light known at the time the Earth Mother brought forth her offspring was the feeble glow emanating from the glow-worm.” Best (*Ibid.*) expanded on this, by recounting the information supplied by Rihari Tohi. He wrote that, **Te maramatanga namunamu ki taiao** was “the dim, feeble glimmer emanating from **Moko-huruhuru**, or **Hine-huruhuru**, the glow-worm. This was the first phase of light known.”

In the narrative regarding Māui (given by Best, 1924a, pp. 147,148) and his mission to achieve immortality for ‘man,’ the great trickster sought to destroy the goddess of the night, Hine-nui-te-pō. Together with his bird companions, Māui found her house, Potaka-rongorongo and entered. There was however, on the frame of the door by which they entered, a smear of blood. This was the hau or life essence extracted earlier from Māui by the messenger **namu** (sandfly) (see previous narrative, p. 58). This should have served as a warning for the *troupe*, - but it did not.

To overcome Hine-nui-te-pō, Māui proposed to enter the goddess in the manner by which man was born, - in other words, via the puapua or vagina. From here he was determined to extract her heart and thereby kill her. As an accomplished shape changer, Māui considered a number of forms by which to complete this task.

Upon finding Hine asleep, Māui stripped himself of clothing and morphed himself firstly into a rat. However, his many bird companions did not approve. He then,

*Took the form of an earth-worm, but Tiwaiwaka (a bird, the fantail) condemned his appearance, so Maui transformed himself into a moko-huruhuru, and wriggled about in a manner that vastly pleased his companions, so much that that form was decided upon as the best. The **moko-huruhuru** was explained to the writer as being a species of caterpillar, or grub, possessing phosphorescent qualities (Best, 1924a, p. 148).*

Having implored his companions for silence, Māui then entered Hine. This comical sight however, was too much for his friends to bear in silence. And, disturbed by the sounds of laughter, Hine-nui-te-pō awoke to feel the writhing moko-huruhuru inside her. With powerful abdominal contractions, she cut the penetrating invader in two. The squirming, once powerful Māui was immediately killed. This final, outcome ensured that mortality was to forever persist in this world.

The identity of the moko-huruhuru in this narrative has been variously attributed to a number of animals. Connections with caterpillars or lizards can be found when the term moko-huruhuru is analysed. Taylor (1848, p. 5) listed **moko** as a “caterpillar,” while as a second meaning, Williams (1871, p. 85) gave it to mean, “lizard.”

Under the first meaning of huru “Hair,” Williams (1917, p. 85) listed **huruhuru** to mean, “Coarse hair, bristles.” Under its third meaning, huru was defined as “Glow,” and **huruhuru** as a “Diffused glow.”

But, in the various entries recorded by Best (such as 1982, p. 320) Moko-huruhuru (and Hine-huruhuru) are personified in the form of the glow-worm, so it seems reasonable to suggest that this was the form that Māui transformed into. This attribution seems more likely than the alternative given by Smith (1913, p. 177) who documented moko-huruhuru as being a “hairy lizard.” This association is especially problematic since reptiles are endowed with scales, not hairs.

While the glow-worm is more worm-like than caterpillar-like, it is similarly elongated and the cascading lines of sticky thread could be construed as somewhat hair-like. And, the capacity to produce light along a dark passage would have been an advantage to Māui.

2.4.13 Order Hymenoptera – Ants and wasps

Family Formicidae - Ants

The **ant**, *Pachycondyla castanea* is endemic and will represent this family. Ants are highly organised, social insects with a large caste system of differentiated workers controlled by one queen. This forest dwelling species is primarily restricted to the North Island, and has wingless queens (Wilson and Taylor, 1967, pp. 102, 103).

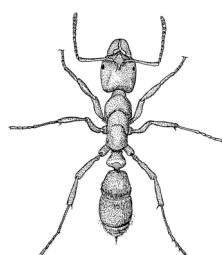


Fig. 2.47 Pokorua, *Pachycondyla castanea*

TABLE 2.54 Ants

Māori name	Māori name	Author
Poko, pokorua	Ant.	Taylor, 1848, p. 6
Pokorua; Popokorua	An ant.	Williams, 1852, pp. 124, 125, 144
Pokorua, popokorua	Ant.	Taylor, 1870, p. 643
Pokorua; Pōpokorua; Rōroro	Ant.	Williams, 1871, pp. 119, 120, 139
Nonoko; Poko; Pokorua; Pōpokorua; Rōroro; Upokorua;	An ant.	Tregear, 1891, pp. 271, 349, 350, 353, 420, 577
Pokorua	Ants.	Andersen, 1907, p. 97
Pokorua; Popokoriki; Popokorua	Ant/s.	Best, 1908, p. 239
Pōpokorua	Ant.	Stowell, 1911, p. 109
Rō	Ant.	Smith, 1913, p. 128
Pokorua, Pōpokorua, Pokopokorua; Pokotapu, ¹⁷⁶ upokotapu; Pōpokoriki	Ant. An insect.	Williams, 1917, pp. 337, 340
Roro	Ant.	Williams, 1957, p. 348
Popokorua; Upokorua	Ants.	Beattie, 1920/2009, pp. 346, 508

Andersen (1907, p. 97) wrote that during the warm days of ngahuru (autumn), “**pokorua** might be seen flying in swarms.”

¹⁷⁶ Both pokotapu and upokotapu are listed in Williams (1917, p. 337) for ‘an insect’ but given the similarity to the other terms, could conceivably represent a variation in dialect.

Rō was recorded by Percy Smith (1913, p. 128) as part of the war party sent by Whiro-te-tipua to attack Tāne (See 4, p. 30), and was translated as ‘ant’, but Best (1982, p. 267) listed ro (without a macron) as the stick insect and documented it as one of the prisoners brought to earth by Tāne in the aftermath of this battle, thus presenting a conundrum regarding the identity of ‘ro.’ Macrons guide pronunciation and meaning but it is not always clear from the historical documentation if the term was recorded without its macron, or never had one.

Objectively, ants would make a good choice as a war-faring group of insects. They live together in large numbers, are tireless workers and will attack invaders. Stick insects however, are essentially solitary and peaceful insects. Therefore, **rō** is likely a diminutive of **rōroro** - ant. Both insects have been included in the visual presentation of Whiro’s war party.

Beattie (1920/2009, p. 346) while gathering information from Ngai Tahu Māori of Canterbury, recorded the following account about ants and their industrious nature,

*There is another creature, a tiny, black one, which has a rua (nest) running either into banks or down in sand. It stops in its hole as its home but it gathers food for the winter. Its name is **popokorua** and there is ‘more history’ about it than the other insects because it collects for winter while the rest simply die away. There is a lot of talk about it and the old people would tell lazy persons, “Hohonu kaki, papaku awa” (deep neck, shallow water). In the summer they would say to the young people to work industriously like the popokorua and not be in shallow water during the winter months of scarcity. The activities of this tiny creature ‘touches both land and water,’ and it was a great favourite with the old people.*

TABLE 2.55 Whakataukī that reference ants

Māori	Translation	Documented by
Ngā mano tini o pōpokorua .	The many thousands of ants. ¹⁷⁷	Grey, 1857, as cited in Mead & Grove, 2003, p. 326
Ki te kainga o tini, o te mano o te rororo , o tini o te Hakatauri.	To the dwelling place of the many, of the numberless ants, of the multitude of the imps (elves or fairies).	Colenso, 1881, p. 13
Haere ki te popokorua , e te tangata mangere.	The lazy person should go and observe the industrious ant. ¹⁷⁸	Tregear, 1891, p. 350 (under 'pokorua')
Mehemea te tini ūpokorua , te kapinga o te whenua.	Like hordes of ants spreading over the land. ¹⁷⁹	Mead & Grove, 2003, p. 296

Ants are said to be one of the offspring of Tuwhaipapa, Ratorua and Karanui-hipa. (See p. 31) and one of the **Tini o Ponauwe** when seen in great numbers (Best, 1982, p. 268).

Mitcalfe (1974, p. 23) documented a portion of an incantation that included a reference to ants. Its recital was intended to bring about invisibility, but as a precautionary note it was advised that it must be recited perfectly, or never attempted. The lines are,

<i>Pungawerewere hei hei a mai aku mata</i>	<i>Spiders hide my face,</i>
<i>Popokorua hei hei a mai aku mata</i>	<i>Ants hide my face,</i>
<i>E Moko e—</i>	<i>O Ruaumoko</i>
<i>Tu mai ki waho</i>	<i>Come up from your pit</i>
<i>Moko te taua rua.</i>	<i>I will go down in your place.</i>
<i>Titiro ki runga titiro ki raro,</i>	<i>Look above, look below,</i>
<i>Titiro ki whenua noa atu.</i>	<i>See nothing but empty ground.</i>

¹⁷⁷ This is a reference to the activity and organisation of large numbers of people working together, just like ants.

¹⁷⁸ This line references the waiata and narrative about the ant and cicada, Refer to the cicada entry, pp. 90, 93.

¹⁷⁹ This simile describes people at a feast scrabbling to get food.

Family Pompilidae – Spider-hunting wasps

1. The glossy purple-black **spider-hunting wasp**, *Priocnemis monachus* is solitary and predacious. With a ‘staccato’ gait it searches for large spiders and, once found, the spider is stung into paralysis and deposited into a ground cavity for larvae to feed on. Occasionally specimens are encountered moving jerkily backwards, towing its prey across paths or clear areas. It is endemic to New Zealand.

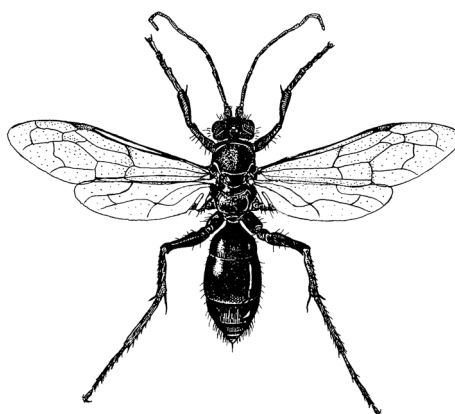


Fig. 2.48 Namu katipō, katipō, *Priocnemis monachus*

Williams (1917, p. 253) listed the term **namu katipo** for “native wasp.”

Anderson (1942, pp. 451, 452) wrote,

*The name of the native wasp is **namu-katipo**, which makes it appear as if that fiery insect, so fearless of spiders though three times its own bulk, made practice also of slaying ifrits¹⁸⁰ [sic] in the shape of katipos, the only poisonous insect¹⁸¹ in New Zealand.*

Anderson has associated the term namu katipo with not just a native wasp but by inference the spider-hunting wasp. This may be rationalised, because Williams listed the term **katipo** (1852, p. 44) with two definitions, “a venomous spider,” and “a wasp.” It is plausible to consider that the two are linked or share common features, for example, as noted, the katipo spider is poisonous and can inflict a painful bite. The wasp is a stinging¹⁸² (perceived as biting) insect. So a ‘biting’ insect that also carried

¹⁸⁰ Spirits.

¹⁸¹ It is a commonly held misconception that spiders are insects, which they are not because they have eight legs. Also, technically, all spiders are poisonous, since they all inject poison into their prey to paralyse or kill them.

¹⁸² The sting is a modification of the ovipositor and is therefore associated with the tip of the abdomen.

off spiders up to three times its size would be a compelling sight and deserved of a name. That the prefix 'namu' is used may relate more to the fact that the sandfly can also inflict an irritating bite. The size discrepancy between a large wasp and small sandfly is likely to be irrelevant, compared to the 'size' of the pain inflicted.

Along with William's entry for **namu**, *Simulia australiensis*, sandfly (1917, p. 253) is the term **namu katipo**, *native wasp*. The following unsourced line was used to exemplify its use, "Ka karakia ko Hine-nui-te-po, ka tukua tana, he namu katipo" which translates as, "When Hine-nui-te-pō recited her spell she released her agent a wasp."

This line appears to be a reference to the narrative concerning Hine-nui-te-pō and Māui. However, in Best's documentation of this narrative (1925b, p. 944) it is the **namu** (without the suffix **katipō**) that is the successful one of four insect messengers sent by Hine-nui-te-pō to collect Māui's hau. The other messengers were a mosquito, a butterfly and a midge. See entry for red admiral, kahukura, pp. 57, 58.

The use of this line is further complicated in Williams's sixth edition (1957, p. 217) and successive editions, where the definition 'native wasp' for namu katipo, was replaced with 'mosquito,' presumably because the original 1917 entry was perceived as an error. However, in Best's narrative the term for mosquito was '**waeroa**.'

In my view, the original ascription of native wasp to the term namu katipo in the fifth edition (1917) of Williams was correct, and what has been misleading, is the line that was used to exemplify its meaning. It would be rendered acceptable if the term 'katipo' was omitted and the line was used to exemplify the term 'namu.' Especially since from the literature, it was the small and silent sandfly that achieved success, not the noisy mosquito. And, as noted, the term **katipō** has been associated with 'a wasp' in print, since at least 1852. I recommend that Williams' definition for namu katipō be reinstated as 'a native wasp' and further, should be specifically attributed to the spider-hunting wasp, *Priocnemis monachus*. I find its association with the mosquito to be problematic.

For the purposes of this thesis, the two terms **namu katipō** and **katipō** will be applied to the spider-hunting wasp *Priocnemis monachus*.

2. The **golden hunting wasp**, *Sphictostethus nitidus*,¹⁸³ similarly preys upon spiders and is also endemic. It is striking for its glossy red body and golden sheen on the hind section of the thorax.

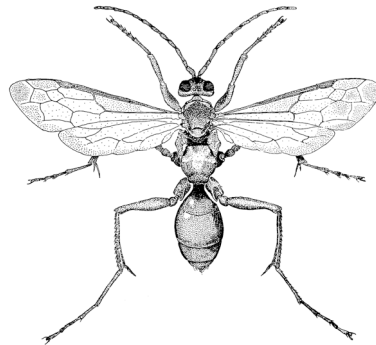


Fig. 2.49 Wīwī, *Sphictostethus nitidus*

Williams (1917, p. 567) listed the term **wīwī** for “a red and yellow stinging fly.” This description is superficially unclear as to the insect’s identity, but Miller (1952, p. 54) speculated on it being either an ichneumon wasp or *Salix wakefieldi* (now *Sphictostethus nitidus*). I support the latter because of the “red and yellow” description.

One Māori informant from Nelson provided Beattie (1929/2009, p. 508) with the name **mata** for “a sort of ‘wasp’ – a red fly which stung badly.”

The attribution of ‘fly’ in both accounts can be rationalised. Other than flies, winged insects have four wings, but for winged hymenoptera, the upper edge of the hind wings, firmly hooks onto the forewings. This together with shape and size differentiation confers an appearance and ‘action’ of two wings and could therefore account for its attribution of ‘stinging fly.’

Ngata (1993, p. 526) listed the term **ngaro wīwī** for spider-hunting wasp.

For the purposes of this study, **wīwī** will signify *Sphictostethus nitidus*.

¹⁸³ A specimen of this wasp was collected from New Zealand by Joseph Banks on the *Endeavour* and described by Fabricius in 1775. Its original scientific name was *Sphex nitida*. It is now *Sphictostethus nitidus*.

2.4.14 Order: Phthiraptera - Lice

Family: Pediculidae

These are small dorso-ventrally flattened insects without wings. They have biting or sucking mouthparts. The human **head louse** is *Pediculus humanus capitis*.

TABLE 2.56 Lice

Māori name	Meaning	Author
Kutu	<i>Pediculus humanus</i> .	Polack, 1838/1974, p. 320
Kutu; rika, riia	Louse; Nit.	Taylor, 1848, pp. 5, 6
Kutu	A louse.	Williams, 1852, pp. 66
Kutu; Kutukutu;¹⁸⁴ Riha	Louse, Vermin of any kind infesting human beings; Vermin of any kind; Nit.	Williams, 1871, p. 69, 135
Kutu; Riha	Louse, Vermin of any kind infesting human beings; Nit.	Williams, 1892, pp. 80, 158
Kutu; Riha	Louse; Nits.	Stowell, 1911, p. 109
Kutu; Riha	Louse, Vermin of any kind infesting human beings; Nit.	Williams, 1915, pp. 76, 152
Eo; Kutu; Riha, rihariha	Louse; Louse; Nit.	Williams, 1917, p. 33, 187, 396
Kutu	Lice; Together with the flea, was thought to have been brought by the Maori from Hawaiki.	Beattie, 1920/2009, pp. 186, 347, 508

In his early account, Polack (1838/1974, pp. 320-321) noted that,

[Kutu] crawl in numbers about the person and apparel of the natives. Notwithstanding the fact that the houses are kept in good order, yet the habits of the people are quite the contrary ... It is the sacred function of the native barber, after cutting the hair of the sitter, to place the quantity he has polled in a Wai tapu, or sacred place. In the discharge of this office, not a few of the 'creeping things' above mentioned are exposed to the light; the barbarous discoverer, ever alive to the 'kaore māomāo, or never waste,' immediately places them between his teeth, and swallows these obnoxious vermin principally from 'having a taste that way,' and the most effectual method of depriving them of future liberty.

¹⁸⁴ Refer to p. 31 for narrative concerning Te whanau a Torohuka who were thought of as kutukutu.

Table 2.57 Lice eggs

Māori name	Meaning	Author
Riki	Eggs of the louse.	Taylor, 1848, p. 6
Riha	Egg of a louse.	Williams, 1852, p. 142
Riha	[Louse] eggs.	Miller, 1955, p. 60

Grey (1885, English, pp. 50, 51) recorded and translated the narrative concerning Rupe who in search of his sister, climbed the heavens to speak with and seek advice from his ancestor, Rehua. As the host, Rehua called his servants to light a fire in anticipation of a meal. He then loosened his headband to release his hair, and out flew great numbers of tui that had been living and feeding on the lice there.¹⁸⁵ The tui were then caught and killed for the meal. But Rupe would not eat them. He said, “Nay, but I cannot eat this food: I saw these birds loosened and take wing from thy locks; who would dare to eat birds that had fed upon lice in thy sacred head?”¹⁸⁶

In another account recorded by Grey (1885, pp. 91-93), Whakaotirangi, the wife of Rua was taken away by Tama-te-kapua in the Arawa waka to Aotearoa. But an angry Rua pursued and reached land first. A fight ensued, and to shame and insult Tama, Rua purposefully rubbed kutu on Tama-te-kapua’s head and ears, making him itch and scratch incessantly.

Predictably, parasites with their negative connotations, featured in songs of war as in the following kai ora¹⁸⁷ recorded by Best (1902, pp. 149, 150). An analogous comparison is made between fleas and lice eggs in lines 18-22,

<i>Kai te puruhi rere mai.</i>	<i>Like the flea coming uninvited</i>
<i>Piri ana i te hukahuka, i te weruweru</i>	<i>Striking in thrums in the garments</i>
<i>Te kuri poapoa whangainga nei ki te kai</i>	<i>Like the homeless dog fed by anyone,</i>
<i>Miti ana mai i te pae o te hangi</i>	<i>Licking up fragments by the oven’s side</i>
<i>Ko te rite i a Riki.</i>	<i>This is the habit of Riki.</i>

For the complete waiata, refer to p. 326 (Vol. 3) of thesis.

¹⁸⁵ In te reo Māori, (Grey, 1885, Māori, p. 35) “Ka rere ki waho nga pokai koko e kai nei i nga kutu o te upoko o Rehua.”

¹⁸⁶ In te reo, (Grey, 1885, Māori, p. 35) “E kore au e kai, titiro rawa atu au e watea ana mai i roto i tou upoko: na wai hoki te kai, i kai ai i nga kutu o tou upoko?” This is because, for Māori, the most sacred part of the body is the head and therefore considered tapu. Food on the other-hand is noa or ordinary.

¹⁸⁷ This is a song of curses, - ‘eat-you-alive’ song, composed by Kiri-tapoa, wife of slain Piki-huia from Ngāti Hine-uru.

Reference was made to kutu (and wētā) in the kai oraora waiata¹⁸⁸ recorded by Best, (1902b, pp. 147, 148). Refer to p. 315 (Vol. 3) for complete waiata. Lines 29 and 30 read,

<i>Ma te Whata-nui, ma Tukino e wero,</i>	<i>It shall be for Te Whata-nui and Tukino</i>
<i>Ngā kutu o te tipuaki.</i>	<i>To spear the parasites of thy head.</i>

And a reference to both kutu and riha, appear in another kai oraora¹⁸⁹ (Best, 1902b, pp. 150, 151). Refer to p. 327 for complete waiata. Line 28 reads,

*Ko tona taina te **kutu**, te **riha**. – He is the brother of loathsome parasites.*

Tregear (1891, pp. 48, 470) listed **hapaki** and **tapaki** as “to catch lice; to squeeze or crack as fleas.” Williams (1917, pp. 39, 40, 184) listed **hākure** (**whakure**) to “catch lice,” **hāmure** to “catch vermin in the hair” and **kura** (**hakura**) to “remove lice from the hair.”

Best (1982, p. 270) noted that according to Ngāti Awa, kutu sprang from **Ruao**.

2.4.15 Order Siphonaptera

Family: Pulicidae – Fleas

Fleas are small, wingless and laterally compressed insects with piercing and sucking mouthparts. They are powerful jumpers. As a parasite, fleas feed on the blood of birds and mammals, like cats, dogs and rats. Spines and setae project backwards along the body to aid movement through fur, hair and feathers. The terms **keha** and **tuiau** will be applied to all species of flea parasites.

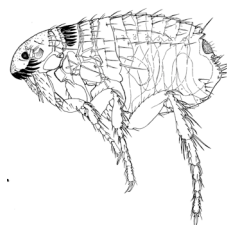


Fig. 2.50 Keha, tuiau, *Ctenocephalides felis* (cat flea)

¹⁸⁸ The songstress, Tamaku of Ngāti Awa, composed this waiata after Tūhoe defeated her iwi, in the battle of Te Kauna.

¹⁸⁹ Composed by Kaupoke, of Ngāti Manawa.

TABLE 2.58 Fleas

Māori name	Meaning/Significance	Author
Keha	Flea.	Polack, 1838/1974, p. 320
He pākehā nohinohi;¹⁹⁰ Tuiaua	The little stranger; Flea.	Dieffenbach, 1843/1974, (vol. 2), p. 291
Keha; Puruhi; Tuiaua	Flea.	Taylor, 1848, pp. 5, 6
Keha; Mororohu;¹⁹¹ Puruhi; Tuiaua	A flea; A flea. A flea; A flea.	Williams, 1852, pp. 46, 86, 134, 185
Keha; Mōrorohū; Puruhi	Flea; Flea; Flea.	Williams, 1871, pp. 50, 87, 127
Keha; Mōrorohū; Puruhi	Flea; Flea; Flea;	Williams, 1892, pp. 58, 101, 148
Tuiaua, keha	Flea.	Stowell, 1911, p. 109
Keha; Mōrorohū; Puruhi; Tuiaua	Flea.	Williams, 1917, pp. 131, 245, 366, 527
Tuiaua	Flea	Beattie, 1920/2009, pp. 185, 347, 508

A waiata recorded by Grey (1853, p. 200) made reference to both flea and louse. Refer to p. 328 (Vol. 3) for complete waiata. Lines one – three read,

<i>E kai e, te kutu,</i>	<i>Bite thou, o louse,</i>
<i>e kai e, te tuiaua,</i>	<i>Bite thou, o flea,</i>
<i>e kai e, te tara pake, e tu ki Turamoe ra i a.</i>	<i>Bite thou, o insect, content with drowsiness.</i>

Also, lines one - two of a Ngai Tahu waiata in Grey, (1853, p. 380) read,

<i>Te tuiaua, ki te katikati,</i>	<i>The flea bites,</i>
<i>Te whakakeukeu moe i a au</i>	<i>Disturbing my sleep</i>

Tregear (1891, p. 50) listed the term **harapaki** as the verb “to crack fleas or vermin between the thumbnails.”

In Williams (1917, p. 366) the term **puruhi** was followed by a sentence to exemplify its use (The translation was provided by Miller, 1949, p. 66),

E tuia ake ana he **puruhi** ngau papa – Hurt by a flea biting his buttocks.

Miller (1949, p. 66) also cited a whakataukī from Sir George Grey’s publication *Proverbial and popular sayings of the ancestors of the New Zealand race*, (1857, p. 44) which makes reference to the flea,

Ka tohe **puruhi** te tangata nei – The fellow is as troublesome and persevering as a flea.

¹⁹⁰ Early Māori claimed that Europeans introduced fleas and the phrase ‘he pākehā nohinohi’ was used as a derogatory term to denote them (Miller, 1955, p. 60).

¹⁹¹ This is an East Coast term.

Historically there was some discussion particularly in the North Island as to whether the flea is indigenous or introduced. Beattie (1920/2009, p. 185) posed this question to his many informants in the South Island, and noted that there were,

Some Maoris affirming it was brought in by the whaling ships. One old woman considered it was not found in Southern New Zealand before the pakeha came, but two old men thought it a native, one basing his conclusion on the fact that it comes out of the hot sand and the other that if it was not native it would have been given a European name, Maoricised, whereas it is called tuiau. Another old man recalled the fact that the place on Ruapuke Island known as Te Awa-tuia (flea-channel) was mentioned in the line of a song that ran "The sea breaks at Te Awatuiau". This song mentions the chief Pahi and also the girl Tokitoki who about the year 1815 married Jimmy the Boy (James Caddell) and how long before that the name of Te Awatuiau had been in existence he could not say.

David Miller (1949, pp. 64, 67) reasoned that in pre-European times Māori were almost certainly exposed to the fleas that lived on native animals like the bat and blue penguin, because it was thought that both were eaten at one time.

However, when the early whalers arrived in New Zealand they will have brought with them cats and dogs to help control the rats and mice on board their ships. All of these mammals will have harboured their own varieties of fleas that will temporarily live on humans. Miller also noted that the derisive phrase for the flea, ***te pakeha nohinohi*** (little pakeha) could only have been coined at the time Europeans arrived here.

2.5 Conclusions

It is evident from the information collated that Māori responded to a great number and variety of insects.

Lepidoptera (moths and butterflies) and Coleoptera (beetles) collectively had the greatest impact upon and significance for Māori, around the time of European colonisation. Coping with the exigencies of life in early Aotearoa meant that these were the insects that were either a source of food or had an impact upon food resources.

A few insects represented the presence of gods, spirits, or omens. Some inspired rhythmic waiata while others were made reference to in derogatory war chants intended to insult an enemy. Some insects were 'recognised' because they were simply irritating pests.

As skilled orators, Māori made analogous or similitic reference to insects within whakataukī intended for pithy and didactic instruction that also aided retention.

Tabulating the terms has highlighted how many insect names were recorded with different spellings, but either sounded similar or identically. Variations in pronunciation and also therefore spellings, sometimes reflected dialectical differences between iwi (tribes) and rohe (regions) but may have also represented a false 'ear' in interpretation and recording.

The following chapter identifies other Māori artists working in bronze and then compares, contrasts and evaluates the work of artists whose practices, techniques or subject matter relate to the works presented for exhibition and described in this thesis.

