

The Scars of Papatūānuku

Supplementary Material

Extract from [‘Loss of land’](#), Te Ara: The Encyclopedia of New Zealand:

The desperation felt in the nineteenth century is captured by Wi Naihera of Ngāi Tahu:

When the waves rolled in upon us from England, first one post was covered, then another till at last the water neared us and we tried to erect barriers to protect ourselves. That is we entered into agreement with those who purchased our lands from the Queen, but when the flood tide from England set in our barriers were cast down, and that is why you find us now, clinging to the tops of these rocks, called Native Reserves, which alone remain above water.

He likened the loss of land to its disappearance under the sea, an echo of the old mythological idea of land rising up from the sea.

The Land Wars – Waikato

Extract from [‘War in Waikato’](#), NZHistory:

After fighting broke out again in Taranaki in early 1863, Governor George Grey turned his attention to the region he saw as the root of his problems with Māori: Waikato, the heartland of the anti-landselling King Movement. Grey vowed to ‘dig around’ the Kīngitanga until it fell.

On 11 July he issued an ultimatum to the ‘chiefs of Waikato’ to pledge their allegiance to Queen Victoria. The following day – before Waikato Māori had even received this message – a force led by Lieutenant-General Duncan Cameron crossed the Mangatāwhiri Stream, a tributary of the Waikato River near Mercer. This waterway marked the aukati – a line that should not be crossed – between the European settlement of Auckland and the territory under the mana (protection) of the Māori King. The key conflict of the New Zealand Wars had begun.

[‘Waikato War map’](#), NZHistory

[‘The Waikato War’](#), Heritage New Zealand Pouhere Taonga



Gabrielle Belz, *Page 27 May 29 2016, 2017*

hand-coloured linocut

private collection

courtesy of the artist and the Tamepo whānau

These linocut prints interpret the surreal experiences of Tawhai Riri Tamepo during World War One. A veteran of the Māori Pioneer Battalion, and hailing from Waipiro Bay on the East Coast, Tamepo recorded his service in a series of diaries.

In these two works, printmaker Gabrielle Belz provides a visual interpretation of Tamepo's experiences in the combat zone in Northern France. Their sense of boisterous adventure is balanced with the real threat of sniper bullets and artillery shells. Belz's dynamic compositions centre around the young men's efforts to collect and enjoy kai together in precarious circumstances: using grenades for fishing, crawling through grass to collect cherries and eating boil-up from chinaware in the middle of a poppy field.



Gabrielle Belz, *Page 35 July 3 1916*, 2017
hand-coloured linocut
private collection
courtesy of the artist and the Tamepo whānau

Images of birds recur in Belz's works as messengers. In *Page 27 May 29 1916*, 2017, she uses the pīwakawaka (fantail) to evoke the bird's restless flitting and its connection to the demise of Māui during his quest for immortality. Here, the pīwakawaka acts as a metaphor for living on the edge between life and death.

['Gabrielle Belz'](#), Auckland Art Gallery Toi o Tāmaki

The Scars of Papatūānuku

Research and Material

Māori and the land

Extracts from '[Māori and the land](#)', Waikato Regional Council:

Māori have strong spiritual bonds to the land, chiefly to Papatūānuku, the Earth Mother. She provides unity and identity to her people and sustains them. It is important that we protect our land and water from erosion, deforestation and inappropriate land use. Māori consider that Papatūānuku sustains all life, and that they are spiritually connected to her. This connection is shown when a baby is born and the whenua (afterbirth) is buried in a sacred site. Māori regard land, soil and water as taonga. Māori are the kaitiaki (guardians) of these taonga, which provide a source of unity and identity for tangata whenua. The loss of ancestral lands is a key issue for Māori. Māori want to use their own land management systems to protect and enhance the land.



Soil as an important cultural resource

Soil resources are important for plant cultivation and for use as dyes. Kūmara gardens were an important source of food. Māori added gravel to the soil used for growing kūmara. Large areas of land were modified for food production, and many of the borrow pits (gravel excavation pits) are still visible today. Taonga (such as carvings) were stored in peat soils in wetlands to both hide and preserve them during times of trouble. Soil also has an important cleansing role. Māori perceive that only by passing treated waste (such as farm effluent or treated sewage) through Papatūānuku can the mauri (life force) of water be restored. Some tribal land is still covered with native forest. In other areas, Māori are concerned about environmental problems facing their lands. These include:

- loss of forest cover on steep river headwaters increasing erosion
- slumping and river siltation
- inappropriate land use
- landfilling
- deforestation
- the loss of soil quality for productive use.

For further reading:

[‘Deforestation Due to Animal Farming’](#), Vegans New Zealand

[‘What happens to our waste’](#), Waikato Regional Council

The New Zealand Steel Mining Operation



Extracts from '[The Mining Operation](#)', New Zealand Steel:

The well-known black-sand beaches sweeping down the west coast of the North Island are the sites of New Zealand's greatest known reserves of ironsand. Its potential for commercial use was recognised from the early days of European settlement. This black ironsand was formed 2.5 million years ago from rock deposited on the coast by volcanic activity in the Taranaki region. The sand contains mainly ironsand (titanomagnetite) and lime-soda feldspars. Over the centuries, the heavy dark ironsands have been transported by ocean currents along the coast and deposited on beaches, forming dunes of up to 90 metres high. After extensive trials, the New Zealand Steel Mill at Glenbrook opened in 1970 with an ironsand mine located at the mouth of the Waikato River. Like all operations that extract a raw material mining, the ironsand affects the environment. New Zealand Steel has addressed these effects in a number of ways:

Water conservation: At Waikato North Head mine, each day, up to 40,000 tonnes of fresh water is extracted from the Waikato River. About 7000 tonnes is used to transport ironsand as a slurry to the Glenbrook site and the remainder is used for the mining and concentration of ironsand.

Protecting marine life: One possible result of water extraction is the uptake of fish, particularly juveniles. To avoid this, at Waikato North Head mine, the water intake is set well off the main river flow, where fish tend not to swim. Water flows slowly down a wide artificial channel to the intake and when the gates to the reservoir are open the fine mesh screens stop even juvenile fish getting through.

Hydrological effects: For the Waikato North Head mining operation, water is extracted from the lower Waikato River in an area that is strongly influenced by tides. This means that the overall effect on the river flows and the hydrology of the river is negligible.



Eighty seven per cent of the water extracted is returned to the river by various means, reducing the effect of extracting water.

Recreating the landform: Each year 1.2–1.4 million tonnes of ironsand is needed to produce steel at Glenbrook. To obtain this, 4–7 million tonnes of sand needs to be mined at the Waikato North Head site. Once the sand is mined, the titanomagnetite is separated from the sand by magnetic and gravity separation processes. No chemicals or other additives are used. The unwanted material, or tailings, is returned to the mined areas to help return it to its original form. Tailings deposit areas are contoured to recreate the original land forms. Marram grass and radiata pine trees are planted to stabilise deposits and minimise wind-blown sand. The tailings consist of river water containing clays and sands. These are all natural materials derived from the area and as such do not adversely affect the dune environment.

Transporting ironsand: To transport ironsand from Waikato North Head mine to Glenbrook Steel Mill, water is mixed with ironsand to form a slurry (50:50 ratio). 1.4 million tonnes of ironsand concentrate is transported to Glenbrook each year through an 18 km electric-powered underground slurry pipeline, a New Zealand Steel innovation and a world first. Several alternatives for transporting the ironsand concentrate were considered prior to the slurry pipeline's development. Road transport was rejected because of high energy requirements, noise, safety for other road users and dust problems. Alternatives such as rail, ropeway and a combination of river barges and road transport were investigated and rejected. The pipeline was the method with the least adverse effect on the environment. It is unobtrusive and does not affect farmland, the community or the environment along the route.

For further reading:

[‘Waikato North Head Mine Site’](#), New Zealand Steel

[‘Glenbrook Steel Mill’](#), TrekLens



Other resources:

[‘Anthropocene – Official US Trailer’](#), YouTube

[‘The Anthropocene and the Near Future: Crash Course Big History #9’](#), YouTube

Apex predators

- [‘How Wolves Change Rivers’](#), YouTube
- [‘How Whales Change Climate’](#), YouTube
- [‘The threat of invasive species – Jennifer Klos’](#), YouTube

[‘Anthropocene: How Artists are Responding to Man-Made Changes in the Environment’](#),
Cultura Colectiva

[‘Movie documents human changes to Earth’](#), University of Windsor



Wetlands

Extracts from '[Wetland forests](#)', Department of Conservation (DOC):



Wetlands are nature's kidneys

They trap silt and strip nutrients from land runoff before it pollutes our rivers or lakes. Seepage wetlands remove up to 98% of nitrate from water.

WETLANDS FOR US

WE NEED WETLANDS AS MUCH AS THEY NEED US

Wetlands help us in so many ways yet remain a largely a forgotten habitat. Over 90 percent of New Zealand's wetlands have been drained or filled. *Let's turn that around!*

Join the National Wetland Trust and help us help wetlands.

www.wetlandtrust.org.nz

From woody to weedy

When people first arrived in New Zealand, about nine per cent of the landscape was covered with some form of wetland – mostly swamp or peatland forest and scrub. As the land was developed for crops and farmland, the forest was burned or felled and 90 per cent of native wetlands were drained. Many that remained were minus trees but have since been invaded by pest plants such as crack and grey willow.

Despite the loss, there are still three distinctive types of wetland forests: swamp forest, peatland forest and intertidal forest.

Swamp forests – wetland giants

Kahikatea is the dominant swamp forest species and our tallest native tree, growing to heights of 60 metres or more, with trunks measuring up to 2 metres across. In fertile, seasonally flooded areas, kahikatea trees grow densely on matted roots and silt, along with swamp maire, pukatea, cabbage trees, pōkākā, and occasionally rimu. Dead plant matter and silt slowly builds up under kahikatea forest, allowing shade-loving dryland trees like tawa and tītoki to flourish. But every so often, powerful floods flatten the drying forest, creating a well-lit, damp nursery for young kahikatea, and resetting the course to swamp forest.

Healthy swamp forest is the home to secretive birds such as the Australasian bittern, marsh crake, spotless crake and banded rail, and may support short- and long-finned eels, and various species of kōkopu and mudfish.

Some facts about kahikatea:

- Today, only 2 per cent of kahikatea forest is thought to remain.
- Also called white pine, *Dacrycarpus dacrydioides*, kahikatea are found only in New Zealand.
- Both male and female trees exist, and seeds are distributed by birds.
- Dating back to the Jurassic period, they are able to live for 500 years or more.
- Kahikatea is the only native conifer that doesn't produce resin (which made it ideal for butter boxes, a trait that hastened its demise).

Peatland forests: cool characters

Peatland forests occur in the cool uplands on the central volcanic plateau, the rain-drenched lowlands of the South Island's west coast, and on blustery Stewart Island. They grow in poorly drained areas where high rainfall and low temperatures hinder the activity of microbes, allowing thick beds of undecomposed plant matter (peat) to build up.

The most common peatland forest tree is silver pine (manaoa, *Manoao colensoi*). Found throughout New Zealand, it typically grows in cooler areas on poorly drained, leached soils, forming forest stands in the western South Island pākihi. In the sodden, infertile soil and cool climate, silver pine may reach just 15–20 metres.

Silver pine is often joined by other conifers, such as yellow silver pine (*Lepidothamnus intermedius*), mountain celery pine (*Phyllocladus alpinus*), and the shrubby pink pine (*Halocarpus biformis*), sporting an understory dominated by shrubby rōhutu (*Neomyrtus pedunculata*) and bush lily (*Astelia fragrans*).

Some facts about silver pine:

- It's the only representative of its genus with no related species.
- It has very different juvenile and adult leaves.
- It can grow as shoots from the roots of old trees.
- Silver pine grows slowly, forming dense timber, once highly sought after by European settlers for fence posts, poles and railway sleepers.

Intertidal forests: northern coast guards

The mangrove (manawa, *Avicennia marina subsp. australasica*) is New Zealand's only tree able to live in the sea. Flooded twice daily with salty or brackish water, they are then left standing high and dry as the tide recedes. Mangroves form dense intertidal forests in sheltered harbours in the subtropical north of New Zealand's North Island. Since they are sensitive to frost, they reach only as far south as Ōhiwa Harbour in the Bay of Plenty on the east coast, and Aotea and Kāwhia harbours on the west coast.

In the soft muddy or sandy bottoms of estuaries, their trunks and peg roots form ideal surfaces for algae, barnacles, oysters, sponges, and bryozoans to settle on. Mud crabs and snails feed on decaying mangrove leaves, releasing nutrients for other bottom feeders. Mullet, flounder, and young kahawai swim among the tangle of trunks, branches and roots at high tide, while rare banded rail and marsh crakes feed under the dense canopy as the tide recedes.

Mangroves are often seen as barriers to recreation, yet they play an important role in our intertidal ecosystems. They also help guard our shoreline from storm surge damage, and trap contaminants washed off our roads and roofs, reducing the amount released into the sea.

Their peg roots allow them to 'breathe' in oxygen-depleted mud. Seeds produce buoyant coats and roots before falling from the tree, ready to float off on the tide and settle far away, while 'sacrificial' leaves accumulate excess salt and drop off helping the plant cope with saline water.

Looking after wetland forests

While most of our peatland forests are now in reserves, many swamp forests remain as fragments on private land. Some have protective covenants but all require ongoing weed and animal pest control to help ensure they last for future generations to enjoy.



Black stilt, [New Zealand Birds Online](#), courtesy Kathy Reid

From '[Australasian bittern/matuku](#)', DOC:

The endangered Australasian bittern, or matuku, inhabits wetlands throughout New Zealand. DOC is focusing on developing methods for surveying bittern systematically and for restoring wetlands.

New Zealand status: Native

Conservation status: Threatened–Nationally Critical

Population: Fewer than 1000 in New Zealand

Found in: Wetlands in New Zealand, Australia, New Caledonia

Threats: Habitat loss, predation, disturbance

Sound recordings: [Australasian bittern/matuku territorial call](#) (MP3, 1886K)
(02:00 – Booming call)



Australasian bittern, [New Zealand Birds Online](#), courtesy of Imogen Warren

- Matuku are important to Māori. They appear in language as part of legends, stories, early pictures and metaphor and there are numerous place names referring to them. They were important for food and their feathers were used for ceremonial decoration.
- When Europeans arrived, they were abundant, but now it is rare to see more than one at a time. Australasian bittern are also found in Australia and New Caledonia, but populations there have declined dramatically and they are now classed globally as endangered.
- In New Zealand, they are mainly found in wetlands of Northland, Waikato, East Coast of the North Island, and the West Coast of the South Island. The most important site nationally for matuku is Whangamarino Wetland in the Waikato.
- Matuku are a potential indicator of wetland health because they are dependent on the presence of high-quality and ecologically diverse habitats and rich food supplies.



[‘Whangamarino Wetland’](#), Te Ara: The Encyclopedia of New Zealand

This 7000-hectare mosaic of swamps, fens and peat bogs makes up the Whangamarino Wetland. Nearby are the historically significant sites of Whangamarino Redoubt, Meremere Redoubt and Te Teoteo’s Pā.

What is a wetland?

From [‘Wetlands’](#), DOC:

Wetlands are areas where water is the primary factor controlling the environment and associated plant and animal life. They can be freshwater or estuarine (located at the coast with brackish water), or both.

Wetlands are where the water table is at or near the surface of the land, or where the land is permanently or temporarily (as with the tides) covered by water. Although once thought of as mosquito-filled swamps or bogs, wetlands actually perform many valuable functions.

Wetlands act like the kidneys of the earth, cleaning the water that flows into them. They trap sediment and soils, filter out nutrients and remove contaminants; can reduce flooding and protect coastal land from storm surge; are important for maintaining water tables; and also return nitrogen to the atmosphere.

In the past, those soggy areas of land were often drained and ‘put to better use’, but now we know they are essential and one of the world’s most productive environments.

In New Zealand, they support the greatest concentration of wildlife compared to any other habitat.



Pekapeka Wetlands, Hastings, Hawke's Bay; [‘Pekapeka Wetland’](#), Wikipedia

Human activity provides most threats to New Zealand's remaining wetlands.

Threats include:

- Sand and gravel extraction causes changes in water levels, damages existing vegetation and provides access for weeds.
- Reclamation of lake and river margins, lagoons and estuaries, and draining of farm swamps, reduces wetland areas.
- Pollution by excess run-off of sediment and nutrients from farmlands.
- Plant and animal pest invasion.
- Stock grazing in wetlands and surrounding catchments damages vegetation decreases soil stability and contributes to pollution.
- Careless recreation practices, including misuse of jet-skiing, hunting, kayaking, power boating and whitebaiting, disturbs plant and animal life and may destroy parts of the physical wetland environment.
- Forest harvesting close to wetlands may damage wetland vegetation and cause erosion.
- Loss of vegetation in surrounding catchments allow excess sediment to run directly into wetlands.
- Pine forests draw water away from ground water systems, leaving depleted supplies, and poorly managed farming practices cause sediment and/or fertiliser run-off.
- Wetland drainage for urban or rural development.

Further information:

['Wetland Plants and Water Quality'](#) YouTube – in this video, ranger Lorraine Cook takes her shoes and socks off to tell us about the benefits of wetland plants

Environmental benefits

Extract from [‘Why wetlands are important’](#), DOC:

Water quality: Wetlands improve water quality. As water moves into a wetland, the flow rate decreases, allowing particles to settle out. The many plant surfaces act as filters, absorbing solids and adding oxygen to the water. Growing plants remove nutrients and play a cleansing role that protects the downstream environments.

Flood control: Wetlands can also reduce the impacts of flooding, as they can absorb heavy rain and release water gradually. Downstream, water flows and ground water levels are also maintained during periods of low rainfall. Wetlands help stabilise shorelines and riverbanks.

Wildlife habitat: Many wetland plants have specific environmental needs and are extremely vulnerable to change. Some of our endangered plant species depend totally on wetlands.

Wetlands support great concentrations of bird life and far more species than a similar forest area. The survival of threatened species such as the Australasian bittern, brown teal, fernbird, marsh crake and white heron relies on remnant wetlands.

Native fish need wetlands, too. Eight of New Zealand’s 27 species – īnanga, short-finned eels, kōkopu and bullies are found in wetlands, while the whitebait fishery depends on the spawning habitat offered by freshwater wetlands. The decline in native fish populations is directly related to massive reductions in freshwater habitat.

Waikato wetlands

From [‘Waikato wetlands’](#), DOC:

- Three of only six wetlands in New Zealand recognised as being internationally important are in the Waikato: Firth of Thames, Whangamarino and Kopuatai Peat Dome.
- Wetlands were once a widespread feature of the landscape within the lower Waikato Basin and Hauraki Plains, but today less than 20 per cent of the original freshwater wetlands remain.
- On the Hauraki Plains, wetlands are restricted to areas associated with the Piako and Waihou rivers and the peat domes at Torehape and Kopuatai; in the Lower Waikato Basin there is a mosaic of shallow lakes and mineralised swamps all connected to the Waikato River, while the Hamilton Basin has a unique assemblage of peat lakes and remnant peat domes.
- Two of these – Whangamarino and Kopuatai Peat Dome – are freshwater wetlands and the Firth of Thames is tidal. They are listed under the Ramsar Convention on Wetlands, an international treaty administered by the Ramsar Secretariat hosted by the World Conservation Union.

Firth of Thames

- The Firth of Thames is a wetland of international significance. The site includes shallow estuarine water and mudflats, shell banks, grass flats, mangrove forest, saltmarsh and limited freshwater swamp margins.
- The shell banks between Miranda and Kaiaua are an example of a Chenier plain, a unique landform that is rare globally.
- The Firth of Thames is one of New Zealand’s three most important coastal stretches for shorebirds.

Ramsar site no. 459

Extract from [‘Firth of Thames’](#), DOC:

Listed: 29 January 1990

Location: 52 km southeast of Auckland

The shallow tidal flats of the Firth of Thames/Tikapa Moana exposed at ebb tide cover approximately 8500 hectares. The shell banks between Miranda and Kaiaua are composed principally of the fossilised shells of cockle *Austrovenus stutchburyi*. These shell banks, as well as grass flats, are used as high tide roosts by many birds.

The intertidal mud and sand flats extending from Thames to Miranda offer extensive feeding opportunities for wader and waterfowl and the flourishing and expanding mangrove and salt-marsh communities buffering the sea from the land, provide alternative habitats for rails and nursery areas for marine fish.

The Firth of Thames is one of New Zealand’s most important expanses of coast for shorebirds. Seventy-four species, many rare or uncommon, have been recorded at this site.

These include one grebe, five cormorants, four herons, one spoonbill, seven members of the Anatidae family, one gallinule, two oystercatchers, six plover, 27 members of the Scolopacidae family (curlews, whimbrels, godwits, snipes and sandpipers), two stilts, two skuas, and seven gulls and terns.

Most of the bird species using the intertidal mud and sand flats or adjacent shallow waters are migratory, a large proportion coming from the northern hemisphere to spend their winter season (New Zealand summer) in the Firth of Thames.



White-fronted tern, Clarence River mouth, Kaikōura; [New Zealand Birds Online](#), courtesy of Derek Templeton

- The most abundant species in this area are the eastern bar-tailed godwit (*Limosa lapponica baueri*) from the Arctic, and lesser knot (*Calidris canutus cantus*) from Siberia. Some endemic species that breed in the South Island – such as the South Island pied oystercatcher (*Haematopus ostralegus finschi*), pied stilt (*Himantopus himantopus leucocephalus*) and wrybill (*Anarhynchus frontalis*) – winter over in the Firth of Thames. New Zealand dotterel (*Charadrius obscurus*) and black stilt (*Himantopus novaezelandiae*), both of which are endangered, regularly visit the area in small numbers, and the dotterel is known to nest at Miranda.
- The average number of waders present in the area over the year is 25,000, while the total number present may peak at as many as 40,000 migratory birds during the summer months.
- The Firth of Thames provides an important fishery of local significance with flounder and snapper the main species caught, as well as incidental catches of other species such as sandshark.

New Zealand migrants

Extract from '[Shorebirds at Pūkoro](#)':

At Pūkoro: January–June

Pūkoro plays an important role in bird migration systems within New Zealand. Birds that breed in the South Island head north early in the new year to feed at Pūkoro.

Fun fact: wrybill are endemic to New Zealand and are the only bird in the world with a beak that curves to the side. More than 2000 are seen annually.



Wrybill, non-breeding adult showing tongue, Boulder Bank, Nelson;
[New Zealand Birds Online](#), courtesy of Rebecca Bowater



Shore plover, Rangatira Island, Chatham Islands; [New Zealand Birds Online](#), courtesy of James Russell

Extract from '[Shore plover](#)', New Zealand Birds Online:

The shore plover is a small, colourful shorebird currently found only on a few predator-free islands in the Chatham Islands and around mainland New Zealand. It is one of the world's rarest shorebirds, with a global population in early 2016 of approximately 175 adults (including about 70 breeding pairs). Intensive management has gradually reduced the risk of extinction; birds now breed at four sites in the wild but have proved very vulnerable to predator incursions.

New Zealand status: [Endemic](#)

Conservation status: [Nationally Critical](#)

Other names: New Zealand shore plover, tūturuatu, tuturuatu, sand plover, shore dotterel

Arctic migrants

Extract from '[Shorebirds at Pūkorokoro](#)':

At Pūkorokoro: September–March

Each autumn, birds fly across the world from New Zealand to the tundra of Eastern Siberia and Alaska. There they breed, raise their chicks, and then return to our shores. These birds are known as Arctic migrants.



Thousands of shorebirds can be seen on the shellbanks and tidal flats at Pūkorokoro Miranda. Some species, such as the godwit, migrate annually between New Zealand and the Arctic.

Other birds, like the wrybill and South Island pied oystercatcher migrate within New Zealand. Still others, including pied stilts, New Zealand dotterel and variable oystercatchers, are resident in the area and breed here.

Also present in smaller numbers:

- [Whimbrel](#)
- [Sharp-tailed sandpiper](#)
- [Pectoral sandpiper](#)
- [Marsh sandpiper](#)
- [Curlew sandpiper](#)
- [Red-necked stint](#)

Sometimes seen:

- [Lesser sand plover](#)
- [Greater sand plover](#)
- [Broad-billed sandpiper](#)
- [Terek sandpiper](#)
- [Semipalmated plover](#)
- [Red-necked phalarope](#)
- [Ruff](#)



Adult eastern curlew, Ruakākā; [New Zealand Birds Online](#), courtesy of Scott Brooks

Fun fact: only one or two eastern curlews are seen a year.

Other useful information:

Extracts from '[Taonga of an Island Nation: Saving New Zealand's birds](#)', Parliamentary Commissioner for the Environment:

- Field, river and coastal birds that live in open country, in rivers and lakes, and along coasts can be placed into 10 groups – birds of prey; rails; ducks and swans; grebes; herons, bitterns and spoonbills; kingfishers; shags; waders; gulls and skuas; and terns.
- New Zealand has three remaining birds of prey.
- The ruru (morepork) and the kāhu are both in better population health than the kārearea.
- Rails are small–medium-sized birds that live largely in or around wetlands. Takahē, weka and pūkeko are the most well-known of the eight rails. The takahē and the pūkeko stand in direct contrast, although both belong to the same family – the takahē has been nursed back from the brink of extinction, while the irascible pūkeko is thriving.
- There are eight native duck species living in rivers and lakes, and one recently arrived swan species from Australia. The two duck species on subantarctic islands are endangered. On the mainland, the pāteke (brown teal) is in some trouble.
- Grebes are freshwater diving birds. There are two species in New Zealand – the endemic weweia (dabchick) is faring better than the pūteketeke (Australasian crested grebe).
- New Zealand is home to three species of herons, one bittern and one spoonbill. The exceptionally beautiful kōtuku (white heron) has always been rare in New Zealand, but is common in some other countries. Only the matuku moana (white-faced heron) is doing okay.
- The kōtare (sacred kingfisher) is New Zealand's only native kingfisher. The population is widespread and in good shape.
- There are 13 species of shags or cormorants in New Zealand, and nine of these are endemic. Three live primarily in rivers and estuaries, and the remainder live primarily on the coast. All but one of the marine shag species are endemic, and only one – the spotted shag (kawau tikitiki) – is doing okay.

- Oystercatchers, dotterels, snipes, stilts and some others can be put into a group of 16 mostly endemic wading birds that range across the coast, wetlands and riverbeds where many nest. All are vulnerable except two – the poaka (pied stilt) and the recently arrived spur-winged plover. The kakī (black stilt) is regarded as a taonga species by Māori and is Nationally Critical.
- There are three gull and one skua species in New Zealand. While the large and aggressive black-backed gull (karoro) is in good shape, the much smaller endemic black-billed gull (tarāpuka) is the most threatened gull in the world.
- The eight tern species and one species of noddy in New Zealand are all vulnerable. Only one – the black-fronted tern (tarapirohe) – is endemic, and it is in serious trouble.

Design activity

Design a shaped linocut that shows the impact of humans on the land or the sea.

Make a frame drawing and three sharpie drawings that will be combined to make your print design.

Dos:

- ✓ Make freestanding images
- ✓ Make images that show form
- ✓ Make realistic images
- ✓ Use line to articulate form

Don'ts

- × Make flat images
- × Make images that are too cartoony
- × Make images that are cut off at weird points

Design ideas

- War – uniforms, muskets, barbed wire, guns, grenades, war horses, gas masks, bombs, planes
- Frames – tyres, river, animal, bird, landscape
- Tools – saw, matches, guns, bombs, planes, tanks, axe
- Commerce – money, barcodes, fences, factories, credit cards
- Human impact on land – market garden, rivers, steel mill, mining, quarries, tyres, plastics bags, oil, petrol, fire

Land

- Farming
- Agriculture
- Horticulture
- Colony hive collapse bees
- Farm run-off polluting rivers
- Mining
- Big business/polluting factories
- Smog
- Cities
- Rubbish dumps
- Toxic waste
- Hauraki Gulf getting blocked up
- Endangered species birds and plants
- Kauri dieback
- Endangered trees

Deforestation

- War
- Cars
- Hunting
- Planes
- Oil fields
- Animal habitat disappears
- Nuclear disaster
- Colonisation
- Pandemics
- Light pollution
- Wetland loss for farming

Sea

- Over-fishing
- Global warming
- Plastic waste
- Coral die-off
- Whaling
- Driftnets
- Oil spill
- Migration paths disrupted
- Eel spawning / dammed rivers
- Pollution
- Radioactive waste
- Noise pollution
- Dredging

The Scars of Papatūānuku

More Print Artist Examples



Gabrielle Belz, *Ka Tu Tonu (II)*, 2015
unframed print
courtesy of Kura Gallery



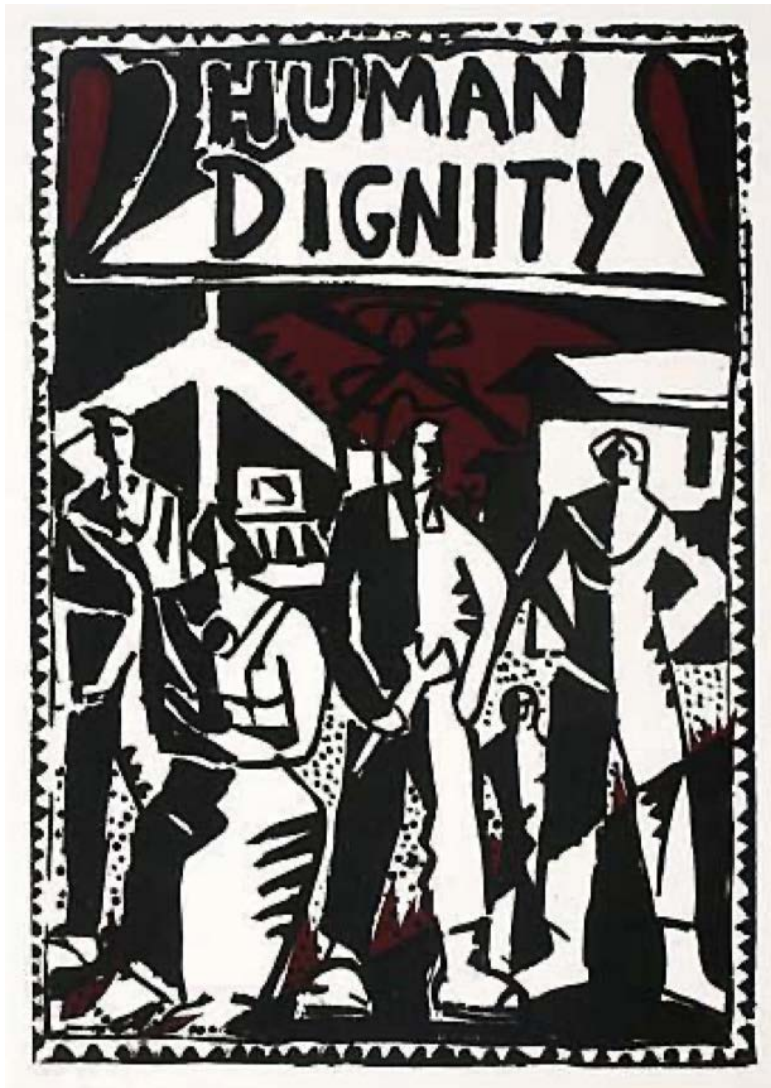
Gabrielle Belz, *Ka Tangi nga Manu*, 1999/2020
reduction linocut, some hand colouring
courtesy of Space Studio and Gallery



Nigel Brown, *This Small Tree*, 1982

linocut

image courtesy of Nigel Brown and Susan McLaughlin



Nigel Brown, *Human Dignity*, 1985

silkscreen

Auckland Art Gallery Toi o Tāmaki, purchased 1985

image courtesy of Nigel Brown and Susan McLaughlin

[‘Linocuts’](#), Nigel Brown



Marilynn Webb, *Shadows in the Water 3*, 1988
etching and aquatint (intaglio print)
Auckland Art Gallery Toi o Tāmaki, purchased 1989
image courtesy of the artist © Marilyn Webb

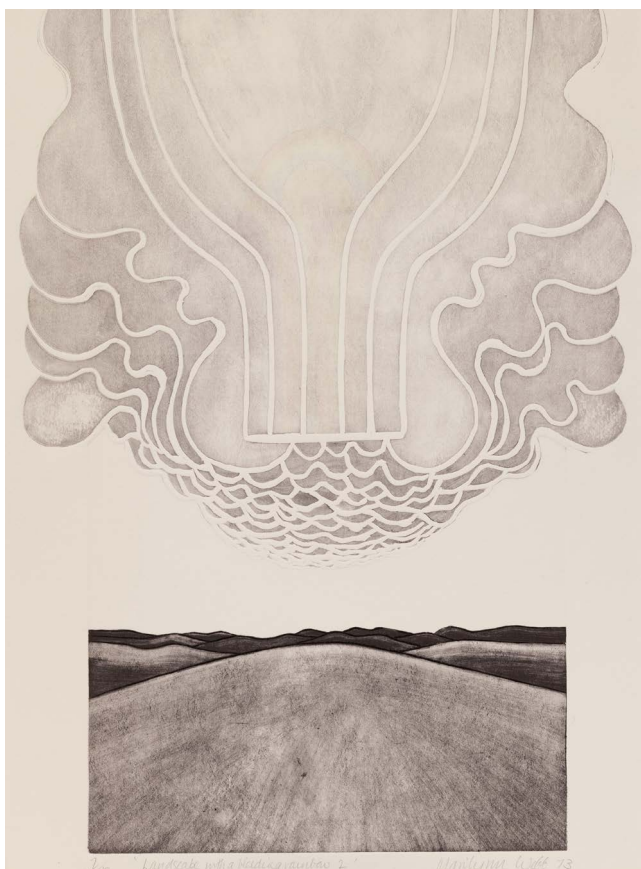


Marilynn Webb, *Dust Cloud Central Australia*, 1970

linoleum etching

Auckland Art Gallery Toi o Tāmaki, purchased 1970

image courtesy of the artist © Marilyn Webb



Gabrielle Belz, *Landscape with Bleeding Rainbow 2*, 1973

intaglio

Auckland Art Gallery Toi o Tāmaki, purchased 1974

image courtesy of the artist © Marilyn Webb

In these haunting etchings of southern landscapes, Marilyn Webb leaves large areas of the paper empty. Using just a few dark lines and areas of shading, she conveys a sense of weight and permanence in the land. There are rhythms, too: the repeated curling lines of cumulus ripple and hang over the hills, which slope or drop away. The Otago landscape has had an enduring presence in Webb's art. Beneath the quietude of the work lies a deeper set of issues. As Webb explains:

'These land issues involve my images in ecology, conservation, the anti-nuclear movement as well as the recording of the spiritual and ephemeral nuances that are part of living and working in Otago.'

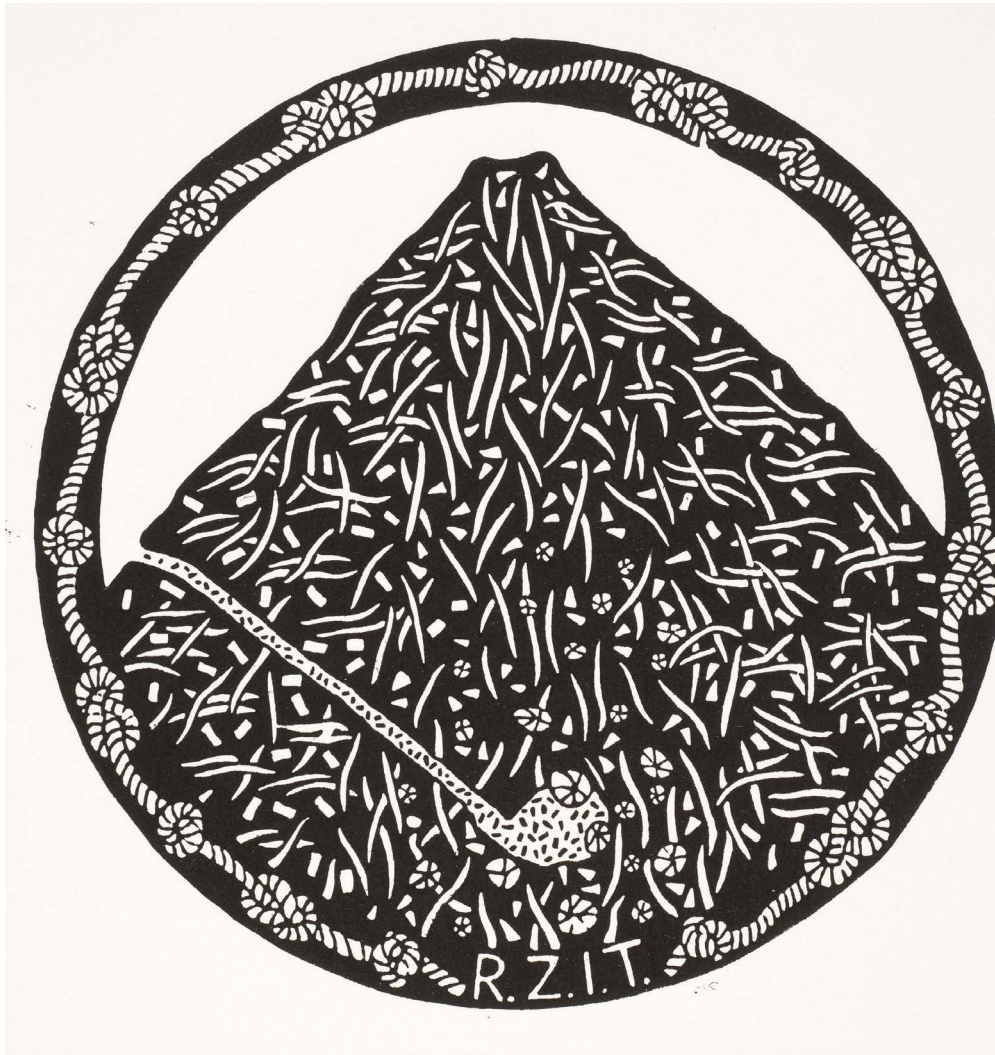
['Cloud landscape Central Otago II'](#), Auckland Art Gallery Toi o Tāmaki



Trevor Moffitt, *Bait*, 1988

linocut

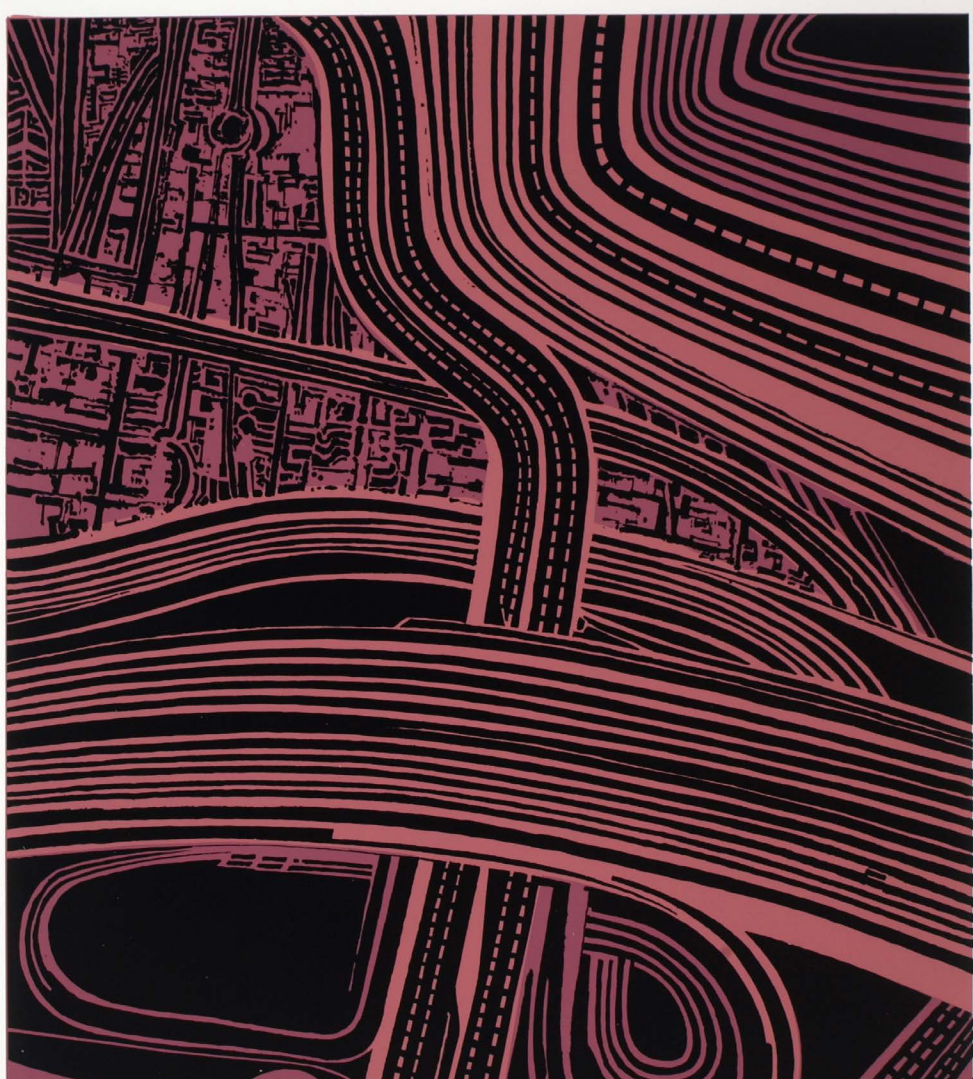
Auckland Art Gallery Toi o Tāmaki, purchased 1989



Mark Thomas, *The Ties That Bind III*, 1982

linocut

Auckland Art Gallery Toi o Tāmaki, purchased 1983



Robert Ellis, *Motorways*, 1969

screenprint

Auckland Art Gallery Toi o Tāmaki, purchased 1970



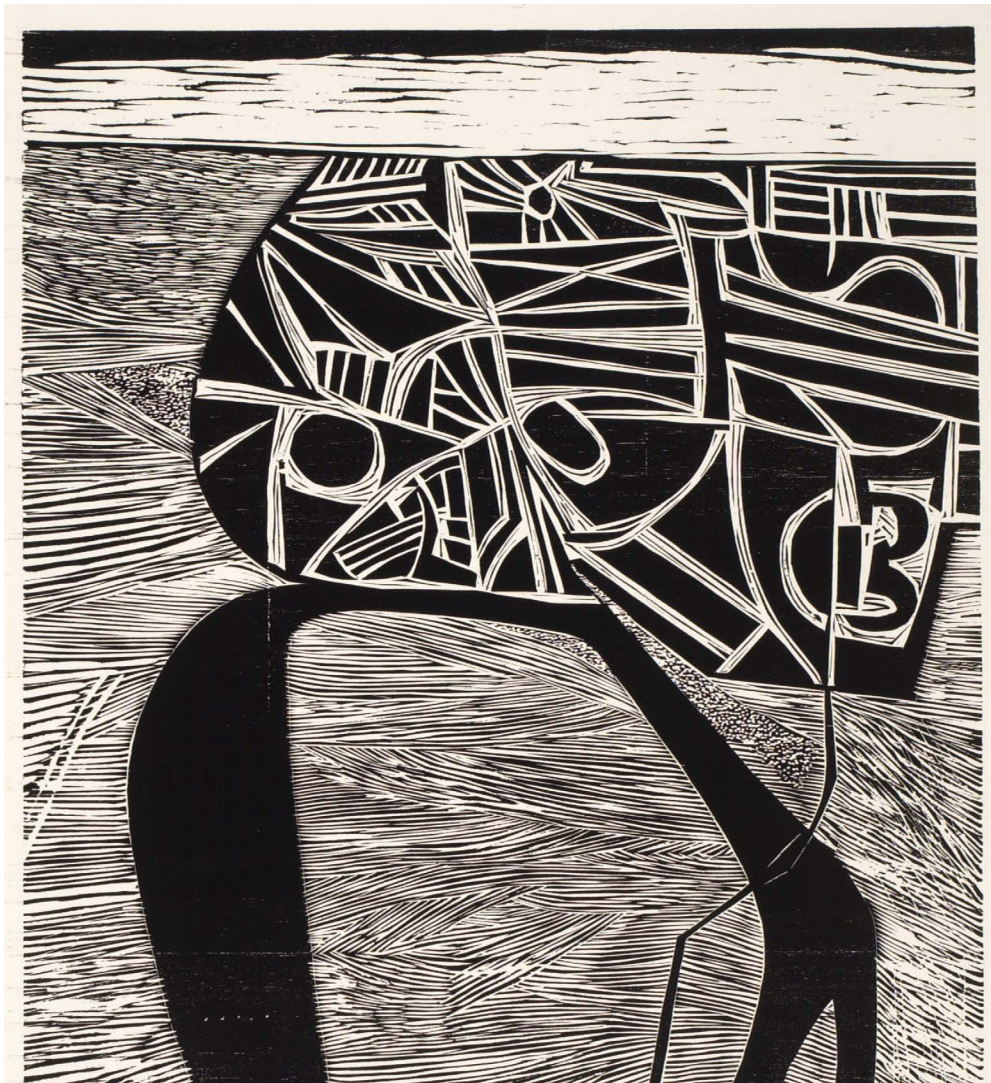
Robert Ellis, *Rakaumangamanga Turangawaewae 29 Maehe 1982, 1982*
 ink on paper
 Auckland Art Gallery Toi o Tāmaki, Chartwell Gift Collection, 2014



Robert Ellis, *City and River*, 1964

linocut

Auckland Art Gallery Toi o Tāmaki, purchased 1964



Robert Ellis, *City on a River Bend*, 1964
woodcut
Auckland Art Gallery Toi o Tāmaki, purchased 1964



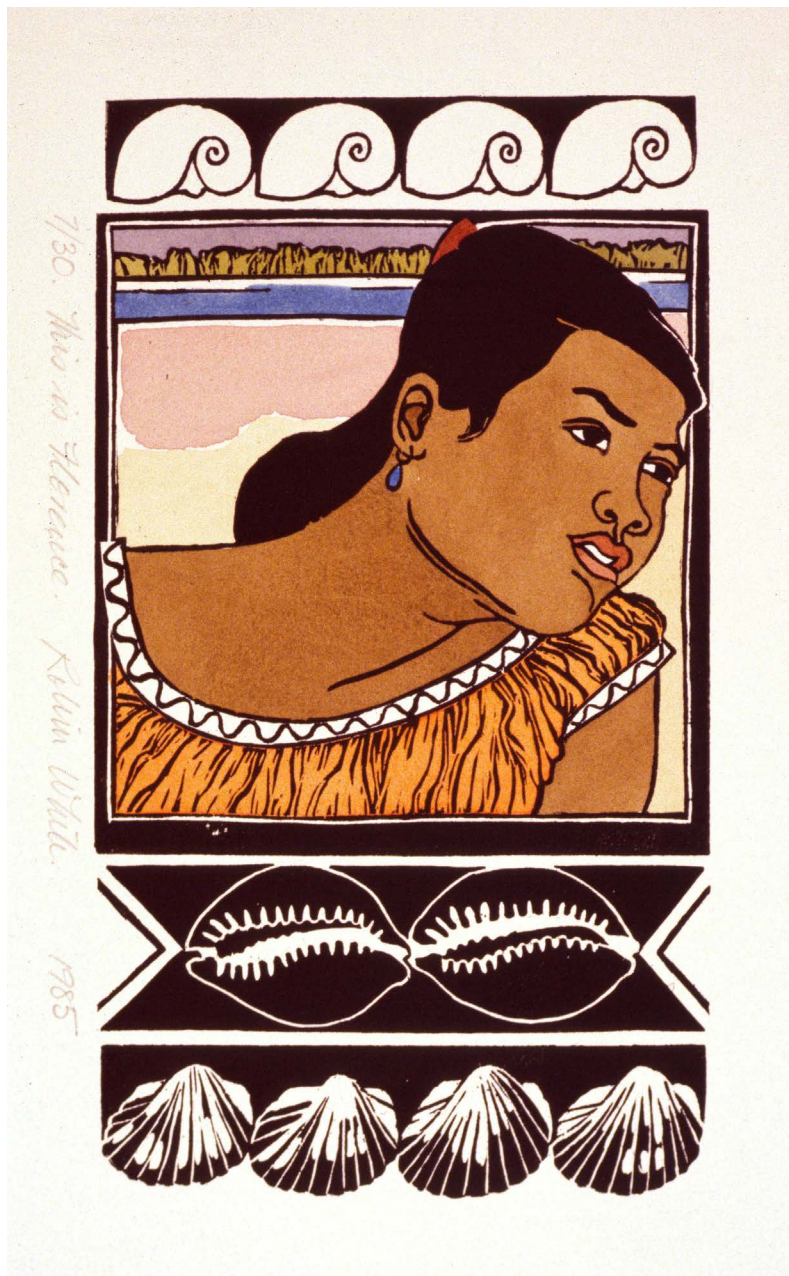
May Smith, *The Lily Gatherers*, date unknown
linocut
Auckland Art Gallery Toi o Tāmaki, purchased 1979



Bryan Smith, *Trees*, 1940

linocut

Auckland Art Gallery Toi o Tāmaki, purchased 1941



Robin White, *This is Florence*, 1985

woodcut

Collection of Christchurch Art Gallery Te Puna o Waiwhetū,
purchased 1985



Robin White, *These Two Men Are Flying A Kite*, 1985
 woodcut
 Collection of Christchurch Art Gallery Te Puna o Waiwhetū,
 purchased 1985



Robin White, *Florence With A Centipede*, 1985

woodcut

Collection of Christchurch Art Gallery Te Puna o Waiwhetū,
purchased 1985



Robin White, *On the Beach at Bikeiuehu*, 1992
woodblock
Auckland Art Gallery Toi o Tāmaki, purchased 1993



Robin White, *Getting Past the Dogs*, 1992
woodblock
Auckland Art Gallery Toi o Tāmaki, purchased 1993



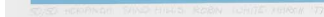
Robin White, *The Maneaba*, 1983

woodblock

Auckland Art Gallery Toi o Tāmaki, purchased 1983



Robin White, *The Canoe Is in the Bareaka*, 1983
woodblock
Auckland Art Gallery Toi o Tāmaki, purchased 1983



Robin White, *Hokianga Sandhills*, 1977
screenprint
Auckland Art Gallery Toi o Tāmaki, purchased 1977



Robin White, *Kamala and the Pyramid*, 1981
screenprint
Auckland Art Gallery Toi o Tāmaki, purchased 1981

Features of Maggie Covell prints:

- Graphic-style sharpie drawings/digital drawings
- Own drawings photocopied and collaged
- Use of geometric pattern
- Reduction woodcut/linocut or screenprint
- Symmetry and asymmetry
- Portraits, native birds, plants and flowers
- Framing, border design
- Upside-down images
- Play in scale and repetition of motifs

Subject matter:

- Play in scale and repetition of motifs
- Girls
- Native birds
- Flowers
- Native plants
- Nature
- Buildings
- Geometric pattern
- Adornments
- Hei tiki
- Figure
- Hands
- Masks
- Eyes

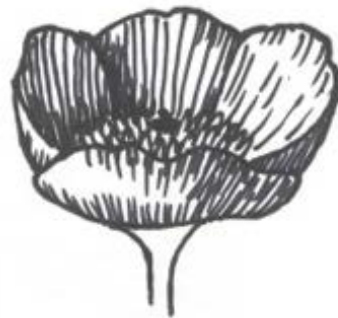
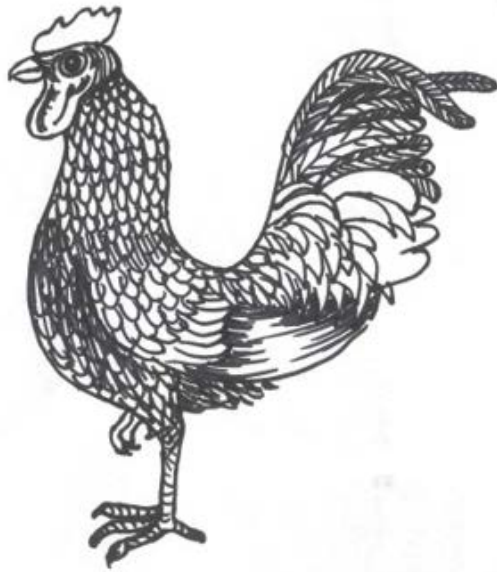
Explore the prints of these artists:

- [Kate Gorringer-Smith](#)
- [Gaby Reade](#)
- [Lynn Bailey](#)
- [Hannah Skoonberg](#)
- [Theresa Martin](#)
- [Ben Reid](#)
- [Toni Hartill](#)
- [Maggie Covell](#)

The Scars of Papatūānuku

Student Designs

Example of design development



Miss Hansen!



Miss Hansen 2.



Subject matter:

- Eyes
- Framing
- Mirror image
- Tessellation
- Symmetry
- Asymmetry
- Rotation

Student Design – Ti



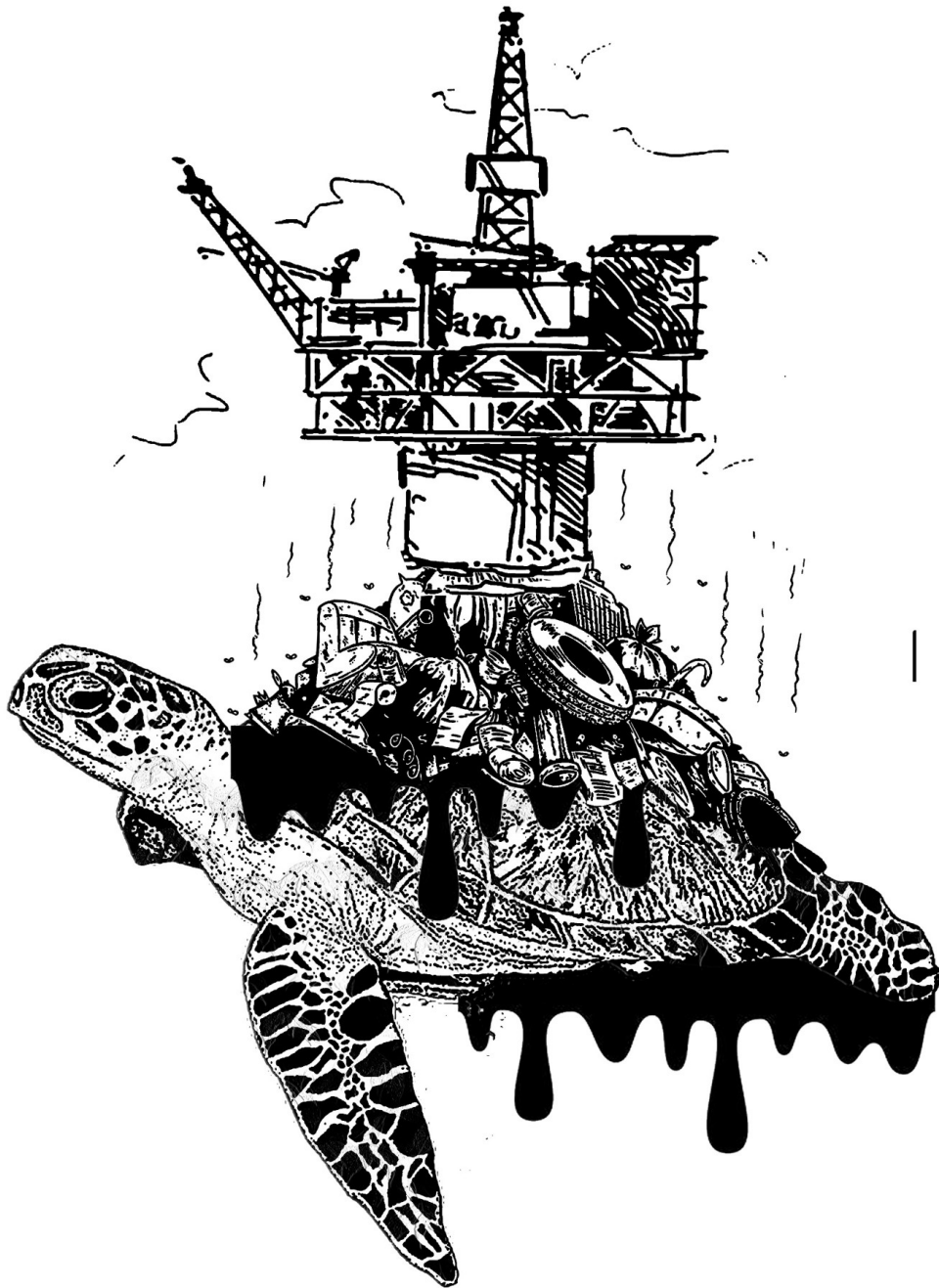
Student Design – Slade



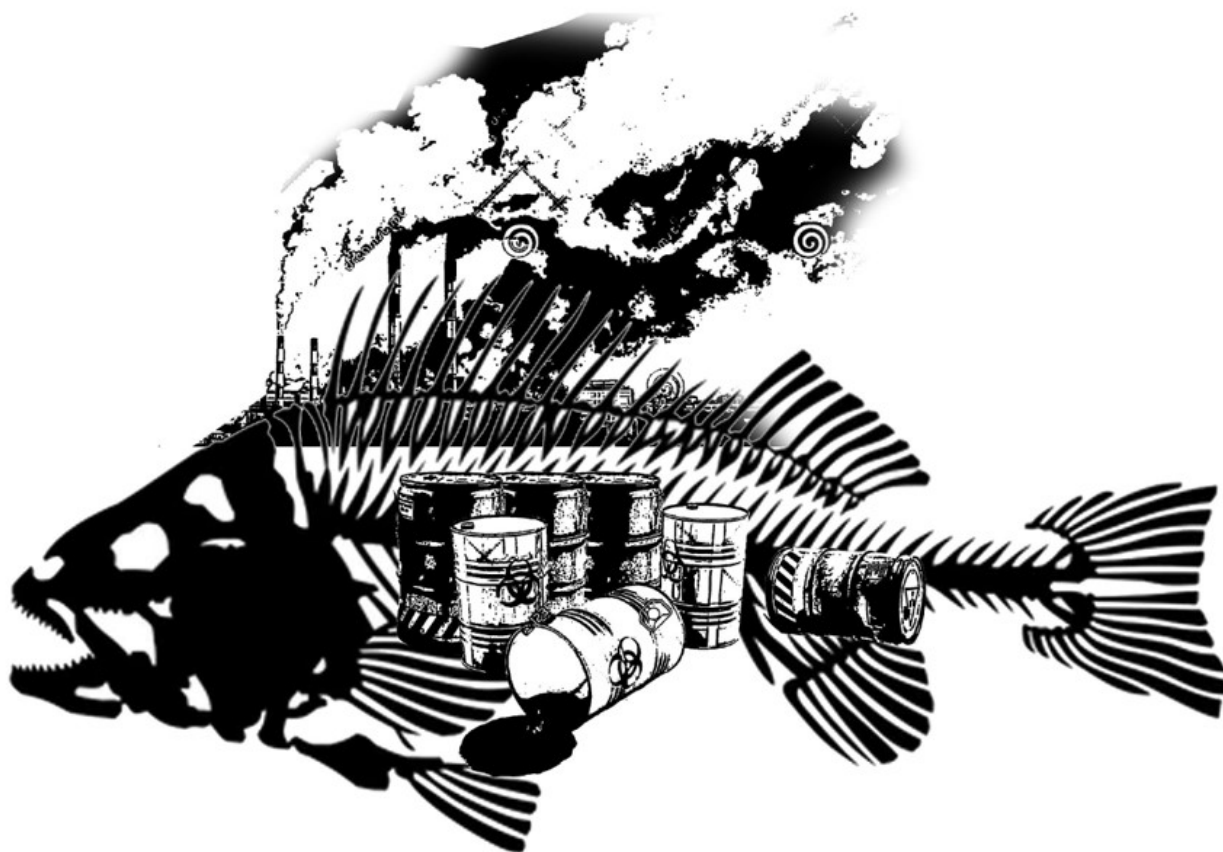
Student Design – Layla



Student Design – Indi



Student Design – Zoe



Student Design – Esther



Student Design – Sachini



**Concentrate on creating form
(create 3D roundness with your cutting lines)**



Year 10



Year 11

The Scars of Papatūānuku

Other Inspiring Environmental Artists



Shona Rapira-Davies, *There Are No Bees In My Garden*, 2020
timber wall, steel branches, wire, ornaments
Chartwell Collection, Auckland Art Gallery Toi o Tāmaki, purchased 2021



Emily Karaka, *Pandemic*, 2021
acrylic, oil and oil pastel on paper
Chartwell Collection, Auckland Art Gallery Toi o Tāmaki, purchased 2021



Andrew Drummond, *Fragile Vessels*, 1985
slate, willow, and steel
Chartwell Collection, Auckland Art Gallery Toi o Tāmaki, 1985



Lonnie Hutchinson, *Milk and Honey*, 2012

builders paper and metal pins

Chartwell Collection, Auckland Art Gallery Toi o Tāmaki, purchased 2012



Peter Madden, *Necrolopolous*, 2004

mixed media

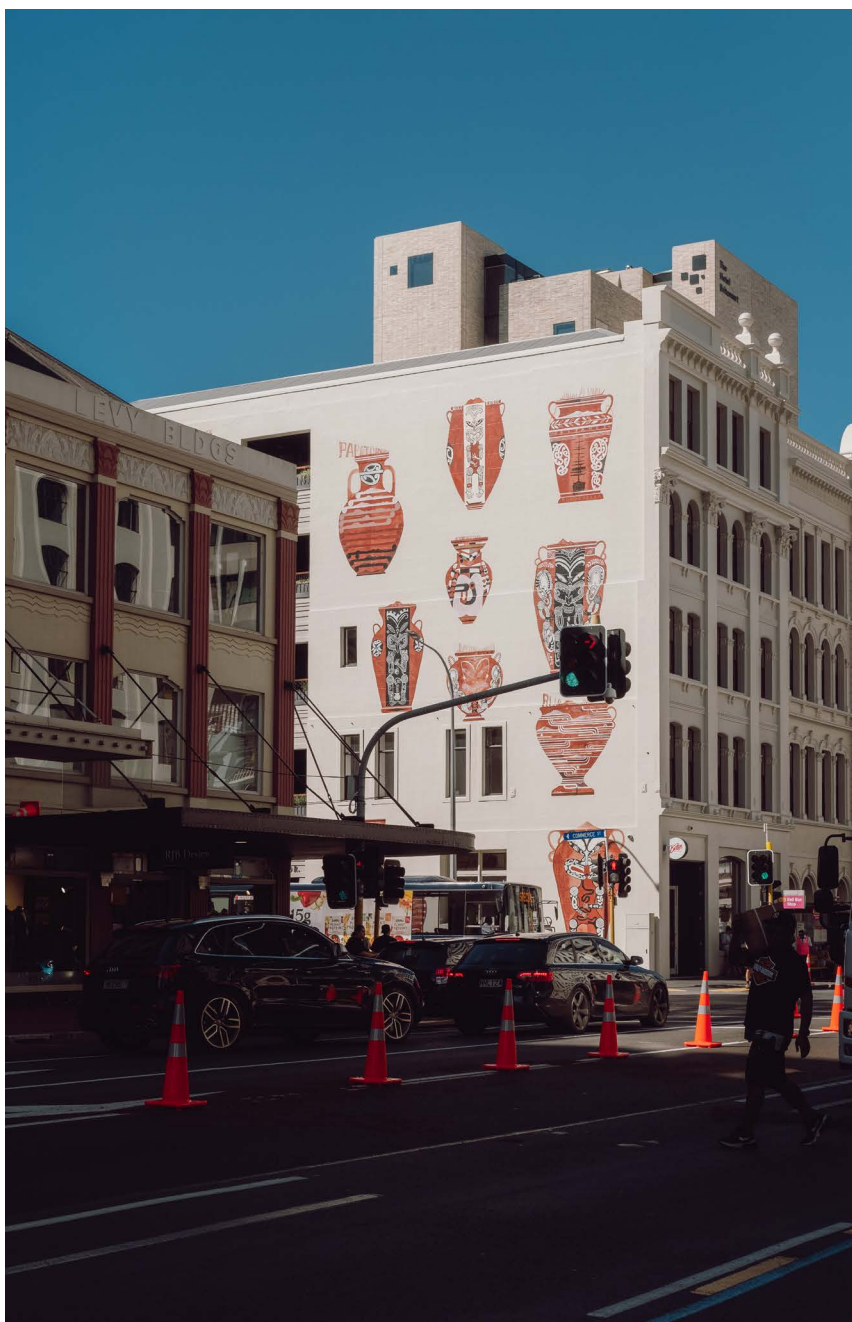
Auckland Art Gallery Toi o Tāmaki, gift of the Patrons of the Auckland Art Gallery,
2005



Peter Madden, *The Leaving*, 2008

paper cut-out on Perspex

Chartwell Collection, Auckland Art Gallery Toi o Tāmaki, 2009



Shane Cotton, *Maunga*, 2020
Britomart, Auckland
Photo credit: Russ Flatt