



Manaaki Whenua
Landcare Research

Harvest and management of introduced species by New Zealand Māori: balancing use and conservation

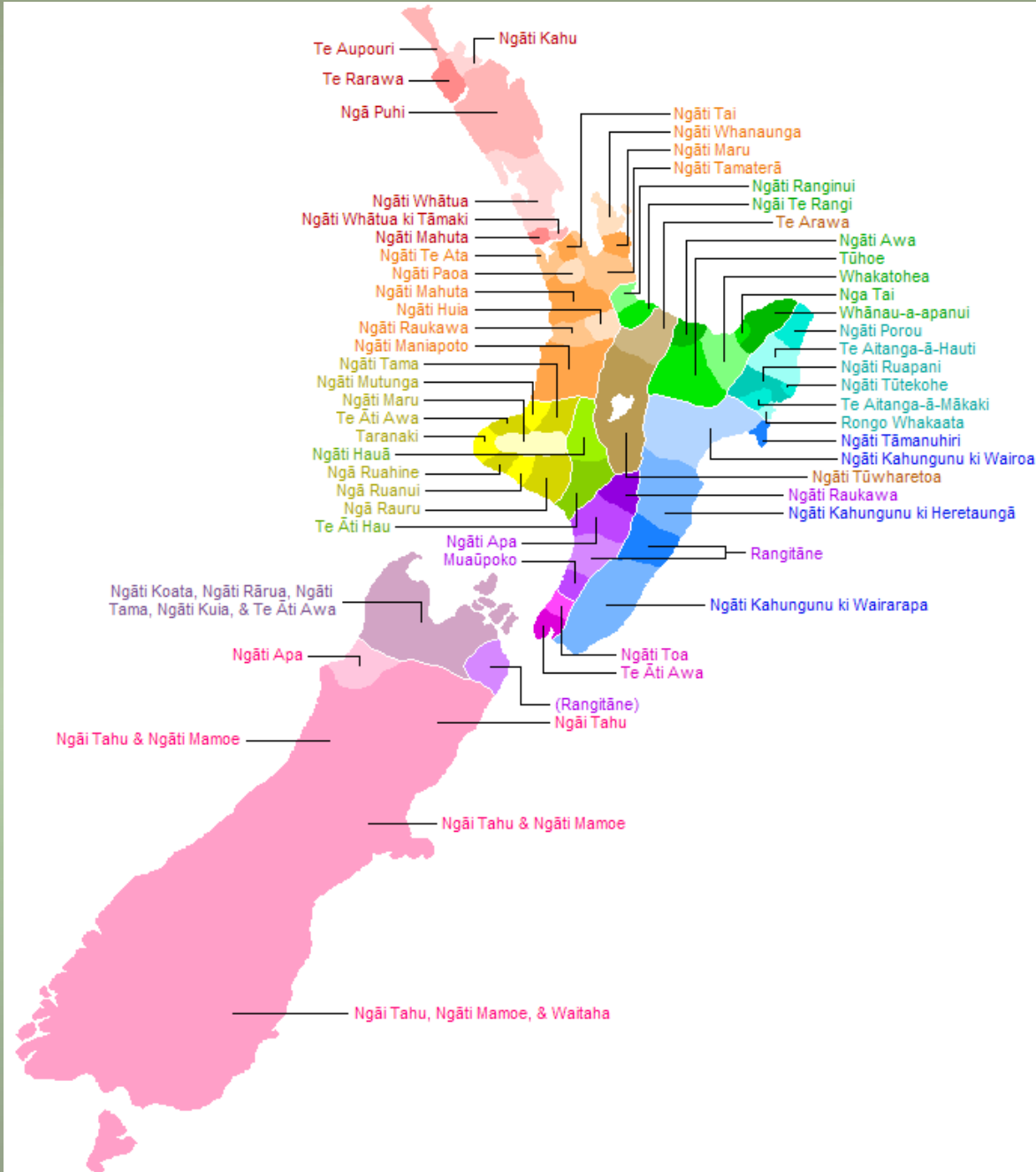
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Maanaki Whenua Landcare Research New Zealand

Māori in New Zealand

- Arrived from Polynesia in late 13th Century
- Social structure based around *iwi* (= tribes), *hapū* (= extended family/communities) and *whanau* (= family)
- Consider all elements of the natural world to be related/interlinked and descended from Io (Supreme God), Ranginui (“Sky father”) and Papatūānuku (“Earth mother”)
- Thus, elements have a *whakapapa* (genealogical linkage) with humans *teina* (junior brethren)





Māori traditional knowledge and harvest

- Humans are *part of* the natural environment
- Harvest/use guided by complex, multi-layered philosophy: *tikanga Māori* (proper and correct way) and traditional knowledge, *mātauranga*
- Some generalities, but locally/regionally-specific
- Practices, protocols and concepts to ensure appropriate and sustainable use of resources

Impacts of colonialisation on natural environments

- Europeans from 1769
- At least 32 species of mammals now present, (2 came with Māori: *kuri* and *kiore*), incl.:
 - Predators: mustelids (x 3), rats (x3), cats
 - Browsers – deer (x7), pigs, brushtail possums
- Extensive habitat change including massive declines in harvested spp.; land confiscations; access and harvest prohibitions (policy)
- Social impacts: migration to towns/cities; erosion of cultural constructs and skills associated with harvest



Invasives 1: Kiore (Pacific/Polynesian rat; *Rattus exulans*)



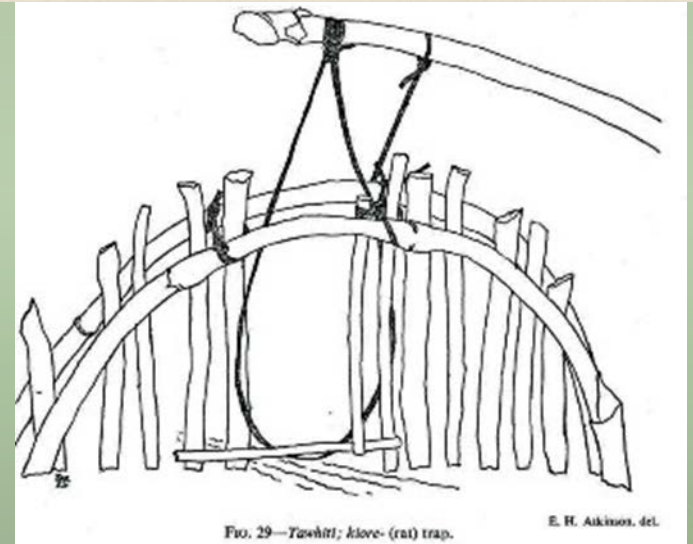
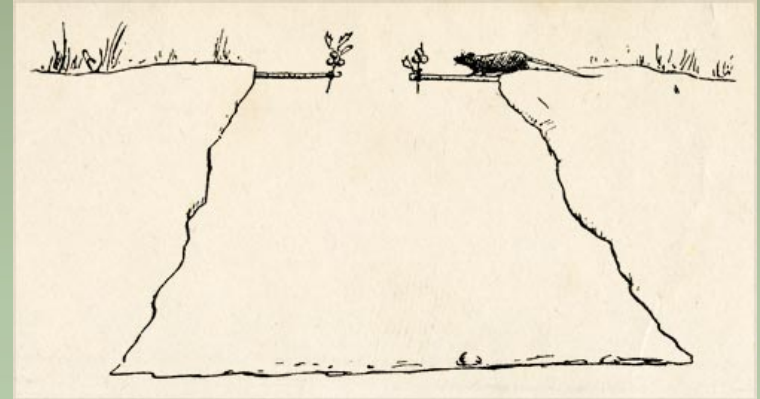
Images: DOC



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Kiore

- Arrived with Māori on waka – great spiritual and cultural significance: *kai rangatira*
- Used as both a resource (food, skins) and as environmental indicators (abundance and condition of forest fruits)
- Distribution now limited due to competition from larger rats and control programmes



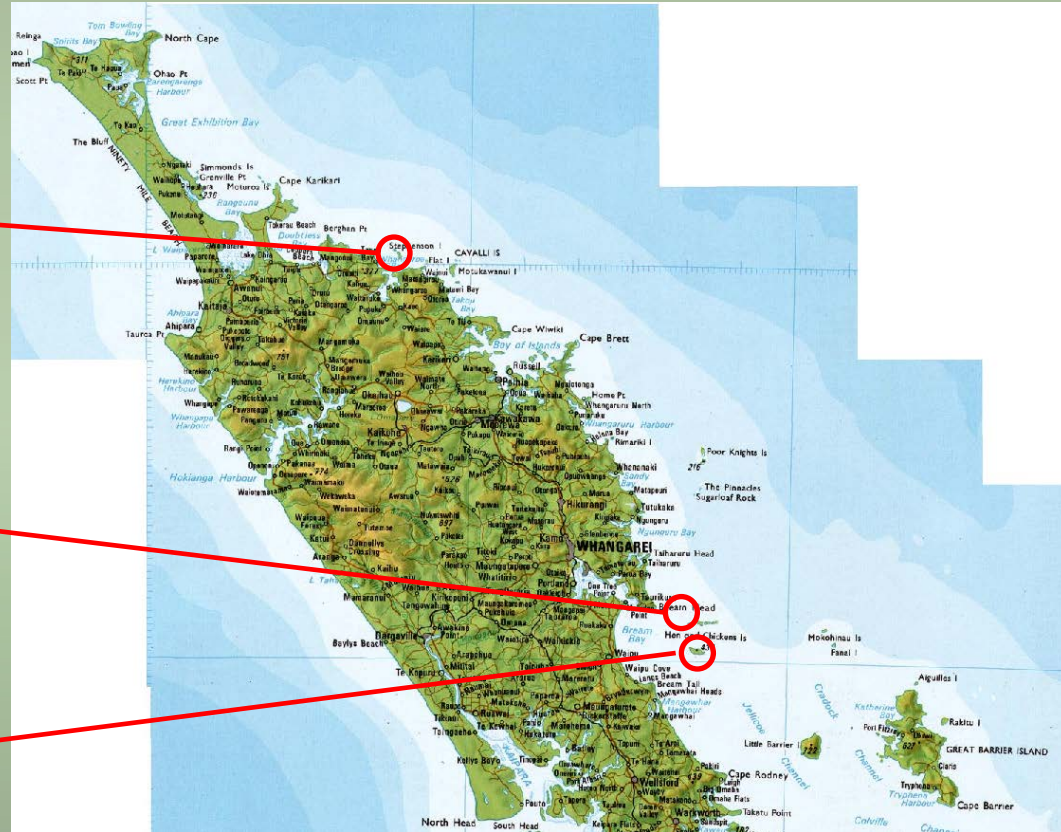
Trap images: Te Ara NZ

Perspectives: kiore on Taranga, Mauitaha and Ririwha

Ririwha Restoration Trust /Ngātīkahu ki Whangaroa : kiore eradication to protect indigenous biodiversity on Ririwha

Ngatiwai: management of kiore as a *taonga* on Mauitaha

DOC: kiore eradication to protect indigenous biodiversity on Taranga



Invasives 2: Brushtail Possum

- Common brushtail possum *Trichosurus vulpecula*
- Introduced to NZ from Eastern mainland Australia and Tasmania: 1858 onwards
- Intent – establishment of fur trade

BUT

- No competitors, parasites, predators
- Generalist habits
- Abundant suitable vegetation

So

- Widespread and abundant (30 million at 10 x Australian densities)
- Uncontrolled over large tracts of native forest (\$\$!)



Impacts

- Main wildlife vector for bovine Tb
- Selective browse on soft-leaved seral species, canopy species and fruits/flowers
- Predation on native birds' nests and invertebrates



Possum fur harvest – income and biodiversity gains?

- Central NI – large area of native forest with high possum numbers, little large-scale possum control
- Numerous small, predominantly Māori communities, low employment, low income
- Many involved in fur harvest, but few full-time employed.

Harvester interviews: current strategy and economics

- Low overheads – often sole operator (hard work!)
- Require \$150-160/day to keep trapping an area (outside contractors \$300 +)
- At the mercy of fluctuating wholesale fur prices
- Contribution to biodiversity gains?



Invasives 3: *mahinga kai*

- Loss of high value spp. e.g. kererū (fruit pigeon)
 - Pigs introduced by first Europeans, now widespread & feral in many habitats, particularly forests
 - Conservation pests: rooting damage and predation
 - Are (and have been since introduction) an important and valued food for rural Māori.
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- While local knowledge of pigs, their ecological impacts/sign etc. has developed over time, **spiritual and cultural concepts associated with traditional foods do not apply**



Image: N.Z. Herald

“New” old responsibilities: cultural redress

- 2013-14 - Landmark return of Te Urewera National Park to Tūhoe; national park status devolved
- Invasive species remain, but values may change?
- Management involves responsibilities and hard decisions:
 - Pests or resources – trade-offs?
 - Traditional perspectives and processes in a changed world?

