Student Worksheet

The use of Open Sanctuaries. Example: Tiritiri Matangi Island Conserves and Protects the Native Flora and Fauna of New Zealand

NCEA Bio 3.2 Ach Std 91602, Int Ass,3 credits.

Integrate biological knowledge to develop an informed response to a socio-scientific issue.

Biological Knowledge

Biological Concepts and Processes

1. **What are Sanctuaries:** _____ for native **plant** and endemic/native **animal species.**

2. **What does Open Sanctuary mean?** A sanctuary with endangered animals and plants (threatened fauna and flora) that_____ for the public and education groups to visit.

3. **What does a Closed Sanctuary mean?** Primary aim is to_____ and permits are required. Strict quarantine measures are in place eg Te Hauturu-o-Toi/Little Barrier Island (LBI).

4. **What is special about our biodiversity?**

5. **Why is the NZ biodiversity so different?**

6. **Why is our native flora and fauna at risk?**

7. **What are the risks?**

8. **Who poses a risk?**

Biological Implications
What has taken place on Tiritiri?

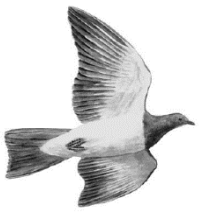
Social implications of the Use of Tiritiri Open Sanctuary

1. **economic** –

2. **ethical** -

3. **cultural** -

4. **environmental**
After 30 yrs the island is **well covered with vegetation** and has had 16 species translocated,15 of which have produced breeding populations. Tīeke - saddleback, pōpokotea - whitehead, toutouwai - Nth. Is. robin are thriving and reaching carrying capacity (S shaped growth curve).



Species that were present in 1984 who are **winners today** in terms of population numbers are: korimako - bellbird, tūī, kererū, kākāriki.
Indirect benefits from the kiore eradication in 1993 has led to an increase in tree growth, insects and skinks; the Ruakawa gecko has reappeared along with the giant centipede. Kotare - kingfisher numbers have built up due to higher populations of skinks.

Iconic species have a safe haven:-
kiwi puku puku – little spotted kiwi,
takahē
pāteke - brown teal
kōkako
tuatara
wētāpunga

Response to improved habitat and no pests:
- increase in biodiversity
- birdlife and sound very abundant
- kererū/kūkupa - NZ pigeon numbers increased 268%
- kōtare - NZ kingfisher increased 773%
- ruru – morepork – 2 prs in 1990s, 25 prs in 2018 on Tiri

Reference: *24 year OSNZ (ornithological) study on Tiri 1987-2010*

For further information, refer to the guided tour.

The Pros - Positives

The Cons - Negatives

Bias - the influence of the various science specialities ie the ologists and ists!

The botanists, zoologists, ornithologists, herpetologists, entomologists, marine biologists, ecologists, geologists, geneticists and others.

Refer to the readings - difference in opinions or viewpoints (for and against) that **named individuals, groups or organisations** have about the Use of Open Sanctuaries e.g. Tiritiri to Conserve and Protect the Native Flora and Fauna of New Zealand, consider how bias may influence these opinions.

Bibliography

Cometti R., 2008 New Zealand Through Time New Holland Publishers (NZ) Ltd

Gibbs G., 2007, *Ghosts of Gondwana. The History of Life in New Zealand.* Craig Potton Publishing

NZ Geographic No 107 Jan-Feb 2011 *Deep Secrets Discovering New Zealand's Tropical Past* P45, Mammal reference P 53.

New Zealand Journal of Ecology Special Issue Tiritiri Matangi - 25 years of ecological restoration Vol 37 No 3, 2013, New Zealand Ecological Society. http://www.nzes.org.nz/nzje/

- Galbraith M., Cooper H. 2013 *Tiritiri Matangi - an overview of 25 years of ecological restoration,*
- Mitchell N. 2013 *Tiritiri Matangi Island: what if nothing had been done?*
- Galbraith M., 2013 *Public and ecology - the role of volunteers on Tiritiri Matangi Island,*
- Baling M, van Winkel D, Rixon M, Ruffell J, Ji W, Ussher G. 2013 *A review of reptile research and conservation management on Tiritiri Matangi Island, New Zealand,*
- Parker K., 2013 *Avian Translocation to and from Tiritiri Matangi 1974-2013,* NZ Journal of Ecology Vol 37 No 3
- Cameron E.K., 2013 Davies N.C.,*Changes in the wild vascular flora of Tiritiri Matangi Island 1978-2010.*
- Craig J.L., Forbes A.R.,2013 Assessing the role of revegetation in achieving restoration goals on Tiritiri Matangi Island.
- Graham M., Veitch D., Aguilar G., Galbraith M, 2013 *Monitoring terrestrial bird populations on Tiritiri Matangi island, Hauraki Gulf New Zealand, 1987-2010.*
- Rimmer A., 2004 *Tiritiri Matangi A Model of Conservation* Tandem Press, NZ Journal of Ecology Vol 37 No 3

Bird Species ***European/Common name***	***Māori name***	***Alternative names***	***Status***	***Seen***	***Probably seen***	***Heard (not seen)***
Australasian harrier	kahu		**N O**			
bellbird	korimako		**E O**			
brown quail			**I**			
brown Teal	pāteke		**E T**			
fantail	pīwakawaka		**N O**			
fernbird	mātātā		**E T**			
grey warbler	riroriro		**E O**			
kaka	kākā		**E O**			
little spotted kiwi	kiwi pukupuku		**E T**			
kingfisher	kōtare		**N O**			
little penguin	kororā	blue penguin	**N O**			
morepork	ruru		**N O**			
NZ pigeon	kererū/kūkupa		**E O**			
Nth Is kokako	kōkako	blue-wattled crow	**E T**			
Nth Is robin	toutouwai		**E T**			
Nth Is saddleback	tīeke		**E T**			
paradise shelduck	pūtangitangi		**E O**			
red-crowned parakeet	kākāriki		**E T**			
rifleman	tītitipounamu		**E T**			
silvereye	tauhou		**N O**			
spotless crake	pūweto		**N O**			
stitchbird	hihi		**E T**			
tomtit	miromiro	Nth Is pied tit	**E Tx**			
pukeko	pūkeko	swamp hen	**N O**			
takahe	takahē	Notornis	**E T**			
tui	tūī	parson bird	**E O**			
welcome Swallow			**N O**			
whitehead	pōpokatea		**E T**			
Coastal Birds						
Arctic skua	hākoakoa		**N S**			
Australasian gannet	tākapu		**N S**			
black-backed gull	karoro	Dominican or kelp gull	**N O**			
Buller's shearwater	rako		**N S**			
Caspian tern	taranui		**N O**			
Fluttering shearwater	pakahā		**N S**			
little shag	kawau paka		**N O**			
pied shag	kāruhiruhi		**N O**			
red-billed gull	tārapunga	silver gull	**N O**			
reef Heron	matuku-moana		**N O**			
variable oystercatcher	tōrea		**E O**			
white-faced heron			**N O**			
white-fronted tern	tara		**N O**			
Others - seasonal						
long-tailed cuckoo	koekoeā		**E O**			
shining cuckoo	pīpīwharauroa		**N O**			

Nocturnal, unlikely to be seen.

In total 16 founder species initiated on Tiritiri Matangi.

The highlighted twelve bird species and the following animals were translocated to Tiritiri:

- **tuatara**
- **shore skink (mokomoko)**
- **Duvaucel's gecko**
- **wētā punga**

The tomtit translocation was unsuccessful.

Key

& T = Translocated to Tiritiri

O = Originally on Tiritiri

S = Surrounding waters

N = **Native**, breeds in NZ and other countries eg silvereye.

E = **Endemic**, restricted to breeding in one country eg kiwi in NZ.

I = **Introduced** by humans, now breeding here eg quail.

Tx = **Translocated**. No ongoing breeding population. May see visiting-vagrant tomtits on the tracks.

Take away messages to set-up a 'Tiritiri sanctuary' in your own backyard:

1. Change our behaviour – no plastics/rubbish in our seas **= SOS**
   Volunteer to look after native areas near your homes
2. Invader Free NZ – eliminate pests, weeds and any invaders