

Pīngao mahi: Ngataki school  
and Betsy Young 2021 from  
June – Dec  
- supported by Earthwise and  
Enviroschools





June

*Hinemoana, atua of the sea and fish, sea floor, female aspect of the sea*

Trip to Rarawa to learn about the pīngao rhizomes and the impact of the weather (climate change ) on the sand dunes and pīngao.





Tempest  
Murray -  
Noticing/  
observing  
and  
sketching  
Pingao





July

Learning about the directions so we can place ourselves within the environment and notice changes over time. Betsy is showing Aaliyah Rutland and Santos Cachay.



Year 8 group discussing what they notice - girls from left to right: June Potts , Savarnah Murray, Manaia Potts and Aaliyah Rutland.





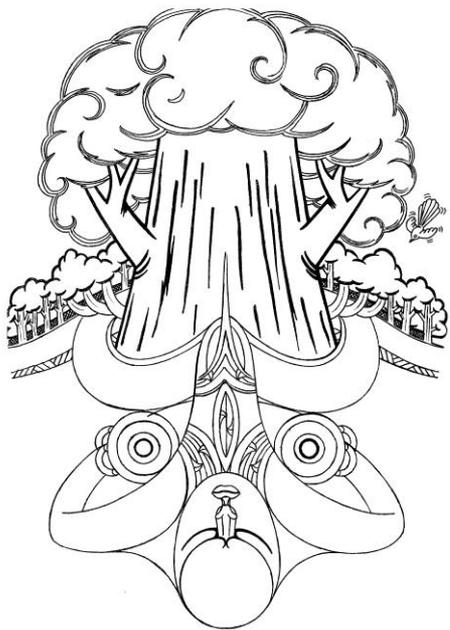
September



A visit to see/ notice any changes. - We noticed the seed heads now have petals.  
Boys standing: Santos Cachay and Watea Ashby  
Girls - Savarnah, Manaia, June



Te Hori Murray sketching and writing poetry  
Notice the wee worm/caterpillar on the seed head, we wonder if this species has a symbiotic relationship with Pingao? Can you see the yellow petals?



*Pīngao are the eyebrows of  
Tānemahuta*

# Students work

# Pīngao.

The date is September 14th and the time of the year is when the flower petals start to show and the seeds are getting close to seed collection and when it goes through its stages.

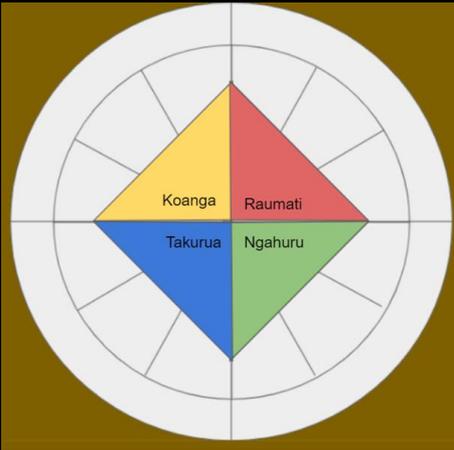
Pīngao are also believed to be the eyebrows of Tane.

Tane tried to give Tangaroa the pīngao as a sign of peace but Tangaroa never found the way to forgive him and cast them back at Tane. Pīngao (or golden sand sedge) is now a barrier that separates the two brothers from warring at each other.

On the 13 of September the years 8-9 went out to Rarawa Beach and we planted three pīngao seedlings and had Whaea Betsy teach us about pīngao. Did you know that there are 3000 seeds on a pīngao seed head and after a month's time, you need to go back to the beach and you will start to see the seeds cycle beginning. Pīngao can be 30-90 cm tall and they are endemic to New Zealand. They are what holds up the sand dunes at Rarawa beach and we discovered one species that was living on the pīngao seed heads and it was a green caterpillar. We were very curious to discover how it got there and what it was doing.



# Pīngao



Pīngao is a special plant to Ngati kuri !

Why ?

Well because it is endemic to New Zealand and holds a importance to many people. One of the elders of Ngati kuri nourish the pīngao. She goes by many names like Whaea Betsy, Nana Betsy or just Betsy. She regularly goes to the beach to check up on the cycle of the pīngao. As you may have heard pīngao is located on the coast of New Zealand! I'm not too sure if it is only in the North part of New Zealand or all over Aotearoa. Another name for pīngao is pīkau it has a huge cultural significance to Maori people who use it for weaving. The large roots from the pīngao are called rhizomes they hold up the sand dunes.

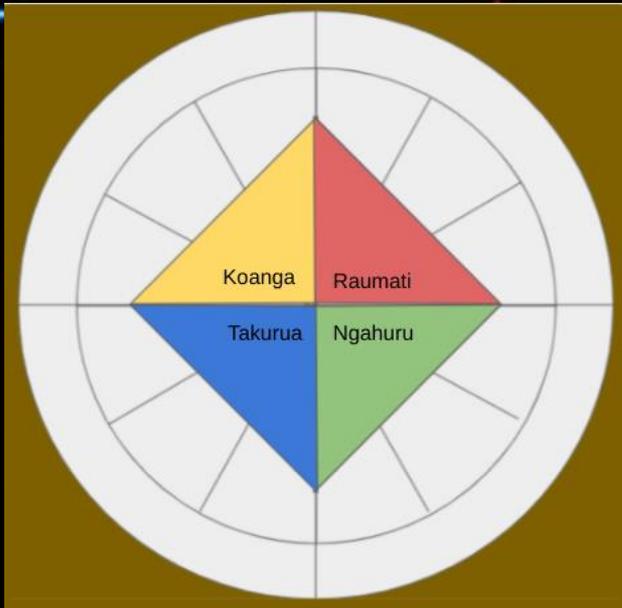
Embedded video on our morning trip to Rarawa to physically learn more about pīngao.

<https://drive.google.com/file/d/15KUBujmcPvihttwHll6dIeCmZZh21Z9I/view>

# PINGAO

## Why is Pīngao Important?

Pīngao is endemic to New Zealand and is related to us through many ways such as ,it being the eyebrows of Tane and the structural component that builds up the sand dunes. Pīngao through Māori Mythology are the eyebrows of Tane. Pīngao is a good resource/material which is sometimes used for weaving and other uses. A pīngao seed head has about 3000 seeds in each seed head.  
**WOW!**



When the seeds fall they are taken out to Tangaroa where they then germinate and are then returned to there beach where they grow into the strong structure of sand dunes. I wonder how much seeds actually germinate when taken out to ocean? When the pīngao roots which are called rhizomes are exposed to sunlight they die.

Pīngao is a gift to me because Whaea Betsy is gifting me her knowledge, she is taking her time out of her own life to teach me more about this special taonga species. I thank her.

# Pīngao !

Today 20th of September we went to Rarawa for an observation of pīngao. As we were coming Jack had found a kauri tree clump that had washed up on the shore, it had holes all around it that had a type of worm in it, it was called teredo worm, shipworm. We had gone to measure the pīngao we had planted one had grew 16cm the other 15cm and the smallest 9cm. I had noticed a few of the same species crawling along the stalk of the pīngao, it looked like a little black bug. I need to identify it so I know its name.

I wonder how long we have to keep checking on it till it can grow on its own!

The maramataka today is ohua, ohua is good for being very contributive in your learning, it is not good for not using your ears and being lazy.



# Rarawa observations

## Ohua Koanga Mahuru

Rahina-Monday 20th Sep

Ohua is good for being productive and being fully committed to your projects.



Today I noticed a small winged insect. It was black and I mainly noticed it flying from plant to plant and up and down the stalks of the pīngao.

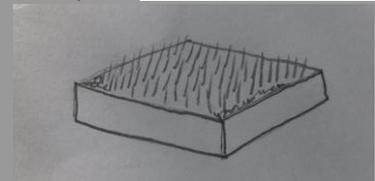
The water was beautiful and was shining in the sun. The sand was nice and cold and kept my feet from burning up. There was a subtle faint breeze that made my hair a mess. Jack showed us a big chunk of wood which had many holes in it that were the homes of a worm called a Teredo worm also known as a ship worm. They lived in the chunks of old kauri tree that are now being washed up on the beach and is also providing homes for lots of different species of insects and sea creatures.

3 - We now gather and harvest the seeds - late NOV

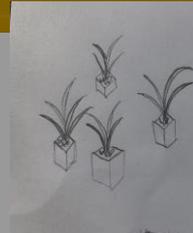
4 - We sew the seeds in potting mix



5 - In about 4 weeks the seeds will germinate



6 - In about 6 weeks we prick the seedlings out and put them in bigger pots



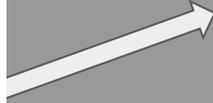
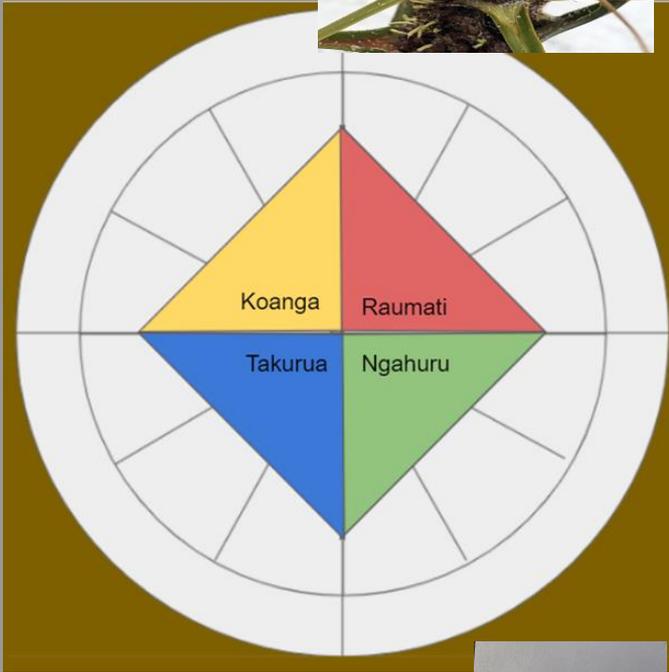
8 - then the process starts again

7 - Then after 18 months since sewing, the seedlings are ready to be planted in the dunes on te oneroa



1- When plant is 3yrs old buds start to appear

2 - The Plant flowers and has petals and the seed head matures





# October

*Tangaroa: atua of sea and fish with qualities of Rhythmic, tidal surging, calm*

Measuring the distance between each area of pīngao along the north end of Rarawa beach.



Doing an  
abundance  
survey - we  
counted  
approximately  
2800 plants



We completed a pīngao abundance survey to gather some baseline data.

	Number of plants	Distance from prior location
Location 1	200	75 meters
Location 2	391	42 meters
Location 3	109	20 meters
Location 4	163	32 meters
Location 5	115	32 meters
Location 6	213	22 meters
Location 7	413	52 meters
Location 8	176	32 meters
Location 9	79	33 meters
Location 10	86	20 meters
Location 11	87	32 meters
Location 12	288	62 meters
Location 13	149	
Location 14	294	
Location 15	36	



November

The senior class went to Rarawa to look at the seed heads and see if they were ready to harvest.



Collecting  
seed heads  
- ready for  
propagation



Santos and  
Manaia  
collecting  
seed heads.





# Pīngao Speaks Out!

Article - [Ngataki School kids restore Rarawa Beach dunes with pingao](#)

Students work  
On the following slides are  
the final student sign  
designs.

These will be printed and installed at the beach in 2022

# Be Careful of the Pīngao Northland!

Pīngao is a native sand-binding plant that plays an important role in New Zealand's dune ecosystems.

- Pīngao is a sand binding plant and its roots are what hold up the sand dunes in front of you.
- Pīngao is a habitat to many special species of the Far North of New Zealand (Aotearoa) like the special Katipo Spider.
- Pīngao is used by Maori to weave beautiful baskets and ornaments.
- It needs protecting because it's endemic to NZ (meaning that it's only found in one place)
- DO NOT DRIVE OR WALK over the Pīngao.

CAREFUL  
OF THE  
PINGAO



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# Protect our Pīngao

and our WHAKAPAPA

# Tiaki Tatou Pīngao

When you are entering the beach make sure to be aware of the Pīngao around you !

I a koe e kuhu ana ki te takutai kia mohio koe ki nga Pīngao kei a koe!

## What is Pīngao ?

Pīngao is an endemic grass-like plant that grows on active sand dunes throughout New Zealand. Here in the Far North we call it Pīngao.

**Pīngao has been suffering severely due to human impact.**

## Pīngao is important because:

It is a natural buffer. The Pīngao is a big help to sand dunes, there roots/rhizomes help hold them up.

## look after Pīngao !

**DON'T STAND or DRIVE on these Taonga Plants**



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# Kia Tupato Warning

Pīngao are the eyebrows of Tane Mahuta.

Pīngao is native to New Zealand and they also help keep up the sand dunes.

Please don't step over the pīngao or it'll cause harm to our ecosystem and cause more human impact.



Please do not step over these beautiful pīngao.



Pīngao are also known as golden sedges.



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## DO NOT WALK OR DRIVE ON THE PINGAO

Pīngao grows on the sand and creates the sand dunes you see today. Pīngao is a part of our Whakapapa.

(learn about this at your local marae)



Be caring  
and look after our endemic species by  
not walking or driving on it.



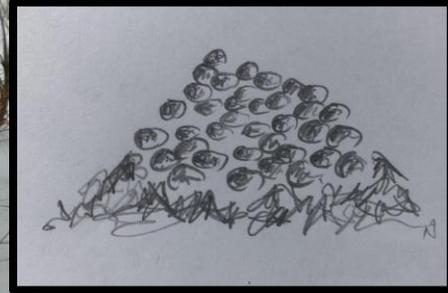
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# Pīngao Life Cycle

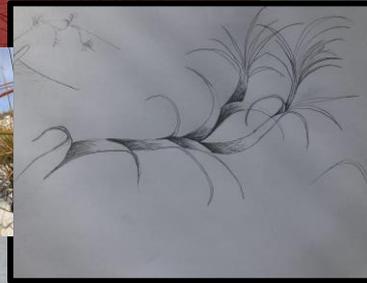
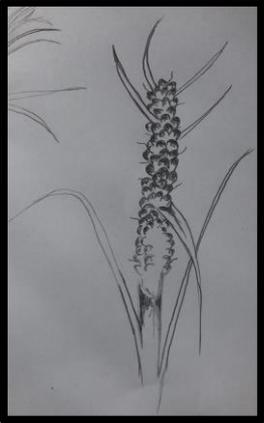
Yellow And Orange Strands are the petals of the flower - getting ready to let go of the



Seeds Fall in November/December



Buds start to grow from June - Dec



Green Strands of a young plant



# Betsy's hot house being installed!



Here are a few other  
discoveries while observing  
pīngao at Rarawa beach



Little Sand Flounder  
that we saved when  
we chased a shag  
and it dripped this  
beautiful creature.  
We released it back  
into the ocean.



We created a Physical Education goal to play games and move our bodies in the beach environment. Here we are playing capture the flag.



Sadly we found cold dotterel eggs. The parents must have been disturbed.

The Bus got stuck in the soft sand, we discovered that we could dig and push the bus out, if we worked together. Lol



All students have photo permissions

- Watea Ashby
- Santos Cachay
- Tempest Murray
- Aaliyah Rutland
  - June Potts
  - Manaia Potts
- Te Hori Murray
- Savarnah Murray



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