

Abel Tasman sustainability

- As a class, we have taken action on keeping Adele island, An Island in the Abel Tasman national park, pest free. Rats & mice have gnawed through & inhabited acres upon acres of New Zealand since they arrived with Maori & English settlers. Rats have had a devastating Environmental Impact on our native fauna & flora. Rats eat the eggs of birds & often eat smaller young birds also. They also eat copious amounts of native vegetation & eat our insects & lizards. They have put many native animals, many of them unadapted to the risks mammals pose, at risk of extinction. Adele island is an important refuge for our native fauna & flora. Many animals have been introduced here since it became pest free in 2007. Recently, a philanthropic family from Auckland has donated about 30 million dollars, under the Project Janzoon trust, to the park over the next 25 years to help with conservation efforts from D.O.C & the Abel Tasman birdsong trust in preserving the national park & sustaining our native & endemic species. Money has been spent on 1080 drops & providing funding for predator trapping in the national park. Most of the work is conducted by the birdsong trust, who provide volunteers. Both objectives include reestablish stable populations of lost or threatened birds, plants and animal, & to Restore key elements of the ecosystems & to improve the park for its visitors. Between the 3 organizations, they have tried to keep it pest free by adding a trapping line from the mainland to act as a wall to prevent rats getting off the mainland & reaching Adele island. They have also done poison drops on the islands to decimate existing populations. This has prevented rats inhabiting the island. Because of this, birds such as saddleback & robin that struggle due to pests have been released on this island to protect & grow the species. Our action prevents rats swimming off boats that are on Adele island. Boats that moor in the Nelson marina often travel to Adele island to moor. Rats could potentially swim off these boats & reinhabit Adele island. We protect the island by placing bait stations out in Nelson marina with brodifacoum poison so that any rat entering the boats will be killed by the poison before getting to the boats. Therefore, rats are prevented from getting to Adele island & this helps efforts in the Abel Tasman national park.



The action

- First of all, we had discussed our ideas on how to best conduct our plan. We started our action by making tracking tunnels. Each tunnel is made out of small panels of wood (mdf) and corflute (to make the 3 other sides) with dimensions 54cm length by 10 cm width with 34cm height, as standard with D.O.C regulations. Each tunnel had an ink pad with peanut butter in the centre, so the rat would be attracted to the peanut butter & walk over the ink. Footprints would show up on the card, proving rat activity. The tunnels were placed in areas that were near ramps leading to the boats & in discrete places so they weren't obvious to the public. Our 4 tunnels were placed on the north eastern side of the marina. 2 of the 16 tunnels came back with evidence of rat prints, while 1 came back with what we suspect as cat prints. The absence of rats could be due to cats being around the marina. While rats are more active in winter, they could be less active because it rained the majority of the 4 days. This proved that there were rats in the marina so we continued on the experiment.

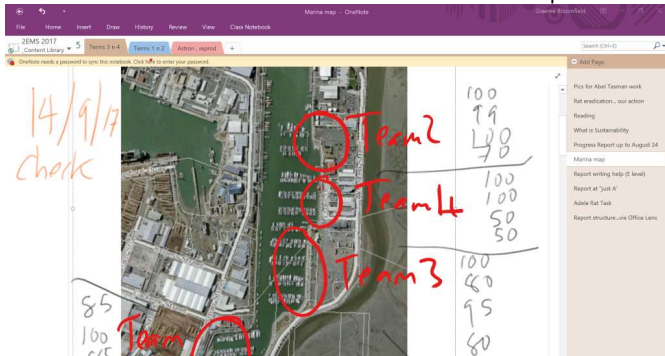




Fig 1: general locations of trapping tunnels & bait stations(onenote)

We set out trapping tunnels out into the marina these are cylindrical in shape & are baited with brodifacoum to poison & kill any rats that potentially enter a boat in the marina. These were donated by the Abel Tasman Birdsong Trust. They had labels on them to show we were affiliated to conservation work & to keep people away from the area. We placed them around similar areas as before, in discrete areas that weren't obvious. We had notified contractors & workers in the Nelson City Council & the Nelson Marina that gave us the go ahead to place the tunnels in the marina. After 5 weeks from placing them, our teacher & a few class members checked the percentage of poison taken from the baits. This was also done in another 4 weeks after the holidays. The results are shown below. (note: baits have been replaced so some percentages are larger than previously recorded.)



Fig 2: location of our groups bait stations

team	station	% left 14/9	% left 15/10
1	1	85	100
	2	100	0
	3	85	80
	4	100	20
2	1	100	0
	2	99	?
	3	100	80
	4	70	100
3	1	100	5
	2	80	70
	3	95	50
	4	80	60
	5	95	gone
4	1	100	95
	2	100	0
	3	50	0
	4	50	0

Fig 3: our locations of bait stations.





Fig 4: image of a bait station under shipping container (Bloomschool)

What we are seeing is that there are rats in the port because they are shown in the bait stations as well as the tracking tunnels. In the last month, the rats have significantly increased their activity. The most activity appears to be in team 4. the traps in this area are located near buildings & structures so it shows that these are common locations of rat abundance. This shows that rats in the area are present & that those rats will supposedly be poisoned before they get onto boats.

On the 12th of September, the class took a trip out to Abel Tasman to explore the area & to do bird counts in the local area. This involved a trip to the Abel Tasman on the mainland as well as an excursion to Adele island. Adele island has a predator free status. We are contributing to that with our work so we wanted to see the effects on birdlife on the area with the removal of rats. To do this, each group did 2 bird counts on both the island & the mainland to compare this. Results shown figure 5

Bird count team 2	Test 1	Test 2
Adele	21	31
mainland	26	19

Fig 5: bird count data

The data clearly shows that Adele island has a much higher birdlife than the mainland. This proves with less rats & other rodents & predators, flora & fauna has a much higher chance to thrive. This proves that stopping rats getting onto boats is a benefit to the environment on Adele island. Adele island has a much higher variation of birds, those that are thriving naturally in the conserved area & those introduced. We saw & heard robins & fantails & heard a larger variation of calls than the mainland. Our highest bird count was actually on the mainland, but this was an anomile because it had a large flock of birds fly past. Some observations of note is that the birdlife was much stronger in the canopy. Many of us did counts on the top of Adele island so it may not be as fairly represented. While bird counts are an accurate measurement, our group had larger bird counts because we didn't account for the same birds calling each time as much as others. Holistically, this didn't matter as our testing was consistent.

In an effort to raise awareness of our action, the teacher published a small article into the school newsletter about our trip to the Abel Tasman & the action itself at the end of the term. This was in the hope to change peoples perspectives on the issue, which receives negative publicity over the broadifocoum poison used in the Brook Waimarama Sanctuary. We had over 1100 views on our video put up on the article. I believe that a few people associated with the school would of taken notice. I don't believe that social media would have a big long term effect though. On each of the bait stations & trapping tunnels, we have placed small labels, stating what we are doing & the dangers & benefits to it. 2 tracking tunnels & 1 bait station has been removed from the area. This shows there are people that still dislike what we're doing.

Personal thoughts

Personally, I have been involved in lots of conservation work & predator trapping before & know the park well , so it hasn't been a big eye opener for me compared to some of the other students in the class. However, I hadn't given the idea of rats transporting themselves in boats to other places much thought, even though this action has occurred over centuries I found it an interesting & cool project to be part of. I think that the successful action made it successful. It is a good project albeit the negative reaction by a few that removed traps in the port.

4 areas of sustainability

Economic:

Project Janzoon subsidised our trip to the Abel Tasman national park. They paid for our trip to visit the Abel Tasman national park & in providing our bait stations. The birdsong trust & Project Janzoon must believe that our work is worthy enough to help complete both organisations goals of restoring stable fauna & flora populations in Abel Tasman national park. This is a way of the trust to show appreciation for our work. The local tourists operators have set up a 10 cents fee that is charged on to each individual customer that is donated to the birdsong trust. Many of the operators support, such as Stew Robertson of the Abel Tasman ecotours support the work done the work done. Therefore, there is a strong business connection to the sustainability in the park.

Environment:

Environmental sustainability is the main aim of this project. We are helping sustain the natural environment by sustaining the fauna & flora of Adele island. It stops the rats shifting to new places & helps the threatened species bought to Adele island survive, such as saddleback & robins. This has been shown in the increase of bird abundance & the increase in introduced species on Adele island. I think that what we are doing is quite useful for environmental protection, especially affecting a place that I know & many people will visit through tourist & other services. It still feels like it is a small thing that we're doing that may have no effect but it really could save the predator free status of the islands

because it is possible a pregnant rat could come ashore from a boat & repopulate an island. This may save birds, insects & plants from the damage that introduced mammals play on an ecosystem.

Cultural

We have done a project that will only conserve the area & get Adele island closer to its original state. This is an important thing for Maori culture & the local iwi that are involved in the area. Much of the culture bases its care for the land. As a result, they are big players in conservation efforts & sustainability. The fact that they can experience a natural area that was like it was many years ago is important to their culture as well as preserving their recreational activity from centuries ago.

Societal

There is a growing acceptance of our project. The Abel Tasman birdsong trust, Nelmac & NCC & the Nelson marina are invested in the action. People are starting to see that we are doing a positive thing for the community. People are becoming more interested in the environment now than ever before & the volunteers in the park are always increasing. Many people want to see our native birdlife in the wild. Therefore, our action is part of this. Over time, the birds will distribute themselves over to the mainland making them even more accessible to society. This helps complete the birdsongs trusts goal to enhance the park to visitors now & in the future

Swot analysis

Validity (weaknesses)

Our data is fairly valid. The tracking tunnels provides enough evidence to suggest that there are rats in the port area. The reduction of the bait in the bait station also proves this. We only had the tracking tunnels out for 4 days. These were in wet conditions but regardless of that, we still found reliable evidence that there were rats at the port. The methods we used for our tracking tunnels & the bait stations are standard practice to what is used in the Abel Tasman national park. What we don't know is the rats that were stopped getting onto boats as a result to our intervention. The validity of our bird count wasn't as accurate though. Each group had different ways of measuring the calls. It only had a small sample size, with 2 locations in each area per team. I do think that we gain a holistic view on the birdlife between the island & the mainland. It does show that our wildlife is better off without introduced pests.

Effectiveness (strengths)

Our action has been effective. We have proven from the trapping tunnels that there are rats in the port. The fact that a fair amount of bait has been taken from our bait stations proves that we are successfully controlling them. It is good that our class, the public as well as interested groups in the council & marina are endorsing this. While we don't whether rats would reach the island without us intervening, we can assume over time its likely. Through this environmentally sustainable action, we are successfully helping preserve Adele island. We managed to get the resources we needed to achieve what we needed to complete the project such as financial backing or field trips that allowed us to complete our action. It seems that the positive message got out & many groups saw the benefits in the project.

Opportunities/Sustainable future/next steps/future impacts

If this project continues, it will not only protect Adele but control rat populations in the port. While we only have placed them along the shoreline to stop them getting onto boats, it would have helped managed their numbers near populations on the coast. There is potential to expand into pest control at the port or in more than the recreational areas of the marina or expand to the Motueka marina if it was chosen. However, this is only a small project completed by the class over about a quarter of the year meaning that we wouldn't want to get the project out of hand. This project may have to be adopted when the class is not doing this in order for the effort to be sustainable.

Threats:

people have removed many of the trapping tunnels from the port. This is a concern to the sustainability of this project if people continue to rebel against what we're doing. These are for many reasons. The main issue is the issues over the poisons inhumanely killing the rats affected. We also used Brodifacoum poison, which is controversially used in the Brook Sanctuary. Many people would think it has similar implications to the poison drops & would have removed bait stations consequently. In one of our tunnels, we found cat prints on the ink pads. This indicates that cats roam around the port & backs up a concern raised by Nelmac that pet owners may be upset that their pets are put at risk. We have discussed how to disguise the bait stations from the public. We could have camoed the traps but we ended up to leave the traps with the original logo. This presented clarity & showed our project was affiliated & endorsed, but not a random project. They would have been found more often but the public would have more likely understood the issues making this better for our own perception.