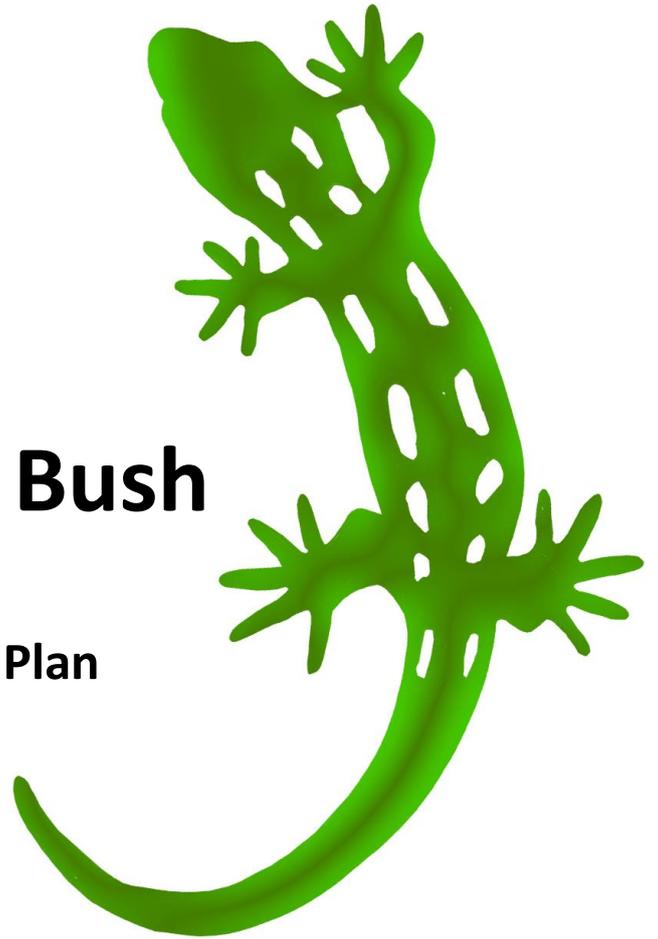


Friends of Okura Bush

Predator Pest Management Plan

2022



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VISION

1.1 LONG-TERM VISION

Friends of Okura Bush and Volunteers have created a safe halo for New Zealand native flora and fauna to thrive, by having reduced and maintained predator pests to consistently below 5% relative abundance detectability, and 0% detectability when the rest of Aotearoa's vision of complete eradication eventuates.

This halo contributes significantly to the North-West Wildlink, a collaborative project by Forest and Bird, Auckland Council, local iwi and DOC; providing a crucial corridor for native wildlife between the Auckland mainland and the Hauraki Gulf Islands, including the Predator Free Tiritiri Matangi Island Sanctuary, and Shakespeare Regional Park open Sanctuary.

1.1.1 3-6 year VISION

In conjunction with Friends of Okura Bush's Strategic Plan (2021 - 2026)¹, local iwi (Te Kawerau a Maki, Ngāti Manuhiri, and Ngāti Whātua o Kaipara), Department of Conservation Permits, Council, and Private landowner collaborations, FoOB has continued to upgrade and expand Predator Control Lines, focusing from Significant Ecological Areas outwards, and linking SEAs together.

Has continued to expand Backyard Predator Control Projects of Okura Village Halo, Stillwater Village Halo and Weiti Bay Residential Halo.

BACKGROUND

2.1. PREVIOUS PLANS

A Pest Management Plan was established in 2013² to start engaging the community in pest control to help restore the ecosystem of the Okura Bush Reserve, its shoreline, and surrounds. This was a starting point for Friends of Okura Bush and initially focused on targeting possums and rodents within the Okura Bush Reserve, expanding as funds and community engagement made possible.

2.2 PROGRESS TO DATE

Predator control cover against Possums and Rodents was initialised in the Okura Bush Reserve, along the entire Walkway, Eastern and Southern Boundaries, and across the top eastern half of the Reserve.

This also started to include Mustelid and Hedgehog Control as funds and volunteers allowed. With the willingness of new Weiti Bay Village volunteers the Northern Boundary was extended to 2/3's complete on private land, and feral cat and rabbit control initiated.

The project has also expanded to cover Council Owned Land along the Western side of the Creek running up the reserve's boundary. It also expanded to cover Karepiro Beach and Karepiro Ngahere. Local Volunteers at Stillwater joined in to help expand cover along Weiti Bay

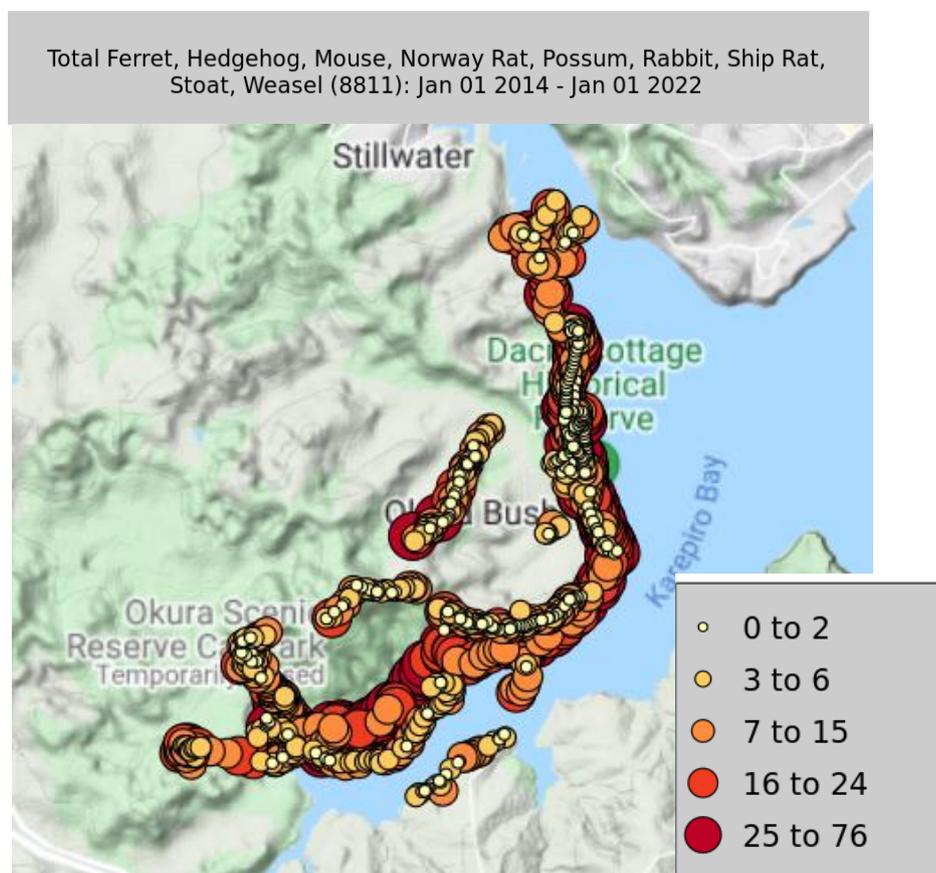
³ FoOB Predator Pest Management Plan, April 2022. Crawford, J

and the Stillwater Chenier's (all of this area falls under the SEA of Dacre Historic and Esplanade Reserve).

These areas also form part of the landside aspect of the Long Bay Okura Marine Reserve.

Private Property Community Engagement projects were also implemented, with traps provided, and an annual community Predator Catching Competition for all ages. This was so successful we have currently run out of traps as it expanded further into Stillwater Village and the new Weiti Bay Village development.

All predator catches on Public Land have been consistently recorded on the Auckland University Statistics website CatchIT. Community village projects in both Okura and Stillwater Village have been recorded on Excell spreadsheets in the past, but these too are now becoming recorded on our CatchIT projects.



www.catchit.co.nz/apps/catchmap/?Area=OkuraBushWalkway

Since the last plan a Rahui was placed on Okura Bush Reserve and some of the original locations of traps have had to be discontinued due to the presence of Kauri Dieback.

2.3 SIGNIFICANT ECOLOGICAL AREAS

The pest control areas that Friends of Okura Bush has initially focused on are all Significant Ecological Areas (SEAs).

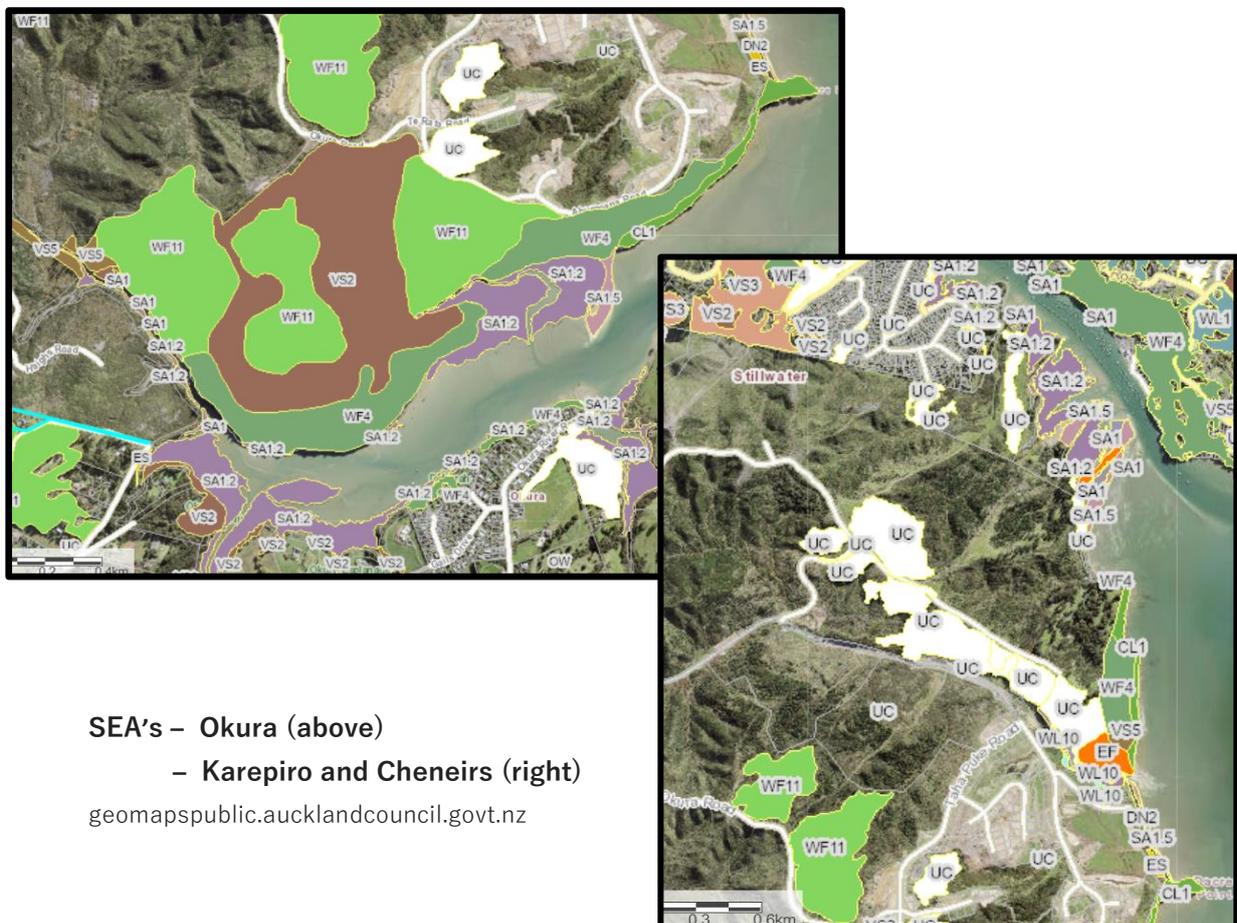
The Okura Bush Reserve itself has multiple biodiversity classifications - one of the last remaining stands of established coastal Kauri, Podocarp and Broadleaved Forest Ecosystem in the Auckland Region, including a coastal dune sandspit ecosystem where tūturiwhatu nest. Before the rahui toutouwai, kākā, miroiro, riroriro, pīpīwharauoa kereru, ruru, kotare, tui, pīwakawaka and tauhou were reported within the bush³.

The ngahere at Karepiro is also a rare Coastal Podocarp and Broadleaved forest with a few individual Kauri present.

Karepiro Beach and the Chenier's at Stillwater consist of coastal saline and dune ecosystems where kuaka, tūturiwhatu, ngutuparore, tōrea, and kōtuku ngutupapa visit.

Pāteke also nest at the Cheneirs. The Eastern Stream of Karepiro Beach heads into a Wetland Ecosystem, has native tuna/eels residing within, and is also considered as a suitable inanga spawning site.

Refer to Auckland Councils Indigenous terrestrial and wetland ecosystems of Auckland⁴ for additional information.



METHODOLOGY

3.1 SPECIES TARGETED

3.1.1 In the shorter term plan

The plan is to continue to use Kill traps against Possums, Mustelids, Hedgehogs and Rodents. Supplementary use of toxin in appropriate stations against Rodents will also continue to be implemented where endangered native nesting/breeding sites are known, and where monitoring identifies hot spot areas of the predator in question.

Note that toxin bait stations are in use at Karepiro Beach and Karepiro Ngahere. Deborah Reserve has bait stations run by Pest Free Okura.

The Department of Conservation run occasional toxin pulses in Okura Bush Reserve against Possums. Weiti Developments (Private Land bordering Okura Bush and Dacre Historic & Esplanade Reserve) did use toxin against possums in some areas, but the current status of use is unknown. With old pine forest plantations & irregular predator control this area is considered to have a high population of predators causing high reinvasion rates into the public SEA areas described above.

Possum trapline expansion will utilise NAWAC approved Flipping Timmy's, Trapinator's, and AT220s.

Mustelid trapline expansion will continue to utilise DOC200s and DOC250s in wooden boxes to DOC specifications.

Rodent trapline expansion will continue to use KaMate Traps on public land, in combination with TRex traps in wooden tunnels on Private Residential Land.

Feral Cats will be targeted in Okura Bush Scenic Reserve working alongside iwi and DOC regulations, with the use of SA2Kat traps, and in Weiti Bay Residential via live catch traps. Live catch traps will be also be utilised in public areas such as the Cheniers, or land close to residential areas, where monitoring or public sighting indicates their presence.

3.1.2 In the longer term plan:

Targeting the Indian Myna:

Myna's are being reported in increasing numbers and will be targeted using live catch traps based on models in Australia. A plan is being developed to initially do myna counts as they come in to roost, encouraging local residents to get involved. The control itself will initially target this species at Okura Village, Karepiro Beach, and Weiti Bay Private Residential. This will look to be expanded to Stillwater Cheneirs, and where volunteer/public reports are increasing in halo areas, and where capacity/funding allows.

Predatory Pest Wasps:

Vespula species are being reported in increasing numbers and will be targeted with Vespex Bait Lines using Registered Handlers. A plan is being developed to turn this into an Okura Village and Stillwater Village resident information workshop and engagement day including training to carry out the Activity Testing during the Workshop, initiating in the months of February.

3.2 CUTTING PREDATOR CONTROL TRACKS

With the help of contractors and volunteers the Pest Control Coordinator/s will oversee the cutting of new Predator Control tracks in permitted expansion areas where required, following Friends of Okura Bush's Health and Safety Plans.

3.3 LAYING OUT

3.3.1 Narrow and boundary areas:

Rodent trap devices will be spaced at approx. 25m along boundary lines alongside areas considered as high risk of reinvasion (such as Weiti Developments uncontrolled areas), possum devices will be at approx. 75m x 100m, mustelid devices at approx. 200 x 200m. Rodent bait stations at approx. 50 x 100m. Spacing is given as an approximate due to suitability of trees, habitat type, stream beds etc.

3.3.2 Larger areas:

Will be internally grid as optimum as possible based on the terrain, safety, accessibility, and presence/absence of Kauri.

Rodent devices will no greater than 100m between lines and 50m between devices on a line. Possum devices 100m distance between lines or boundary. Some additional possum devices may be added in view of high population indicators (i.e wax tag monitoring), this would be done at 50m spacing, and/or with the additional use of AT220 resetting traps.

Mustelids and Hedgehog devices will continue to be placed at between 100-200m distance along lines dependant on target species, terrain, and sightings.

Placement of traps in relation to height from ground, and distance from public walkways will follow guidelines provided by Council and DOC specifications⁶.

No devices are set in stream beds. Devices on Okura sandspit and Stillwater Cheniers near to tūturiwhatu & Pāteke nesting areas are not set during nesting/fledgling season.

Devices are established as precisely as possible via GPS devices, allowing for alterations based on terrain, species tagrgeted, and suitability of site at distance marker points. A lesser distance will be preferred over a longer spacing when site hampers preciseness.

3.3.3. Okura Bush Scenic Reserve

Placement of new kill traps to re establish predator control lines within the reserve will be based on ongoing kōrero with DOC and iwi. Note that since the previous Management Plan where some traps were required at 10m distance off the walkway, this has currently changed to under 1m for all traps along the walkway, but may change again. The Kauri Dieback Mitigation Steps have also been increased (see below).

⁷ FoOB Predator Pest Management Plan, April 2022. Crawford, J

3.4 Kauri Dieback Mitigation:

Friends of Okura Bush have a Draft Kauri Dieback Mitigation Plan started in 2018, which is currently being worked on with input from Iwi and the Department of Conservation. This plan is site specific to Okura Bush Reserve.

Many current volunteers have attended KDB mitigation training.

Tools and methods currently utilised in other areas where Kauri are present (for example the ngahere at Karepiro) are:

- Scrubbing of footwear and use of Sterigene spray prior to and exiting these areas.
- Additional cleaning of footwear at home with exposure to the sun for drying.
- Use of Site-Specific Footwear on lines in the bush that are off track from the public walkways.
- Staying minimum of 3x drip line away from Kauri zones on new trapline set ups and checks.
- Trap setting and maintenance tools designated to use only on specific traplines.
- Personal Sanitary Kits carried with Scrubbing brush, Sterigene spray and water bottle.

3.5 Frequency of Predator Control

Possum traps are checked twice a week in the first few weeks following instalment, then weekly until no longer catching consistently. Once some control is established a minimum will be pulsing 4 times a year in January, April, August, and November. During these months checking the traps twice in the first few weeks, and then weekly in the second week as a minimum. If these traps are catching consistently again then traps will continue to be checked every week for longer than Day 30.

Rodent traps are pre-baited weekly for 3 weeks after initial instalment, prior to setting. Once set for the first time FoOB volunteer's check and reset on a weekly basis initially. Once some control is established a minimum will be pulsing 4 times a year in January, April, August and November, as above.

Rodent toxins are placed on the pins within lockable secured bait stations. After a minimum of 3 weeks a bait pulse is undertaken occurring over a period of 30 days before any remaining toxin is removed. Due to volunteer capacity and use of traps this is currently occurring at a Maximum of an April and November pulse, and a minimum of a March/April Pulse. A 2nd generation toxin is used currently with rechecks/baiting occurring on Day 1, 5, and 14 of the pulse as per current guidelines. A first-generation toxin will also be considered if monitoring results and volunteer capacity indicate 4 pulses per annum.

Newly placed DOC200 traps are left out in the field unset for a minimum of 3 weeks. Pre baiting near the entrance with rabbit meat & scent occurs during this time. After 3 weeks traps are set and checked weekly initially. Depending on what native species are present and need protecting - a minimum of weekly near endangered species nesting/feeding sites during October through May (i.e Okura Sandspit, Karepiro Beach, and Stillwater Cheneirs), aside from those close to tūturiwhatu & pāteke nesting sites. A minimum of fortnightly between October to the end of March in other areas, and between April and September.

Pest control will continue to be maintained in perpetuity by FoOB volunteers.

4. PREDATOR CONTROL EXPANSION AREAS

The maps shown below outline approximate areas of planned Predator Control Expansion over the next 3-4 years, as established in the Strategic Plan 2021-2026¹, with some adjustments based on changed priority areas.

Year 1 Line Extensions:

Stillwater to Duck Creek – Council Land

Last remaining Line's to fully cover the boundary of the SEA reserve Dacre Historic and Esplanade Reserve. Note this boundary is adjacent to large areas of private land currently with pine plantation and exotic weeds, with insufficient if no predator control occurring. This expansion will help in our efforts to protect nesting pāteke and tūturiwhatu, alongside our other shorebird & bush species.

Current Cover:



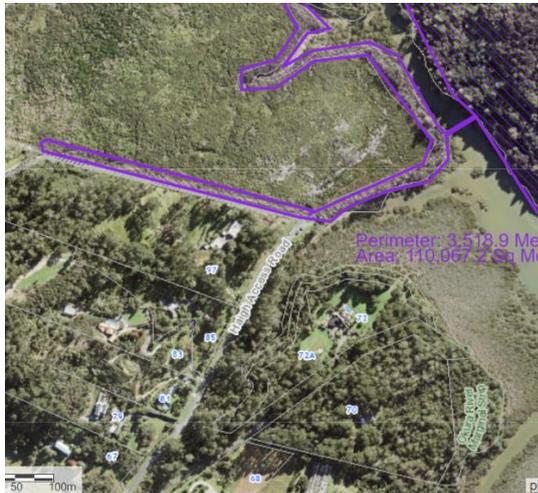
Stillwater Weiti Bay to Duck Creek:



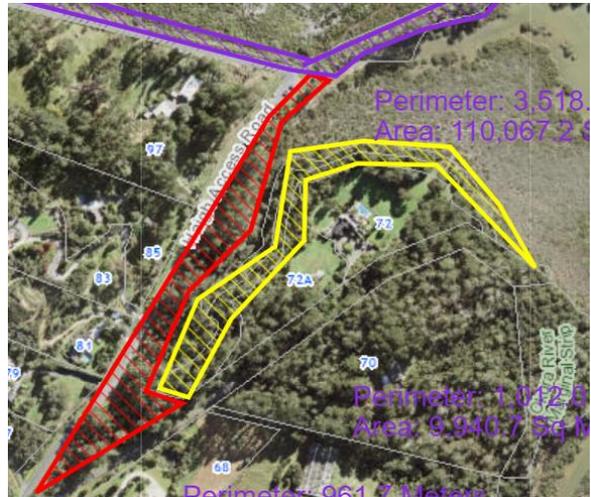
Haigh Marginal Strip (renamed from part of an original Drive Line) – Council Land

Including estuary stream of Okura Long Bay Marine Reserve.

Current cover:



Marginal Strip (in red)



Note that the yellow area is planned to be covered in subsequent years (later in the PMP).

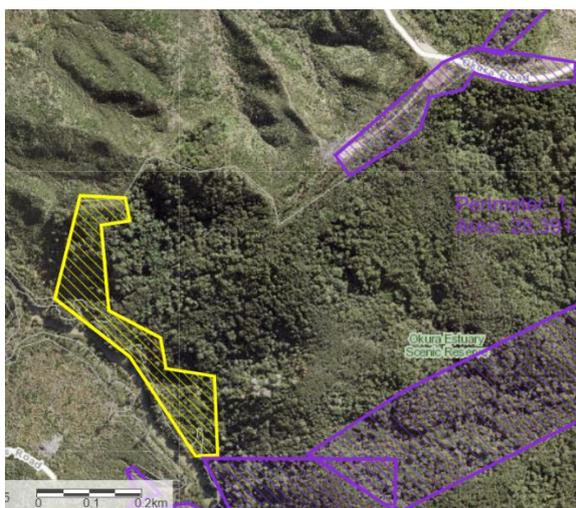
Northern Boundary Okura Bush Extension: Weiti South Ridge (and/or Creek East)

Note the yellow area is Creek East, which is not currently active due to a rahui.

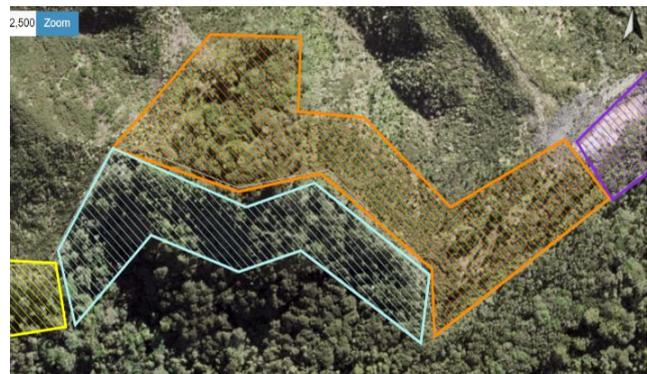
The orange area is potential Weiti South Ridge Expansion on Private Land.

The blue area is Creek East Extension in DOC land - dependant on permitted access in the future.

Current Cover:



Northern Boundary Expansion (orange +/- blue)



Year 1 Establishment:

Weiti Bay Residents Village Halo Backyard Project – Private Land

To be encouraged and set up on a CatchIT project similar to our Okura and Stillwater Village Backyard Halo Projects. Residents to be made aware of annual competition and FB group. The use of TRex in tunnels, DOC200s and Flipping Timmy's will be utilised.

Note that this area is also prone to rabbit infestations and feral or abandoned cats. Two residents that volunteer with FoOB place out live catch traps when this predator shows up in security camera images. In future years we hope to look further into the rabbit issues.

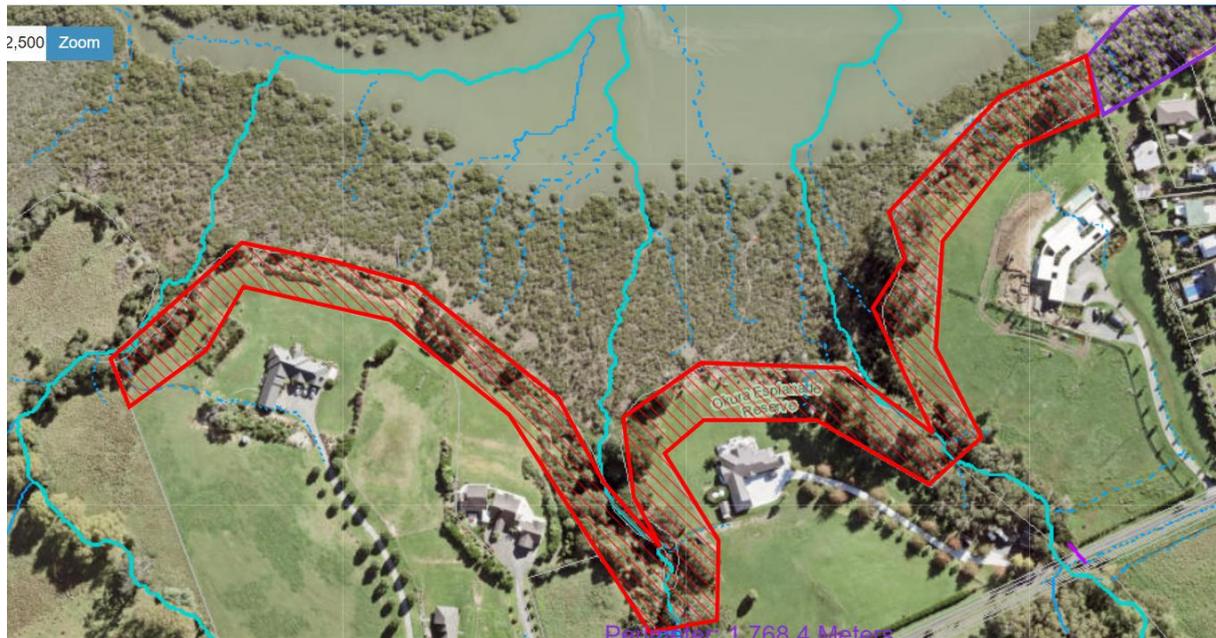


Year 1 - 2 Line Establishment:

Okura Esplanade Reserve – Council Land

Purple is Western end of Deborah Reserve that is already covered by FoOB volunteers, Red is Establishment area.

The estuary alongside is part of the Okura Long Bay Marine Reserve.



Weiti Bay Village/Eastern Stream Line – Council and Private Land

This stream feeds into the Okura – Long Bay Marine Reserve and has native tuna/eels residing within. It is also considered as a suitable inanga spawning site, and mātātā have been spotted in the grasses verging the stream. The rare coastal plant *Thyridia repens* has also been found here.

The water catchment ponds in Weiti Bay Village are actively being planted with local native plant species.

Purple is current cover along Dacre Historic and Esplanade Reserve, and a Weiti West Ridge Line.

Red is the Eastern Stream & pond Establishment.



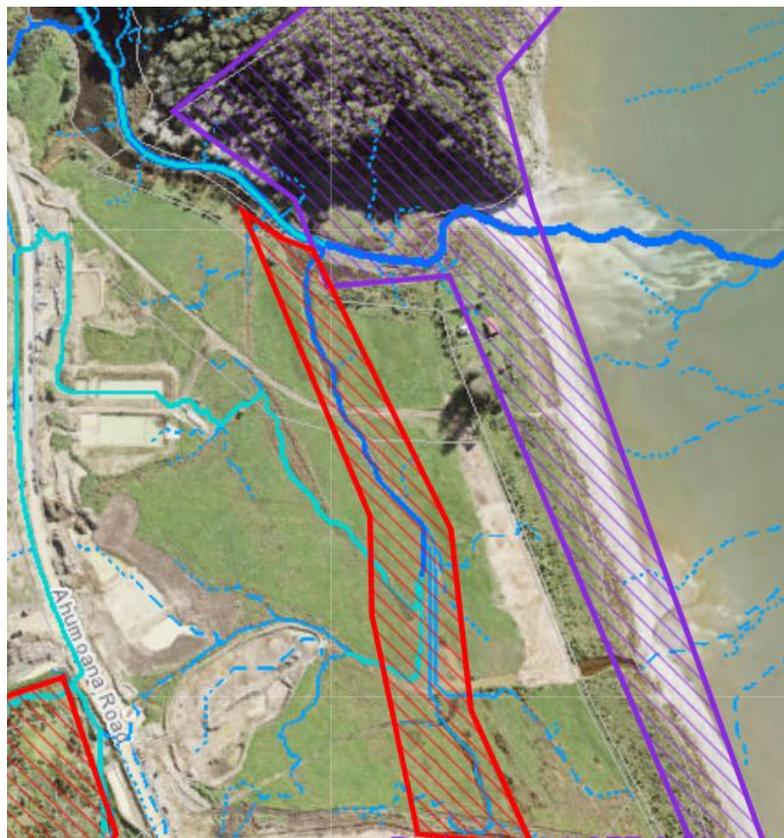
Weiti Bay Village – Wetland Line – Private Land

This area used to be known by older locals as the haypaddock and was originally a wetland area. Currently the marginal areas around the main streams, the bogs, and ponds are being allowed to regrow naturally with some additional native planting occurring.

This whole flat area gets used by many of our shorebirds including kuaka, tūturiwhatu, matuku, ngutuparore, tōrea, and kōtuku ngutupapa as an additional feeding ground when the tide is high.

Establishing a control area here will not only protect them during this time but also increase the zone of control to improve protection of the nesting locals on the beach. Note GIS image is an outdated online image, as it does not show the native regrowth and plantings that have been occurring over the past few years.

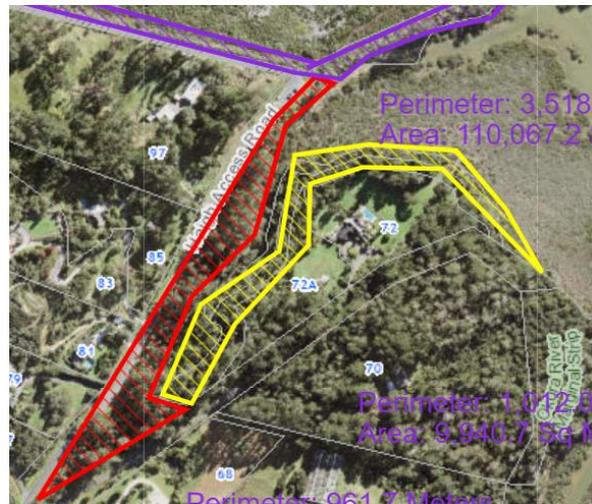
Purple is current cover along Dacre Historic and Esplanade Reserve (Karepiro Beach). Red is the Initial wetland/stream area we wish to focus on.



Haigh Access – Council Land

As shown previously Red is year one extension.

The yellow line is the Haighs Access Marginal Strip, including an estuary stream of Okura-Long Bay Marine Reserve.



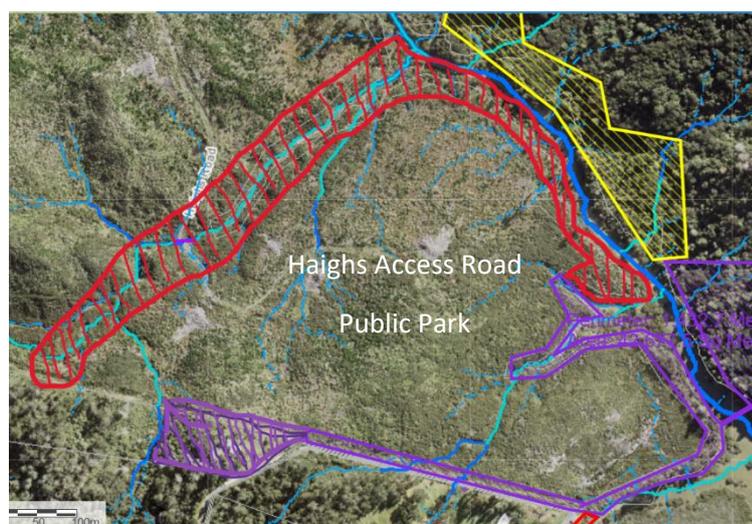
Year 3-4 Line extension

Creek West – Council Land

The extension of this line will not only help protect the Okura Bush Reserve from predators that are swimming across, or access via fallen pine trees that cross the creek or the bridge, it will also cover the boundary of the new Haigh Access Road Public Park.

Current Cover in purple (Creek West, Haighs Access and Ruru Ngahere Lines). Creek East in yellow (within Okura Bush Reserve)

Creek West Extension (Haighs Access Road Public Park Boundary Line) in red.



Note that in a longer term plan once this Public Park had the exotic plants removed it would get Grid lined for predator control within also.

Year 3-4 Line Establishment

Weiti Ngahere Gully's – Private Land

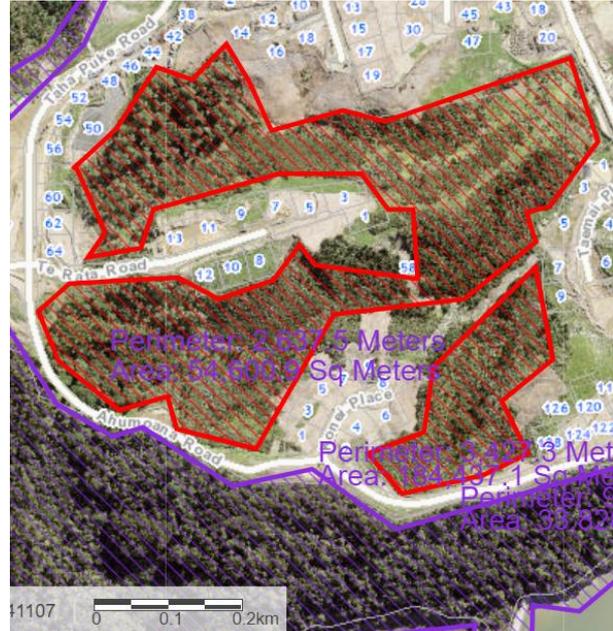
Consist of small pockets of remaining established native bush.

Supplemental planting planned for the lower gully's that have been altered by humans.

Current Cover



Weiti Ngahere Gully's



5. VOLUNTEER TRAINING

Volunteers will continue to be trained by the Predator Pest Control Coordinator.

This training includes site visits to any lines they will participate in, trap and bait specific visual training on safety during arming, rebaiting, and disarming traps. The volunteers will be provided practice on the site visit/s and expected to demonstrate safe use to the Coordinator, before being allowed to start volunteering.

Written Instructions on Trap use, predator control pulsing, and how to record data on CatchIT are provided, with additional communication always available with the Predator Pest Control Coordinator.

It is a requirement that Friends of Okura Bush Predator Control Health & Safety Plan (updated 2022), be read and signed by Volunteers, alongside the FoOB Volunteer Declaration Form.

FoOB Volunteers are provided and encouraged to attend Ngāti Manuhiri Cultural Induction training, and Kauri Dieback Mitigation Training.

Trappers Catch Up Meetings also provide opportunity for additional training of any new trap devices, and discussion of methods, lures, frustrations, and successes.

6. PREDATOR MONITORING

Predator Pest Monitoring continues to be reported as Trap Catch Indices (TCI) on CatchIT, with catch and heat map summaries and graphs available to show high vs low zones over all years, separate years, individual species, seasons, and individual predator control lines (as per example pg. 4 - all species, all lines, all year's summary).

Wildlands has been contracted by Auckland Council in the past few years to cover tracking tunnel (TT) and wax tag (WT) monitoring at Dacre Historic and Esplanade Reserve (predominantly within Karepiro Forest), and at Deborah Reserve.

Friends of Okura Bush plan to extend TT and WT monitoring into the areas where this is not currently occurring, and to increase event records where Wildlands Contracted areas become insufficient. For non-Wildlands areas this would initially be a baseline event followed by a twice per annum schedule, one event to occur in Late March (Autumn), and one event to occur in Early August (Spring) of each year. For Wildlands contracted areas this would be to create a record of twice per annum at the above same times. For tracking tunnels this is BEFORE any scheduled rodent toxin pulse occurs.

Both TCI, WT and TT results will be used to inform management decisions on Predator Pest Control. A separate FoOB Monitoring Plan is currently being developed, which includes predator monitoring, annual bird count monitoring, shorebird nesting success rate, and Vespula Wasp monitoring (Annual Activity Testing in February), and annual forest photo points.

7. PUBLIC AWARENESS

7.1 Signage and Safety

Signage notifying the public of predator control in the area are installed at either end of the Okura Bush Walkway (i.e. Haigh Access and Duck Creek Road end). They are also installed at entrances to Deborah Reserve, Karepiro Beach, and Stillwater Chenier's.

Discussions between DOC, Auckland Council and FoOB about future production and upgrades of appropriate signage will continue to occur.

7.2 Public Safety of Traps & bait stations:

Possum traps will be attached to tree trunks at a minimum of 1 metre high, or 1.5m high, dependant on the land holder and distance from general public access.

DOC series traps will always be screwed closed with square head screws.

All possum, mustelid/hedgehog and rodent trap devices will be clearly marked with a Caution Do Not Touch sticker or painted stencil to warn the public of the dangers.

REFERENCES

1. Friends of Okura Bush Strategic and Action Plan, 2021-2026.
2. Friends of Okura Bush Pest Management Plan, November 2013.
3. <https://okurabush.org.nz/bird-count/>
4. Singers, N.; Osborne, B.; Lovegrove, T.; Jamieson, A.; Boow, J.; Sawyer, J.; Hill, K.; Andrews, J.; Hill, S.; Webb, C. Edited by Jane Connor (2017). Indigenous terrestrial and wetland ecosystems of Auckland.
5. Michaex, B. private correspondence. Refer Appendix
6. Kōrero with Council Ranger, and Pest Animal Control Guidelines for the Auckland Region. <https://www.bionet.nz/assets/Uploads/pest-animal-control-guide-Auckland-Council.pdf>
7. Kōrero with DOC & Iwi, and Predator Free 2050, A Practical Guide to Trapping, 2nd Edition <https://www.doc.govt.nz/globalassets/documents/conservation/threats-and-impacts/pf2050/pf2050-trapping-guide.pdf>

PLAN REVIEW

This is a living document that will be reviewed every two years. Grants and donations will affect ability to follow the plan, as does other events such as restrictions during pandemics, and volunteer capacity.

APPENDIX

BIRD SPECIES

An email correspondence (using common english names) with Bernard Michaux, April 2022.

“

Breeding birds on beach, sandspit, cheneirs and waterways

NZ dotterel

Variable oystercatcher

Pied stilts

Brown teal (Stillwater)

Banded rail (very probable)

Birds using the roost sites on sandspit, beach and cheniers

NZ dotterel

Banded dotterel

Variable oystercatcher

South Island pied oystercatchers

Pied stilts

Bar-tailed godwits

Spur-wing plover

Caspian terns

Black-backed gulls

Birds using the Weiti Wetland (hay paddock)

Pukeko

NZ dotterel

South Island pied oystercatchers

Spur-wing plover

Royal spoonbills

Paradise shelduck

Canada geese

“There are other infrequent visitors (whimbrel, Pacific golden plover, red knot) but the above are the birds that really are the locals.”

For more in depth reports refer to “Bird News” written by Bernard Michaux on our Website www.okurabush.org.nz