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Dear Members,

In this issue: Fairy tern news: Trip to Manukapua; Danni Rae; Fairy Tern hui; **Mangawhai Central;** **Obituary: Roy Vaughan;** **Updates:** WDC cat by-law; Auckland Regional Parks, NRC – mangrove hearings; **Sand mining;** **DOC Rangers' reports – summaries.**

First, welcome to new members: Mark Washington and family of Nelson; Vanda Perry of Warkworth; Barry and Jan Tietjens of Auckland.

Fairy Tern News

DOC Rangers' reports for the 2021-2022 breeding season have recently been received and are summarised at the end of this newsletter.

Fairy terns are wintering over in the Kaipara and are expected to start prospecting for breeding sites in the coming weeks.

In **March** a group of Mangawhai volunteers guided by Tony Crocker made the trip out to the Kaipara to see where fairy tern can be found outside the breeding season. Our destination was Manukapua or Big Sand Island which lies opposite the entrance to the Kaipara Harbour. We were fortunate to have Tony to guide us to where the known roosts were and also to help us find our way back to where we'd parked our cars.

We were thrilled to see 8 fairy terns as well as hundreds of godwits, whimbrels, turnstones, wrybills and dotterels. The sharp-eyed Tony also spotted two rarities: a terek sandpiper snuggled up with a sharp-tailed sandpiper.





Danni at Manukapua

Photo: Heather Rogan

We were delighted to be joined on the trip to Manukapua by **Danni Rae** who was completing the northern section of the Te Araroa Trail. She has been fundraising for wildlife on her walk and raised \$1,000 for the Fairy Tern Trust. See *Danni's Walk for Wildlife* on Facebook. This was her chance to see fairy tern as the birds had left the east coast breeding grounds by the time she arrived there with delays caused by Covid. Luckily fairy tern obliged and showed themselves at Manukapua. Our warmest thanks to Danni for her enthusiastic support!

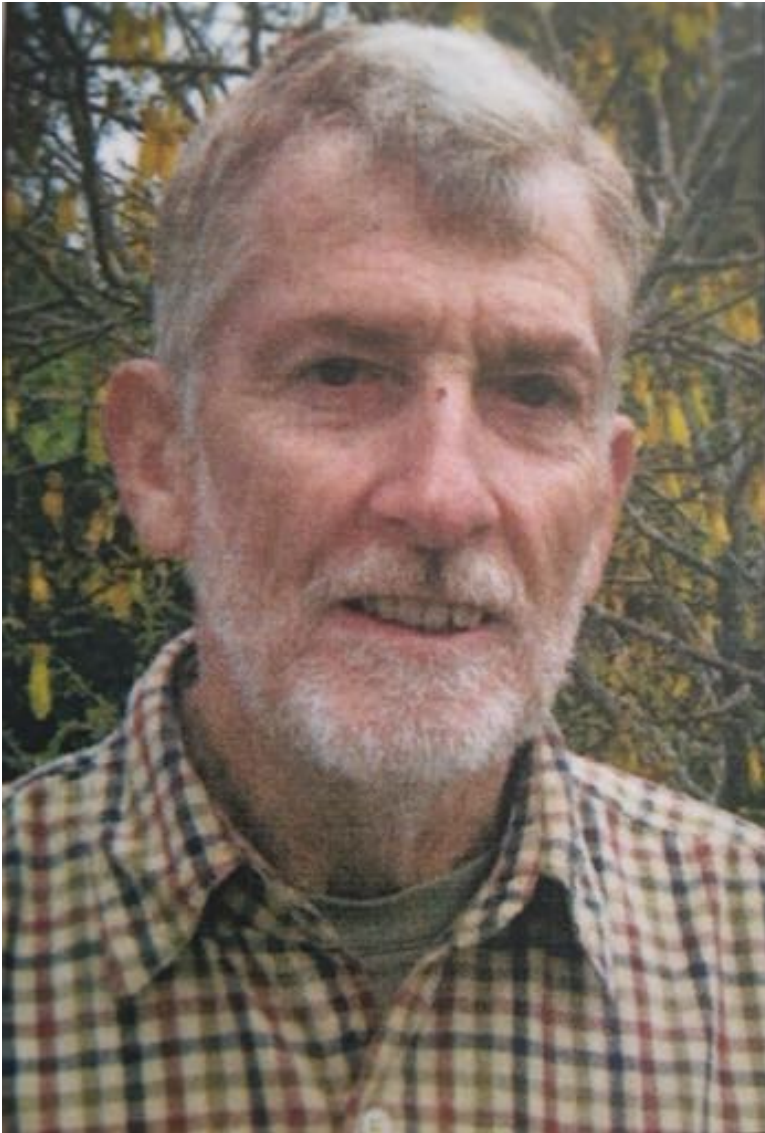
April Fairy tern hui: The hui hosted by DOC brought together all the parties involved in Fairy Tern/Tara iti recovery. The main purpose was to bring everyone up to date with progress in the recovery objectives first discussed and agreed at the 2018 hui. Recent management actions, the captive rearing programme and successes and failures were all discussed in some detail as well as future plans. Of particular interest to Trust members was the announcement of a long term advocacy plan. We are having ongoing discussions with DOC about the part the Trust can play in this plan. It is certainly pleasing to see DOC now putting in the effort and investment needed to save our rarest bird!

Mangawhai Central

After months of mediation Plan Change 78 for Mangawhai Central has finally been approved and publicly notified by Kaipara District Council.

Thanks to the negotiating skill of our barrister, Sarah Shaw and the expert support of Ian Southey, the Trust achieved a number of changes to the plan including:

- Policy providing for the precautionary approach with respect to adverse effects on fairy tern habitat and food sources;
- A coastal buffer overlay within which certain activities are non-complying;
- Explicit reference to addressing potential effects on fairy tern and food sources, including during special events;
- Containment of dogs on residential properties;
- Exclusion of dogs from wetlands 1 and 3 through perimeter fencing;
- Prohibition of dogs from the walking track through Wetland 3 during the fairy tern breeding season and dogs to be on leads at all other times;
- Increasing the building setback from 10m to 20m in several locations.



Obituary: Roy Vaughan

Roy Vaughan, who died recently after a long illness was the founding Convenor of the New Zealand Fairy Tern Charitable Trust. He was the only one to step forward and offer his services as the convenor when the Trust was set up in 2008 and said he would do it until someone else came along. He knew how to run meetings and got the fledgling trust off to a good start.

Perhaps Roy's greatest contribution to the work of the fairy tern volunteers and the Trust was as boat skipper. Before the Trust was formed and a reliable boat was bought, some rather dicey boats were used to ferry volunteers over to the Sandspit, but Roy always managed to land them safely. His long seafaring experience stood him in good stead. Once the Trust boat was in use, Roy, who was conscious of health and safety before most, made sure all the ropes were in good order and donated a suitable anchor; he was meticulous about maintaining the engine. He will be fondly remembered for all the years he skippered the boat and got everyone safely to shore.

At Roy's funeral, held in the Hakaru Church where he and Jane were married, the large congregation heard about Roy's early life in Wales and his varied careers in the Merchant

Navy, as a journalist, travel consultant and published author before retirement in Mangawhai.

Roy is survived by his wife Jane and their children and grandchildren. Jane was the fairy tern volunteer coordinator at Mangawhai for many years, has been a trustee and member of the Trust committee since its inception. Roy and Jane have made immense contributions to the efforts to save fairy tern.

Updates

New cat by-law: Whangarei District Council (WDC) have just enacted a new cat by-law to protect wildlife. ***"In Whangārei, if your cat is six months or older, it is mandatory to desex and microchip it, and register the microchip with the New Zealand Companion Animal Register. These procedures are considered part of being a responsible pet owner."*** The Trust put in a submission in favour of the proposed by-law. We congratulate WDC on their initiative which will help protect ground nesting birds such as the fairy tern on the Waipu Sandspit. We encourage other local bodies to follow suit.

Auckland Regional Parks: The Trust's submission which was presented to the hearings panel in mid-May concentrated on Te Arai Regional Park. Our particular focus was on the protection of the two main streams within the park: Te Arai and Poutawa. We highlighted the importance of monitoring and enforcing water take limits on these streams to ensure healthy flow levels. We submitted that Poutawa Stream mouth needed

particular protection and that the “lakes to the Sea” concept for Te Arai Stream should be implemented. We don’t expect the plan to be finalised anytime soon.

Northern Regional Council: With the Court’s interim decision on the mangrove policies and rules issued at the end of June, this process is almost at an end after nearly five years. There are likely to be a few minor changes to the wording before the final decision. Our thanks to Ian Southey who has been our expert witness throughout the long drawn-out process.

Sand mining

You may have heard the good news that Auckland Council commissioners have turned down the first of three applications to mine sand off the Pakiri coast – the “far shore” application. However, McCallums, the applicants, have appealed that decision to the Environment Court and in the meantime they are able to continue mining sand under the terms of their existing resource consent and will be able to continue while all the legal processes go on!



Fairy Tern Trust members at the Save Our Sands rally at Mangawhai Beach 10th. July
Guy Folster, Melanie Scott, Glenys Mather, Paulette Whitford, Diane Piesse *Photo: Debbie Stone*

Meanwhile the two other applications – for mid and near shore mining are still live and hearings are about to get underway. The Trust’s submissions in opposition have been prepared by Glenys Mather and Diane Piesse. Diane will present our submission in person on 2 August at Pakiri. Ian Southey has prepared a most comprehensive expert witness statement which he is presenting on behalf of the Trust and Te Whanau O Pakiri.

DOC Rangers' reports 2021-2022 season

Waipu - Rangers Robyn Searle and Ayla Wiles

Summary by Guy Folster

One Tara Iti nest was established on the Waipu Spit during the 2021/22 breeding season which was located at Trial Site 2 (TS2). The successful pair were pGM-W (female) and pGM-pG (male). They had previously paired up in the 2019/20 season but did not produce any eggs. Last season (2020/21) pGM-W paired up with R-RM and pGM-pG became the unpaired and disruptive male on site. This season pGM-W and pGM-pG successfully hatched two chicks.

Egg 1 was laid on 7th November and Egg 2 on the 9th November. Egg 1 hatched on the 2nd December and Egg 2 on the 3rd December.



The first chick at 5 hours old and the second egg

Photo: Robyn Searle

One of the chicks died of natural causes at 4 days old and the other chick disappeared at 17 days old (day before banding). It was hoped the adult pair would re nest, but they did not. pGM-W was only seen twice after the last chick loss and pGM-pG was seen sporadically holding the territory around the TS2 area and foraging in the nearby estuary.

Once it was confirmed there would be no re nest of the Waipu breeding pair, the ranger was redeployed to Mangawhai to assist the rangers with the very busy season there, and later to cover the Auckland Zoo staff rotations at the aviary.

More mice were caught this year than other seasons. There were also 9 mustelids (5 stoats and 4 weasels) caught this season compared to a normal catch of less than 3.

In the rangers short time on the spit there were 38 compliance incidents observed, mostly ending in advocacy and education. There were numerous other incidents reported by members of the public. These incidents were always regarding dogs being walked by their owners and always after the event.

Mangawhai – Rangers Shannon Courtenay, Nikki Hartley and Ayla Wiles *Summary by Debbie Stone*

Six breeding pairs laid 15 eggs in eight nests this season. Three eggs were taken to Auckland Zoo as part of the planned captive rearing programme after they had been incubated 9-13 days. The two pairs these eggs were taken from re-nested ten days after release from the nests. Of the 12 eggs at Mangawhai, one died during incubation and two were of unknown fertility (at the time of candling the eggs were too degraded so results are uncertain) but did not hatch. These two eggs were laid by a second-year female. Seven of the nine chicks fledged successfully. One chick died at 27 days old and the other at 20 days.

Fairy Tern pair	Nest number	Egg fate/Chick fate
KB-M & BK-M	447*	1 egg died during incubation 1 fertile egg part of captive rearing programme See zoo report or further information
W-BM & (K)-pGM	448*	2 fertile eggs - both eggs part of captive rearing programme See zoo report for further information
K-KM & W-KM	450	2 fertile eggs 1 embryo died during incubation 1 chick fledged
WM-RW & R-pGM	451	2 fertile eggs 1 chick died 1 chick fledged
R-KM & pGM-R	452	2 fertile eggs 2 chicks fledged
pGY-pGM & KM-R	453	2 potentially infertile eggs
KB-M & BK-M	454	2 fertile eggs 2 chicks fledged
W-BM & (K)-pGM	456	1 fertile egg, 1 foster egg 1 chick died 1 chick fledged



Mangawhai chick with parent

Photo: Nikki Hartley

Predator Control was increased in response to specific pests throughout the season – rats, harriers and feral cats (who destroyed a colony of red-billed gulls) especially. A total of 71 pests were caught..

Shorebirds: Rangers had limited time this season to collect data. Variable Oyster Catchers, NZ Dotterels, plus 2 resident pairs of Banded Dotterels. Caspian Terns – 37 nests, White-fronted Terns – 47 nests counted, then wiped out by storm.

Compliance & Advocacy: 14 compliance issues, mostly low-flying aircraft disturbing nesting birds – reported to CAA (Civil Aviation Authority) – majority from Tara Iti Golf Course helicopters. One major incident with a 4WD was reported to police. Advocacy talks by Rangers were given to individuals encountered in or around the spit. Floating Ranger Susan Steadman gave a talk to 50 children at Surf Life Saving event. TV1 aired the story of fledgling success at Mangawhai chicks in January.

Discussion: The two main factors which likely influenced this season's high fledgling success are adaptive management of nest sites, in particular disabling SSV (South Sea Valley) and having fewer strong winds and storm events. The decision made by DOC to close SSV led to all fairy terns gathering to nest at another, safer site. There was much more management of site, nests, and fencing protection with more on-site DOC staff, including Floating Rangers employed.

Aviary/Zoo/Captive Rearing - Rangers Alex Wilson, Shelley Ogle and Catherine Francescon

Summary by Glenys Mather

In the 2020 – 2021 season 25 eggs were laid in 14 nests at Waipu, Mangawhai, Pakiri and Papakanui. Twenty three of these were fertile. Twenty of them hatched and of these 14 remained in the wild while 6 were taken to the zoo for incubation. One of these 6 eggs died at 2 days old, while the other 5 hatched and were reared at the Auckland zoo for the first 17 – 22 days and then transferred to an aviary at Te Arai. Of these two suffered an injury or a disease and were euthanized. A further chick was found dead near the aviary 6 days after release from the aviary. A fifth chick was not seen again after the day of release from the aviary and the sixth left the site 21 days after release.



PGB-KM released from the aviary on 10th Feb at 40 days old

Photo: Shelley Ogle

The Recovery group has developed a “Tara iti Captive Rearing Operational Plan” which will be reviewed each year and any changes, improvements, or learnings will be added.

Egg Collection and Incubation

Quite a number of factors feature in egg collection. These include not taking eggs from first year pairings, considering whether to take from one or two egg nests, collecting eggs when they are 9 – 14 days old and limiting the number of eggs to a total of 6 -10. Furthermore, the eggs should all be within 5 -7 days of each other’s laying/hatching date and dummy eggs are not to be used (so that the pair will instead re-lay).

Incubation information on egg weight loss and time taken hatching were recorded to build up data. This initial data and that from subsequent seasons may help to answer the question “Is an extended period of hatching correlated with young chick survival?”

Captive rearing of chicks at the Auckland Zoo

Many decisions were made at the zoo for instance about timing for moving chicks from the brooder, temperature changes, changing from feeding fluids to solids, frequency of feeds, the use of supplements, feeding live fish vs frozen fish and moving from tweezer feeding to self-feeding. Chicks were weighed daily. Learnings included finding answers to such questions as – does chick begging behaviour vary in relation to the number of chicks present?; is live food required at all stages of development (or frozen fish ok, with supplementary vitamins B & E)?; is rearing chicks better in cohorts or as individuals? Recommendations made from these learnings included: the use of frozen fish for feeding is not best practise and should be a last resort, and chicks should be raised in groups though on occasion cohorts may need to be split temporarily to support feeding development . There are numerous benefits to raising chicks in cohorts: fewer stress behaviours were observed; there were shared learnings between chicks; there was more pro-active feeding; there was different/reduced response to people; and the cohort preferred to huddle/roost together.



Three chicks in the aviary. Paint trays with fish in the foreground; shelters with heat pads in the background.

Aviary and Release – Te Arai

The aviary included two pools for fishing, 3 cameras, hides/refuges and heat pads, feeding trays of various sizes (paint trays), shells, sticks and seaweed scattered about to replicate a beach and solar panels to provide electrical needs.

Transport from the zoo to the aviary and release into the aviary were carefully planned. The chicks were transported in a special box. Their age, weight and general health were taken into account when considering a transfer date. Consideration of traffic levels at different times, so as to cause least disturbance to the chicks, was taken into account when choosing time of travel. The transport box was placed in the aviary on arrival, opened and the birds left to exit in their own time.

At the time of release from the aviary a number of matters were taken into consideration including the development stage of each bird, the weather, predator control (quite a number of groups are engaged with trapping & the Recovery Group will continue innovating trapping efforts with them) and the behaviour of other Tara iti in the vicinity. This season there was a “soft release” which means that fish in pools continued to be available to the chicks so they would favour foraging in proximity to the aviary. However, next season it is proposed to have a “hard release” which entails no supplementary feeding. Recommendations include the following: hold the chicks in the aviary for longer until they can catch fish using hover and plunge techniques in moving water; build a bigger aviary to enable increased development of flight muscles and diving skills; follow a “hard release” practise at the adult Tara iti flocking site; use behavioural observations rather than a specific age to determine release time for a chick; ensure communication on the day of release is reviewed so

the observing group quickly informs and updates the team on the bird's whereabouts; and keep regular tabs on fledgings through the season after release.

Intraspecific and Interspecific interactions

One adult Tara iti in particular, RY-BM (Donald, from the 2019-2020 season) who was supplementary fed as a chick at Te Arai, interacted quite a lot with the released chicks. The aviary is in his territory. Other species which were in the vicinity and were noticed by the chicks included dotterels, VOCs and a gull.

Pakiri – Rangers Amanda Kirk and Shelley Ogle

Summary by Diane Piesse

The northern side of Pakiri beach, where the dunes have formed, is the favoured breeding site for tara iti in this area. Pakiri beach was established as a breeding site in the 2003/4 season and has been monitored by DOC rangers and volunteers ever since. In the 21/22 breeding season there were three tara iti residing at Pakiri beach.

The breeding pair of RM-RW and RM-K established three nests during the breeding season. An unpaired male K-RM also resided at the beach and was seen fishing and defending the area from other bird species.



RM-RW chasing K-RM after a fish feeding attempt with RM-K

Photo: Shelley Ogle

Nest 1: a single egg (B) was laid in an unfavourable location. The egg was immediately removed and taken to Auckland Zoo and a dummy egg placed in the nest. The next day the nest site was lost to the tides.

Nest 2: two eggs (G and I) were laid in this nest. Egg B was transferred back from the zoo to this nest to be incubated by its natal parents. Egg B attempted to hatch but failed. At various times eggs G and I were removed to the Zoo for purposeful collection.

Nest 3: two eggs (T and U) were laid but taken to the Zoo due to an adverse weather event (Cyclone Ruby). The older of these two eggs (T), was then transferred to Mangawhai, and the second egg(U) was reared and released as part of the captive rearing programme.

No tara iti chicks were successfully hatched or reared at Pakiri this breeding season. However the Pakiri breeding pair of RM-RW and RM-K contributed 4 chicks (or 20%) to the total of 20 chicks hatched across all breeding sites in the 21/22 breeding season.

The Ranger's recommendations for Pakiri included:

- nest enhancement through building up shell patches and enhancing places that are more sheltered from the tides.
- keeping the nesting areas fenced all year round
- more intensive predator trapping before the breeding season begins
- discussion with landowners and Auckland Council to enforce more restrictions on domestic cats
- involve Pakiri camp ground in getting the public engaged in the local environment.
- more advocacy over the Christmas period, including having a ranger positioned at the main entrance to the beach to increase awareness about tara iti (and other bird species).
- Form a new beach access away from the river edge for high tide situations.

Papakanui – Rangers Kelsie Hackett, John Neilsen and Shelley Ogle

Summary by Jenny Price

The Papakanui breeding site is located at the top of the South Head end in the North West of the Auckland Region. The area used by the Fairy Tern during the breeding season is large and encompasses the north end of Te Oneone Rangitira Beach, the Papakanui sandspit, the Wainoui Inlet and a partial island known colloquially as Waller Island. It is certainly a wild and remote place. It is also used as a practice bombing range by the NZ Defence Forces, (NZDF) but not in the breeding season. The NZDF are responsible for the security of the area, not the DOC rangers, but co-operate with the reporting of any difficult visitors. Fisherpersons use the area illegally for fishing over the summer but are generally compliant with avoiding nesting areas. There was one fire that necessitated the intervention of the Fire Brigade.

The 2021-2022 breeding season for the Fairy Tern at Papakanui was the most successful for the past 9 years. Two nests were made, the first and the last of the season. In the first, one chick was fledged and banded but unfortunately probably predated the day after. The trapping network did not extend to the area where this nest was situated. In the second nest, two eggs were hatched and removed to Auckland zoo where one died of unknown causes and the other was successfully fledged. This is an example of how vulnerable the New Zealand fairy tern is where these numbers are counted as successful. It was 6 seasons ago that one chick was fledged at this whole site.

Two rangers were on site Monday to Friday from 27th September to 22nd October 2021, then one ranger seven days a week from 23rd October to 17th February 2022. Tara –iti monitoring conducted daily included : searching

for breeding pairs, identifying nesting sites, monitoring chicks or fledglings and collecting data. The Rangers were also monitoring other shorebirds during this period.

The predator control consisted of 142 traps of different types, set for 16,984 trap nights. A total of 534 animals were caught mainly hedgehogs and possums. Traps will be set around any nesting sites in the future to protect the nests. The second nesting site had a SA2 traps specifically set and a large male stoat was caught the following day. It was recommended by the Rangers that Autumn trapping be introduced and more use of remote trapping devices be used in the future to cover a wider area.



There are a number of areas for nesting sites at Papakanui , but the best and safest are on the Te Oneone Rangitira Coast. This nest was the first laid in recent history and required no intervention by the Rangers for protection from the harsh weather conditions. The other nest required a “U” shaped protection device to prevent it being inundated by wind blown sand.

Shell patch enhancement has been undertaken at Papakanui over the past seasons and from 2017 11 shell patches have been enhanced or created, but due to Covid restrictions no new ones were created in the 2021-2022 season. Hopefully more nesting sites will be established by the NZ Fairy Tern in the next season.

Thanks to the DOC Rangers for these reports.

If you would like any of the full reports emailed to you, please contact us at info@fairytern.org.nz