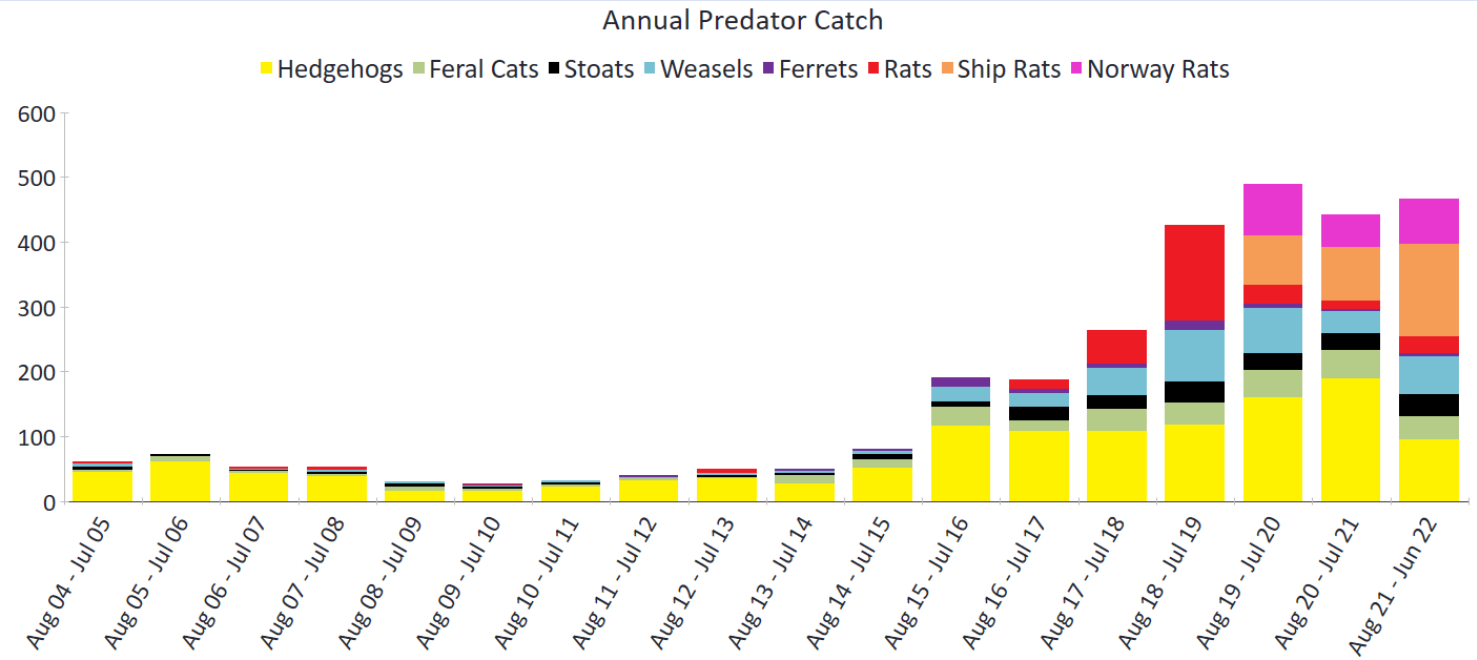
Ashley Rakahuri
RIVERCARE GROUP

Ashley - Rakahuri River Predators and Trapping

BRaid Seminar 2022

Grant Davey



Braided river specialists – birds that depend entirely or to a large extent on these rivers for breeding

They are what is unique with the New Zealand braided rivers, and what ARRG has been about since 1999.

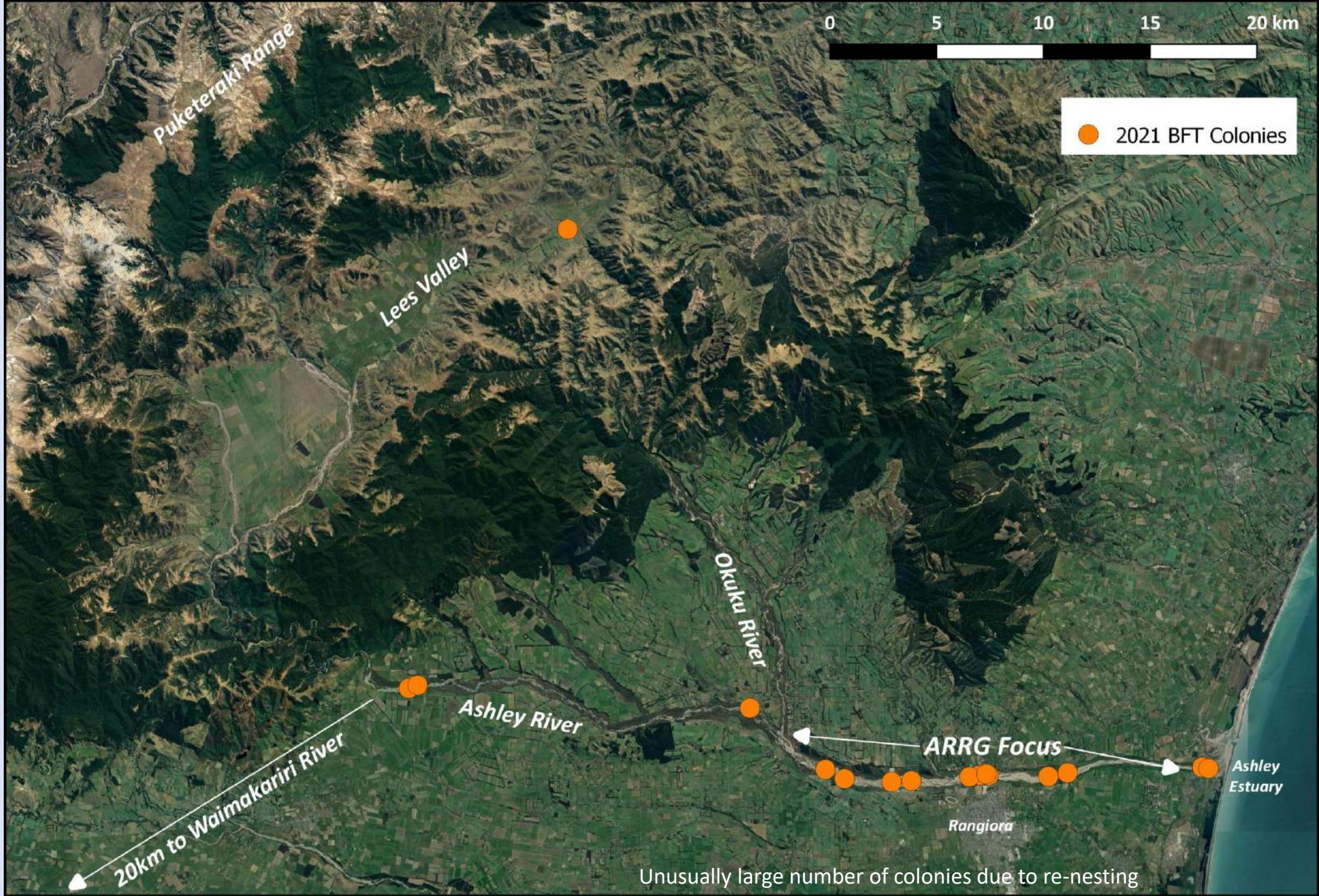
ARRG activities are focused on the 21km between the Okuku junction and State Highway One.

There is also trapping around the estuary.

There are braided river birds (BFT, BBG, BD, SIPO, PS) breeding outside our focus area. This might be more important than previously recognized.

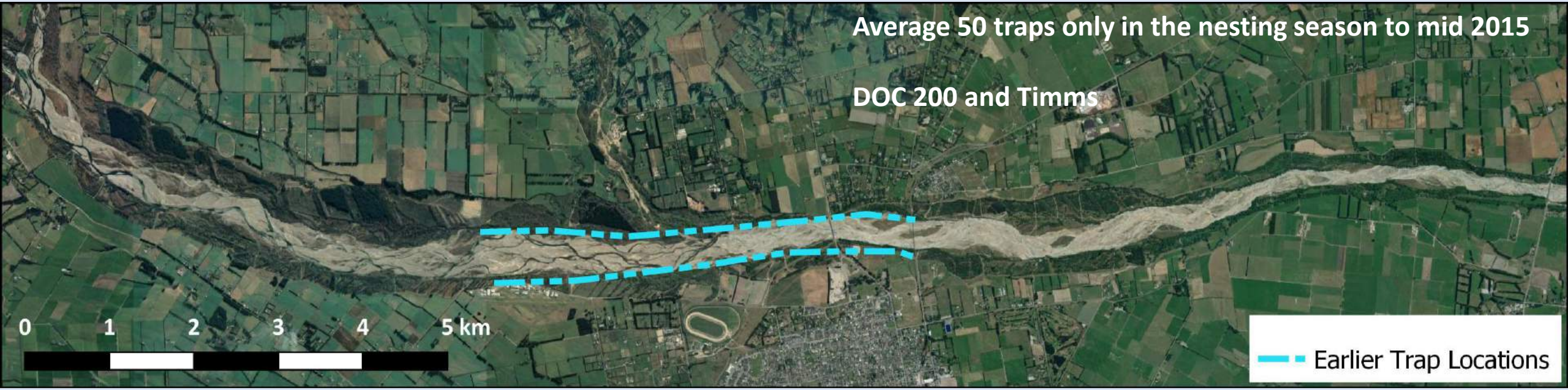
There could be more BFT fledglings produced upstream from our area than within it.

Proximity to the Waimakariri strongly influences our bird numbers.

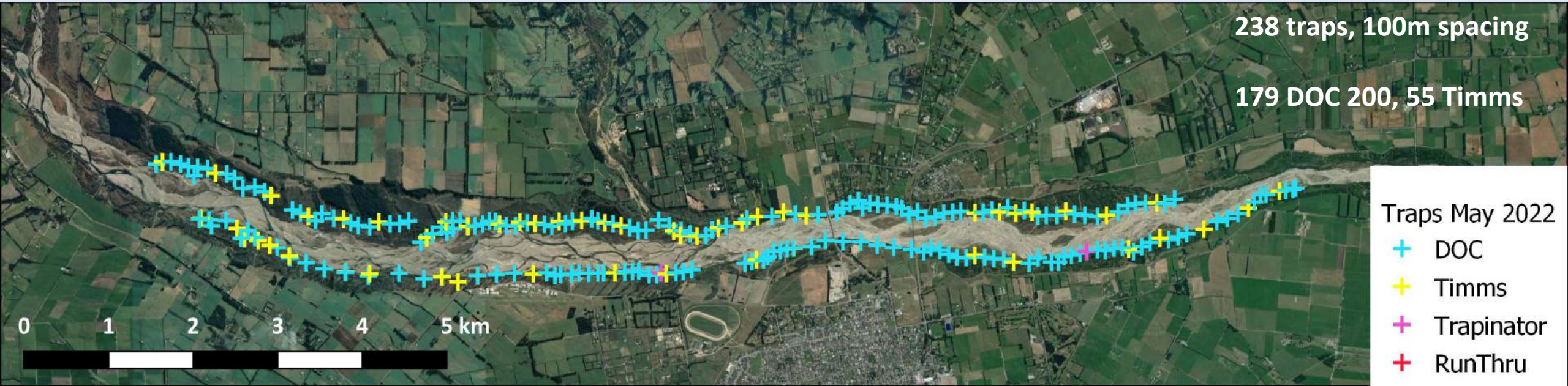


Unusually large number of colonies due to re-nesting

2004 - 2015 trapping on the berm



2022 permanent trapping on the berm – covers bulk of prime nesting area



Fairway nesting season trapping – 2021 season

101 trap locations at various times at BFT colonies, wrybill and BD nests

Mainly DOC 150 run through type, a few rat, Timms and Fenn traps.

"RunThru" trap

Fenn trap

Trapping details

- 17 trappers with around a dozen traps each, fortnightly checking
- Trap layout – 100m spaced, far enough from river, easy to get at, hidden from the public, not too much undergrowth. Apparently excellent appearing trap sites catch no more than anywhere else.
- Bait – eggs, salted meat, peanut butter, cat biscuits, eraze, (ham rinds, curry powder, chocolate, hazelnut butter, walnuts…..)

Ashley Rakahuri
RIVERCARE GROUP

TRAPPING DATABASE

Annual data since 2004, more detailed data on a per trap basis since 1 February 2019

Manage Data:

- Add / View Traps
- Add Trapping Data
- View / Edit Trapping Data
- View/Edit Dates Checked
- Add / View Lines | Trap Types | Active Traps

Analyse Data:

Spatial

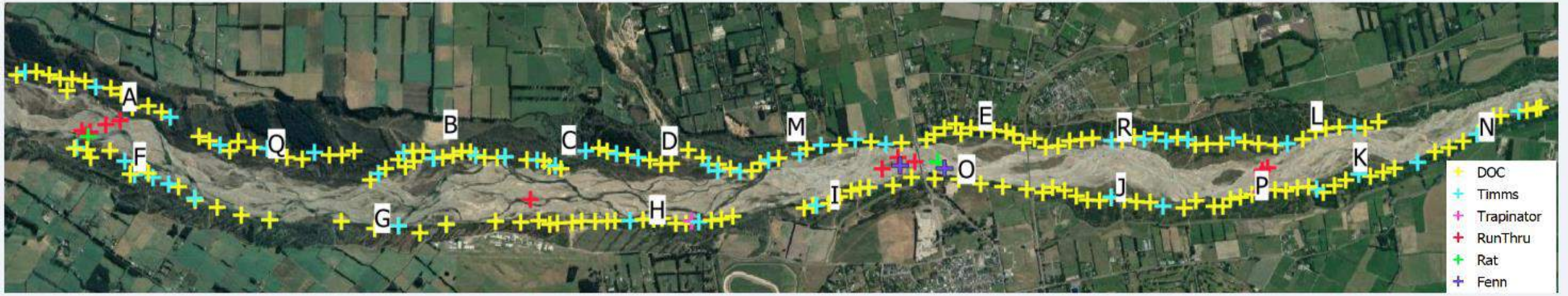
- Per Trap | Per Site
- Per Line | QGIS Pies
- Line Nights | Cover Nights | Location Nights

Temporal

- Annual Data | Annual Charts
- Checks per Line | Checks per Month
- Predator Pie | Catch per Check | Catch Check - All
- Monthly - 1 Year | Monthly - All
- Average Monthly
- Trap Nights | Status

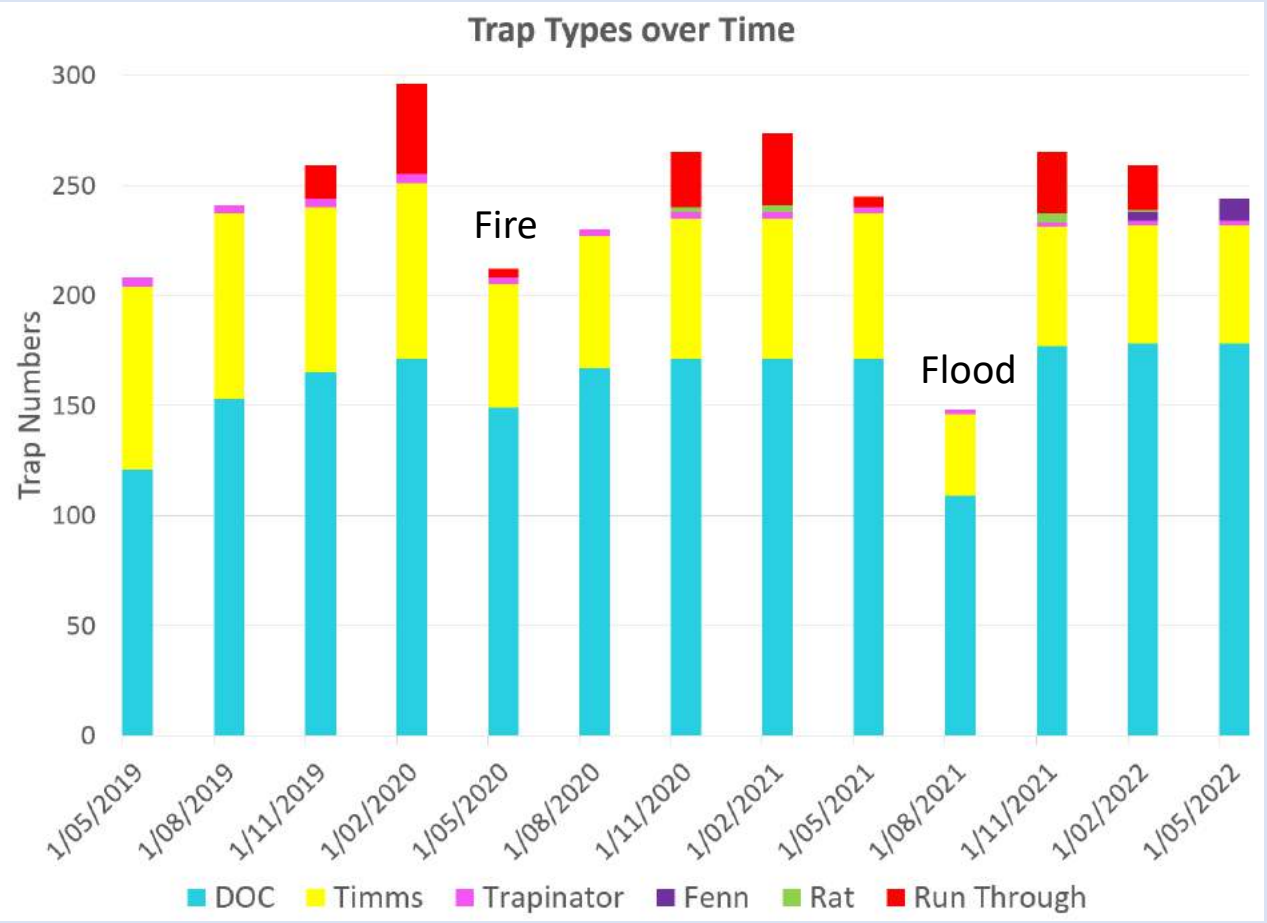
Main menu of trapping database

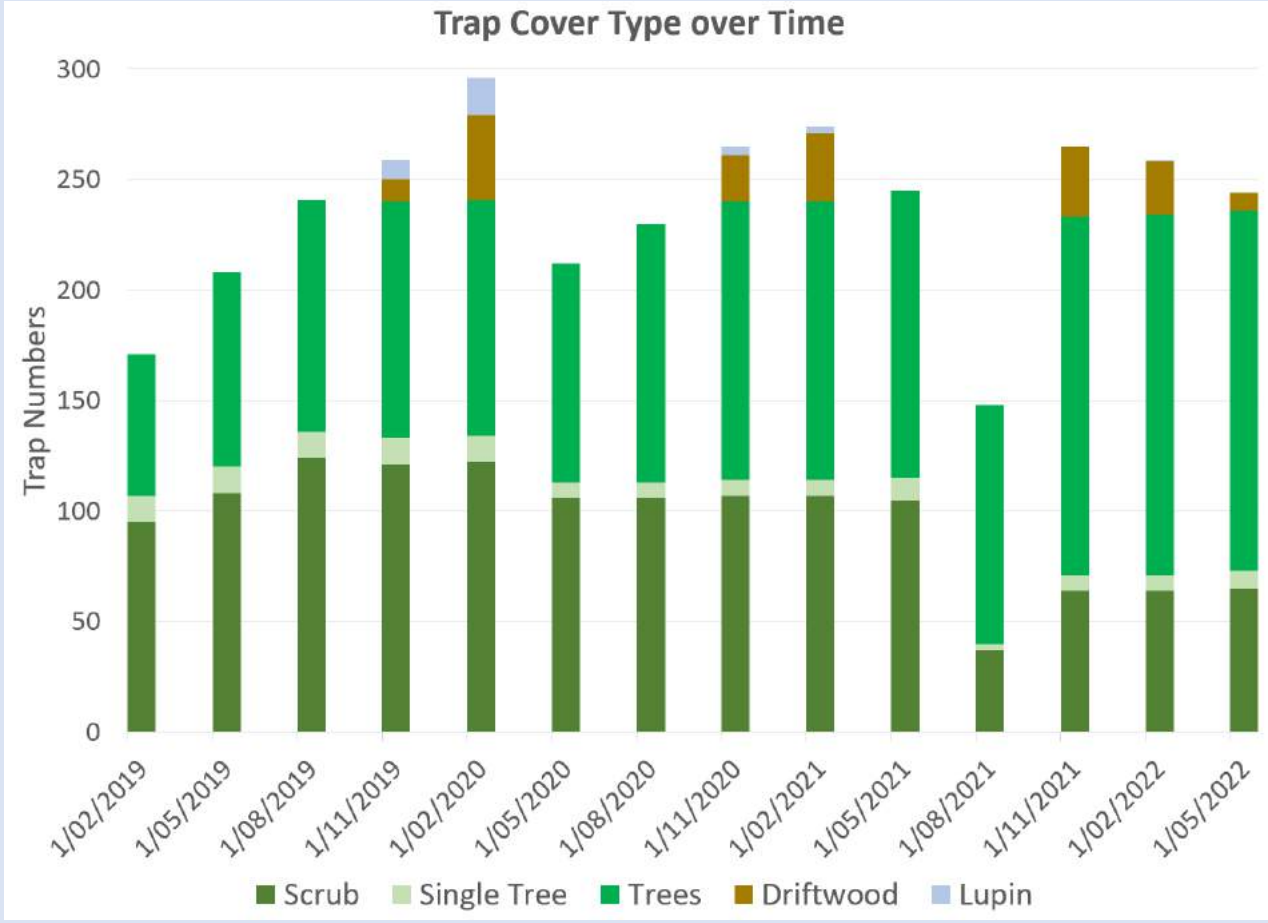
Button pushes generate summary tables and charts as shown in this presentation.



Temporal Data

Three monthly trap counts since February 2019



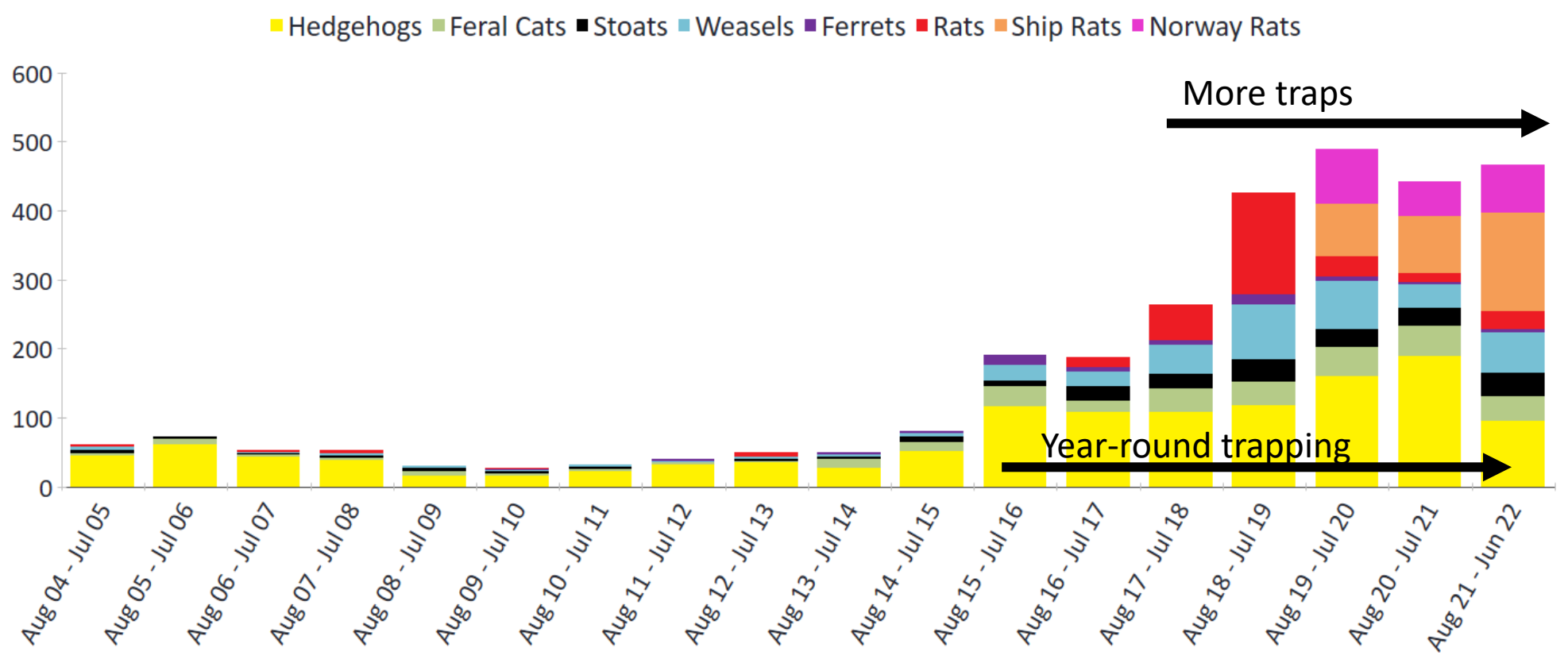


Trap numbers, types, locations and cover type change over time, these factors impact on what we catch and when and have to be considered when interpreting results

Annual Predator Catch

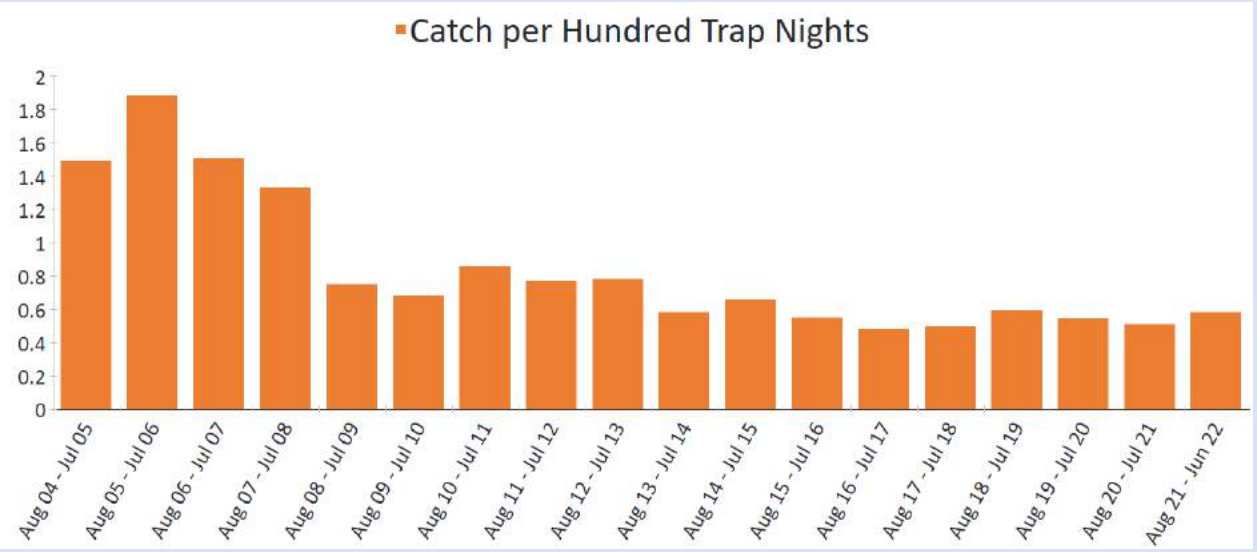
Three main features:

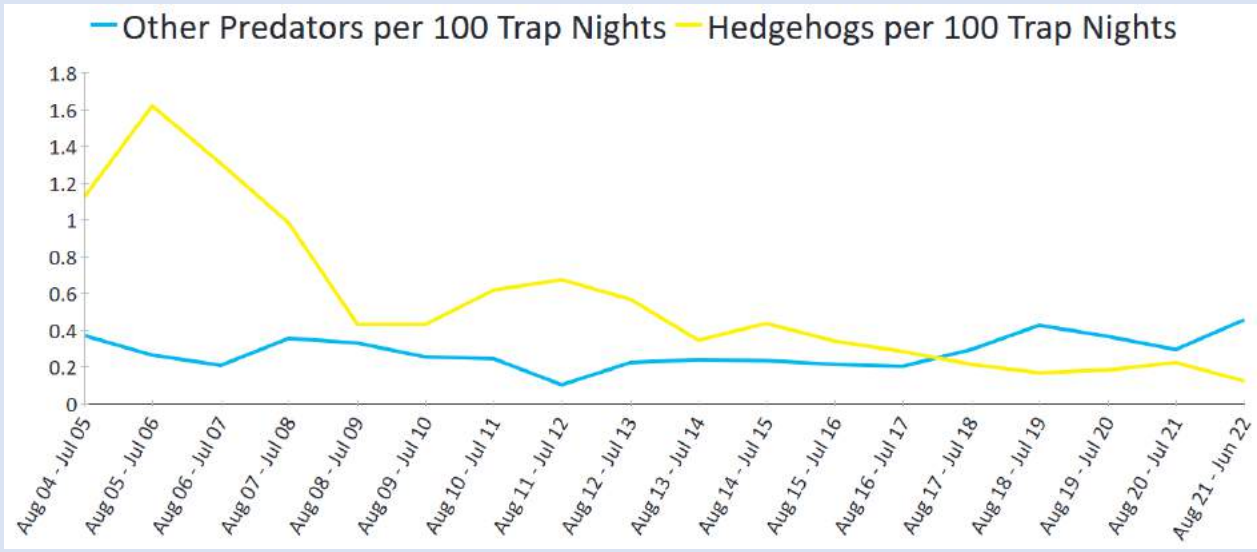
- Increase in catch over time mainly due to two factors - prior to Aug 2015 trapping was only in the nesting season, from 2017 many more traps were used.
- Hedgehogs were the overwhelmingly dominant catch to mid 2013
- Rats appeared in numbers after mid 2016 – species only distinguished since mid 2019. The rat boom can only be partly explained by different trap locations and types.



At estuary – more stoats, far fewer hedgehogs

Catch rate over time





The apparent decrease in catch rate over time is misleading:

- Prior to 2015 there were fewer traps in a restricted area, and only in the nesting season – should we even plot this with later data?
- A single line of traps within a broad berm with farmland either side is unlikely to cause this effect
- Hedgehogs are the main cause of decline, this is nationwide – roadkill surveys.
- **No evidence that our trapping has had an impact on predator numbers.**

At estuary catch rate has been declining

Study on trap visits and trapping success

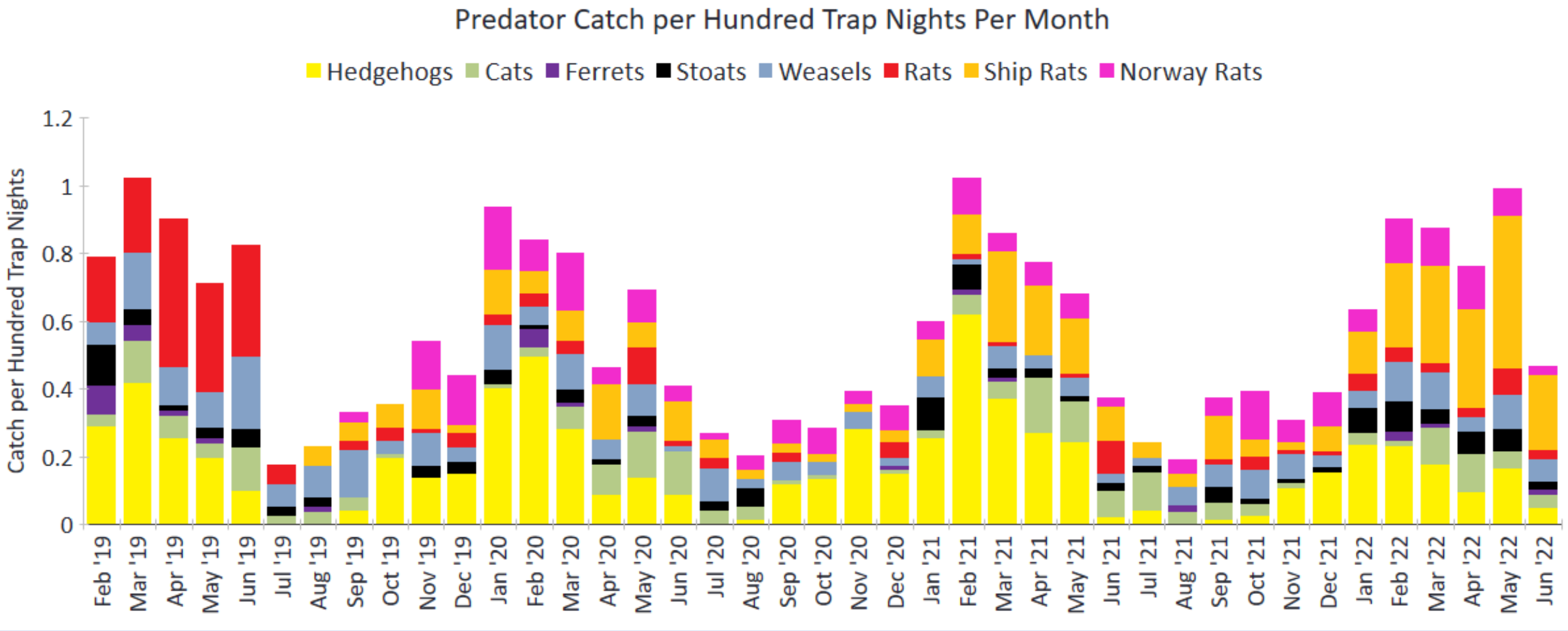
Three sets of three traps – DOC 200, DOC 150 in run through box and Timms monitored for two months.

- **8.3% of visits of all predators resulted in a catch**
- Feral cats – 2%
- Hedgehogs – 22%
- Rats – 22%
- Mustelids – few seen

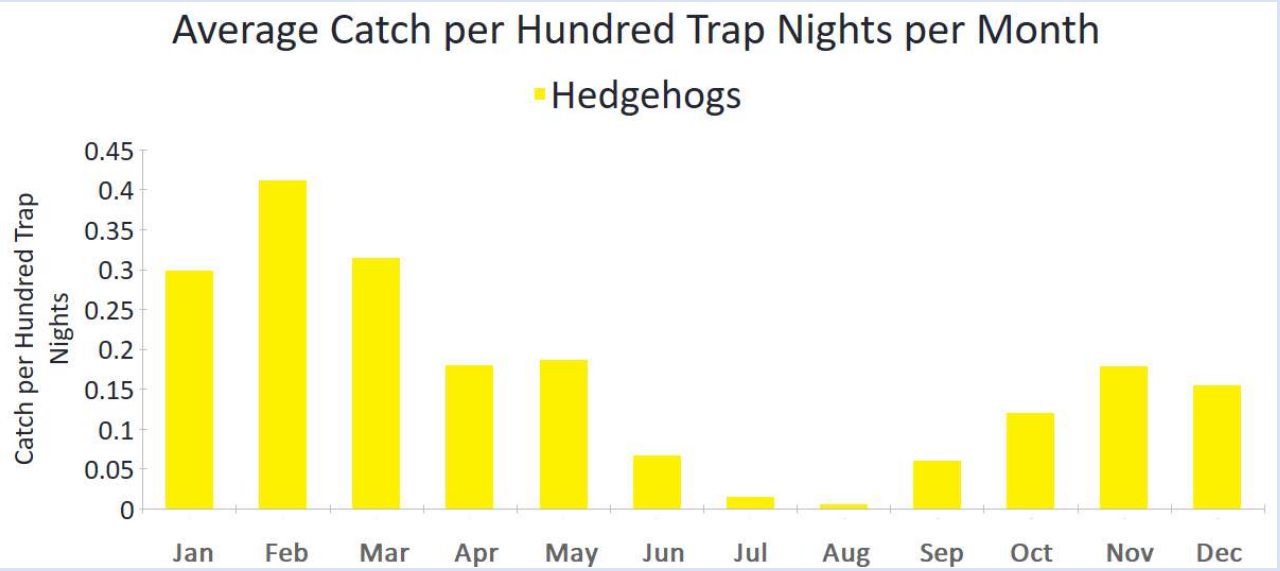
From ARRG 2021 Annual Report

There is a strong seasonality to our catch – peaking January to May

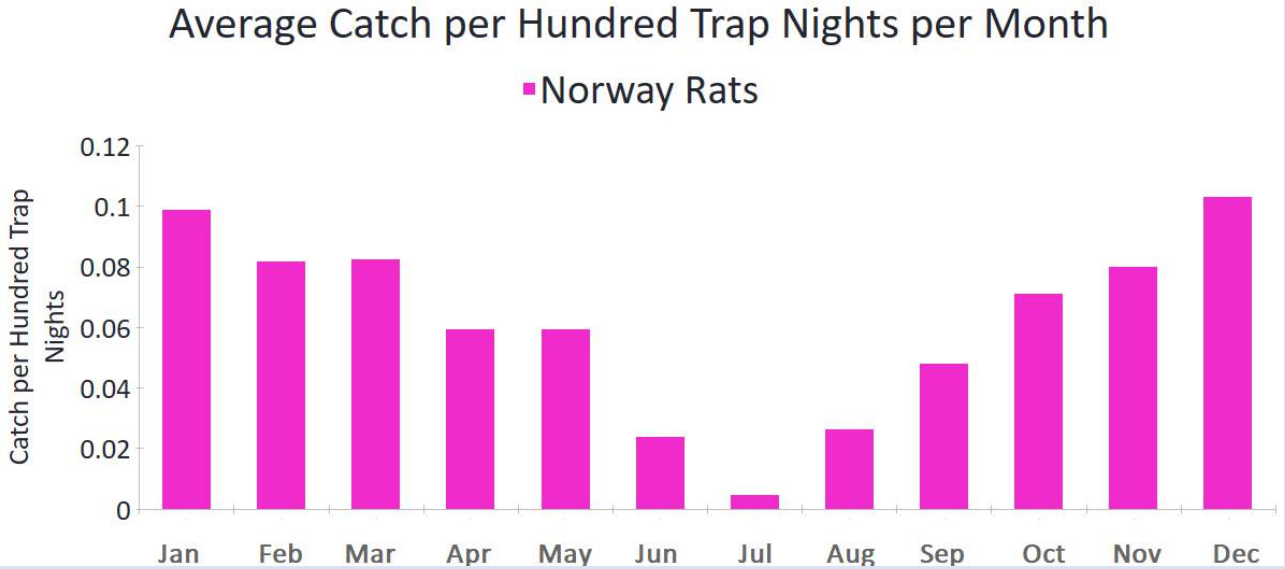
The following graphs are for data since 1 February 2019

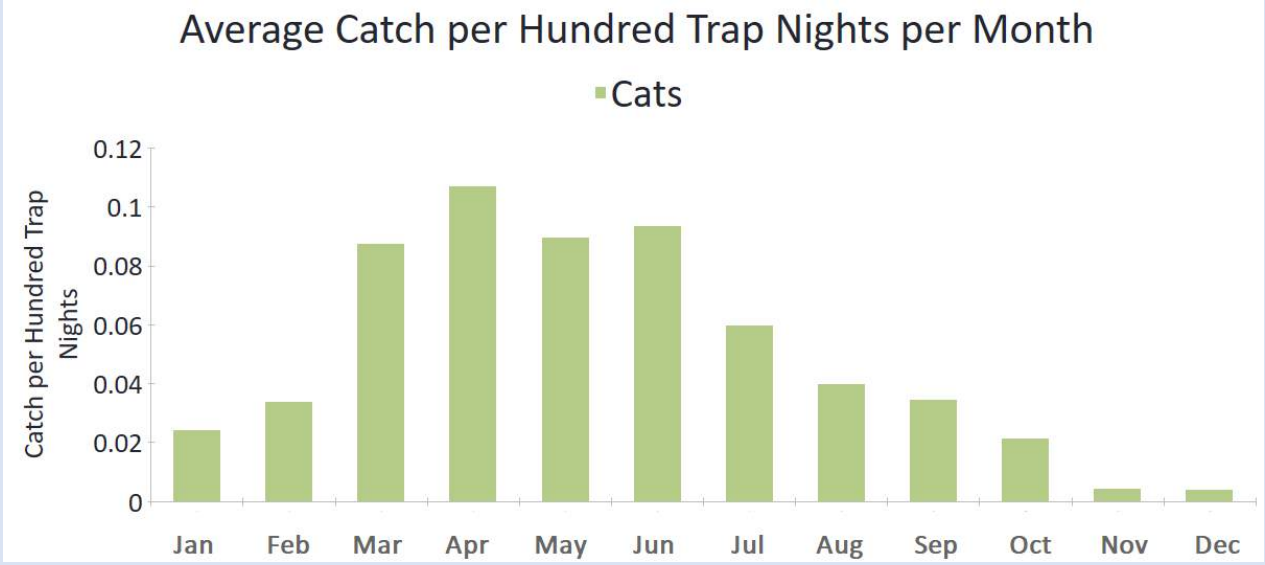


Main drivers of seasonality



- Hedgehogs – hibernate Jul – Aug, more are caught after the nesting season than during it - are they busy eating eggs?
- Norway rats - catch is very low in winter, high during and after nesting season. Where do they go?
- Cats - catch peaks after the chicks have flown away, are they busy eating chicks before this?





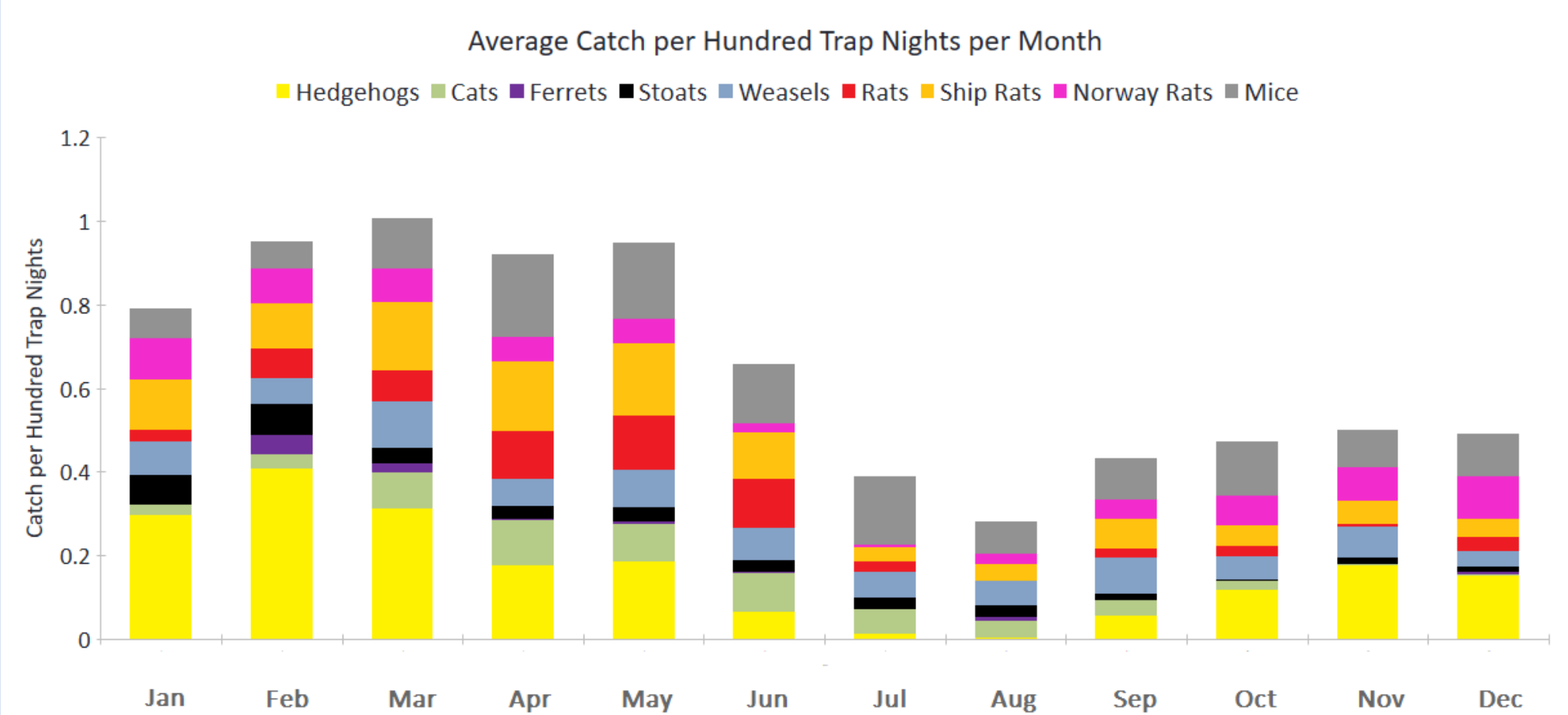
Mice

Mice are a significant component of our catch (22%) – in DOC 200 traps.

They:

- Eat bait
- Clog up traps
- Set traps off
- Provide year-round food for other predators – as do rabbits.

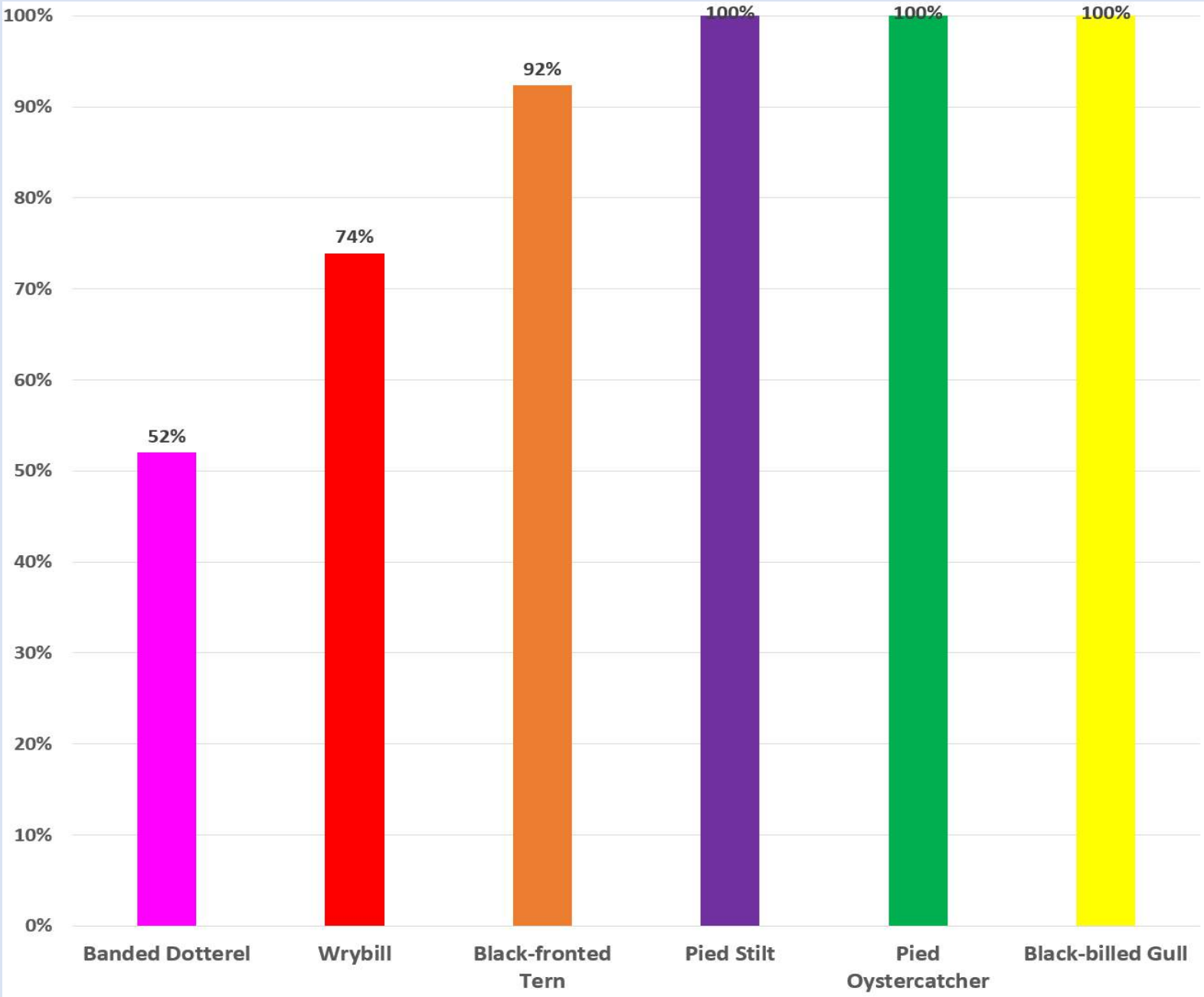
They shouldn't trigger DOC 200 traps. Explanation – they think the traps are trampolines



Spatial Data

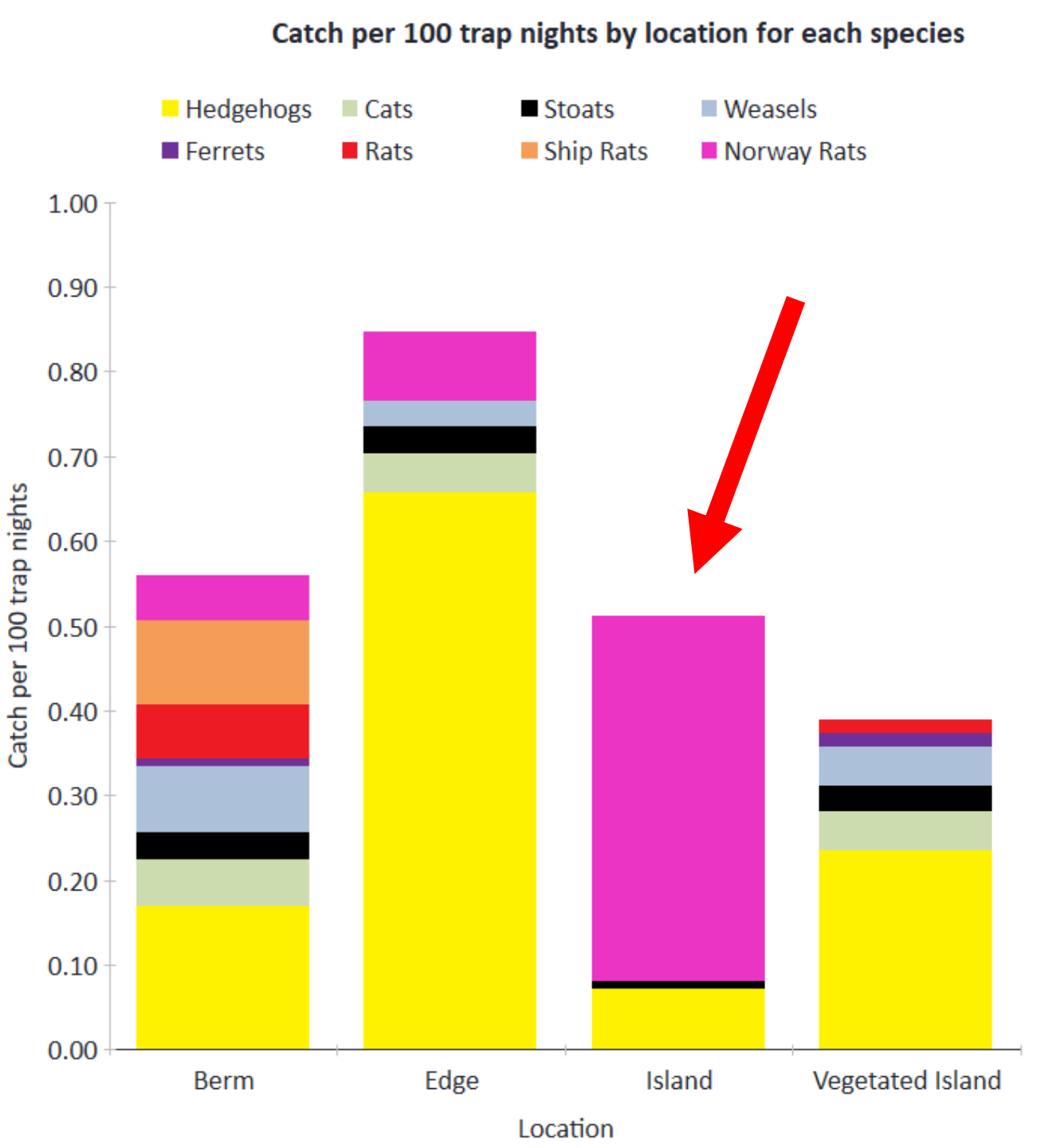
Where do the birds nest?

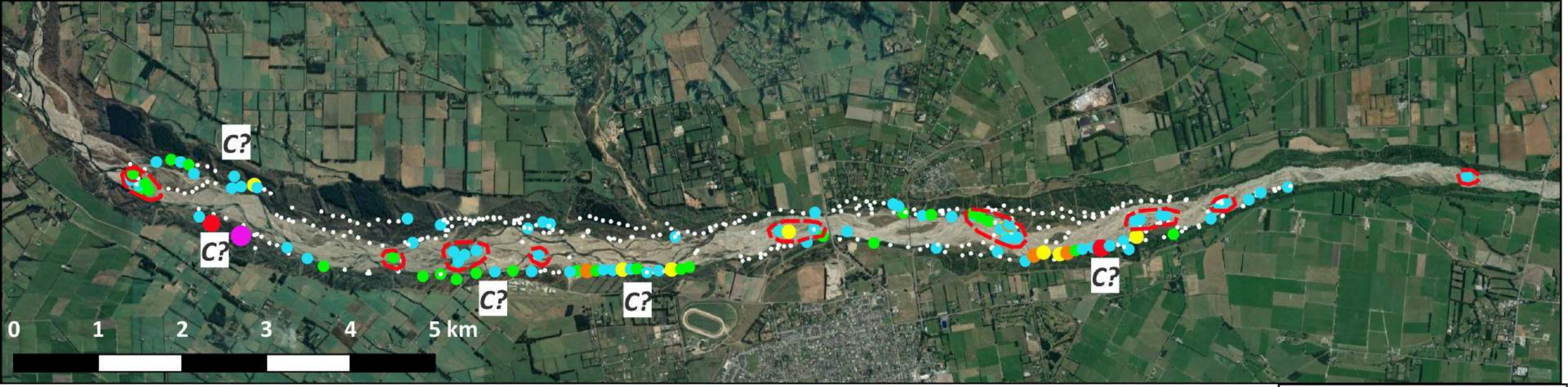
Most species overwhelmingly nested on islands in the braided sections of the river in the last three years.



Each trap is coded for location – berm, fairway edge, island or heavily vegetated island

- Most of our birds nest on islands and the only catch on islands in the last three years has been of **Norway rats, a stoat and hedgehogs**.
- Catch rate of Norway rats on islands is very high partly as traps are mainly there only in the nesting season – evidence is that rats are only there then.
- Hedgehogs only go to the islands when flow dries up – in the last three years this has been after or at the end of the nesting season. They particularly threaten BD that often nest on the edges of the fairway.
- Cats have been seen on islands, but rarely go in traps – **they are more of a threat than is shown in our trapping**
- There are no ship rats and very few weasels on the fairway.
- **Norway rats are by far our main threat, this is backed up by trail camera evidence.**





Norway Rat catch per trap

Norway rats are caught predominantly on the fairway at nesting sites during the season, and along the south bank. Is there evidence of rat colonies in places along the south bank?

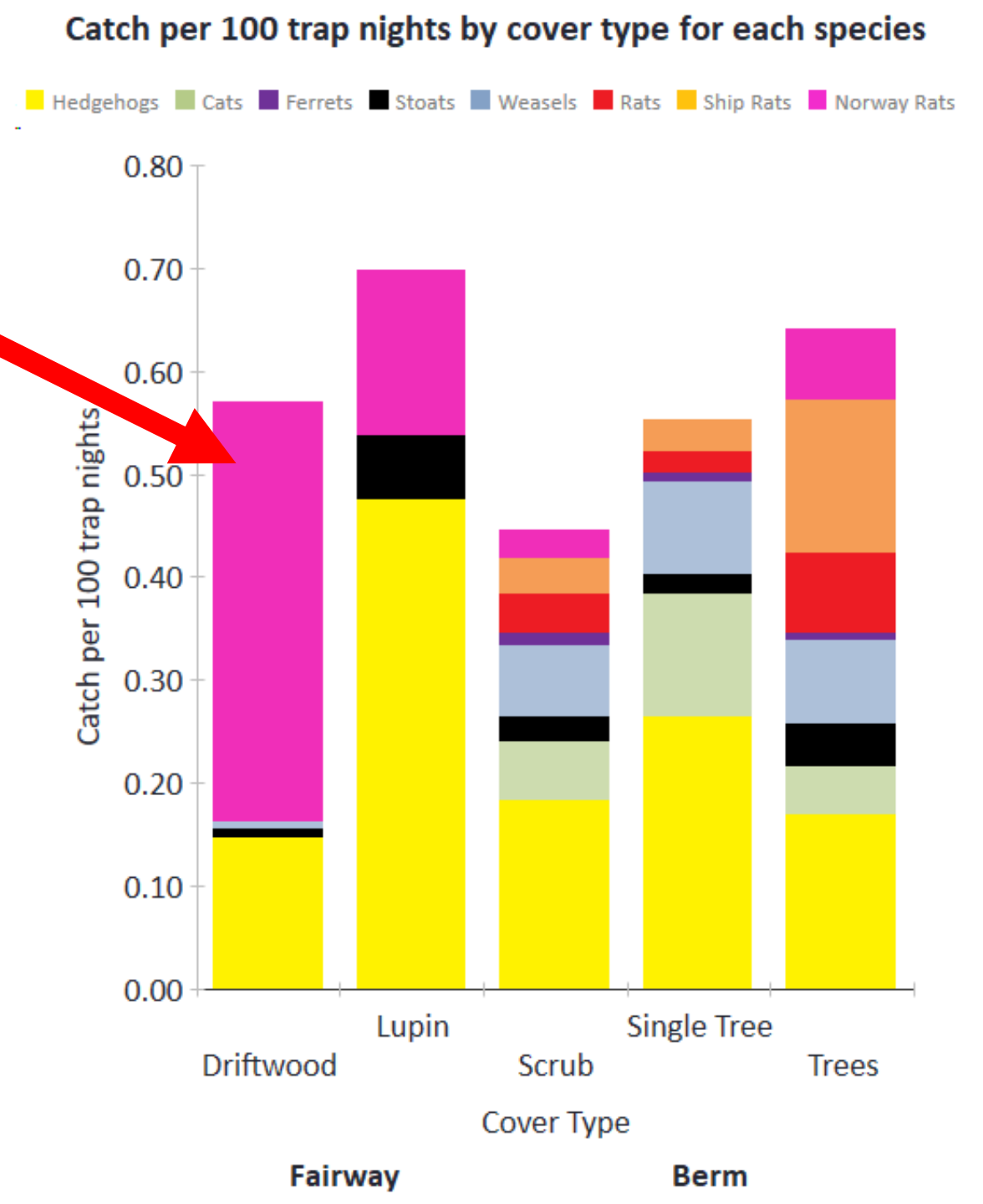
We know far too little about the distribution, habits, food sources etc of Norway rats along braided rivers.

Maps like this made for all predator species

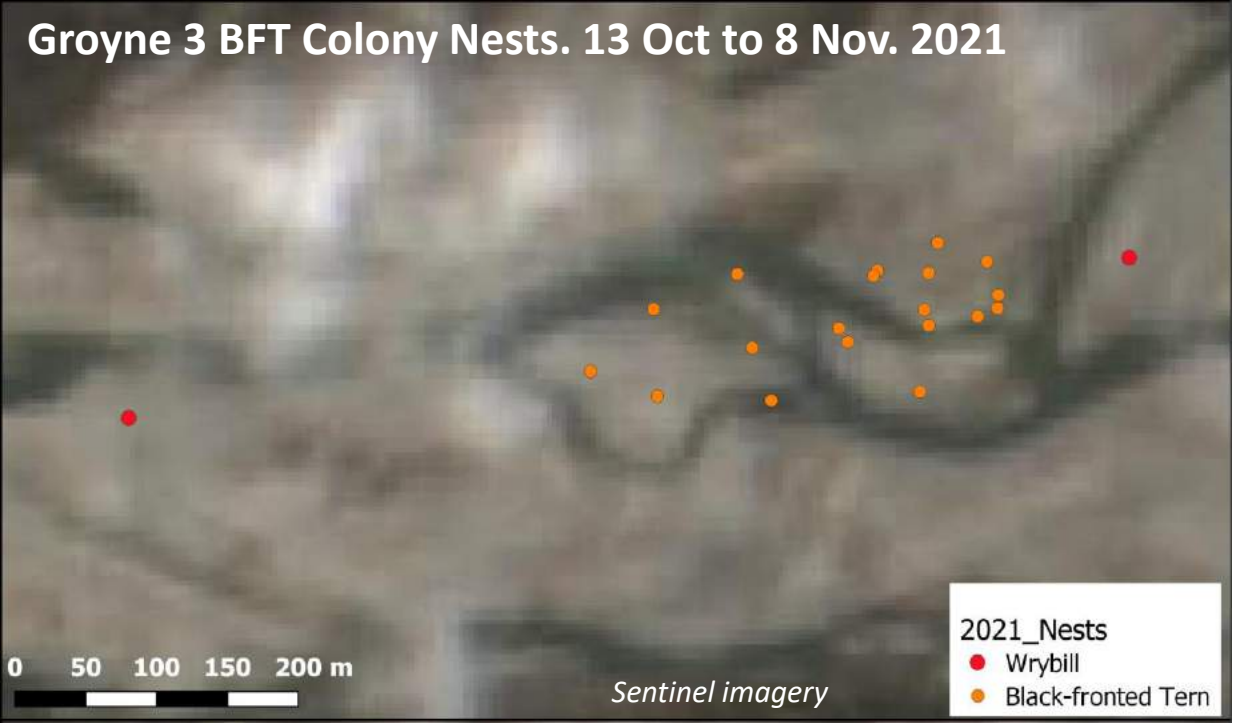
Norway Rat Catch per Trap
6
5
4
3
2
1
Fairway Norway Rats
Norway Rat Colony
C?

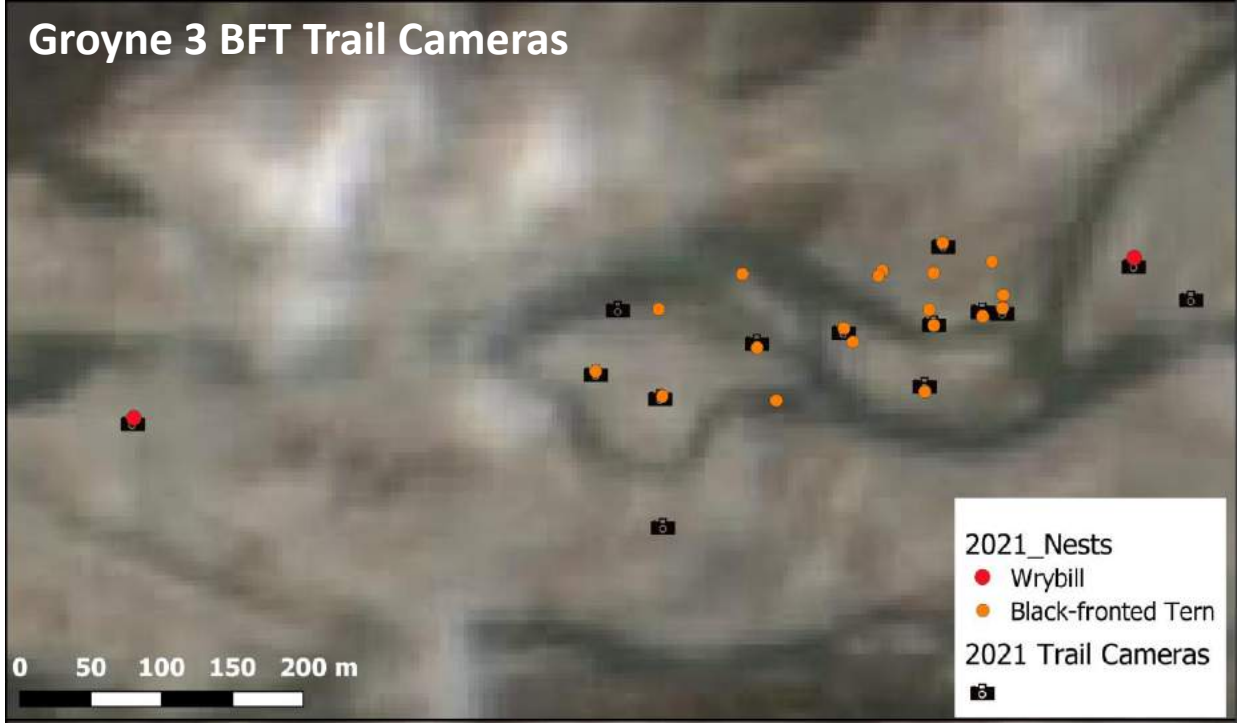
Each trap is coded for the cover it is under – driftwood, lupin, scrub, single tree or trees

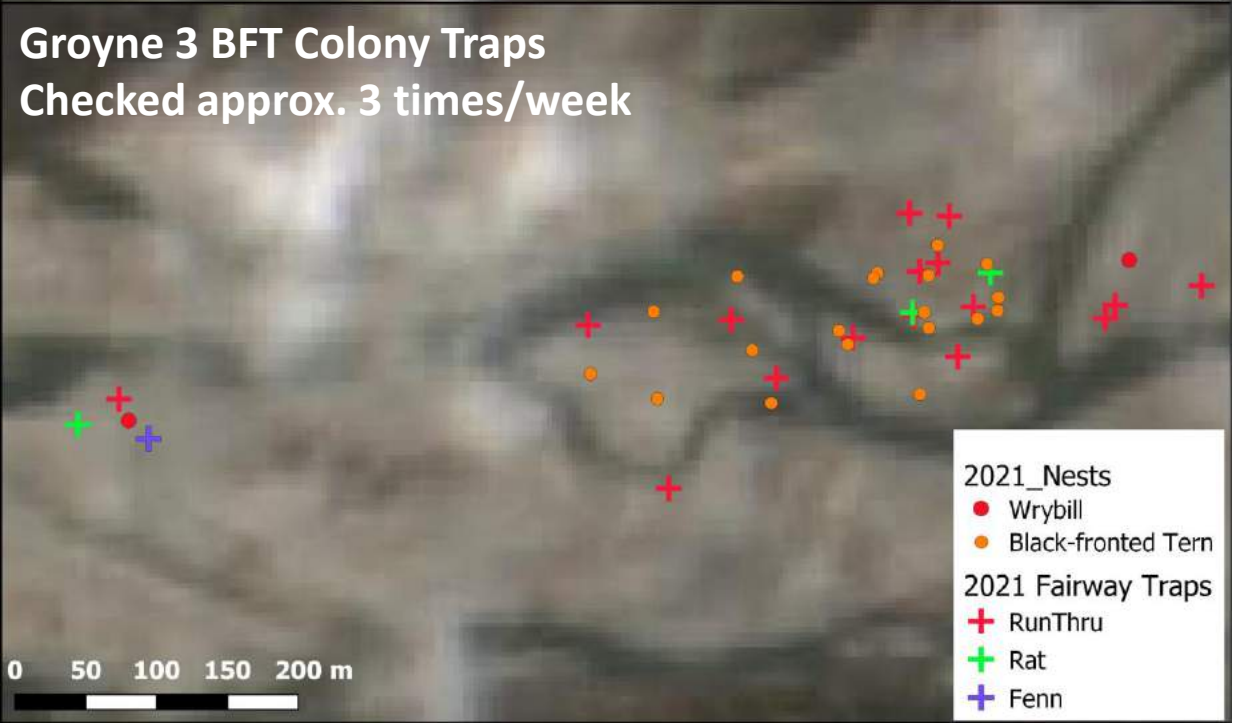
- Norway rats - the most productive sites on the fairway have been under driftwood/logs. **Are there Norway rats on parts of the fairway that don't have driftwood or weed??**
- Hedgehogs and stoats – on the fairway they are more often caught under weed cover than driftwood.
- Ship rats are overwhelmingly caught under trees
- Weasels are caught under all cover on the berm.

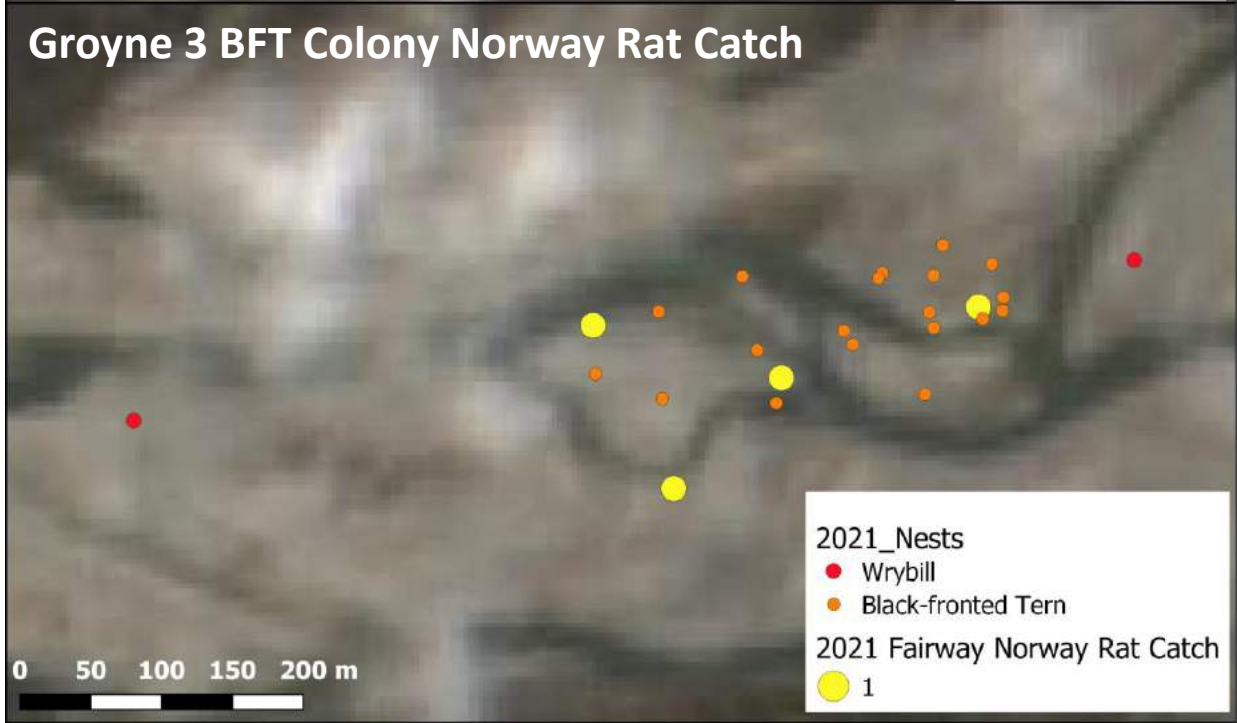


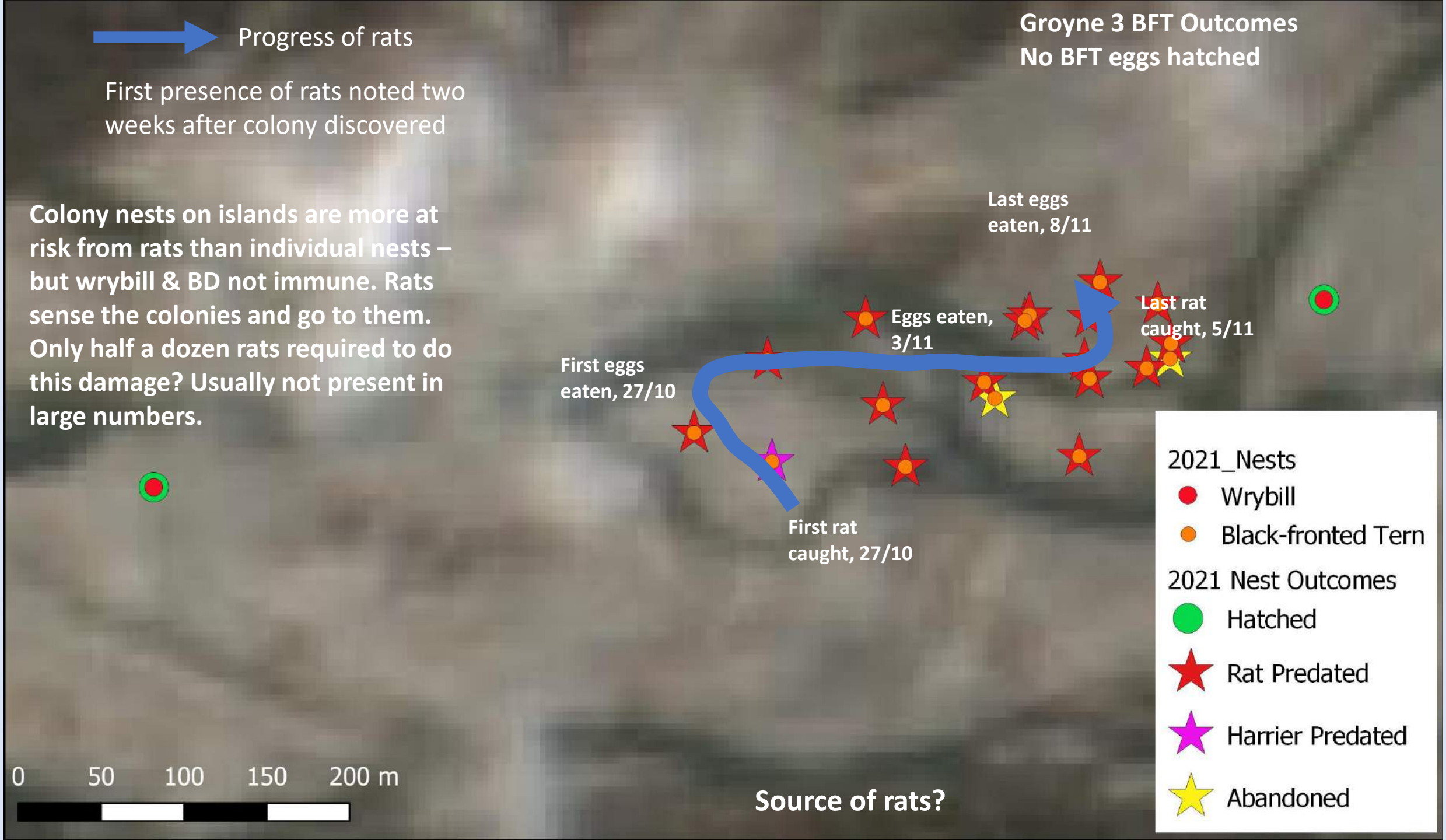
Fairway Trapping and BFT


Groyne 3 BFT Colony Nests. 13 Oct to 8 Nov. 2021
0 50 100 150 200 m
Sentinel imagery
2021_Nests
Wrybill
Black-fronted Tern


Groyne 3 BFT Trail Cameras
0 50 100 150 200 m
2021_Nests
Wrybill
Black-fronted Tern
2021 Trail Cameras


Groyne 3 BFT Colony Traps
Checked approx. 3 times/week
0 50 100 150 200 m
2021_Nests
Wrybill
Black-fronted Tern
2021 Fairway Traps
RunThru
Rat
Fenn

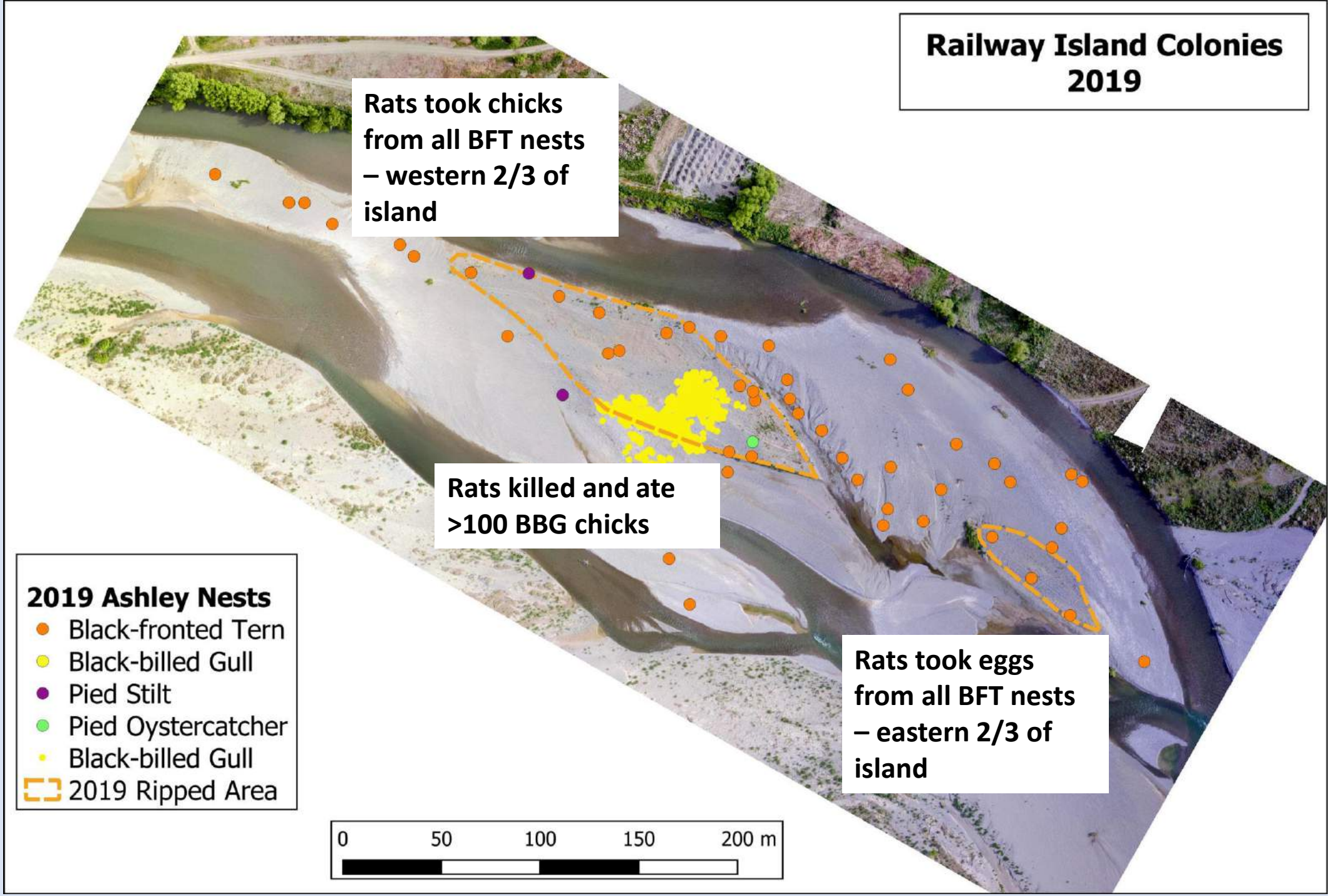

Groyne 3 BFT Colony Norway Rat Catch
0 50 100 150 200 m
2021_Nests
Wrybill
Black-fronted Tern
2021 Fairway Norway Rat Catch
1


Progress of rats
First presence of rats noted two weeks after colony discovered
Groyne 3 BFT Outcomes
No BFT eggs hatched
Colony nests on islands are more at risk from rats than individual nests – but wrybill & BD not immune. Rats sense the colonies and go to them. Only half a dozen rats required to do this damage? Usually not present in large numbers.
Last eggs eaten, 8/11
Eggs eaten, 3/11
Last rat caught, 5/11
First eggs eaten, 27/10
First rat caught, 27/10
2021_Nests
Wrybill
Black-fronted Tern
2021 Nest Outcomes
Hatched
Rat Predated
Harrier Predated
Abandoned
0 50 100 150 200 m
Source of rats?

1,547 BBG nests
48 BFT nests

Norway rats wiped out the BFT colony – arrived 1 week after traps were installed, 3 weeks after first nests were found found.

17 Norway rats caught, perhaps 25 – 30 present



BFT Nest, Cones Road

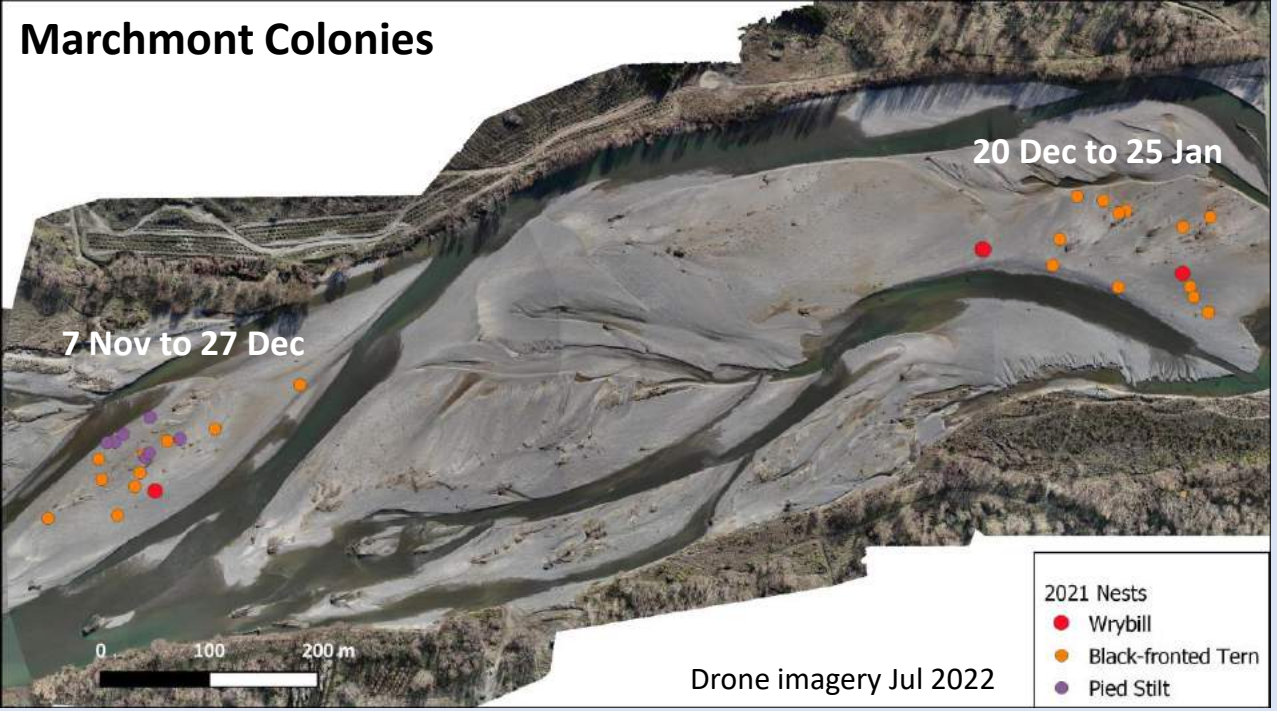
Rats usually carry eggs away to eat

Rat took one chick, came back minutes later for the second

Only one incident noted in 2021 of chicks being taken


Only one rat caught in two months – after the birds had left. Rats very interested in bait, different baits tried, but they were extremely trap – shy. Some other places they went in traps OK.
• Need to make traps less intimidating.
Rat trap
Fenn
Fenn
DOC 150 run through
2,916 photos like this.
MOULTRIE
57 °F
CAMERA 8
24 NOV 2021 04:36AM

Marchmont Colonies



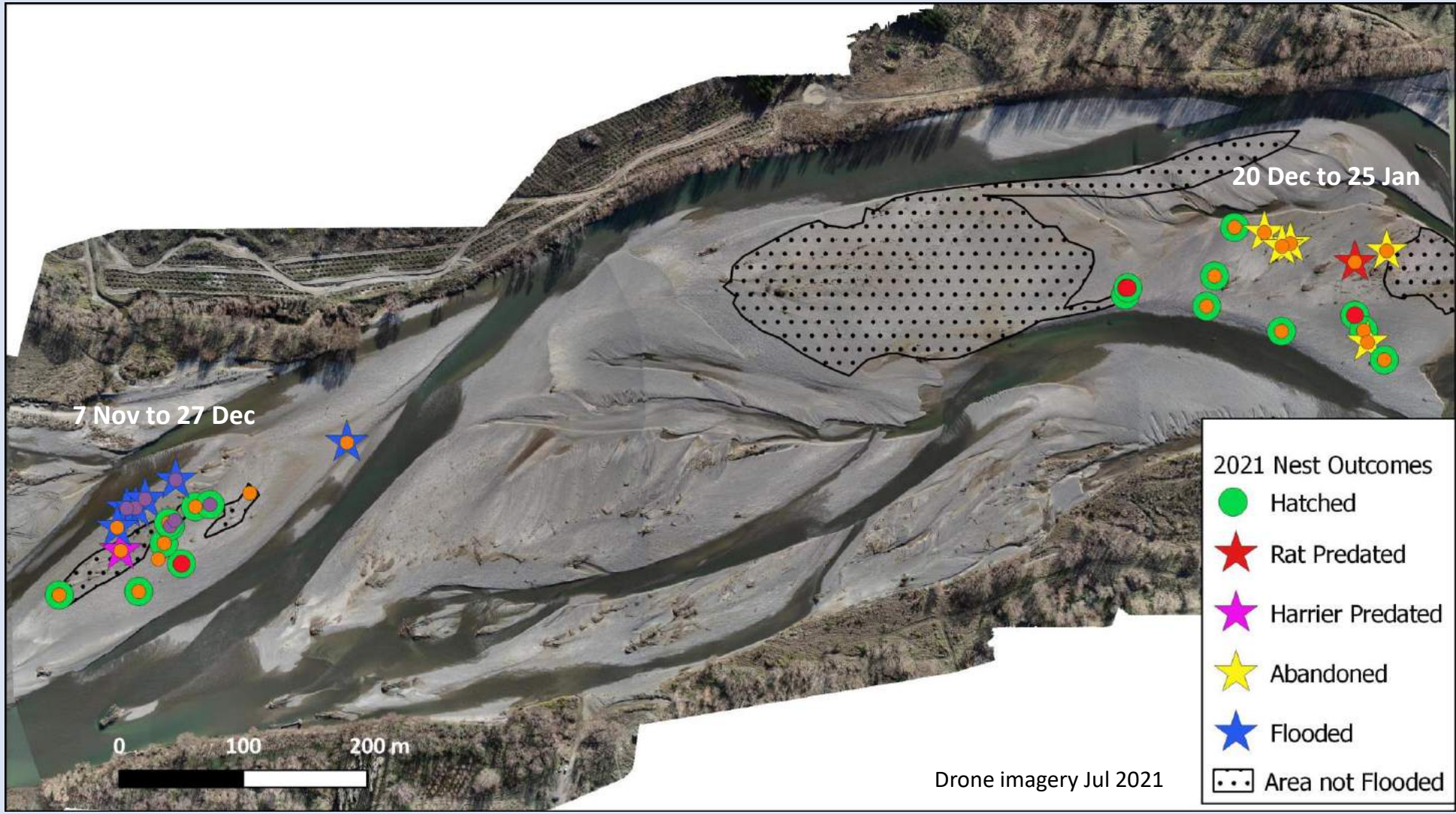
Drone imagery Jul 2022

Marchmont Colonies Outcomes

Most of the nests hatched eggs, but a 125 cumec flood on 16 December covered all but dotted area. Nests and chicks lost from western colony.

Further upriver this flood topped several other islands where there were, or had been BFT nests.

Trap, camera, and nest checking frequency lower after eggs had hatched. Before hatching – approximately 2 – 3 times weekly.



Harriers do not appear to be a major problem, except for fledgling black-billed gulls >100 fledglings lost in 2019.

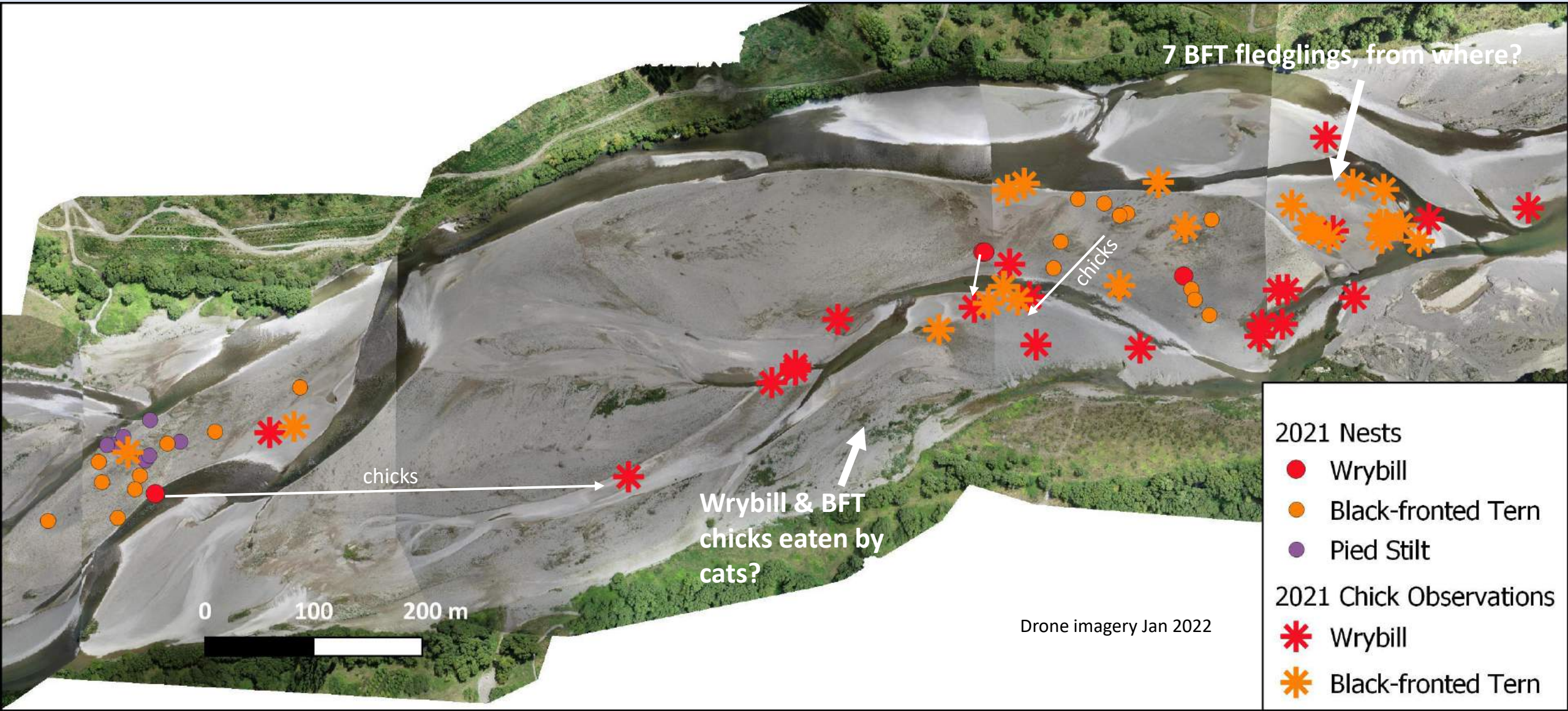
Black-backed gulls are not a problem on the Ashley

BFT escaped, little evidence in the last few years of predation of adult birds

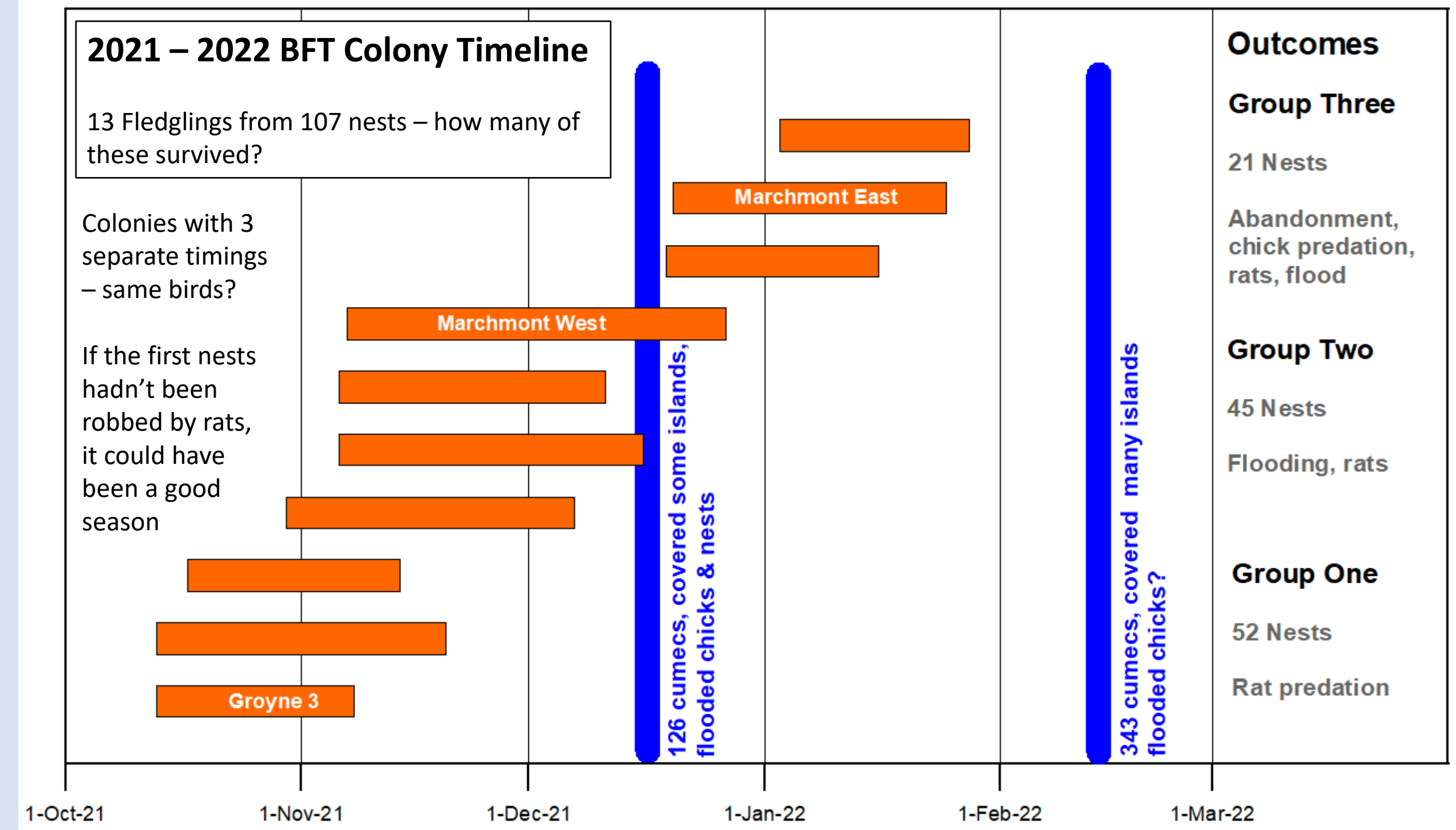
Cat sniffed eggs, didn’t eat them, chicks hatched but not the end of the story

BFT and wrybill chick and fledgling observations

River flow drying up leads to predation of chicks. One wrybill fledgling from four nests, no BFT fledglings from 12 nests

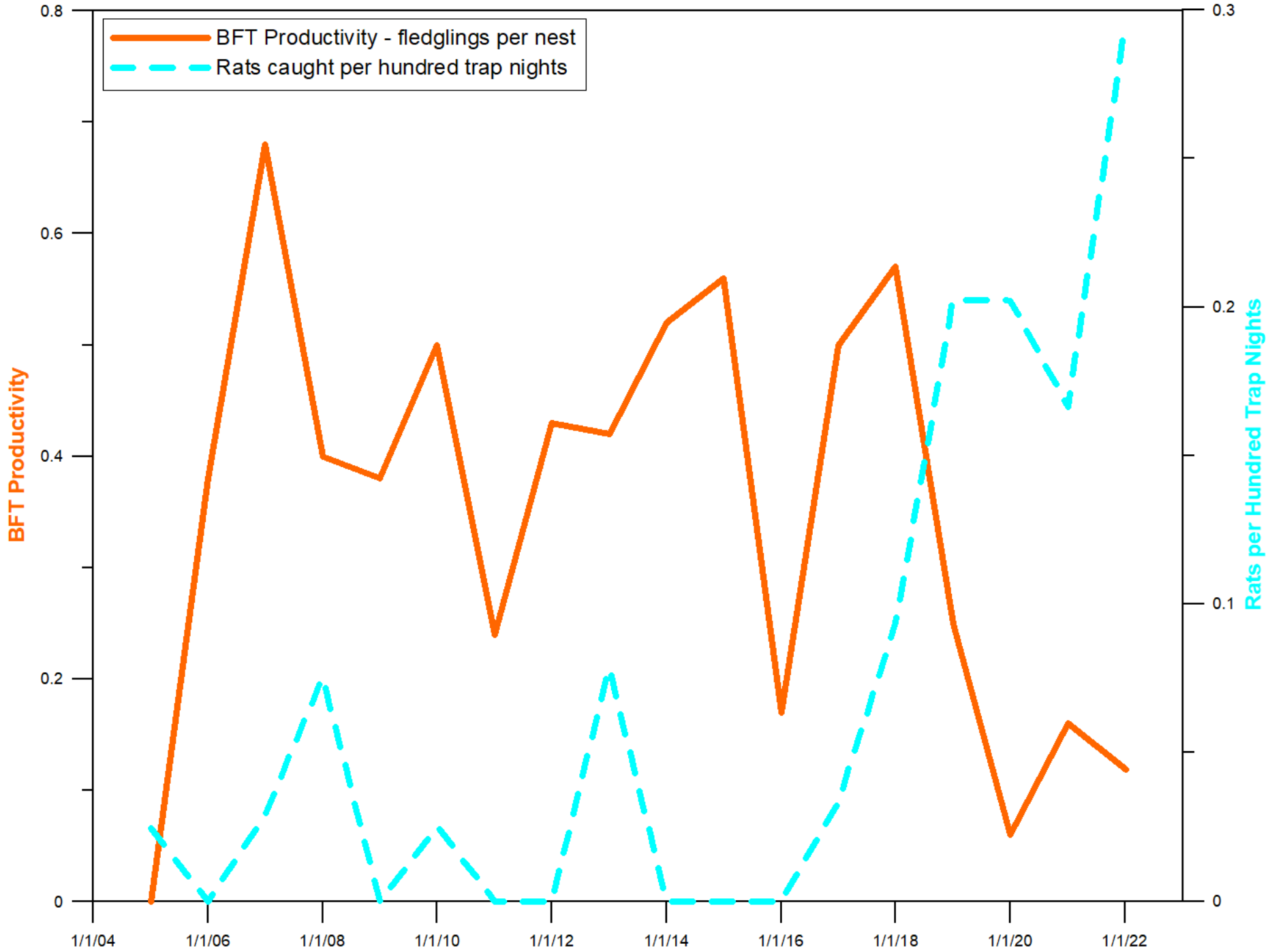


End Results for BFT


2021 – 2022 BFT Colony Timeline
13 Fledglings from 107 nests – how many of these survived?
Colonies with 3 separate timings – same birds?
If the first nests hadn't been robbed by rats, it could have been a good season
Marchmont East
Marchmont West
Groyne 3
126 cumecs, covered some islands, flooded chicks & nests
343 cumecs, covered many islands flooded chicks?
Outcomes
Group Three
21 Nests
Abandonment, chick predation, rats, flood
Group Two
45 Nests
Flooding, rats
Group One
52 Nests
Rat predation
1-Oct-21
1-Nov-21
1-Dec-21
1-Jan-22
1-Feb-22
1-Mar-22

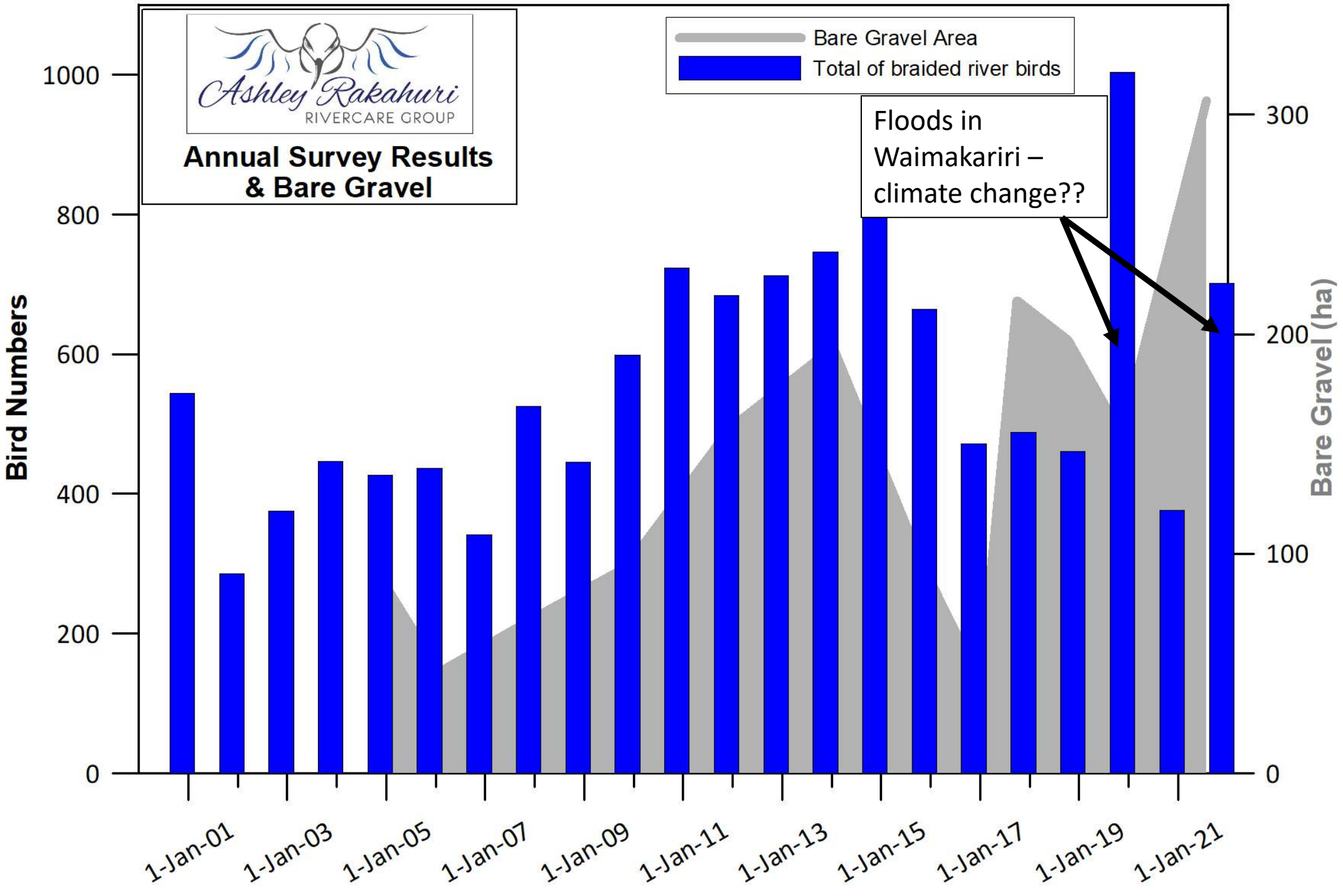
Black-fronted tern productivity and total rat catch per hundred trap nights

Decline since 2018 largely due to Norway rats

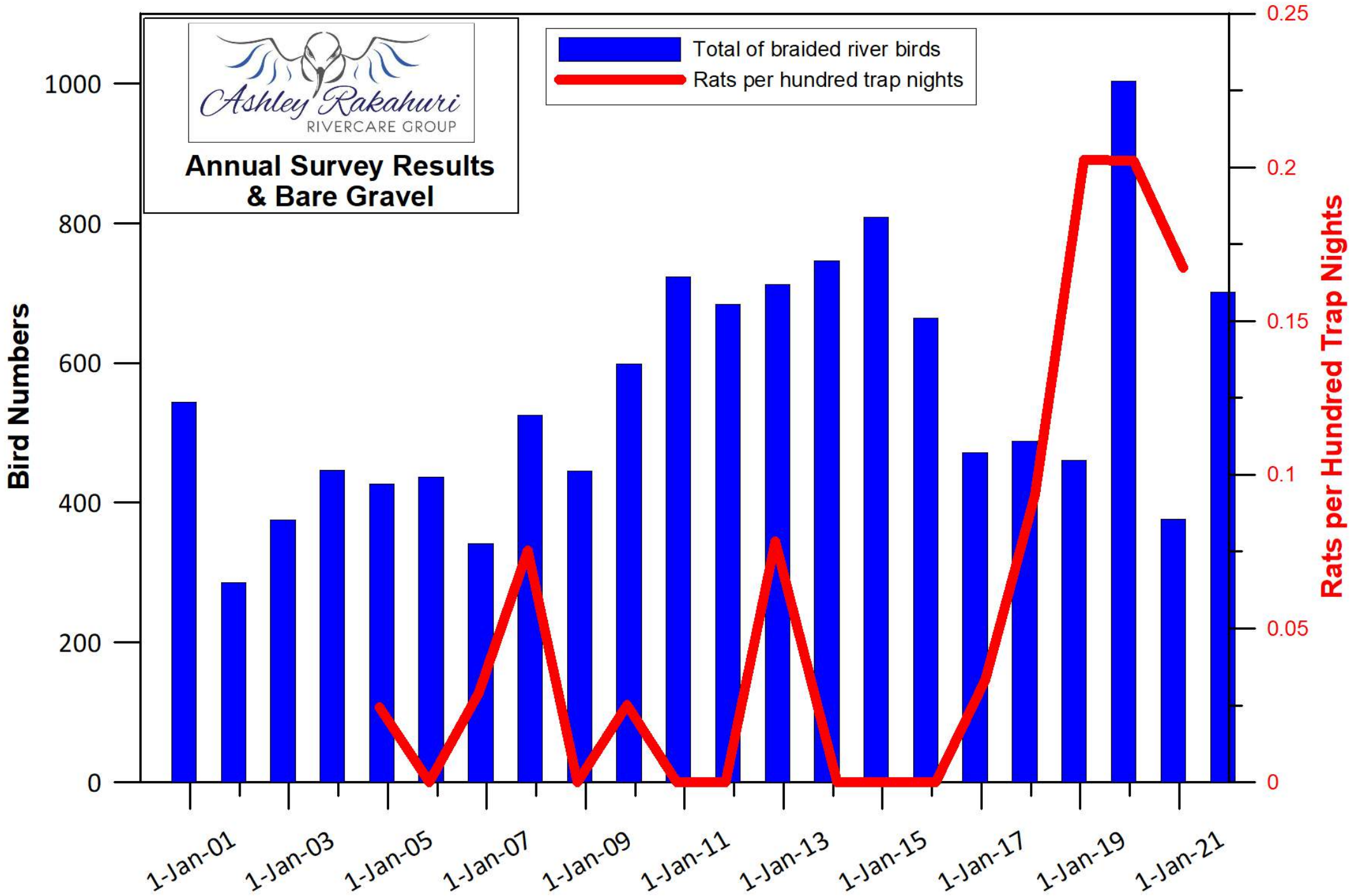


Until 2017 bird numbers paralleled bare gravel area, then after floods numbers have been in decline. Why??

(Bird numbers don't include BBG)



Decline in numbers correlates with rat appearance



Summary

- We need to understand a lot more about Norway rats on braided rivers – currently on the Ashley they are a massive threat to colony nesters. Cats need more attention
- Did we have a significant predation problem prior to the rat invasion?
- More focus needed on banded dotterel, as they don't nest on islands and are more vulnerable to hedgehogs etc.
- Use annual survey results as a measure of trapping success with much caution – too many factors in play.
- We need to make sure braided rivers retain their braiding so other predators aren't more of a threat – gravel extraction and constriction of rivers are a problem.
- Following a report produced by Wildlands, more work is planned – involving additional traps and probably poisoning for rats. But ARRG are reaching the limits of our resources, and this will have to be largely done by professionals.