

Breeding Movements and Post-breeding
Dispersal of Black-fronted Terns
(*Chlidonias albobstriatus*) in the
Mackenzie Basin

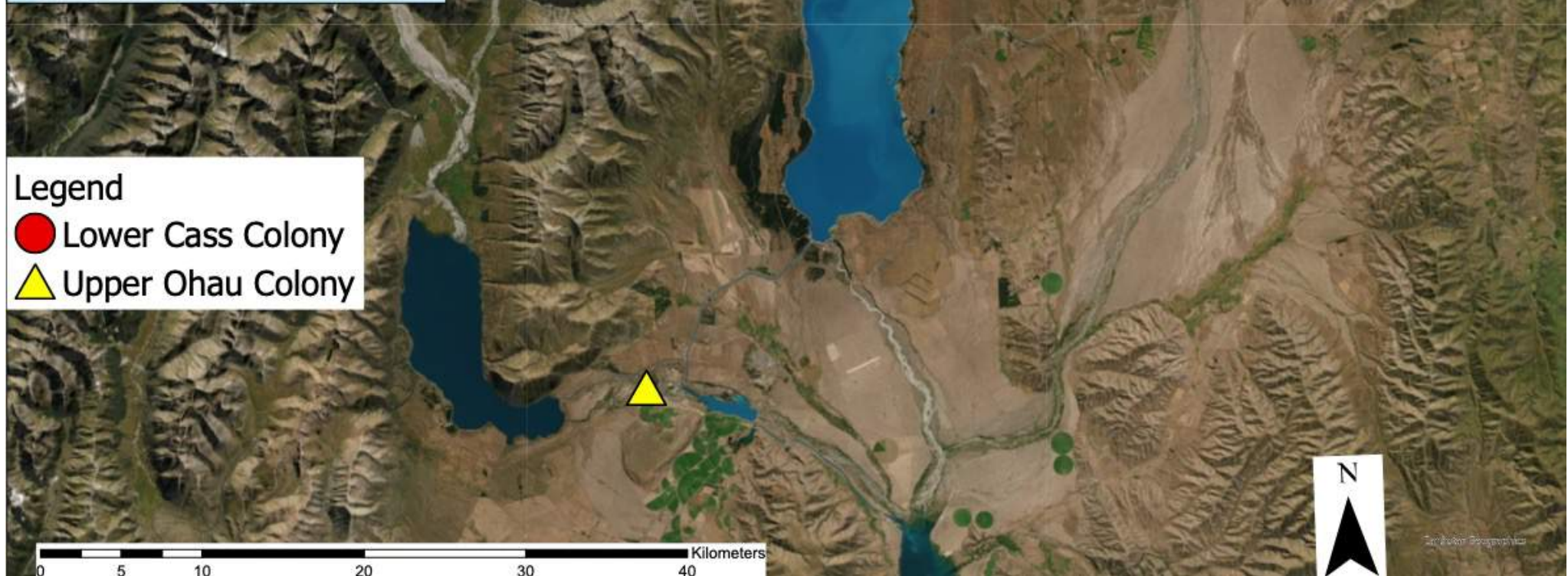
Fraser Gurney

Black-fronted terns

- Endemic and endangered
- South Island braided rivers
- Introduced mammals
- Knowledge and conservation gaps
- GPS – habitat, range, migration



Andrej Chudy (CC BY-NC-SA 2.0)



GPS Tags - Druid

- NANO – 2.8 g
 - Solar panel, GPS, Bluetooth
- HUB
 - Solar panel, Bluetooth, Cell relay
- Out of range = finished breeding









<

Track of device: 6404

Day

Month

Year

<

Last day

>

1 Day ▾

Net Data ▾

All ▾

⊕ Compare

Display mode

Marker

Cluster

GPS

ENV

ODBA

📄

Reset zoom

Speed

Altitude

A line chart showing two data series over time. The x-axis represents time with labels at 16:00, 00:00, and 08:00. The y-axis represents speed and altitude. A blue line represents altitude, which remains relatively flat and high. A green line represents speed, which shows significant fluctuations with many sharp peaks and troughs. The chart is set against a light blue background.

Highcharts.com



Habitat Use

- High producing exotic grassland
- Avoiding low producing and depleted grassland
- Night roosts away from colony



Foraging Range

- Mean point distance: Cass 3.7 km, Ohau 5.9 km
- Distance of grassland and roosts
- 87% of time within 10 km, 99% within 25 km
- Always outliers...



Francesco Veronesi (CC BY-SA 2.0)

Search for Devices



Track of device: 6413

Day

Month

Year



2020-11-19



1 Day

Cellular data



All



Compare

Display mode

Marker

Cluster

GPS

Longitude: 170.797184° Latitude: -43.709238°

Altitude: 2147.2 m Speed: 15.7 m/s

Course: 46.6° Satellite: -

GPS: 2020-11-19 14:00:09(UTC +13)

GPS

ENV

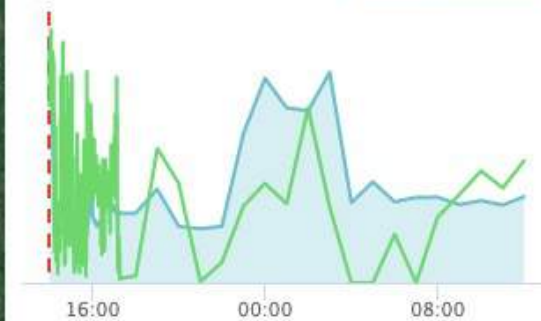
ODBA



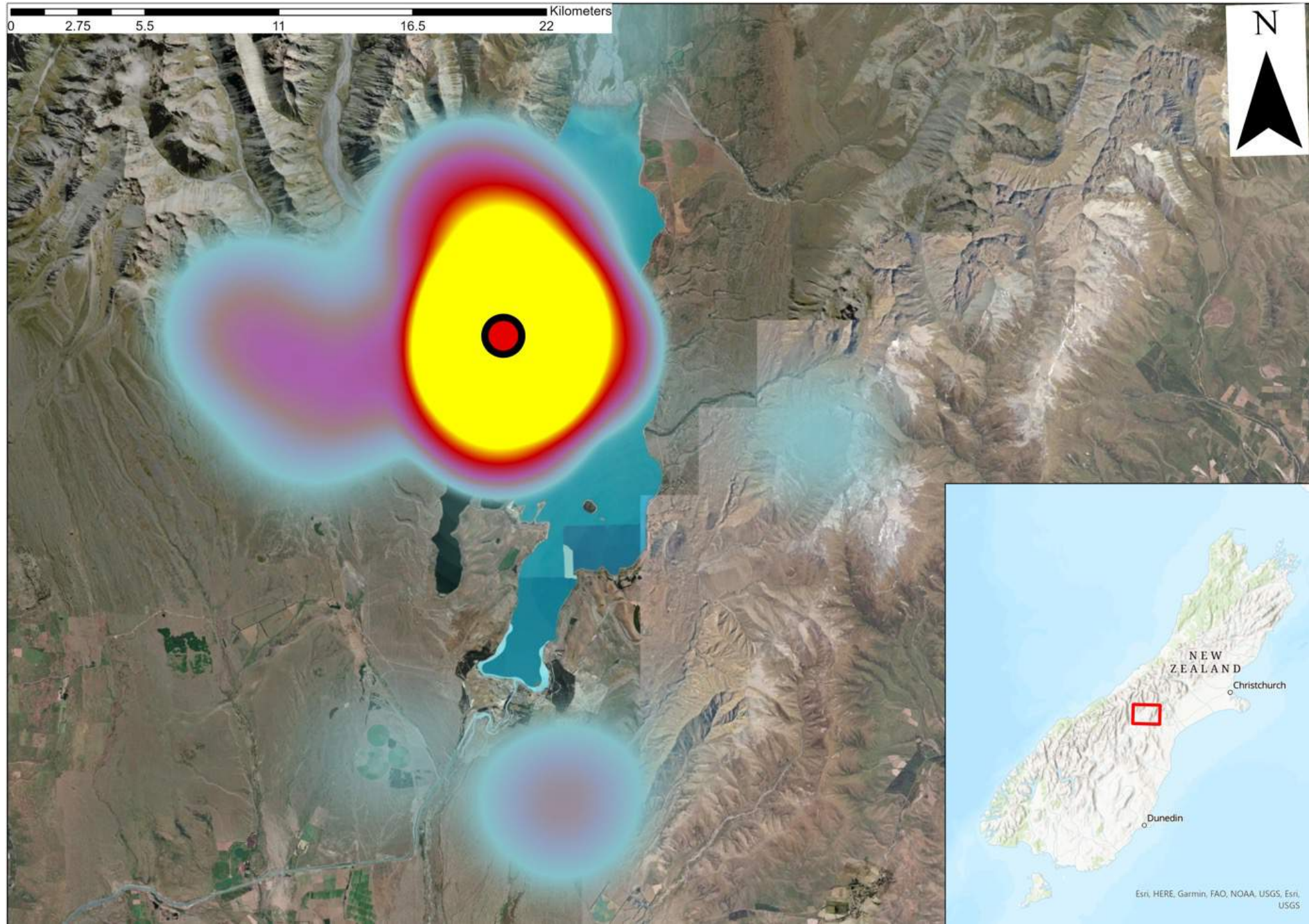
Reset zoom

Speed

Altitude

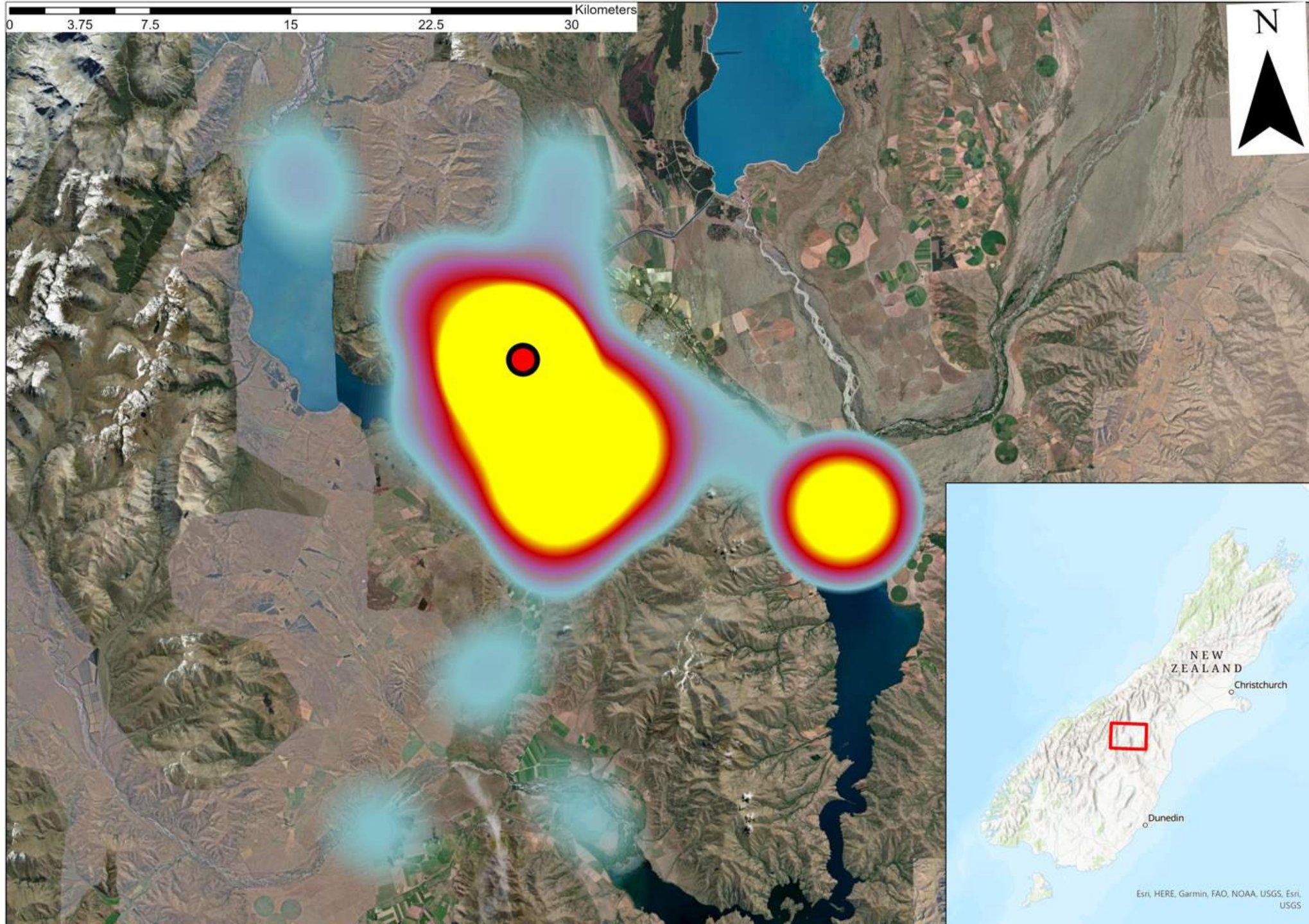


0 2.75 5.5 11 16.5 22 Kilometers



Esri, HERE, Garmin, FAO, NOAA, USGS, Esri, USGS

0 3.75 7.5 15 22.5 30 Kilometers

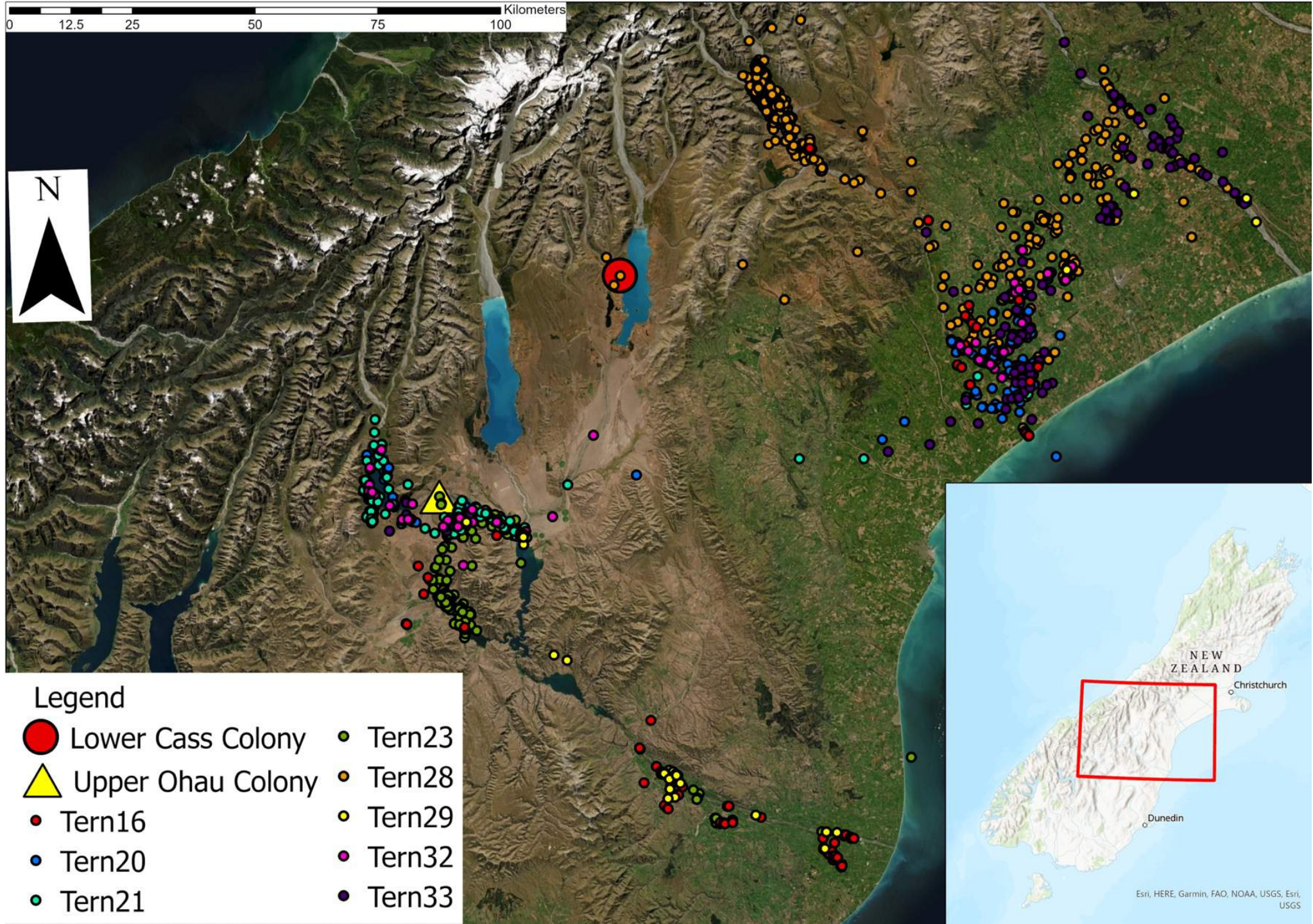


Migration

- 10/34 terns transmitted data when they returned the next spring
- Limited data
- Battery life, feather coverage

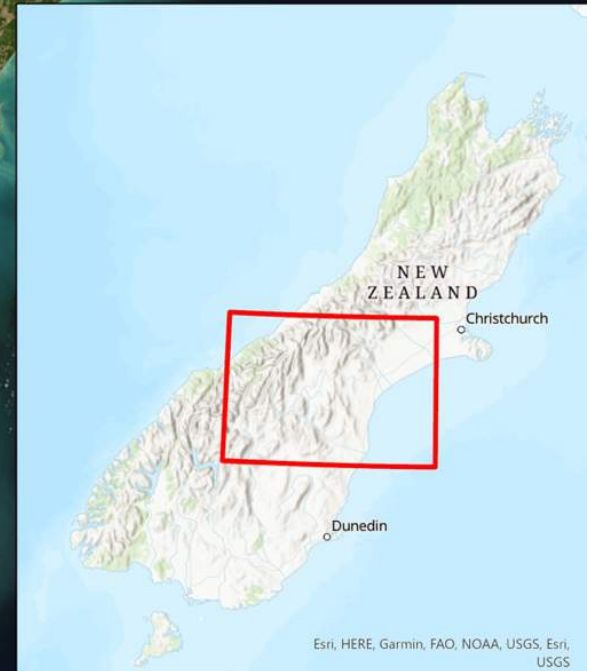


0 12.5 25 50 75 100 Kilometers



Legend

- | | |
|---------------------|----------|
| ● Lower Cass Colony | ● Tern23 |
| ▲ Upper Ohau Colony | ● Tern28 |
| ● Tern16 | ● Tern29 |
| ● Tern20 | ● Tern32 |
| ● Tern21 | ● Tern33 |



Main Findings

- High producing exotic grassland
- Mainly within 10 km of colony, 99% within 25 km
- Night roosts
- Rangitata

Future Study

- Different data analysis
- Why exotic grassland?
- Compare other colonies
- Winter tracking
- Improve battery



Acknowledgements

- Adrian Paterson, Richard Maloney, James Ross, Emma Williams
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Department of
Conservation
Te Papa Atawhai



BIRDS
NEW ZEALAND
Te Kāhui Mātai Manu o Aotearoa



LINCOLN
UNIVERSITY
TE WHARE WĀNAKA O AORAKI



Forest & Bird
TE REO O TE TAIAO | *Giving Nature a Voice*

Questions?

