

# Trail-camera assessment of the fates of Northern Royal Albatross and Northern Buller's Mollymawk chicks: 2021 breeding season, Motuhara

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# Background

12 trail cameras set up in January 2021 on Motuhara (Chatham Is):

5 areas with nesting Northern royal albatross | *toroa* (includes some Northern giant petrels)

5 areas with nesting Northern Buller's mollymawk | *hopo*

2 areas with nesting Northern giant petrel | *pāngurunguru* (not dealt with in this report - NYA)

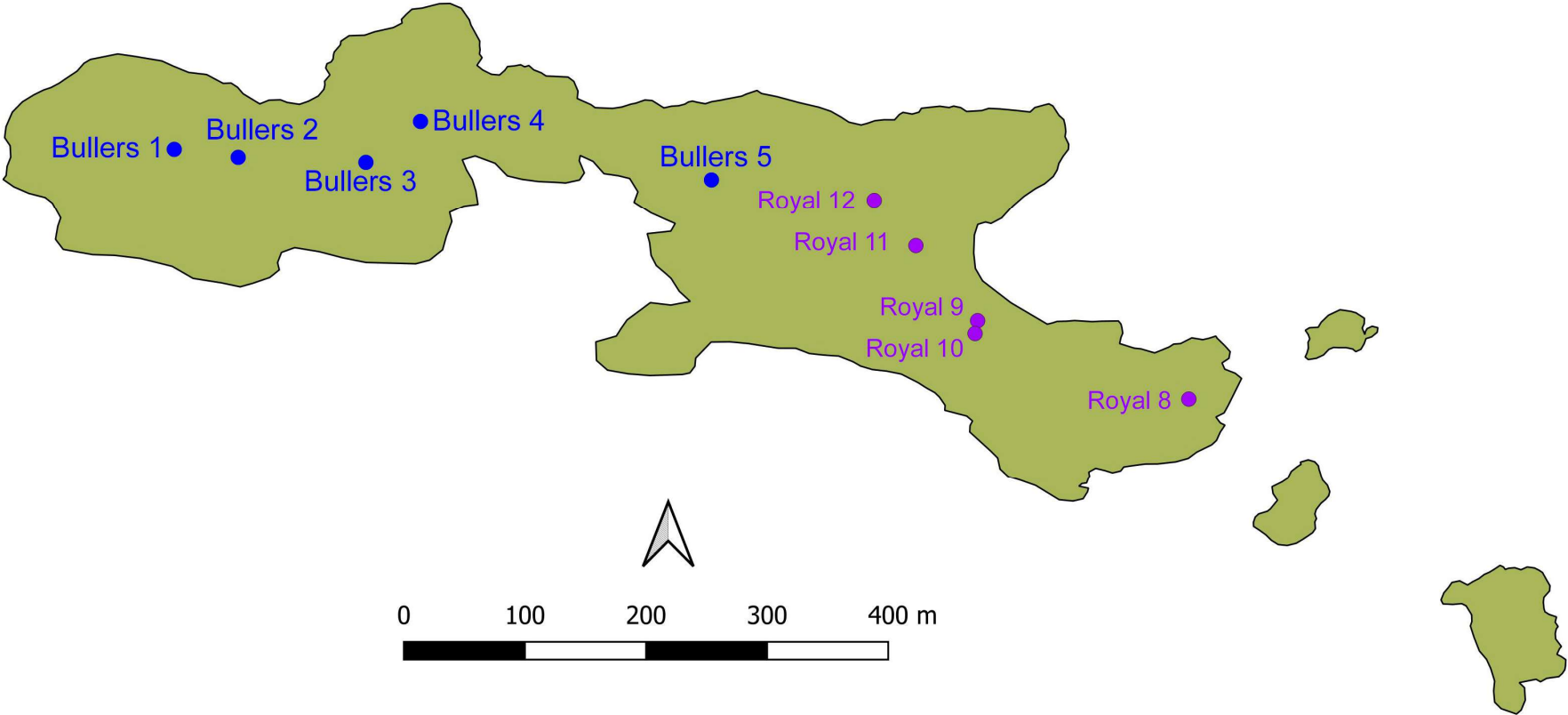
117,668 images (*toroa* 55,390; *hopo* 62,278) taken at 30-minute intervals, plus 56,842 motion-triggered images from one camera (Reconyx Hyperfire 2)

# Objectives

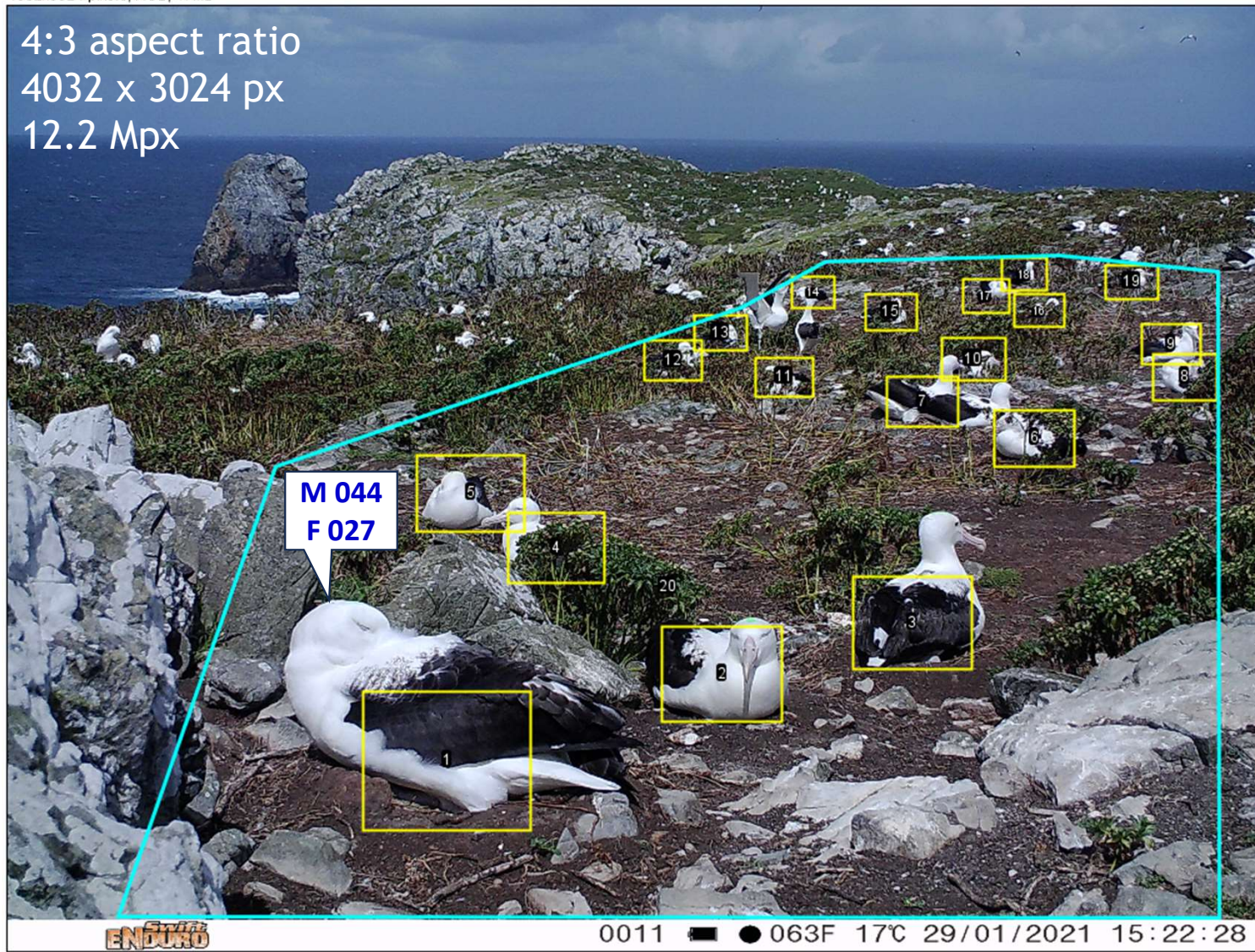
1. Produce indices of the number of adult birds on land daily in relation to weather conditions and seasonal breeding activity
2. Determine the outcome of each monitored nest (fledging, failure), the timing of these events, and in the case of failure, the apparent cause
3. Record any other notable events (feeding, intra-pair behaviour, predation *etc.*)

# Motuhara

Locations of Trail Cameras Jan 2021 - Dec 2022



4:3 aspect ratio  
4032 x 3024 px  
12.2 Mpx





16:9 aspect ratio

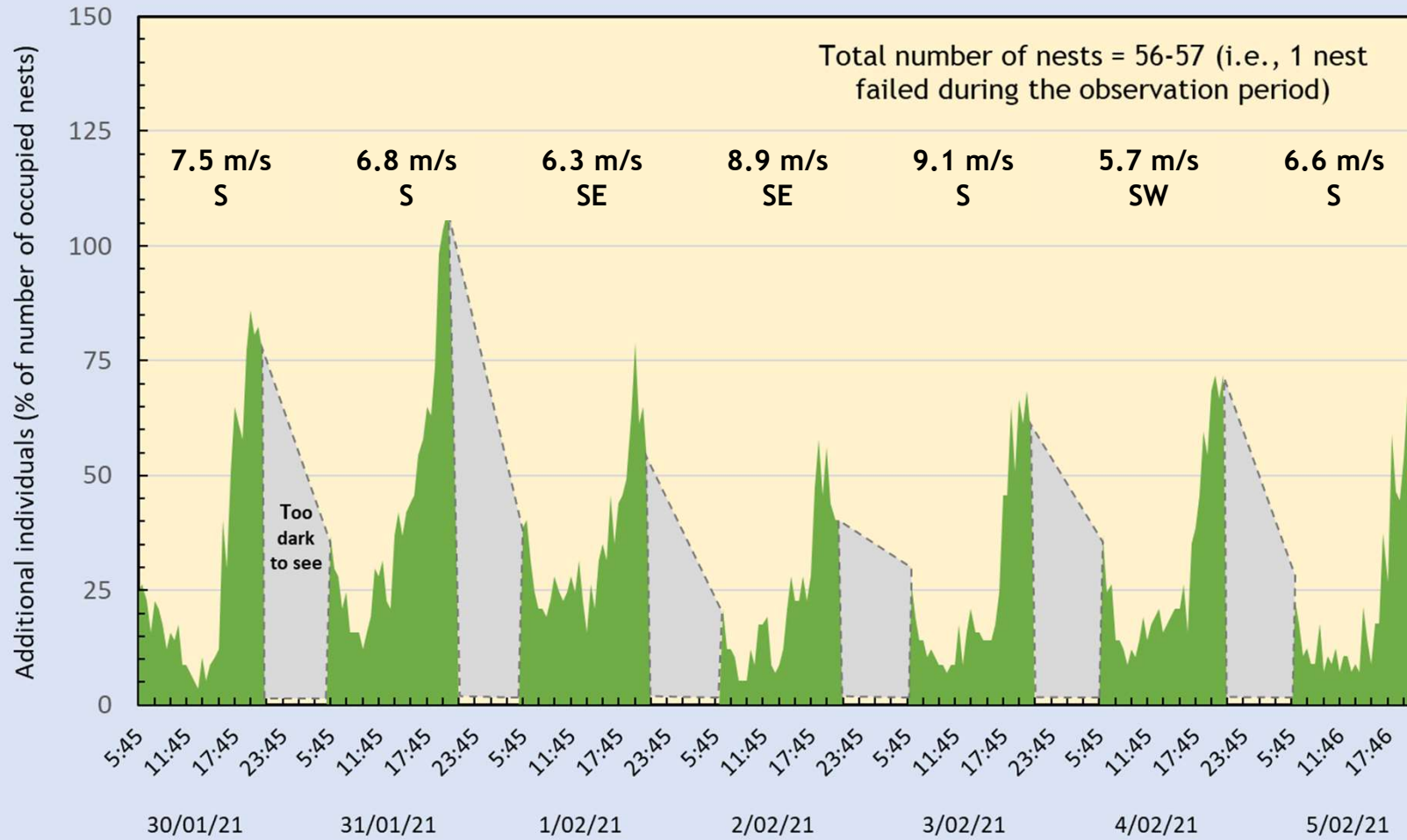
2048 x 1152 px

2.4 Mpx

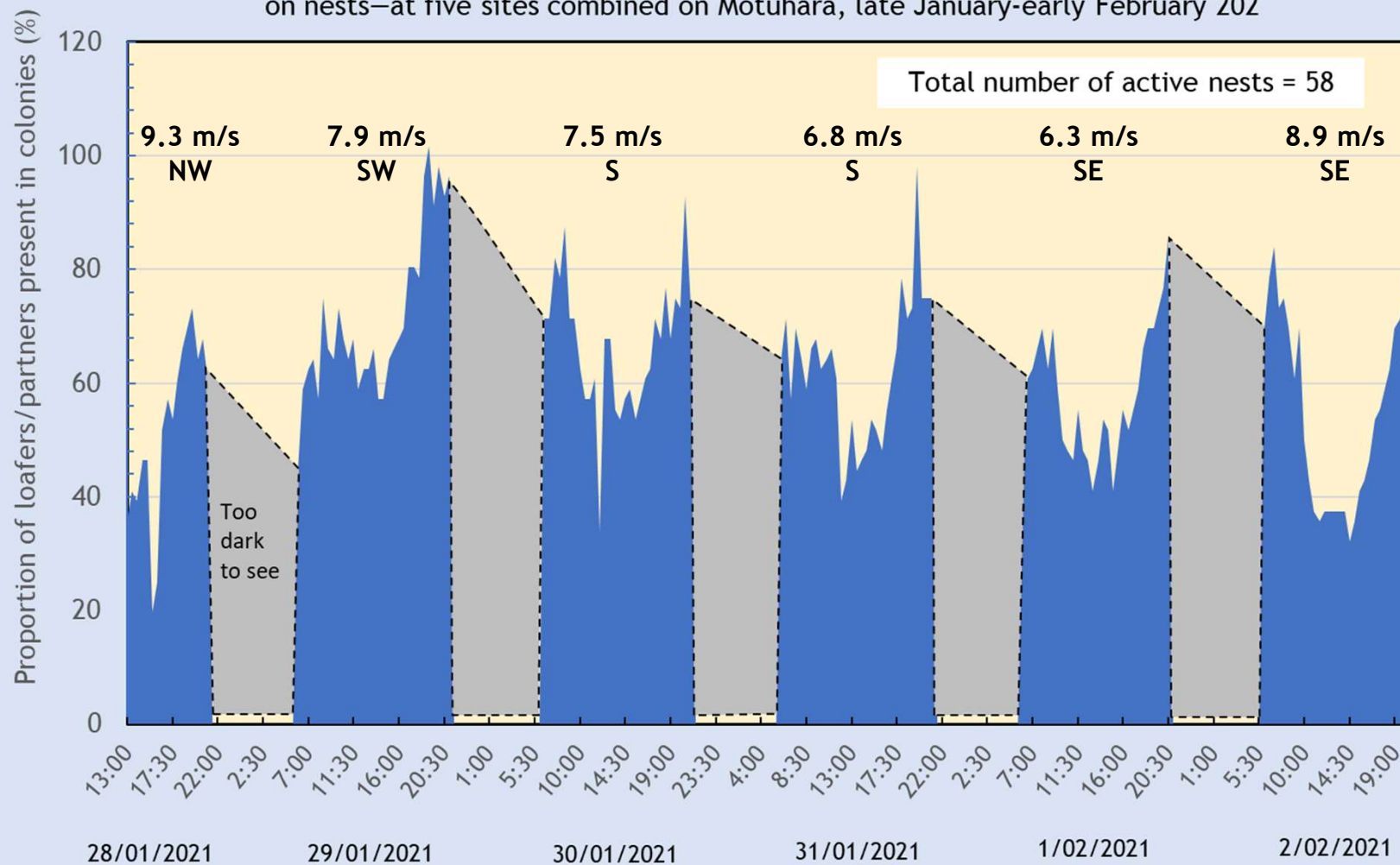


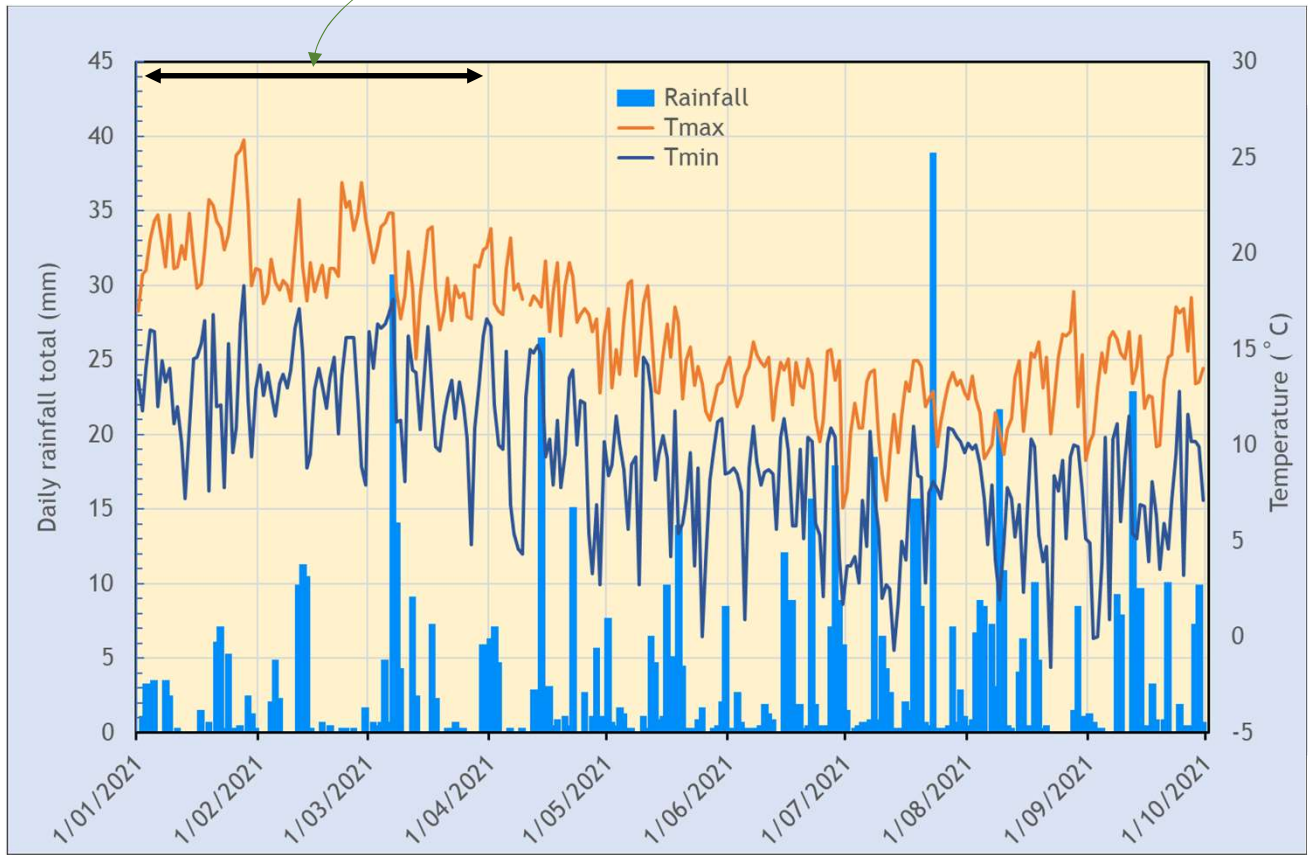


Daily variation in the number of excess Northern Royal Albatross—birds on land but not on nests—at five sites combined on Motuhara, late January-early February 2021

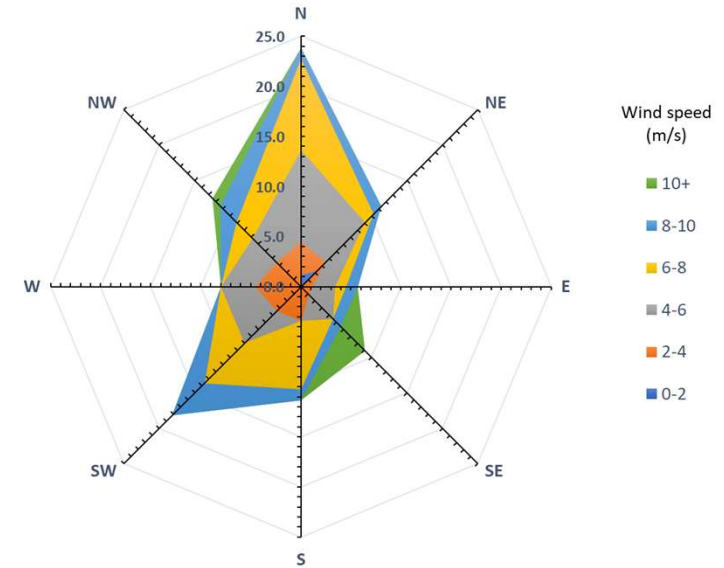


Daily variation in the number of excess Northern Buller's Mollymawk—birds on land but not on nests—at five sites combined on Motuhara, late January-early February 2021





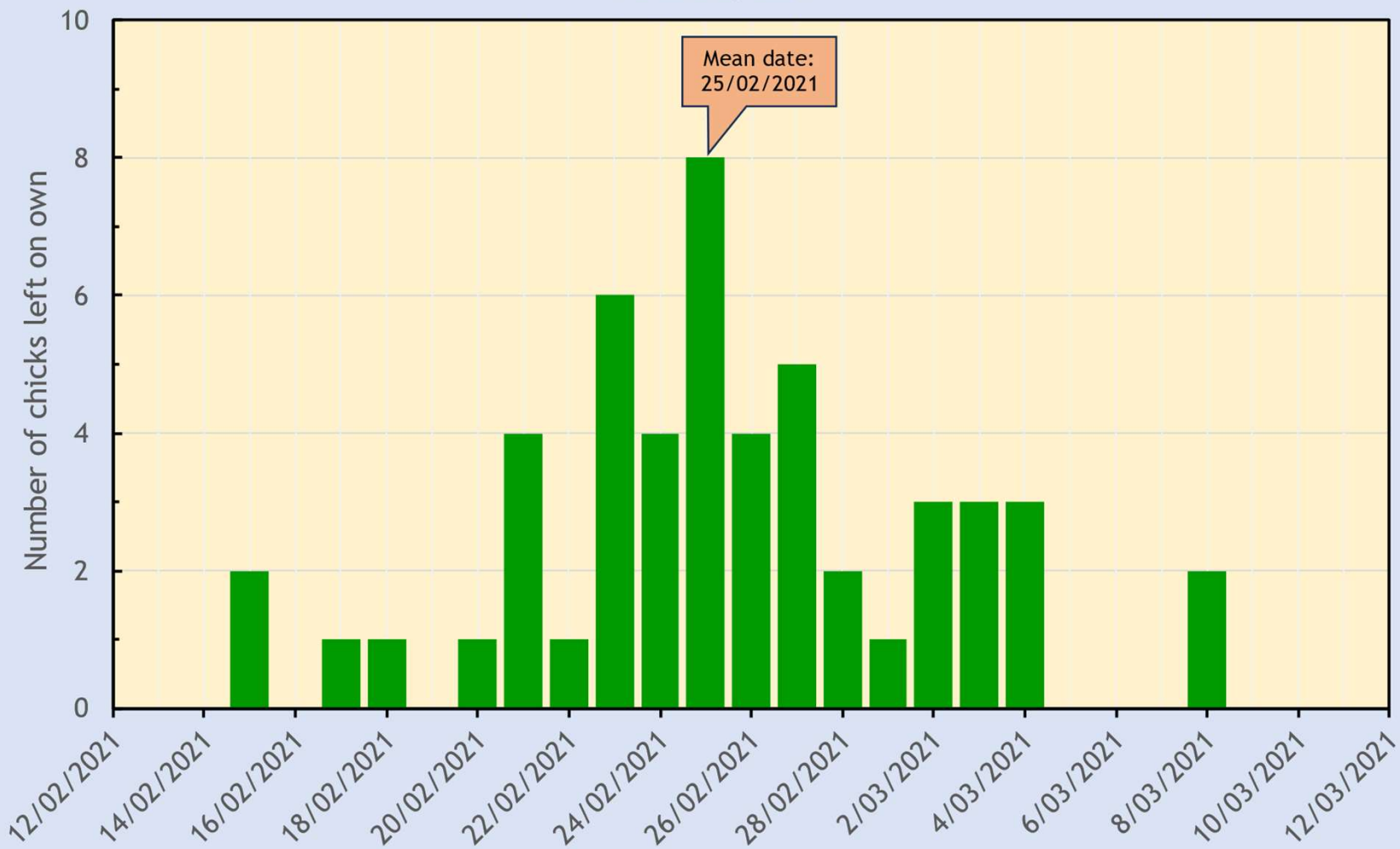
9 am Chatham Is wind speed and direction, 1 January - 31 March 2021 (frequency %)



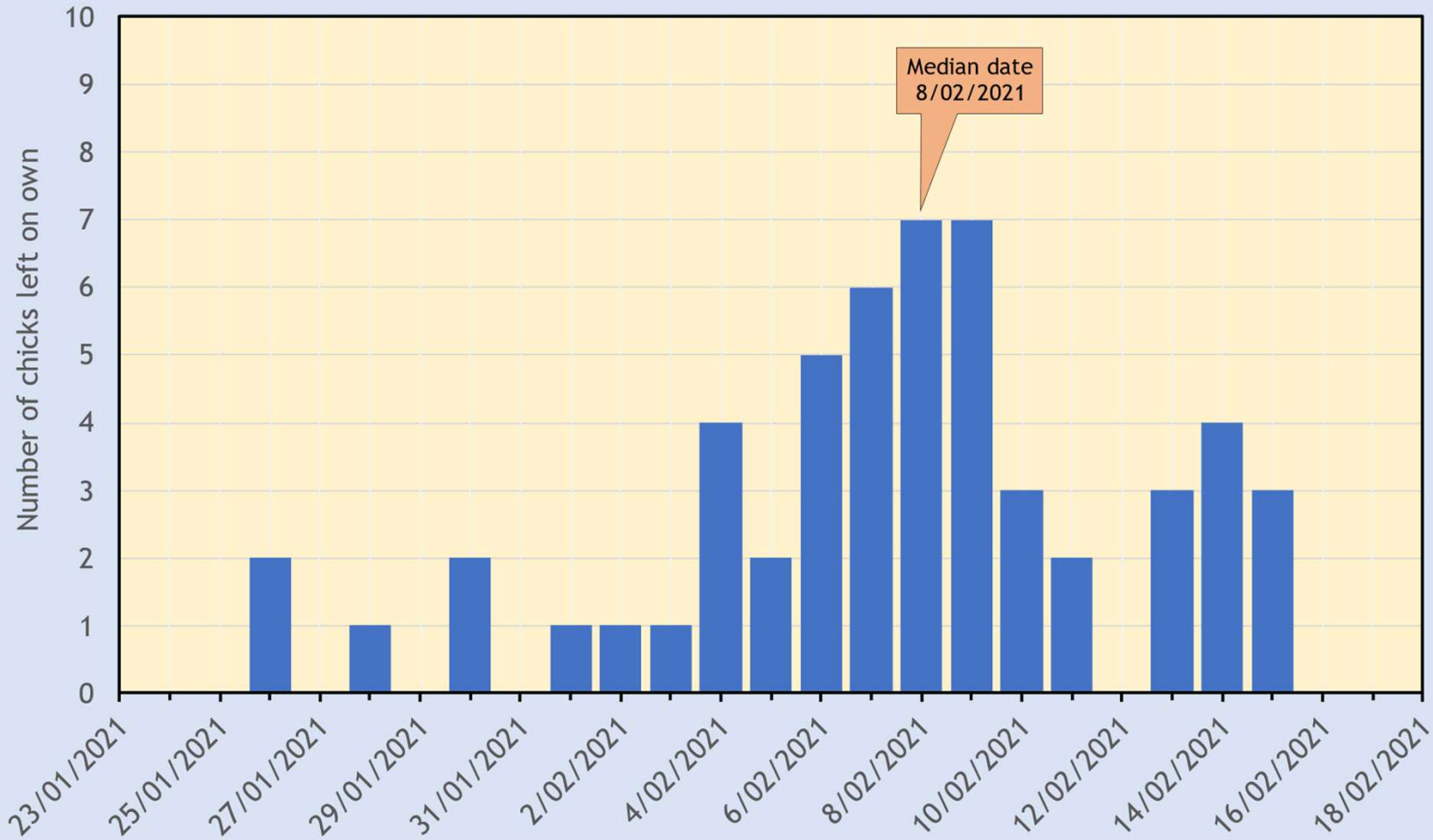
There was no obvious correlation between the numbers of birds ashore, of either species, and wind speed and direction



Timing of the end of the brood-guard stage in Northern Royal Albatross:  
Motuhara, 2021



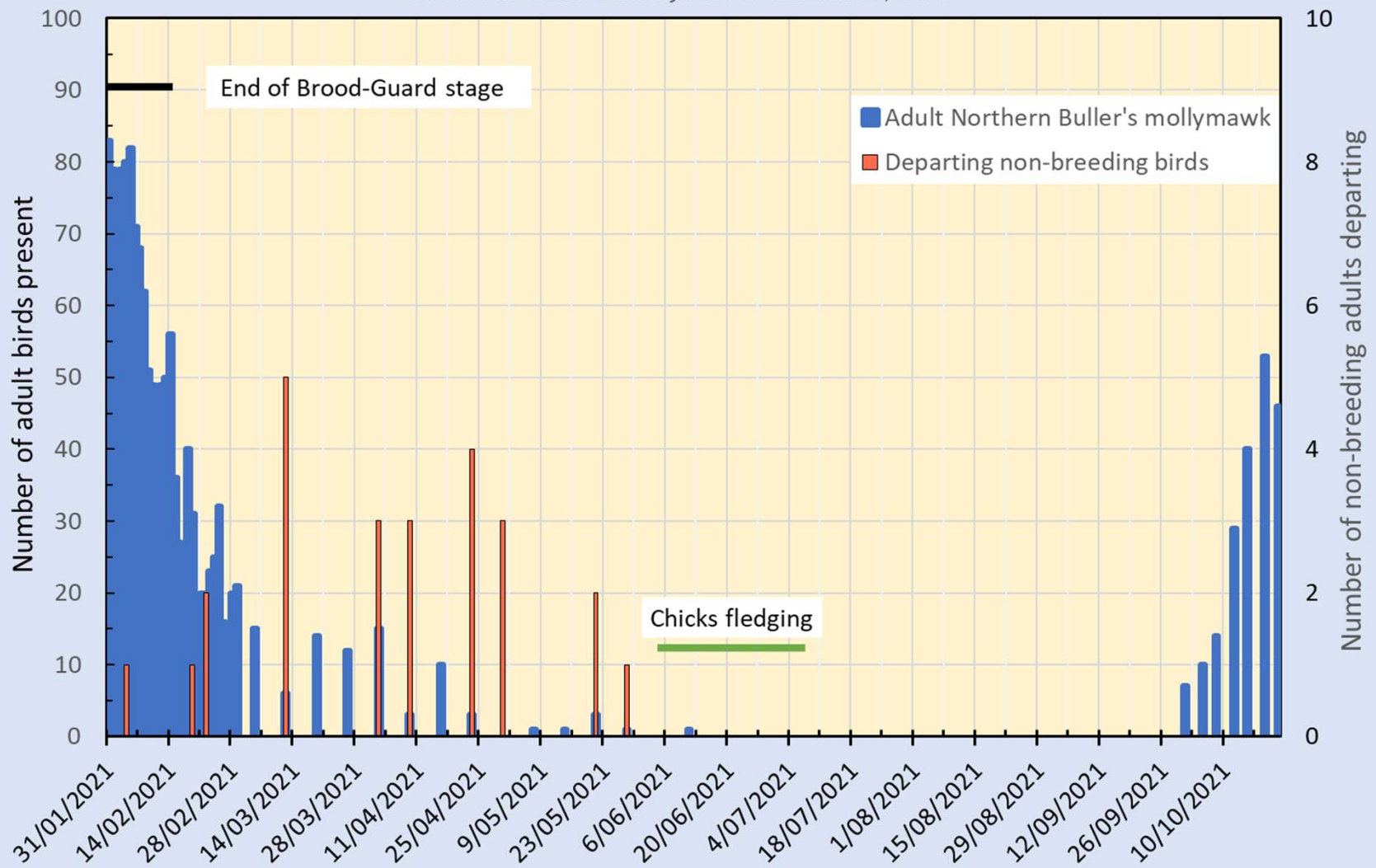
Timing of the end of the brood-guard stage in Northern Buller's Mollymawk:  
Motuhara, 2021



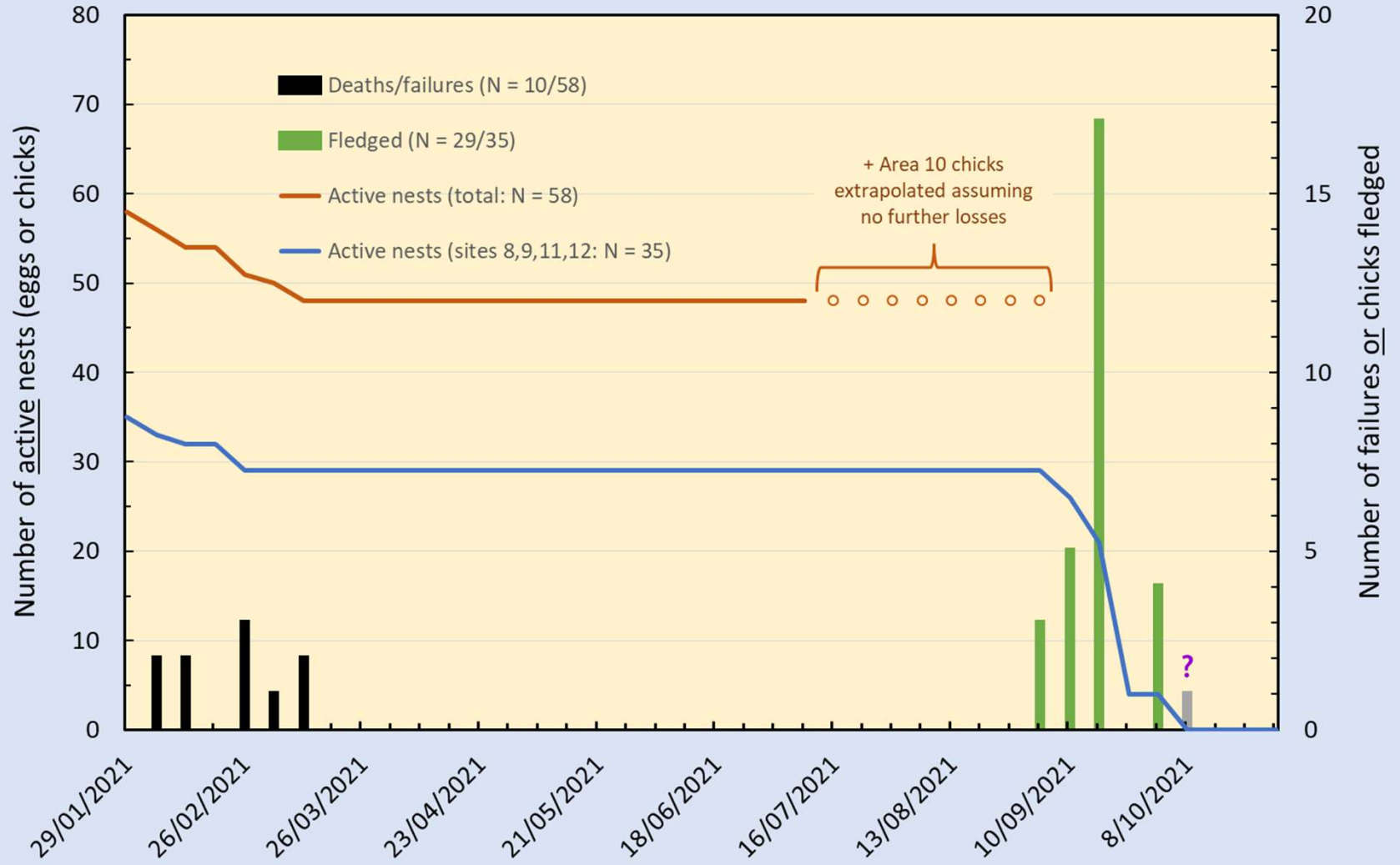




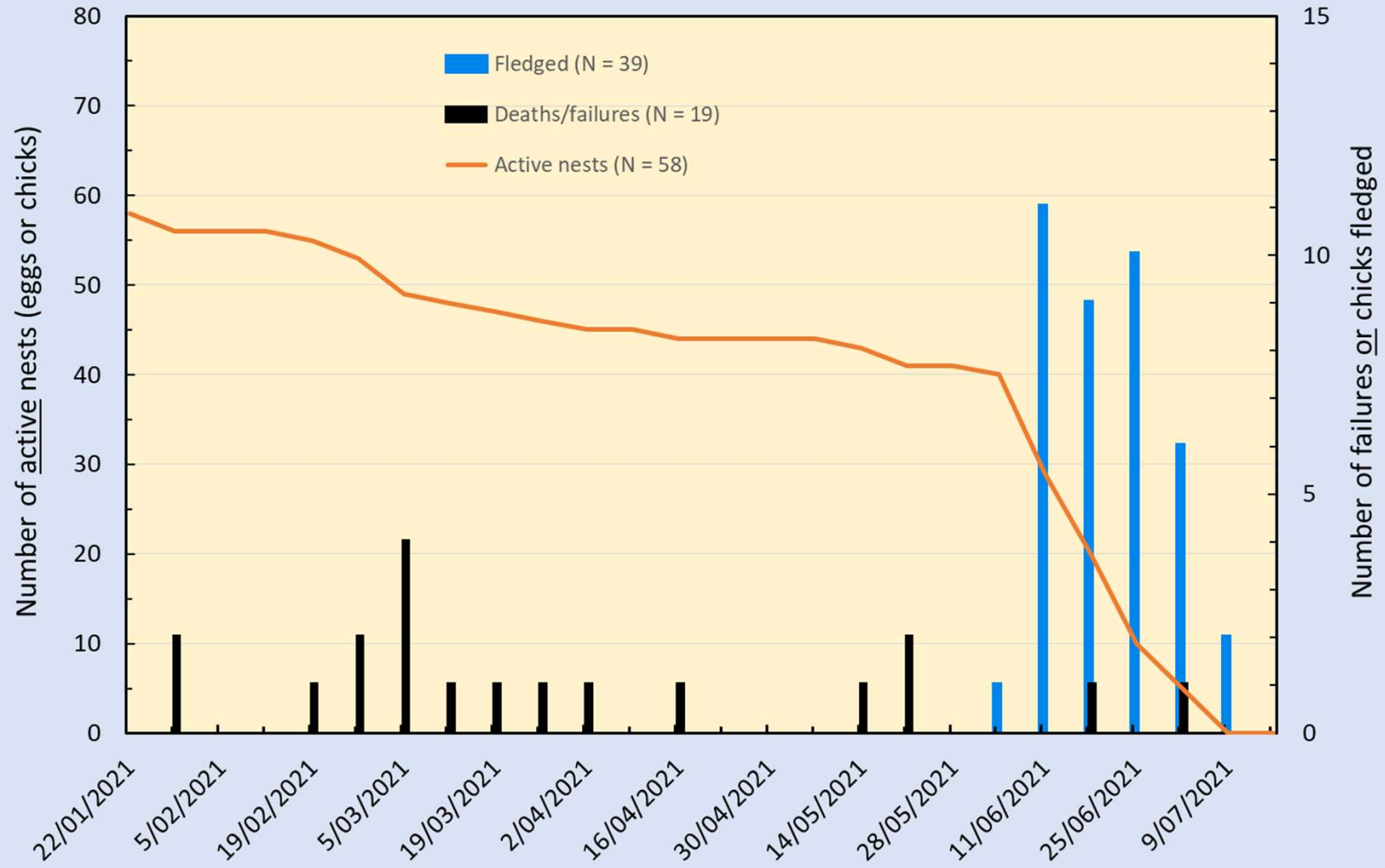
Northern Buller's Mollymawk: Motuhara, 2021



Seasonal dynamics of nesting Northern Royal Albatross: Motuhara, 2021



Seasonal dynamics of nesting Northern Buller's Mollymawk: Motuhara, 2021





## Apparent causes of nest failure

Species	Northern royal albatross	Northern Buller's mollymawk
Egg failed to hatch	1	3
Chick died soon after hatching	3	1
Heat stress	1	2
Cold (chick wet)	1	2
Presumed illness	2	3 (?)
Cause unknown	2	8
Total † / Total nests observed	10/58	19/58

## Nesting success

Species	Nest survival up to end- Jan 2021	Chick survival to fledging	Overall nesting success 2021
Northern royal albatross	91.8% <sup>1</sup>	82.8% <sup>2</sup>	76.0
Northern Buller's mollymawk	75.6% <sup>3</sup>	67.2%	50.8

### Notes

- <sup>1</sup> 146 out of 159 nests survived to the end of January 2021: 91.8% (Bell 2022)
- <sup>2</sup> Assumes that all 19 chicks being monitored by the Reconyx camera, which stopped in early July 2021, subsequently survived to fledge
- <sup>3</sup> 489 out of 647 nests survived to the end of January 2021: 75.6% (Bell 2022)

## Conclusions

- Trail cameras provide some useful insights into numbers, fates and behaviours where regular observations are not possible
- Overall nesting success for Northern Royal Albatross on Motuhara for 2021 (77%) is higher than two previous recent estimates for this species : 58 % (2017 breeding season) and 67% (2018 breeding season)
- Overall nesting success for Northern Buller's Mollymawk on Motuhara for 2021 (50.8%). Given that *hopo* fledge in June-July each year, there are apparently no estimates for this species' nesting success. The figure is considerably lower than 72% estimated for Southern Buller's mollymawk
- Deployment of 8 trail cameras focused on *toroa* and *hopo* continues, with images from 2022 already available. Given the small sample sizes that inevitably arise when using trail cameras, analysing these images should be a priority (as well as analysing the images covering Northern giant petrel nests, available for two years).