Using moult as one of the discriminants for aging juvenile, subadult and adult South Island Pied Oystercatcher (*Haematopus finschi*)

OSNZ/BirdsNZ - National Shorebird Banding Team.

Rob Schuckard, David Melville and Willie Cook.

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Why is aging and sexing of shorebirds important?

- Age- and sex-related dietary specialization can facilitate seasonal resource partitioning among shorebirds.

Hall *et al.* 2021 - Ecology and Evolution.

2021;11 - Western Sandpiper (*Calidris mauri*).

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Why is aging and sexing of shorebirds important?

- Survival among Eurasian Oystercatcher (*Haematopus ostralegus*) varies between breeding states, and also among subadult age-classes and adults.

Allen *et al.* - Ecology. 2022;103.

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Why is aging and sexing of shorebirds important?

- Understanding the distribution of the different age and sex groups in shorebirds may be critical in understanding the effect of habitat loss or change and the design of species conservation efforts.

Durell, 2003 - Wader Study Group Bull. 100.

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Data collected through banding projects on shorebirds can be invaluable in discovering and documenting age and sex biases at specific sites.

Durell, 2003 - Wader Study Group Bull. 100.

Craig Martin

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Age classes of South Island pied oystercatchers can be recognized on the basis of progressive changes in the colours of the dorsal plumage and bare body parts, iris, bill, and leg (Baker 1974).

But……

Sagar, P.; Veitch, D. 2014. An ageing scheme proposed by (Baker 1974) is based on the colours of bare parts. It needs to be refined to take into account sequences of plumages.

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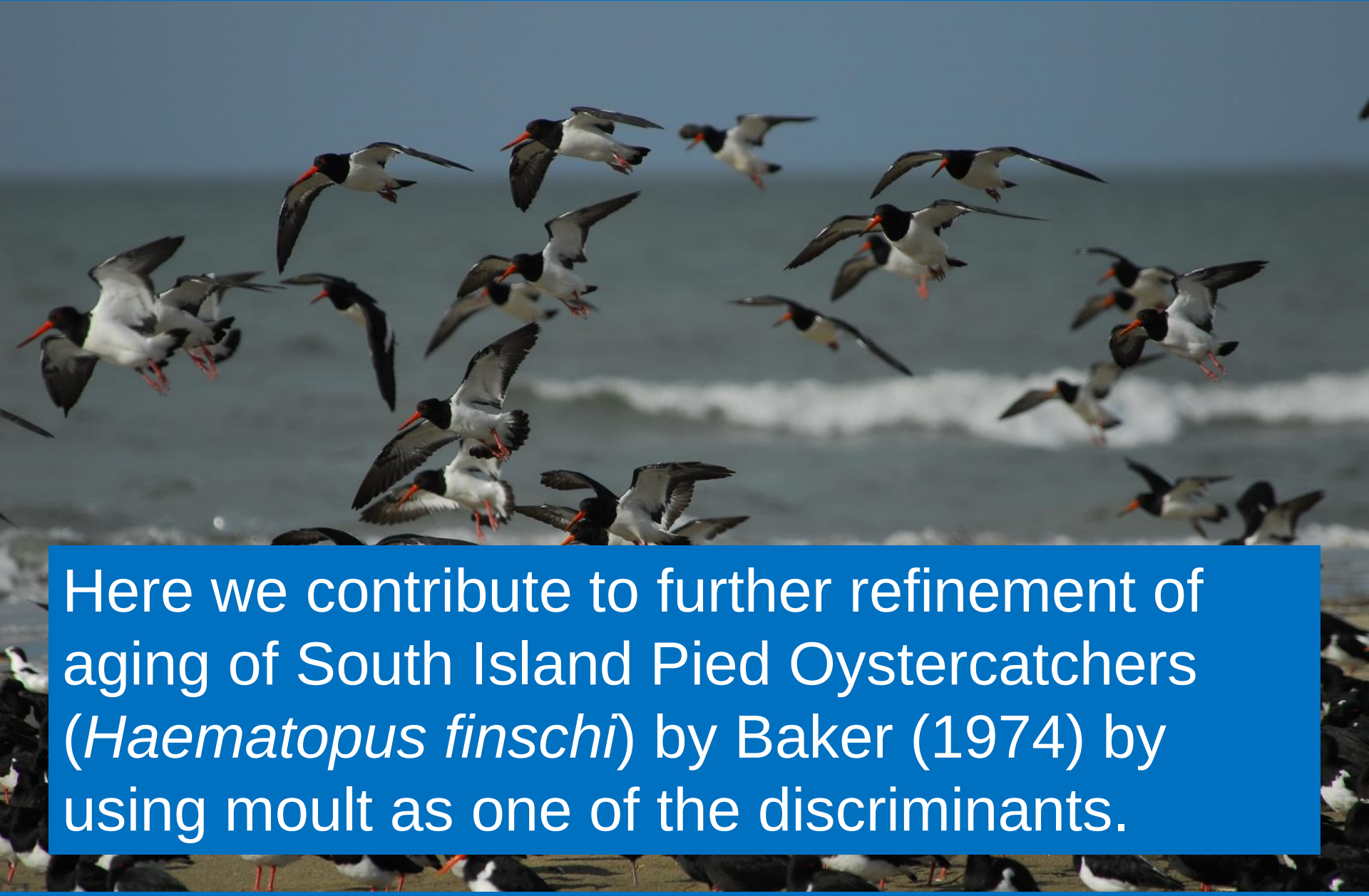

Here we contribute to further refinement of aging of South Island Pied Oystercatchers (*Haematopus finschi*) by Baker (1974) by using moult as one of the discriminants.

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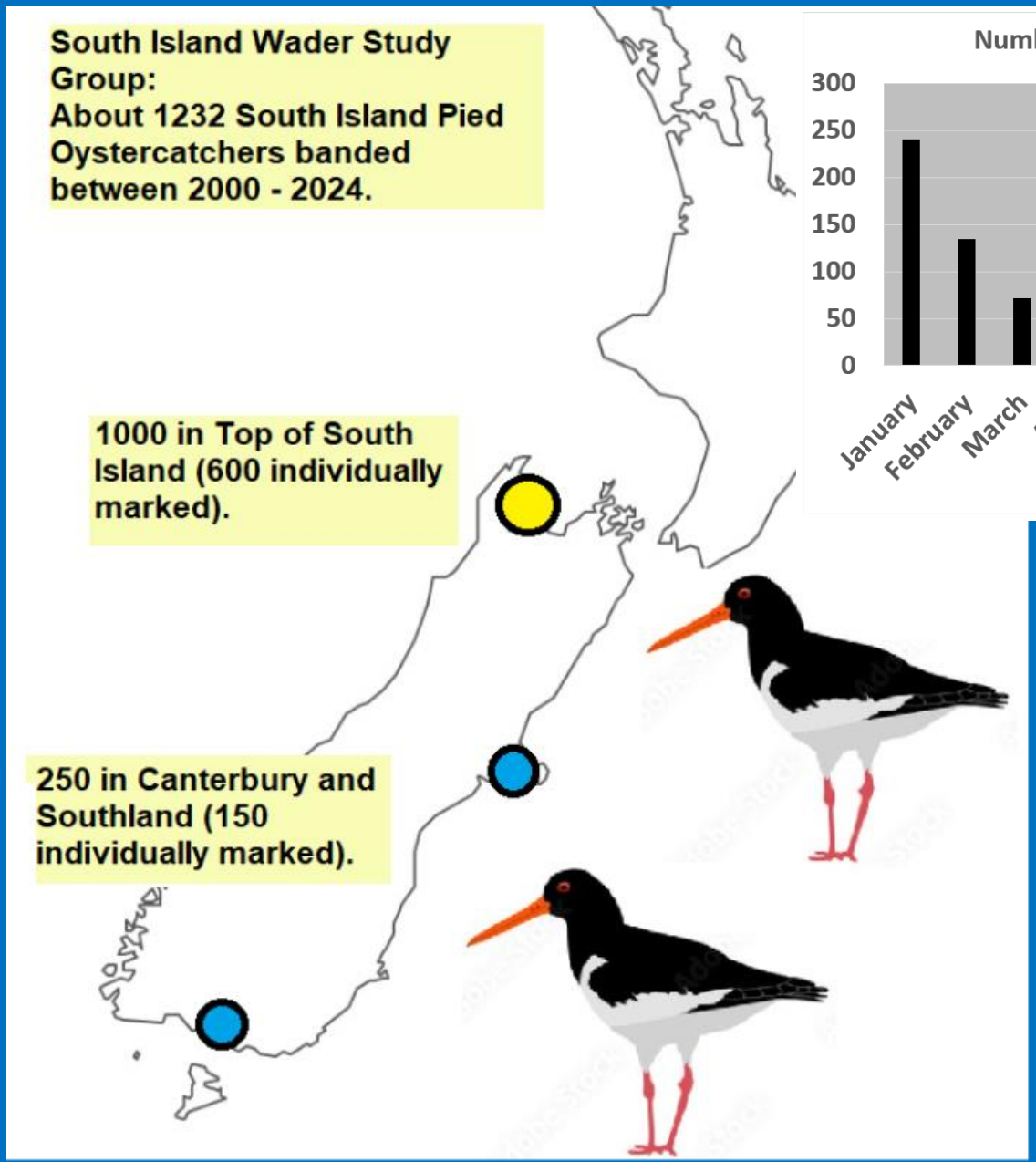
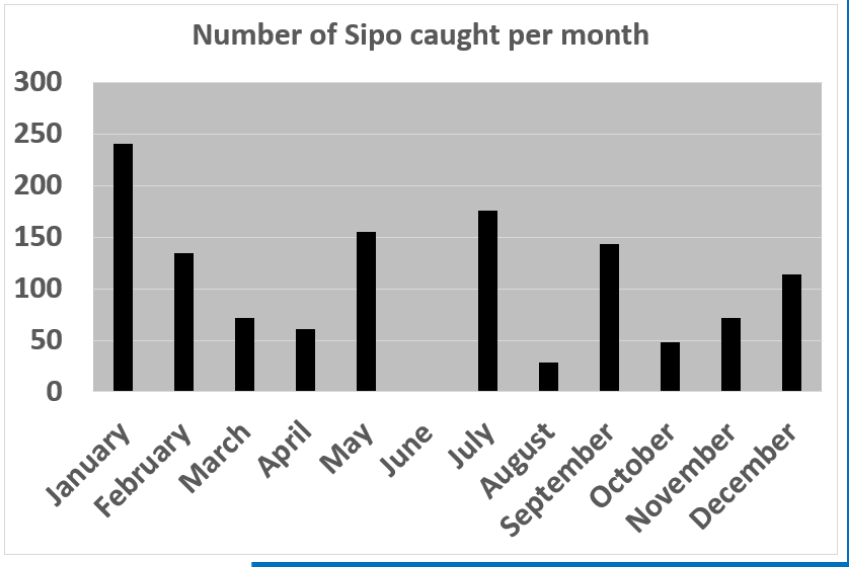
The birds assessed are from non-breeding grounds in the South Island.





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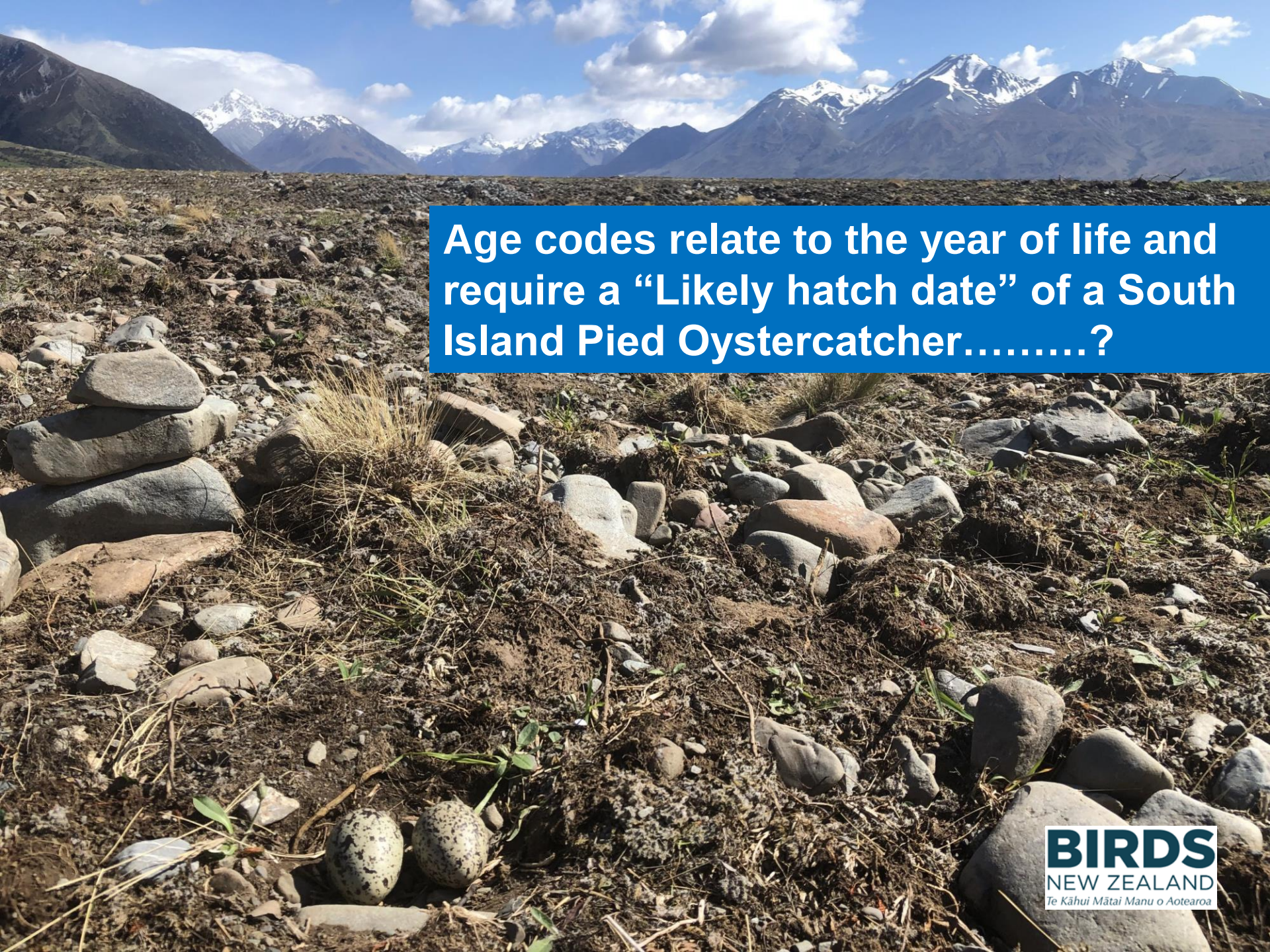
Age codes relate to the year of life and require a “Likely hatch date” of a South Island Pied Oystercatcher……?
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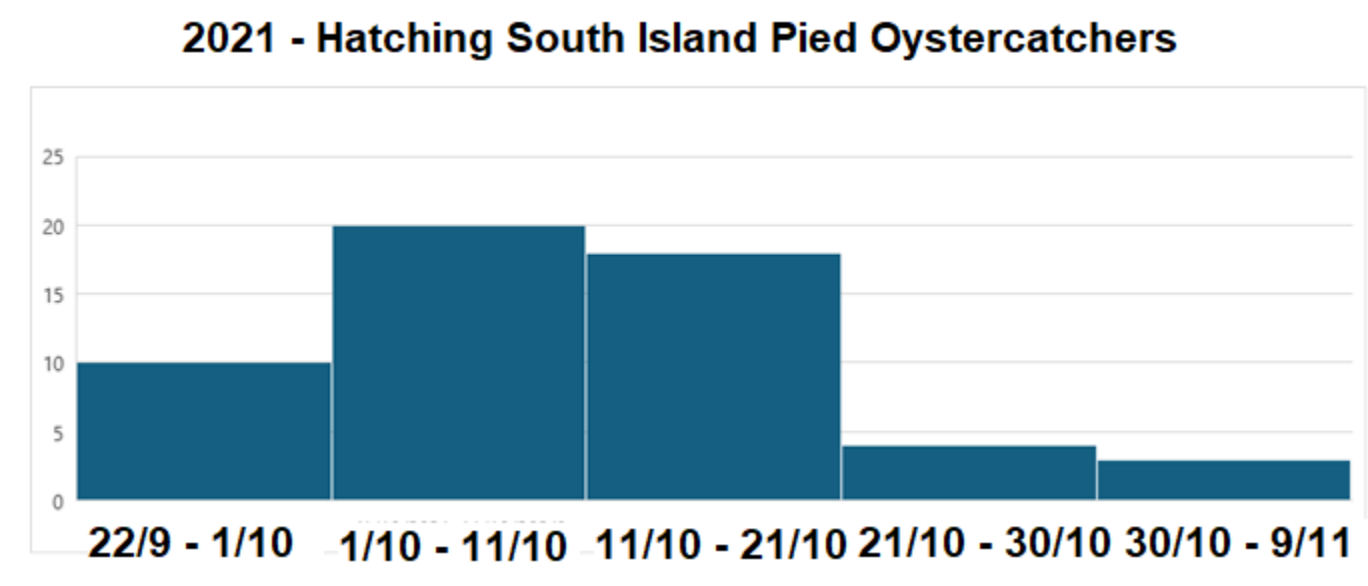
We use the peak date of hatching as the beginning of life cycle for the species - start of October.



Schlesselmann, *unpublished data*

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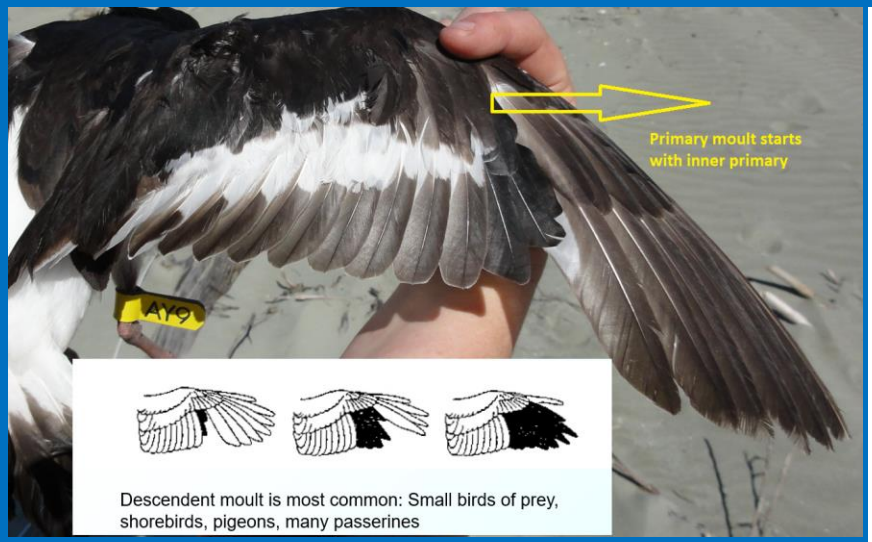
PRIMARY FEATHER ‘MOULT’ AND ‘WEAR’ FOR AGING SOUTH ISLAND PIED OYSTERCATCHER.



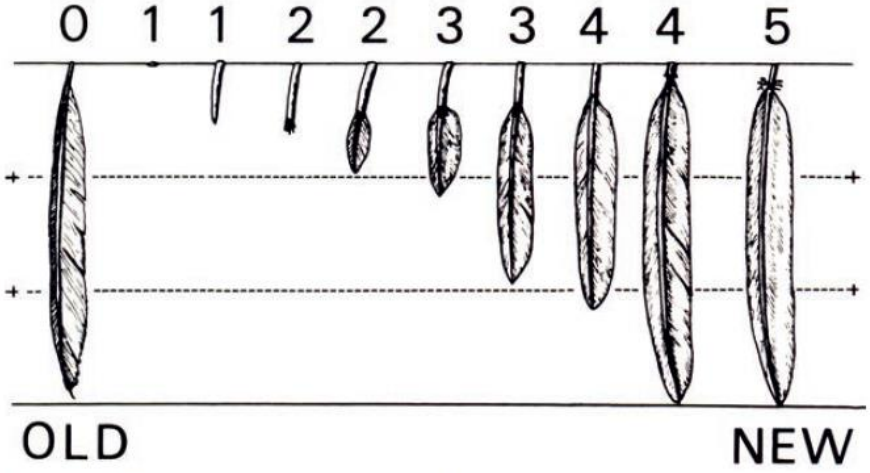
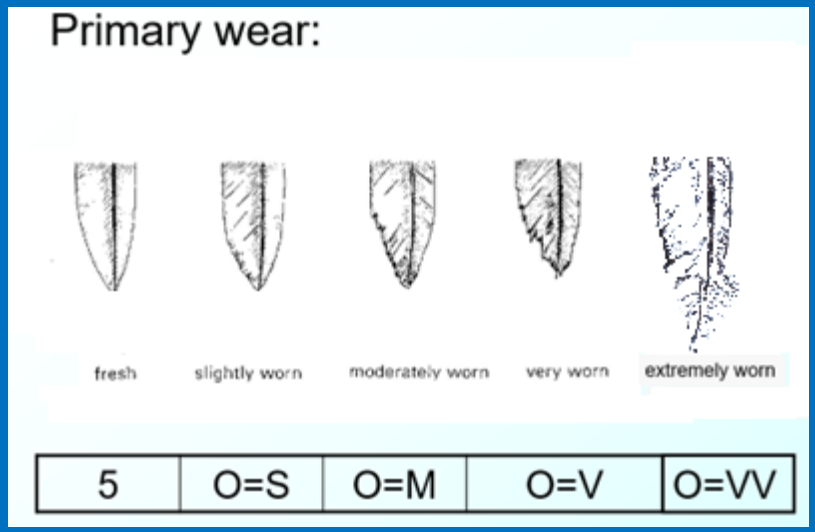


Figure 58. Feather scoring system for recording moult:
0 Old feather remaining.
1 Old feather missing or new feather completely in pin.
2 New feather just emerging from the sheath up to one-third grown.
3 New feather between one-third and two-thirds grown.
4 New feather more than two-thirds grown and with remains of waxy sheath at its base.
5 New feather fully developed with no trace of waxy sheath remaining at base.
(From Ginn & Melville 1983, reproduced with permission from the British Trust for Ornithology.)



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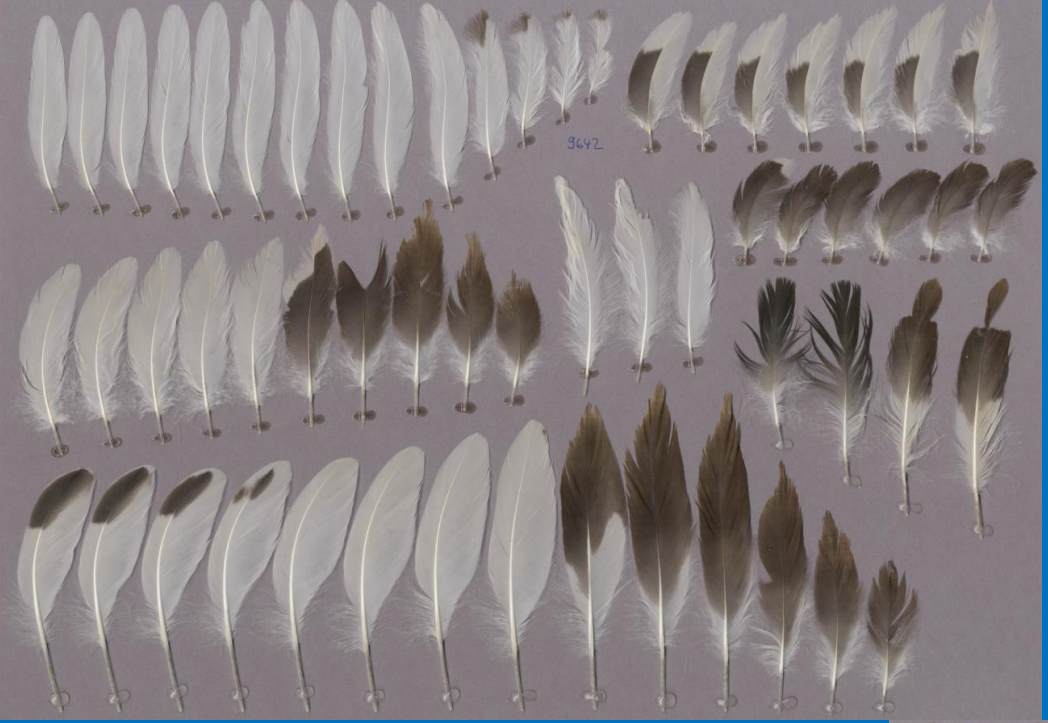
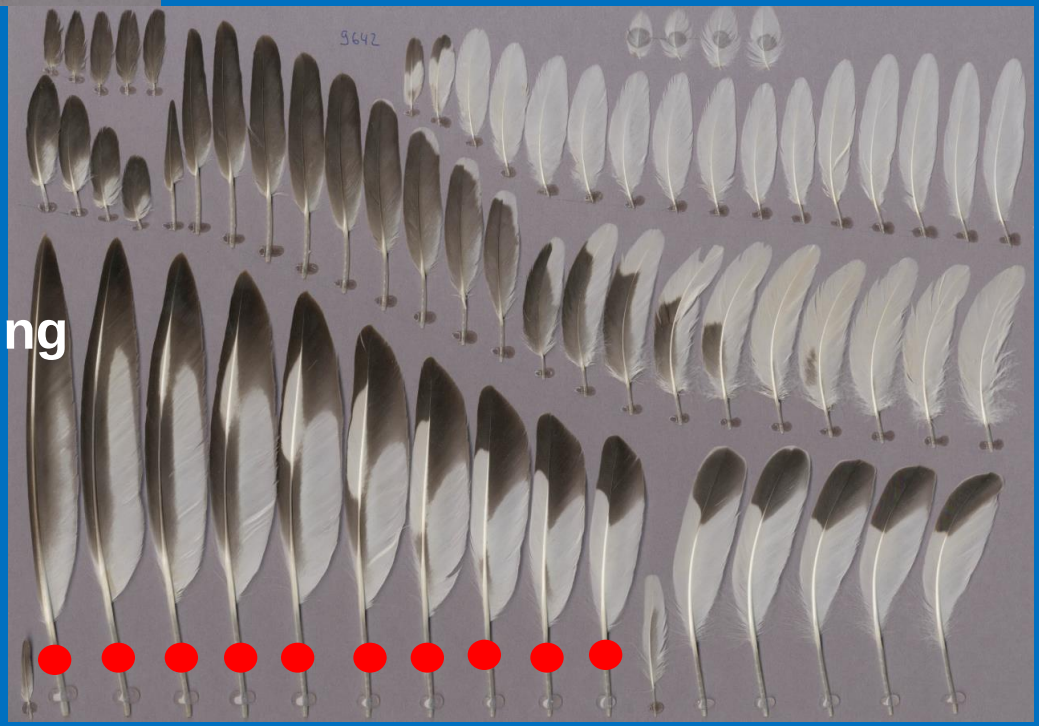


Main feathers Eurasian Oystercatcher (*Haematopus ostralegus)*

featherbase
feather research and identification

Main objective during moult is to maintain flight (most pressure underneath the wing).

For aging our birds, moult recording is only looking at the main flight feather, the primaries.



Pakawau, October 3+

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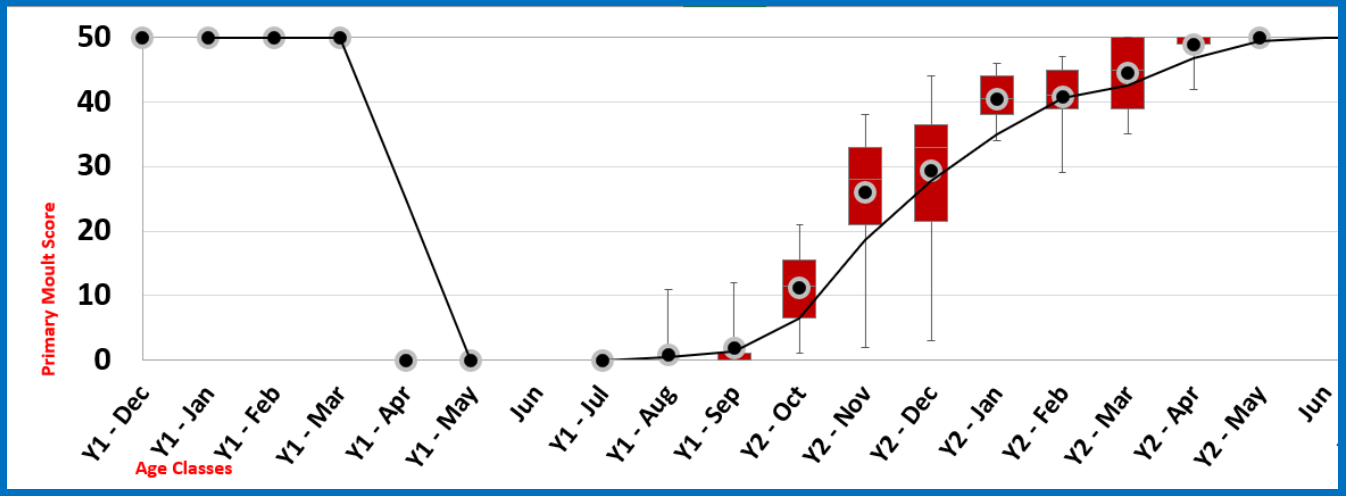
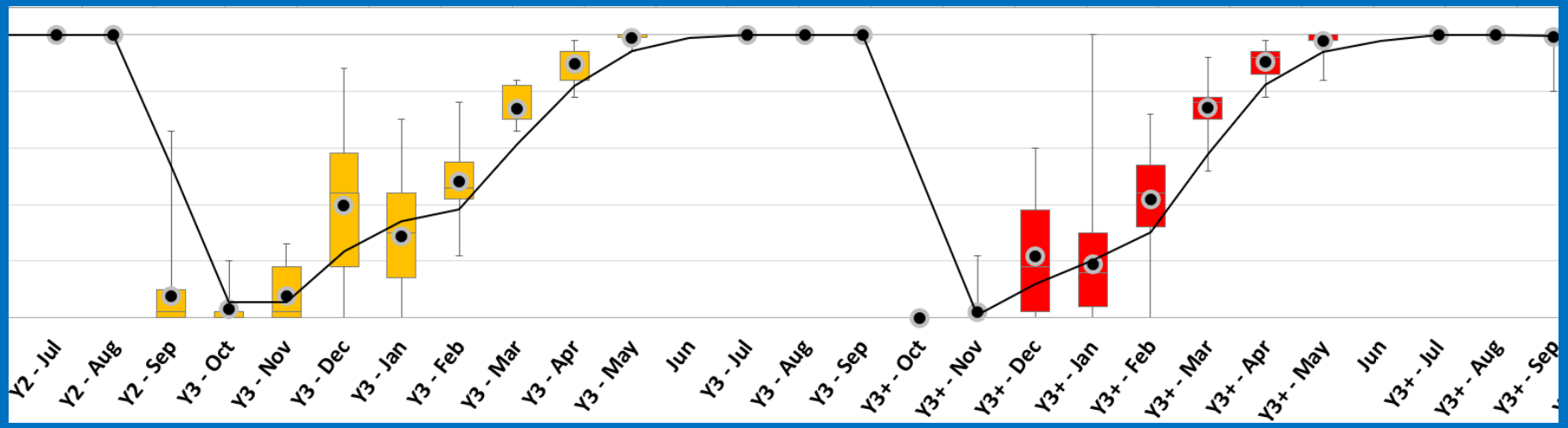
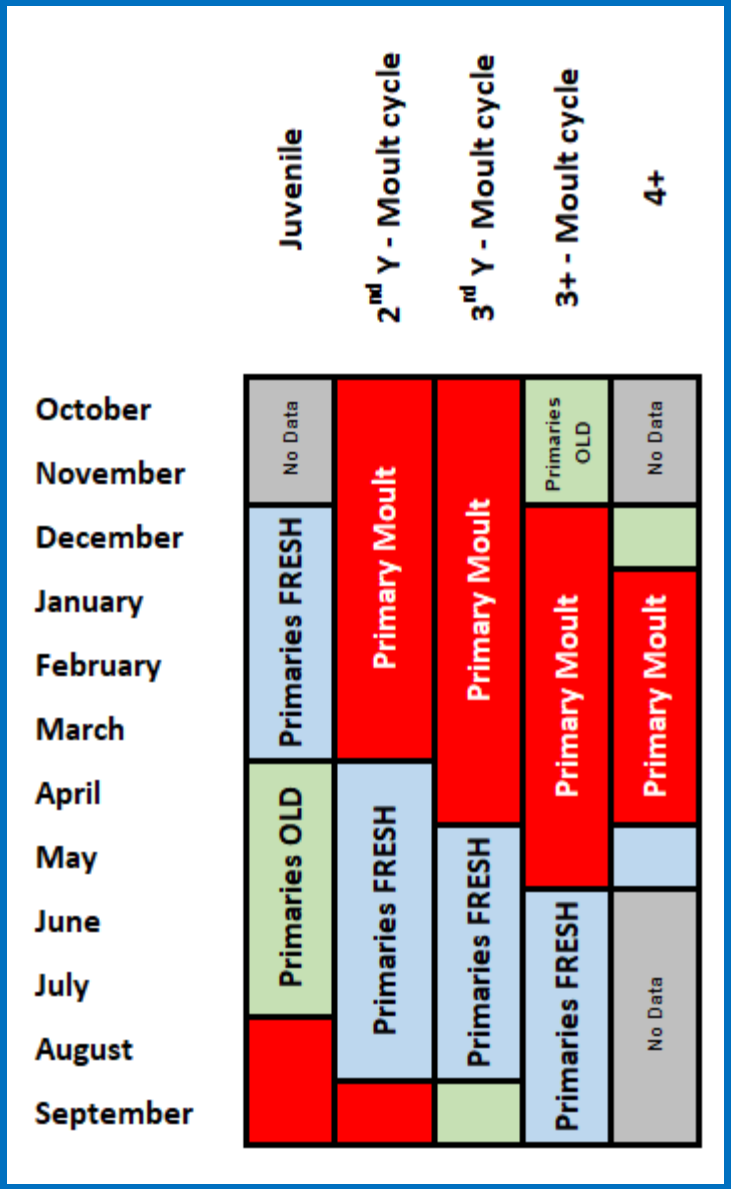
Rabbit Island, January Age 2





Assessing the moult score (combined with progressive changes in the colours of bare body parts) allows to distinguish between juveniles, subadults and adults. No individuals can be safely identified beyond their third or fourth year.



South Island Pied Oystercatcher has a ‘first moult’ starting in August and finished March.

Between August and March, a number of outer primaries are well over 12 months old and very to extremely worn,providing additional information for aging individuals in the field.

Such consequential feather wear is not recorded for any following age class over life span of bird.

Over subsequent subadult to adult years, the ‘definitive cycle’ is between January and April.

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Moult	October	November	December	January	February	March	April	May	June	July	August	September
Year Classes*	SPRING			SUMMER			AUTUMN			WINTER		
Year 1			50	50	50	50	0	0	0	0	+	+
Wear			F	S			M	M-V		V	V	V
Year 2												
Wear												
Year 3												
Wear												
Year 3+												
Wear												

Primary Moult	50	New feathers	0	Old feathers	+	Active moult
Wear of all or remaining feathers	F	Fresh	S	Slight	M	Moderate	V	Very	VV	Extreme

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Moult	Year Classes*	SPRING			SUMMER			AUTUMN			WINTER		
	Year 1 Juv												
Baker 1974	Year 2 - 2nd Year	+	+	+									
Baker 1975			+	+	+								
Marchant, S. & Higgins		+	+	+									
Baker 1974													
Marchant, S. & Higgins													
Baker 1974, 19													
Marchant, S. & Higgins													

Our moult data show some notable differences compared to Baker (1974) and Marchant & Higgins (1993).

Moult													
Year Classes*													
Year 1													
Year 2													
Year 3													
Year 3+		50	50	+	+	+	+	+	+		50	50	50
Wear		S	S	S-M-V	S-M-V	V	V		F-S		F-S		

Primary Moult	50	New feathers	0	Old feathers	+	Active moult
Wear of all or remaining feathers	F	Fresh	S	Slight	M	Moderate	V	Very	VV	Extreme

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The combination of field records on:

- **Primary feather moult**
- **Primary feather wear**

……is a valuable discriminant to distinguish juvenile, subadult and adult South Island Pied Oystercatchers.

Recommendation to further test this refined aging table for improvements.

Thank You!!

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Acknowledgements to the many people that helped and assisted us with this work. Without such commitment, this project would not be possible.

Ian Southey

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