

Report on summer research, 1976 and  
Proposed research and budget for 1  
on Cleland Island Ecological Reserve

ECOLOGICAL RESERVES COLLECTION  
GOVERNMENT OF BRITISH COLUMBIA  
VICTORIA, B.C.  
VBV 1X4

S. GROVES 1977

Results of research, summer 1976

Black Oystercatcher (Haematopus bachmani) foraging behaviour

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(thesis research conducted by S. Groves)

Hypothesis: Adult and juvenile black oystercatchers differ in the organization of their foraging bouts and the efficiency with which they handle prey items.

As indicated in an earlier summary of the 1976 field season (report submitted to office of Ecological Reserves, 26 November, 1976), inclement weather severely hampered the breeding success of oystercatchers on Cleland in 1976. Consequently, limited progress was made in gathering data to test the hypothesis.

Timed observations of individual adult oystercatchers foraging in the exposed intertidal were recorded over periods of 6<sup>+</sup> hours. Analysis of these observations indicates that through a low tide period, parameters of adult foraging such as peck rate, mean handling times of prey items, spacing of prey items through time, and proportion of active foraging time spent walking (=searching) remain constant. No affect of satiety on various measurements of foraging behaviour was detected.

Eight transect lines were run from the high-tide line to the low-tide line to survey the density and diversity of marine invertebrates, especially those in the oystercatcher diet (e.g. Acmaea spp.).

Glaucous-winged Gull (Larus glaucescens) nest census

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At the request of the B.C. Provincial Museum, Department of Birds and Mammals, a census of gull nests was conducted on 26 June 1976. Details of the census are on file at the museum. A brief summary is presented below:

	Number of eggs					
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Total</u>
Number of nests	76	118	259	681	3	1137

In mid August, 159 gull chicks were banded with bands provided by the B.C. Provincial Museum. The banding records are on file at the museum.

Anemone (Anthopleura xanthogrammica) feeding and assimilation

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Observations and some preliminary feeding experiments and measurements of assimilation times in this common anemone were conducted by Laurel Dick, a UBC summer student.

Proposed research, summer 1977

Black Oystercatcher foraging behaviour

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Hypothesis: Oystercatcher clutch sizes are adjusted to the number of young which parents can adequately feed.

The relationship between oystercatcher clutch size and parental feeding effort will be investigated by increasing 3 one-egg clutches to three eggs and decreasing 3 three-egg clutches to one egg. A total of 9 to 12 eggs will be moved between nests. Chick growth will be monitored by weighing chicks regularly until fledging.

Observations on age-related aspects of foraging behaviour will be continued.

Leach's Petrel (Oceanodroma leucorhoa) - slug interactions<sup>1</sup>

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(research to be carried out by Renata Jaremovic)

Hypotheses: 1) Leach's petrel is affected in some way (e.g. higher mortality) by the presence of slugs in its burrows.

2) Slugs in petrel burrows influence the daily activities of petrels.

The following measurements and experiments are tentatively proposed:

- the effect of removing slugs from all burrows in an experimental plot
- comparison of the growth of young and adult mortality in an experimental plot vs. a control plot
- direct observation of parents returning to burrows with food to see if parents have more difficulty entering burrows in the presence of slugs
- provision of alternate shelters for slugs to test for shelter limitation
- presentation of birds feces, etc to test the attractiveness of petrels to slugs
- the effect of salt water on the properties of slug slime
- comparison of number of slugs in occupied vs. unoccupied petrel burrows
- comparison of activity patterns of slugs and birds through 24 hours
- application of mucous staining dye to petrel feathers to test for presence of mucous
- application of slug repellent to burrows to prevent slugs from entering

Methods: Study plots will be chosen on the basis of accessibility with minimal habitat disturbance. Therefore, the plots will probably be located close to the edges of the vegetated areas of the island. The study plots will probably include 50-100 petrels. Randomly scattered rather than adjacent burrows will be chosen in order to minimize disturbance to the birds (pers. comm. M.G.Shepard). If necessary walkways of planks will be laid down between burrows in the study plots to further reduce damage to petrel habitat.

#### Glaucous-winged Gull nest census

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A census of gull nests will be conducted in 1977.

#### Proposed Budget (from Ecological Reserves)

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- student summer salary for Renata Jaremovic, 2 months @ \$650 = \$1300
- (Sarah Groves will be supported by UBC Graduate Fellowship)
- field expenses (boat gas, oil, mileage, ferry fares, etc.) = \$150-200

References

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<sup>1</sup> 1967. Campbell, R.W. and D.Stirling. Notes onf The Natural History of Cleland Island, British Columbia, With Emphasis on the Breeding Bird Fauna. B.C. Provincial Museum Report for 1967. Victoria, B.C.

Submitted by:

*Sarah Groves*

Sarah Groves

Department of Zoology  
University of British Columbia  
Vancouver, B.C., V6T 1W5  
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