

Опыт изучения лишайниковой растительности в орнитогенных экосистемах полуострова Файлдс в Морской Антарктике (остров Кинг Джордж, Южные Шетландские острова)

TRIAL OF STUDY OF THE LICHEN VEGETATION IN ORNITHOGENIC ECOSYSTEMS OF FILDES PENINSULA IN MARITIME ANTARCTIC (KING GEORGE ISLAND, SOUTH SHETLAND ISLANDS)

М. П. Андреев*, Е. В. Абакумов**

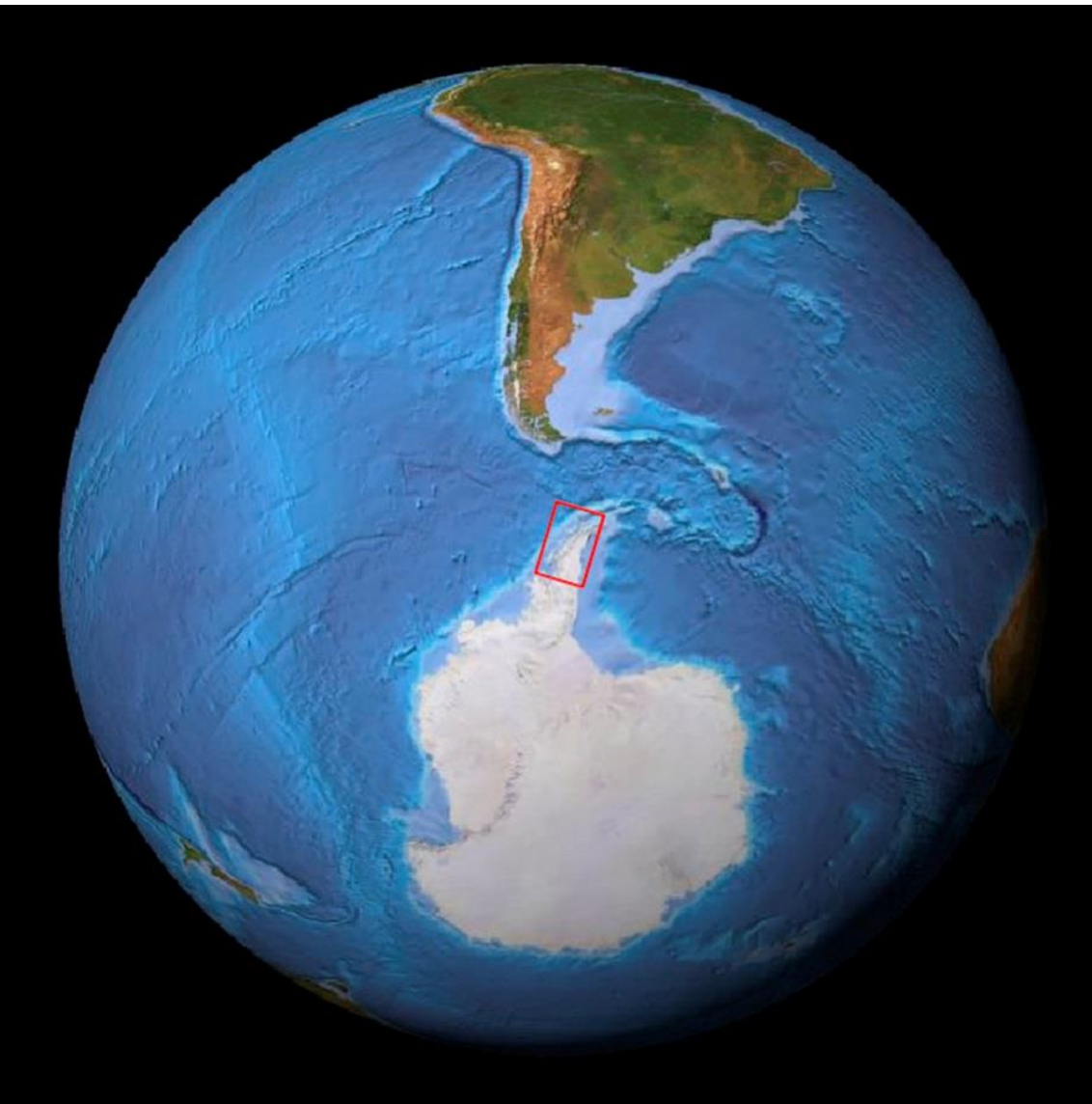
M. P. Andreev*, E. V. Abakumov**

*Ботанический институт им. В. Л. Комарова РАН, Санкт-Петербург, andreevmp@yandex.ru

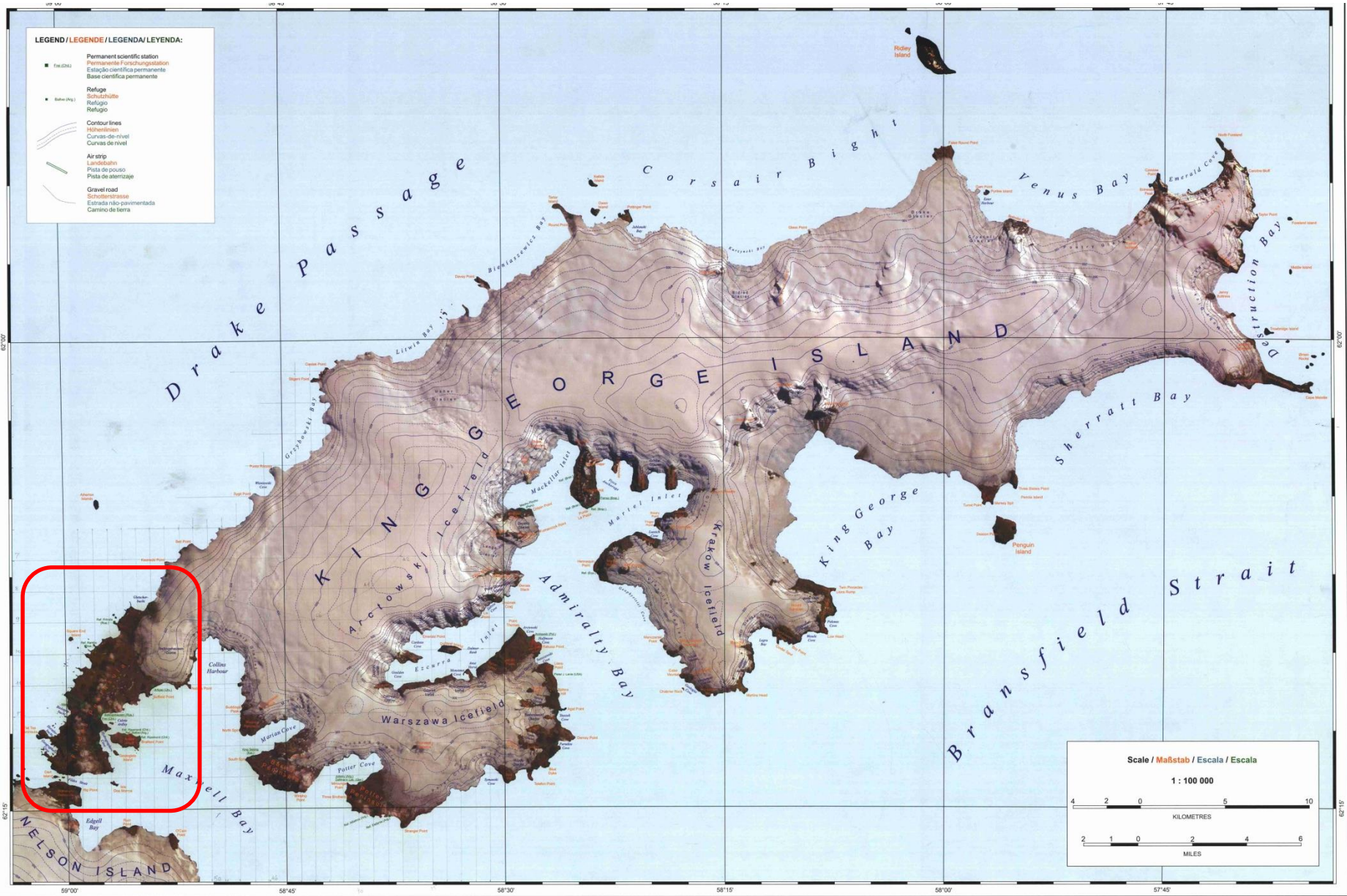
**Санкт-Петербургский государственный университет, Санкт-Петербург, e_abakumov@mail.ru

*Komarov Botanical Institute, S.-Petersburg, andreevmp@yandex.ru

**Saint-Petersburg State University, S.-Petersburg, e_abakumov@mail.ru



Location of study sites: maritime Antarctic, King George Island, Fildes Peninsula.



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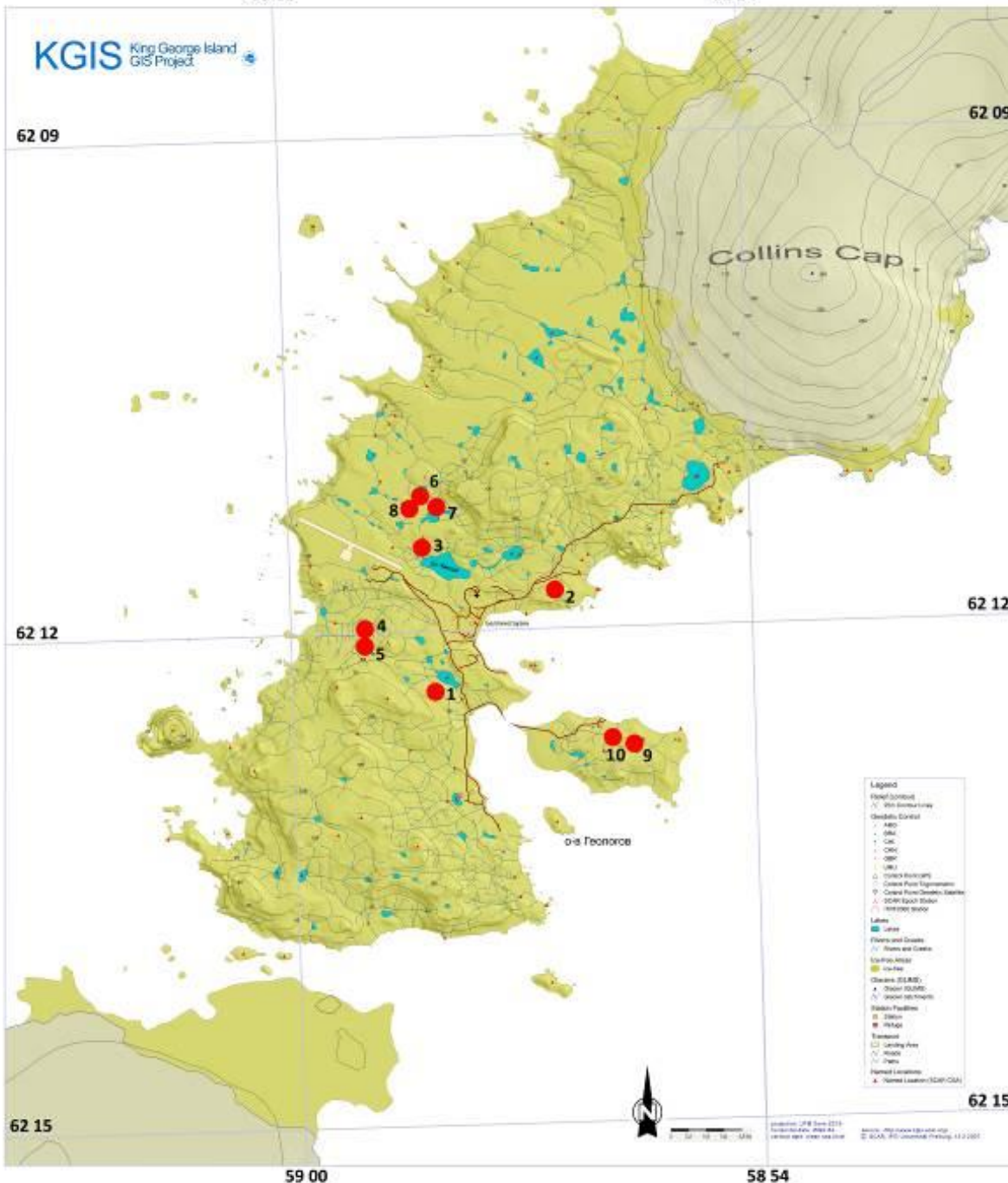
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Орнитогенные сообщества,
изученные на п-ове Файлдс.

Ornithogenic ecosystems of
Fildes Peninsula.

Skuas (*Catharacta* spp.)

Brown Skua (*Catharacta a. lonnbergi*)

South Polar Skua (*Catharacta maccormicki*)

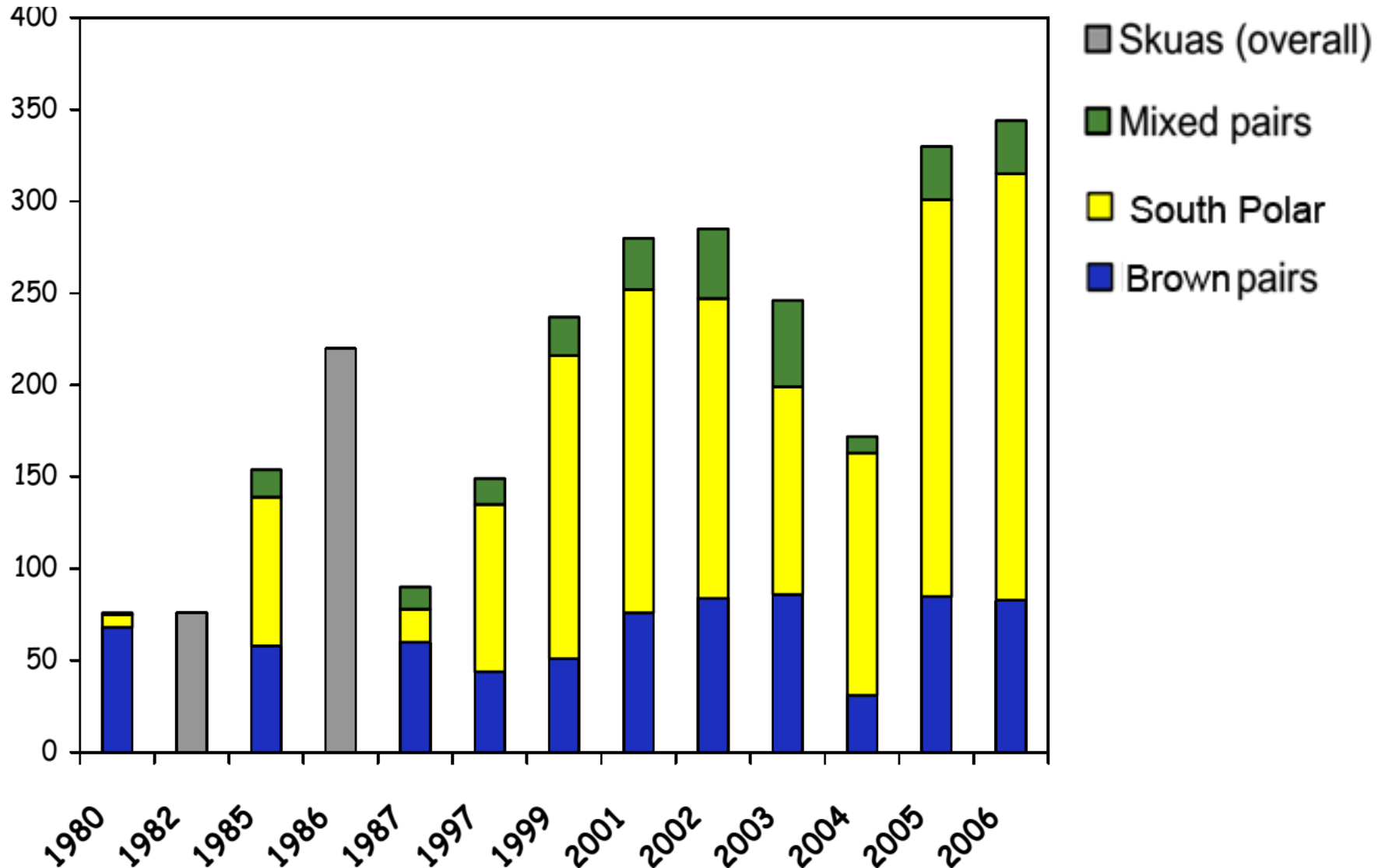
27 - 31 pairs

in one place 3-5 nests of different ages

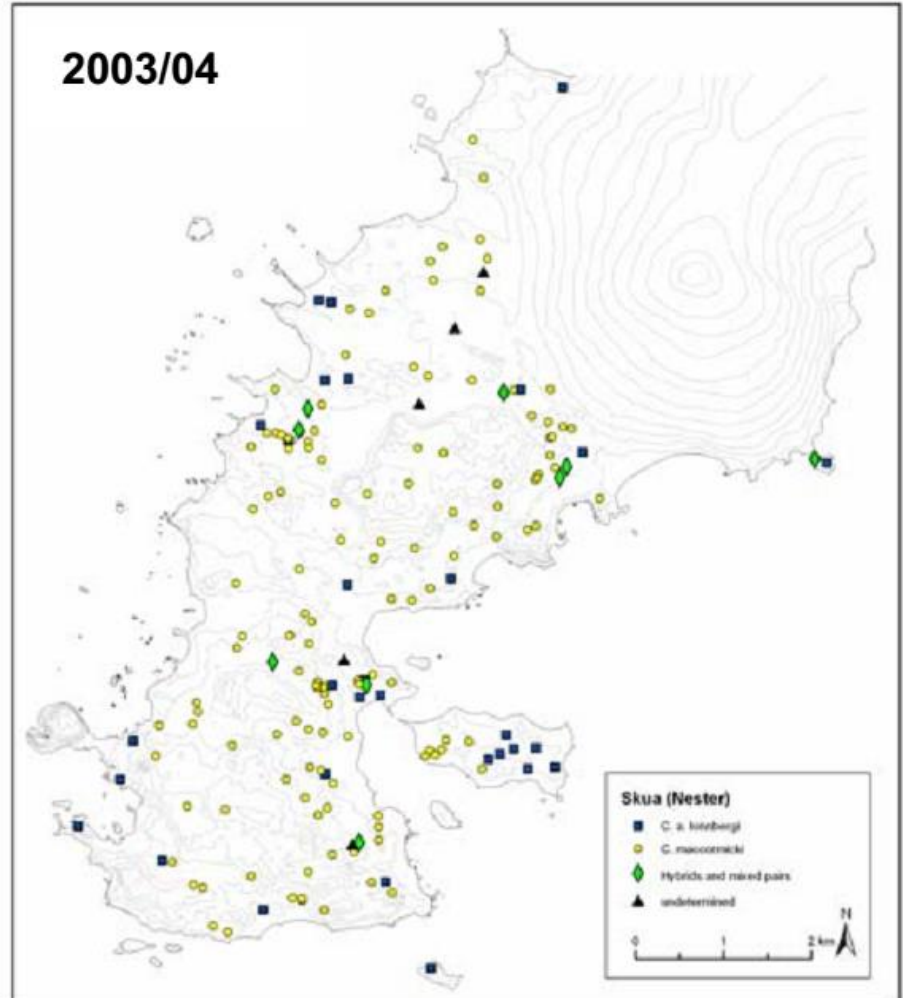
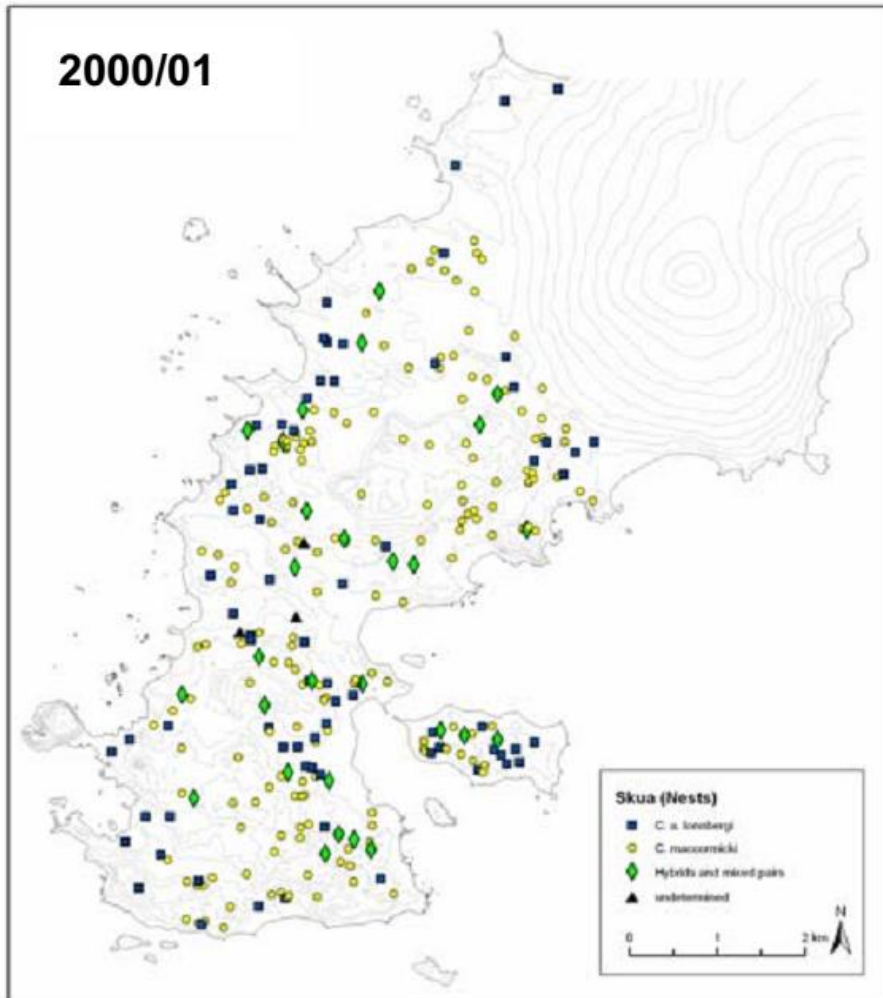
132 - 232 pairs



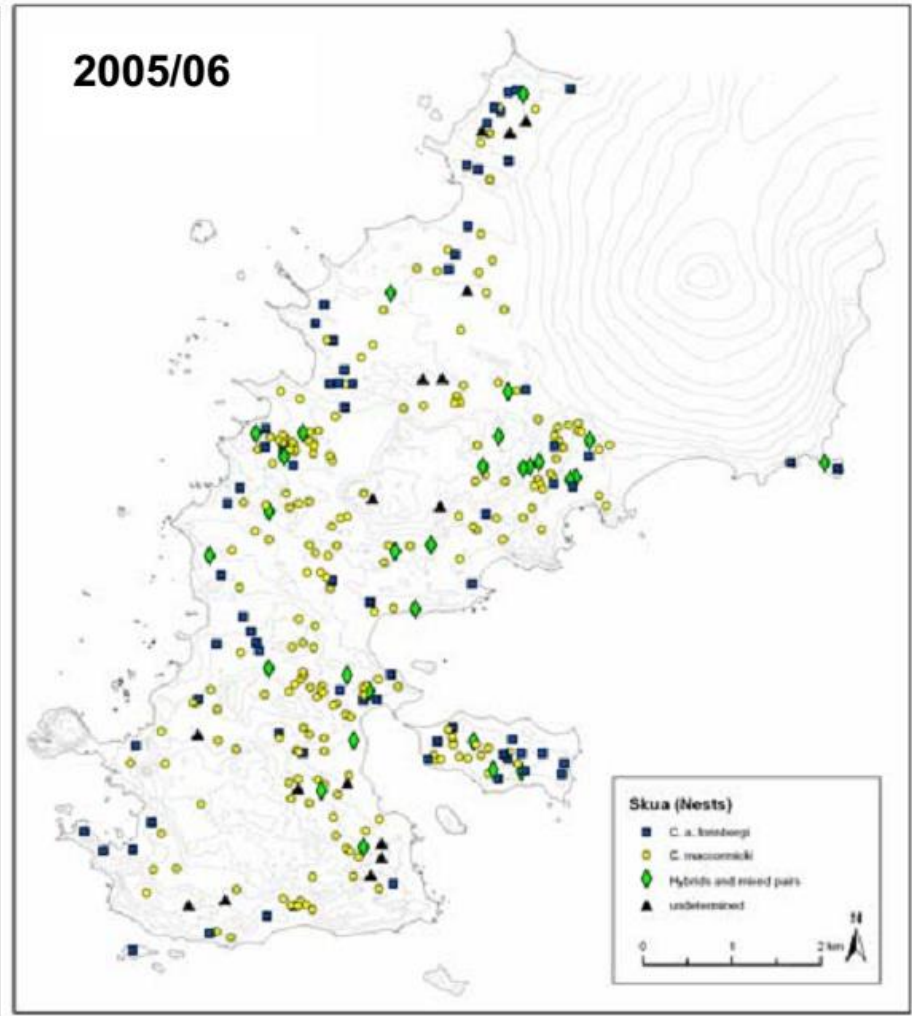
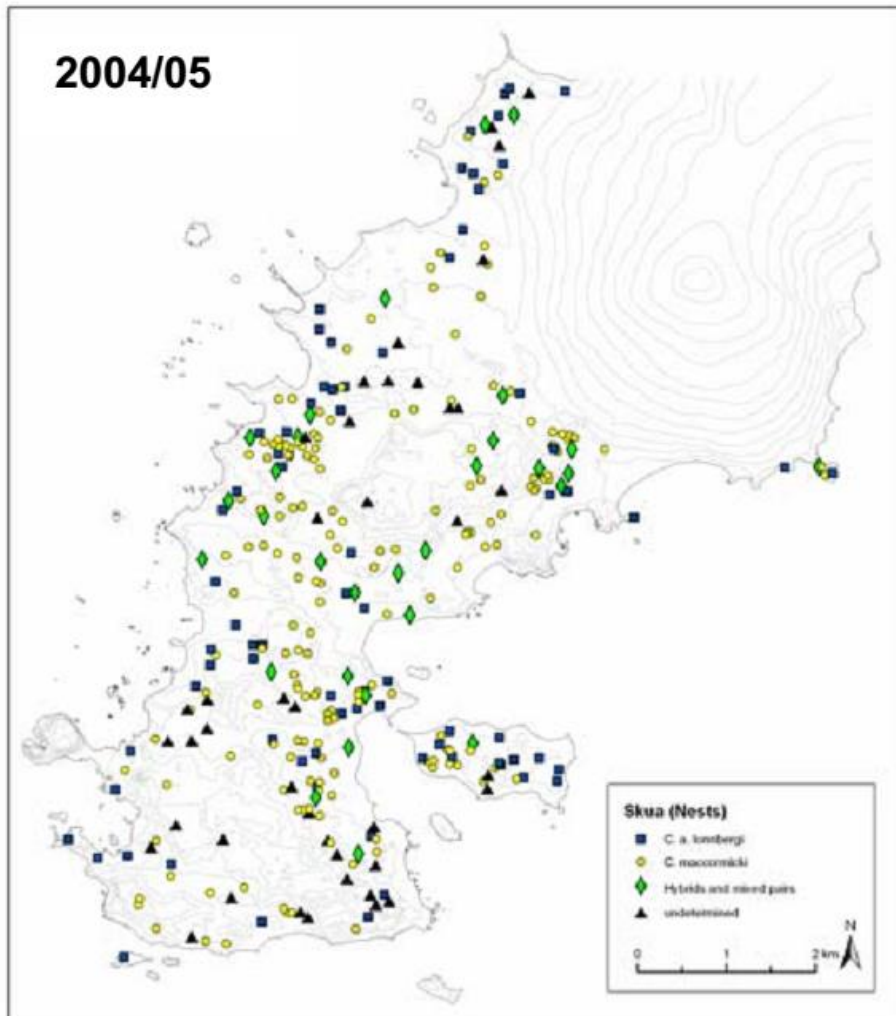
Numbers of skua (*Catharacta* spp.) breeding pairs on the Fildes Peninsula and Ardley island in the years 1980/81 to 2005/2006.



Distribution of skua (*Catharacta* spp.) nests in the Fildes Region in the four years of the study.



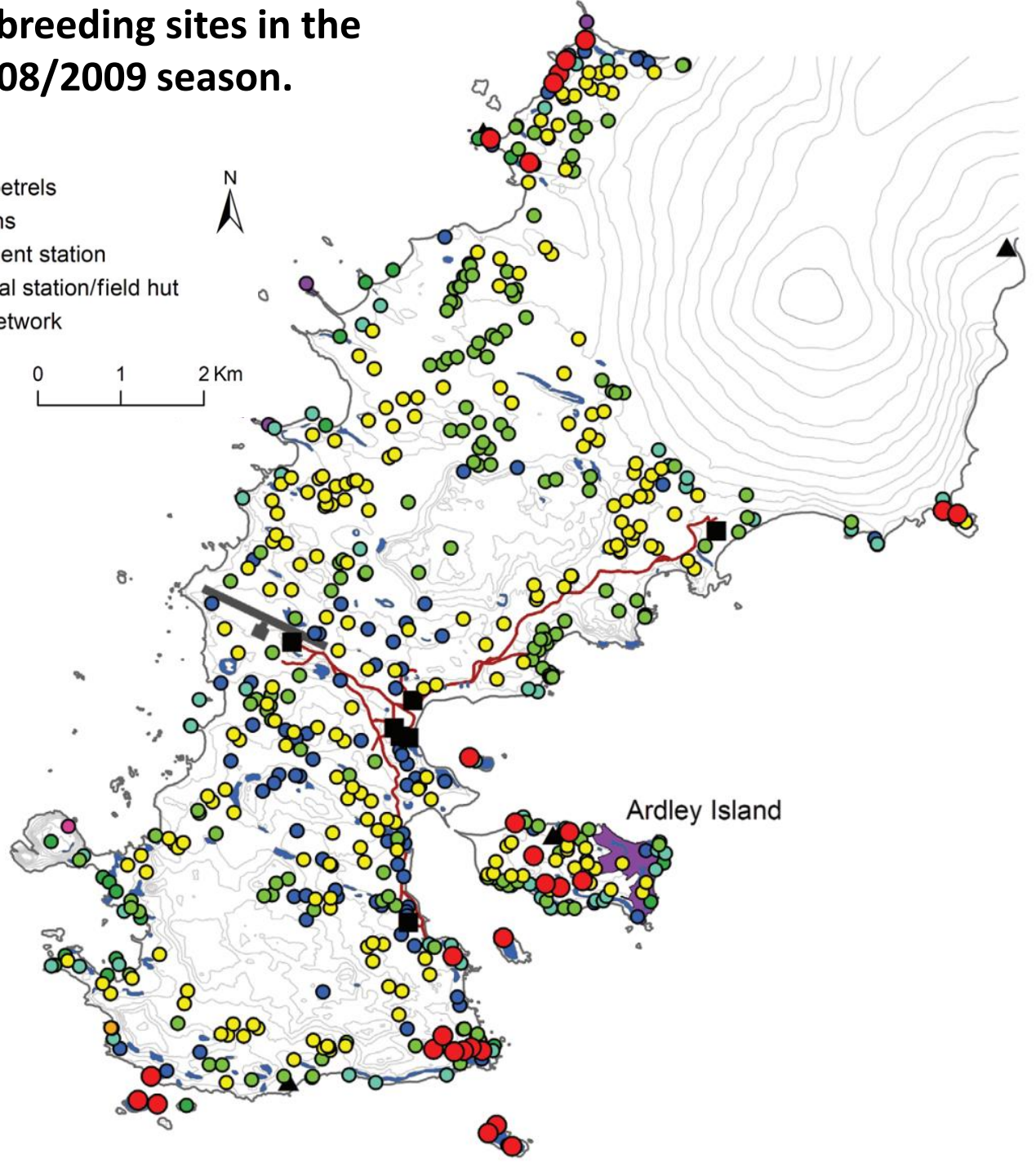
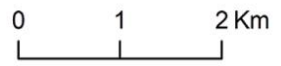
Distribution of skua (*Catharacta* spp.) nests in the Fildes Region in the four years of the study.



The distribution of seabird breeding sites in the Fildes Region during the 2008/2009 season.

- Southern giant petrel
- Light-mantled sooty albatross
- Brown & South Polar skuas
- Antarctic tern
- Kelp gull
- Cape petrel
- Snowy sheathbill

- Storm petrels
- Penguins
- Permanent station
- ▲ Seasonal station/field hut
- Road network
- Airstrip

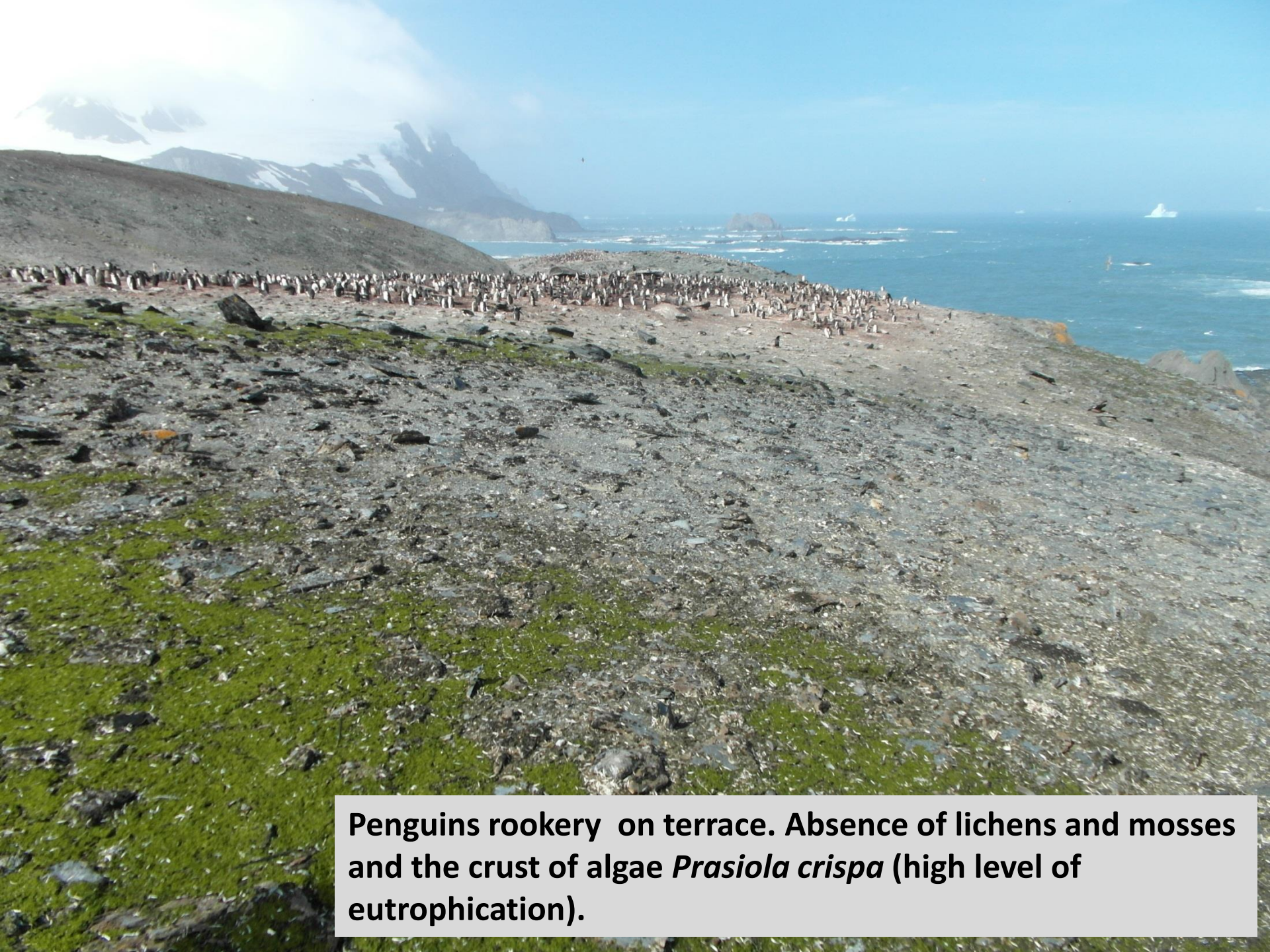


Ardley Island

Braun C., Mustafa O., Nordt A., Pfeiffer S., Peter H.-U. Environmental monitoring and management proposals for the Fildes Region, King George Island, Antarctica // Polar Research. 2012. Vol. 31.



Nests of giant petrels on the top of cliff. Absence of lichens and mosses and the crust of algae *Prasiola crispa* (high level of eutrophication).



Penguins rookery on terrace. Absence of lichens and mosses and the crust of algae *Prasiola crispa* (high level of eutrophication).

Penguins rookery on terrace. Absence of vegetation (extra high level of eutrophication).





Rich lichen vegetation near the place of bird's feeding on the margin of cliff (middle level of eutrophication).



***Caloplaca cirrochroides* , *Amandinea coniops*, *Buellia* sp., *Prasiola crispa*.
Rich lichen vegetation near the place of bird's feeding on the cliff.
(Middle level of eutrophication).**



***Lecania brialmontii* on the rock near bird's feeding place .
Rich lichen vegetation. (Middle level of eutrophication).**



Societies of nitrophilous lichens (*Caloplaca cirrochroides* and *C. saxicola*) and small meadows of *Deschampsia antarctica* on cliffs near bird's nests.

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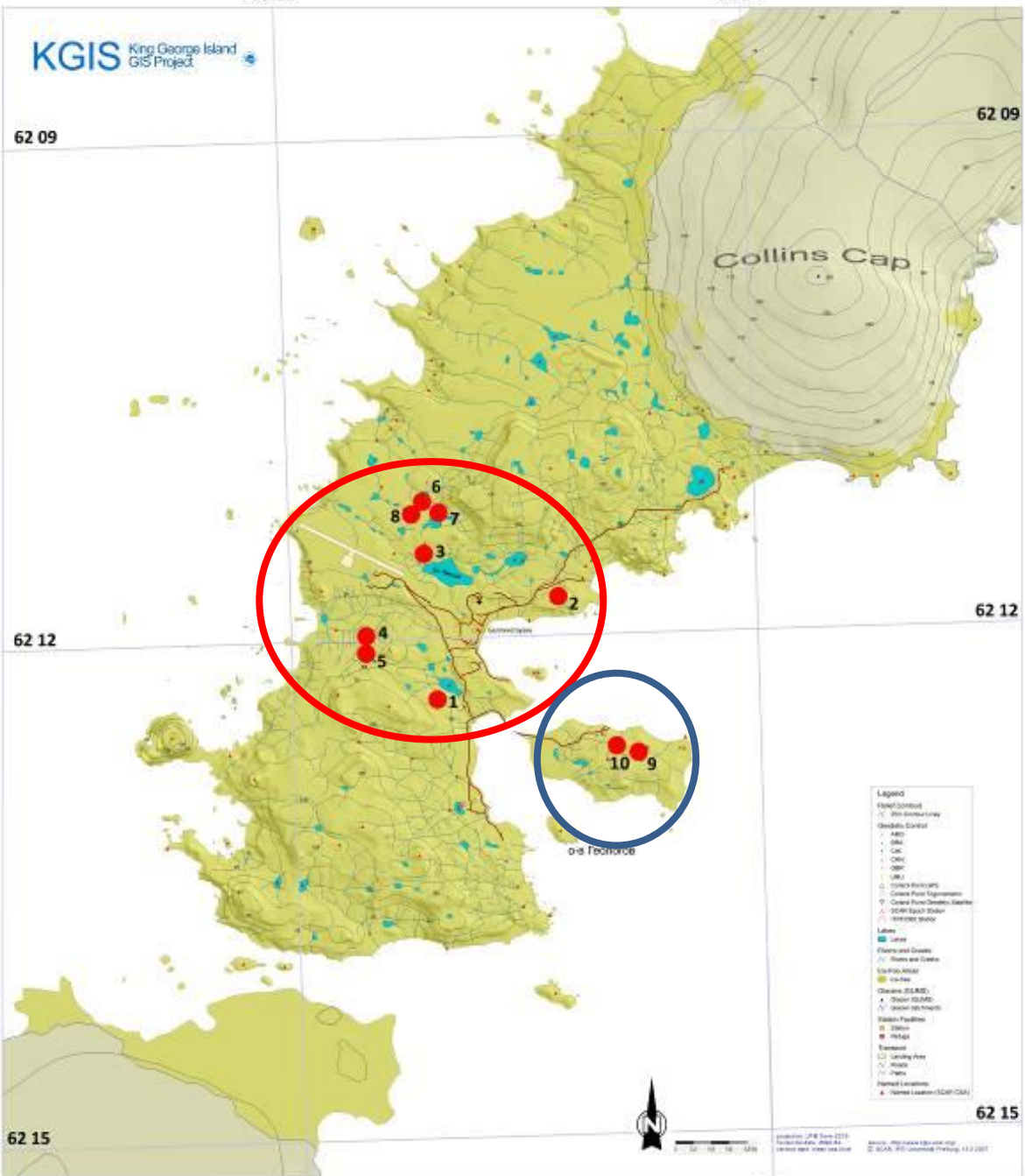
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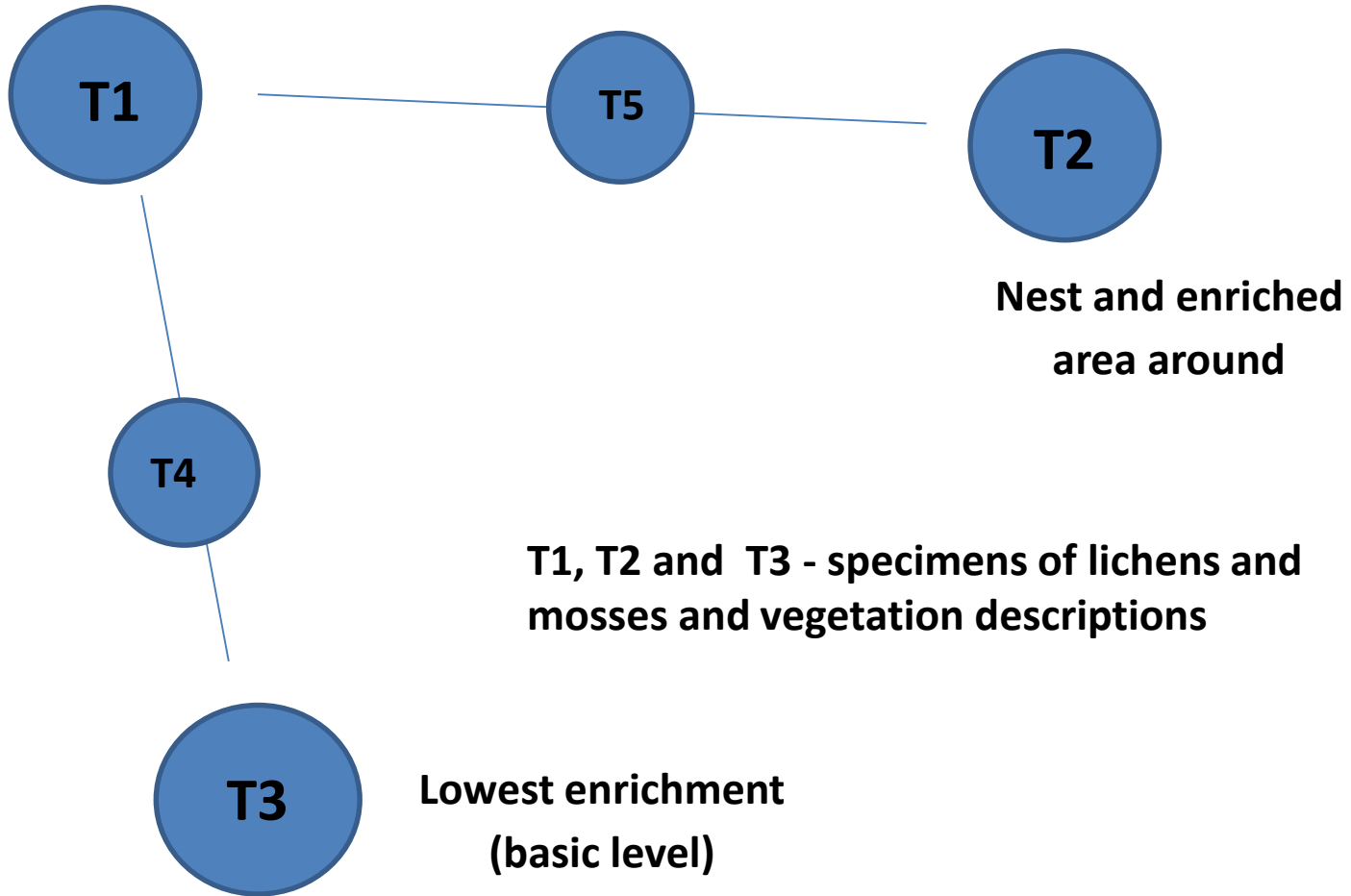


Орнитогенные сообщества,
изученные на п-ове Файлдс.

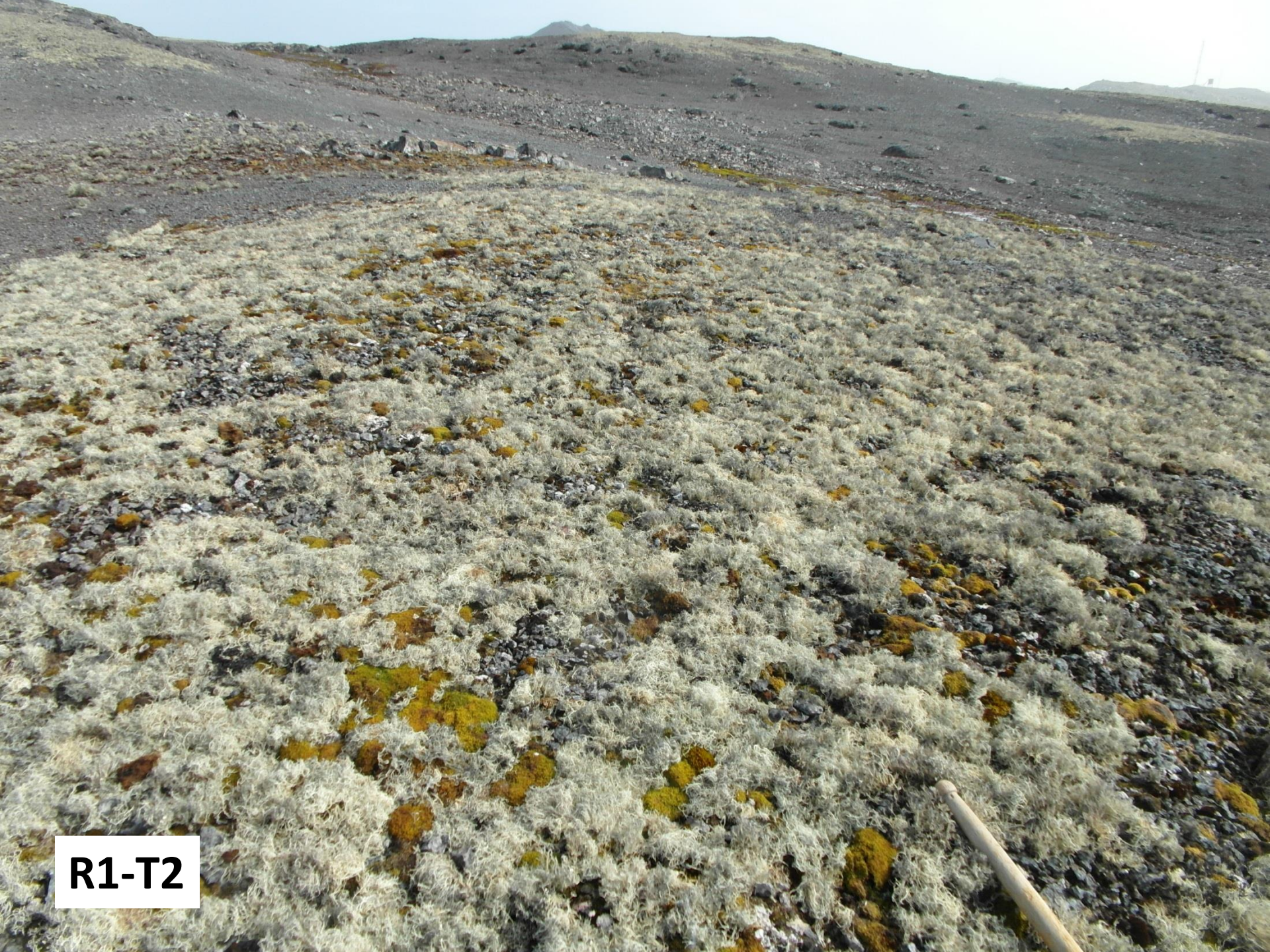
Ornithogenic ecosystems of
Fildes Peninsula.

Feeding and the most enriched area

3 - 4 soil horizons

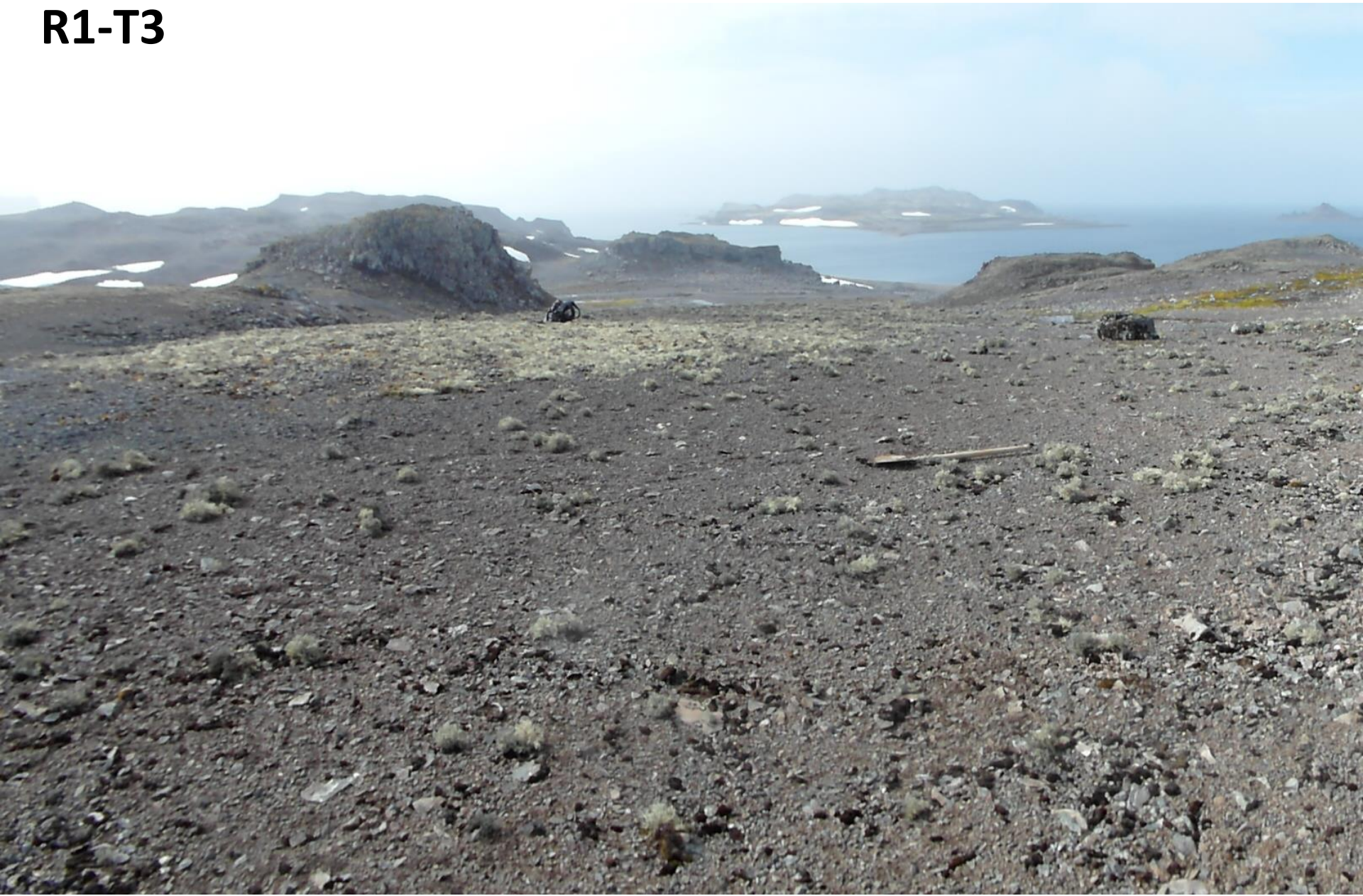


139 soil samples from 50 soil profile



R1-T2

R1-T3

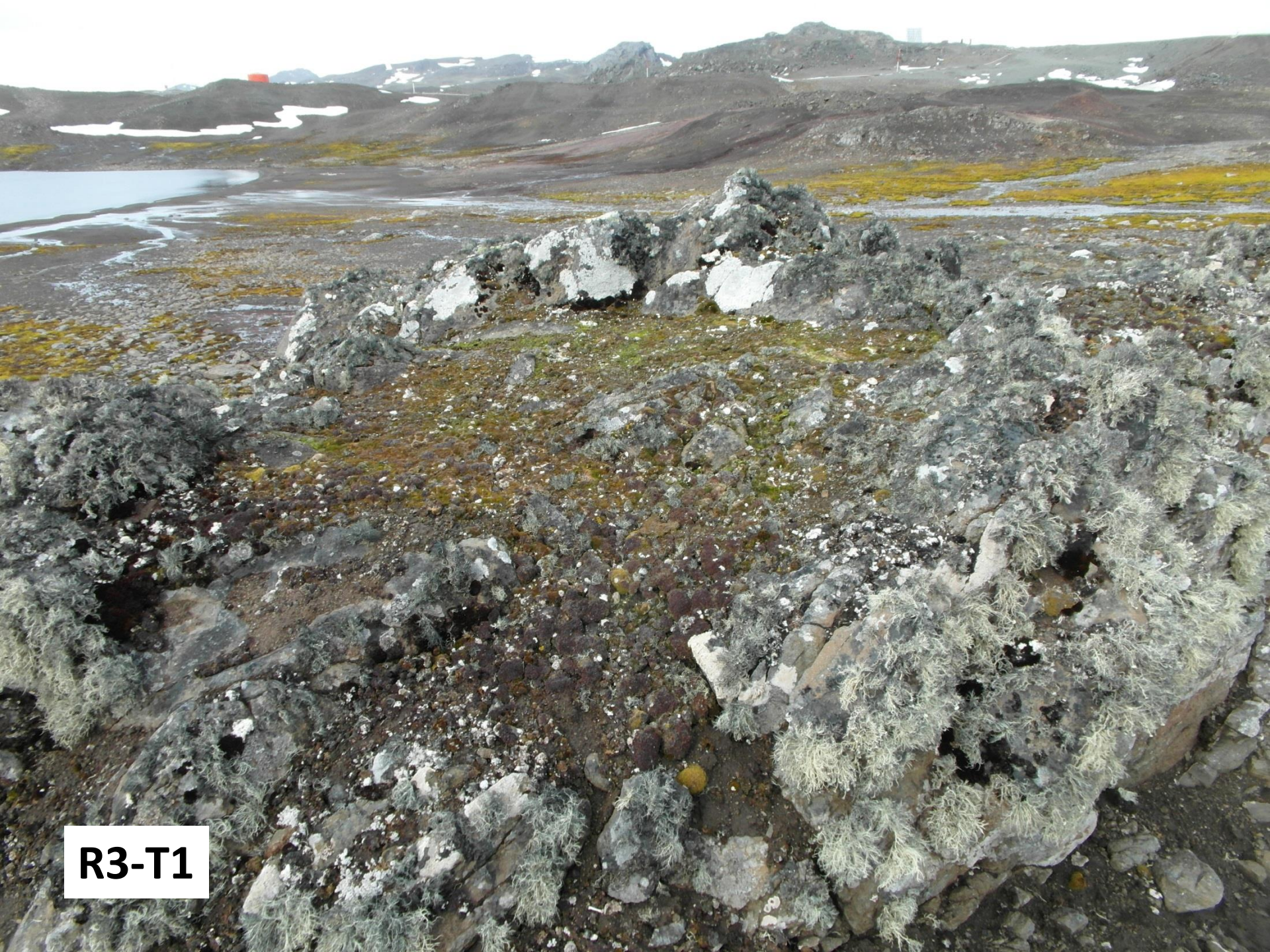




R2-T2



R2-T3



R3-T1

R3-T2





R3-T3

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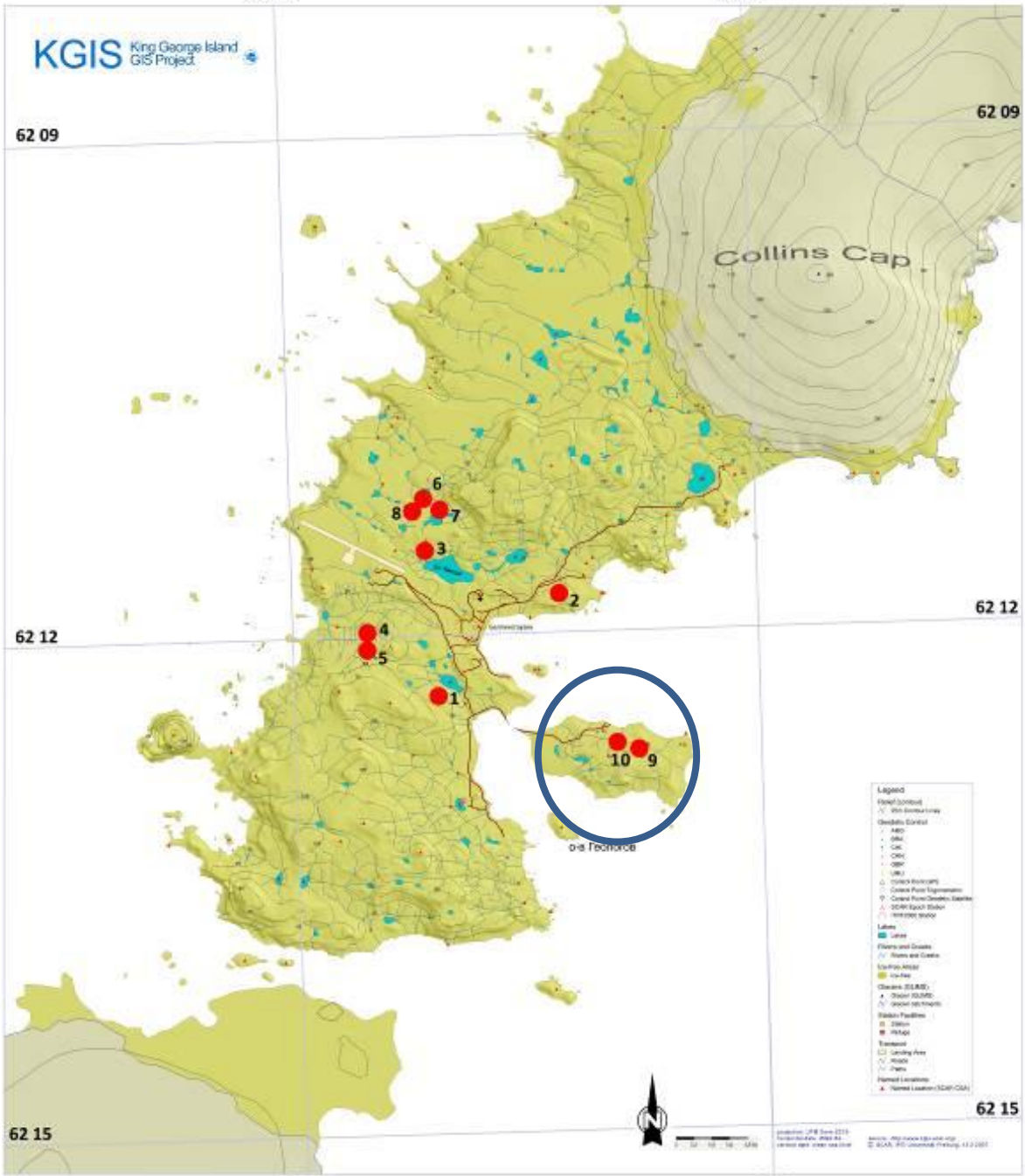
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Орнитогенные сообщества, изученные на п-ове Файлдс.

Ornithogenic ecosystems of Fildes Peninsula.

R9-T1





R9-T2



R9-T3

59 lichen species – near all 8 skua nests.

Two penguin colonies on Ardley Island - 7 additional species.

King George Island 294 lichen species [Olech, 2004].

Partial flora in each point (R1-R8) -- 10 - 29 species, normally - 15 species.

Usnea aurantiacoatra and *Ochrolechia frigida* – near all nests.

Massalongia carnososa and *Frutidella caesioatra* – near 7 and 6 nests.

Leptogium puberulum and *Rinodina olivaceobrunnea* – near 5 nests.

Pannaria caespitosa, *Pertusaria panyrga*, *Pertusaria pseudocolata*, *Placopsis antarctica*, *P. contortuplicata* and *Usnea antarctica* – near half of nests.

Characteristics of the vegetation of 8 model skua nests. 1.

Points	T1 Feeding and the most enriched area		T2 Nest and the area around it		T3 Lowest enrichment (basic level)	
Specimens	117		78		56	
Species	46		28		28	
	Common species					
Frequency of finds	11		9		4	
	Ochrolechia frigida	8	Ochrolechia frigida	8	Massalongia carnososa	4
	Usn. aurantiacoatra	8	Massalongia carnososa	5	Placopsis antarctica	4
	Massalongia carnososa	5	Frutidella caesioatra	4	Pannaria caespitosa	3
	Pertusaria panyrga	4	Usn. aurantiacoatra	4	Usn. aurantiacoatra	3
	Rin. olivaceobrunnea	4	Himantorm. lugubris	3		
	Usnea antarctica	4	Lept. puberulum	3		
	Cystocoleus ebeneus	3	Pertus. pseudocolata	3		
	Lept. puberulum	3	Psoroma hypnorum	3		
	Pannaria caespitosa	3	Rin. olivaceobrunnea	3		
	Plac. contortuplicata	3				
	Sphaeroph. globosus	3				

Characteristics of the vegetation of 8 model skua nests. 2.

Points	T1 Feeding and the most enriched area		T2 Nest and the area around it		T3 Lowest enrichment (basic level)	
Specimens	117		78		56	
Species	46		28		28	
	Species with large projective cover (more than 5%)					
Frequency of founds (projective cover)	8 (10-40%)		7 (5-70%)		4 (5-10%)	
	Usn. aurantiacoatra	40%	Usn.aurantiacoatra	70%	Lept. puberulum	10%
	Usn. aurantiacoatra	30%	Usn. aurantiacoatra	50%	Placopsis antarctica	10%
	Catillaria contristans	20%	Prasiola crispa	30%	Usn. aurantiacoatra	10%
	Usn. aurantiacoatra	20%	Himant. lugubris	10%	Placopsis antarctica	5%
	Cystocoleus ebeneus	10%	Ochrolechia frigida	10%	Plac. contortuplicata	5%
	Himant. lugubris	10%	Ochrolechia frigida	10%		
	Ochrolechia frigida	10%	Plac. contortuplicata	10%		
	Physcia caesia	10%	Usn. aurantiacoatra	10%		
	Plac. contortuplicata	10%	Cetraria aculeata	5%		
	Usnea antarctica	10%	Usnea antarctica	5%		
Usn. aurantiacoatra	10%	Usn. aurantiacoatra	5%			

Characteristics of the vegetation of 8 model skua nests. 3.

Points	T1 Feeding and the most enriched area	T2 Nest and the area around it	T3 Lowest enrichment (basic level)
Specimens	117	78	56
	46	28	28
	Pprojective cover		
Other lichens	5-30%	5-20%	10-15%
Mosses	10-60%	10-80%	5-25%
Stones and rocks	50-10%	60-10%	80-60%
Ground	20%	5-20%	30-80%





Спасибо за внимание!