

Falkland Islands Seaweed Survey

Report to the Shackleton Scholarship Fund by Professor Margaret Clayton, Monash University, Australia on research conducted during four weeks from 27 December 2002 – 25 January 2003.

I traveled to the Falklands Islands just after Christmas 2002 accompanied by another seaweed expert and colleague, Dr Louise Phillips. (Dr Phillip's travel and accommodation expenses were contributed by a grant from Monash University.) The purpose of my visit was to make as thorough and wide-ranging collection of seaweed species as is possible in four weeks and then to prepare duplicate sets of herbarium specimens for the Falkland Islands National Herbarium and the Natural History Museum in London. Our seaweed collections will be the first step in an up-to-date account of seaweed biodiversity in the Falkland Islands. When we have examined the specimens in detail and identified them as far as possible, we shall prepare a scientific check-list of the seaweeds of the Falkland Islands and an illustrated guide-book to the common species.

Seaweeds are a vital natural resource for the Falkland Islands. They are a key component of coastal ecosystems where they make a major contribution to primary production and provide the habitat and/or food source for a wide variety of marine fauna including juvenile fish, *Loligo* squid eggs and crustaceans. The health and overall biodiversity of coastal ecosystems depends on the seaweeds. This in turn affects the environment and the economy of the Falklands through the complex interactions and interdependence between the marine fauna (including birds and mammals) and flora (seaweeds).

The seaweed flora of the Falkland Islands has features in common with that of Antarctica and is related biogeographically to the marine floras of the subantarctic islands and the continents of the southern hemisphere, particularly South America. However, the seaweeds of the Falkland Islands are very poorly known. The most comprehensive study is close to 100 years old and in urgent need of revision. This early research¹ incorporated extensive collections of seaweeds made by Mrs Elinor Vallentin (who lived at Roy Cove and Shallow Bay in West Falkland) together with the records of collections made by earlier scientific expeditions. My aim is to provide up-to-date base-line information on seaweed diversity in the Falkland Islands and to improve our understanding of what makes the seaweed flora of the Falkland Islands unique and distinctive.

I am writing this preliminary report two months after my return from the Falklands. I am very pleased indeed with the number and range of seaweed species we were able to collect. In fact there are only a very few of the 180 or so species of seaweed recorded for the Falklands that we have not collected. In addition, I know we have found some species that have never been found there before and it is highly probable that several of them are completely new to science. Further research will be needed here before we can be absolutely sure about these new species. In all we collected more than 350 specimens, most in triplicate, and these were prepared as dry herbarium specimens that I brought back to Monash University. Currently Dr Phillips and I are beginning the major task of confirming the identification of all the specimens we collected. This is a reasonably slow task as it must be carried out in parallel

¹ Cotton, A. D. (1915) Cryptogams from the Falkland Islands collected by Mrs. Vallentin and described by A.D. Cotton. *Journal Linnaean Society, Botany* 43: 137-231, plates 4-10

with all our other normal tasks as university academics. We hope to complete the bulk of the identifications by the end of 2003. Some of the more difficult species are likely to take longer to identify as they will need to be compared with herbarium specimens held in various collections, such as those in the Natural History Museum in London. I will be able to visit the Natural History Museum in July 2003 during a visit to the United Kingdom to attend the European Phycological Congress.

In our comparatively short visit to the Falkland Islands we collected seaweeds from a wide range of localities: Cape Pembroke, Berkeley Sound, Stanley, The Canache, Sea Lion Island, Weddell Island, Hill Cove, Roy Cove, Pebble Island, Ruggles Bay, Darwin and Port Sussex. Dr Louise Phillips and Ronnie Snyder (an enthusiastic volunteer and qualified marine biologist who was supported by Falklands Conservation) were the divers and made several especially valuable collections of seaweeds from kelp forests and other subtidal habitats.

I took a large number of photographs of Falkland Islands seaweeds in a mixture of digital and 35mm formats. These have now been successfully developed and the images will provide the basis for the illustrated guide-book that we aim to produce.

In addition to the seaweed survey I had meetings and discussions with a number of individuals and groups in Stanley who had diverse interests in seaweeds, including Richard Baker, the General Manager of the Falkland Islands Development Corporation. I also had discussions with Aidan Kerr (Department of Agriculture), Simon Hardcastle (Falklands Fresh) and Hamish Wylie (Seafish Falklands).

Dr Louise Phillips and I met Dr Phillip Stone of the British Geological Survey who was working at the Bureau of Mineral Resources. We discussed our common interest in the biology of calcified seaweeds (currently used by farmers as a fertiliser) and arranged for a field trip to Ruggles Bay to make some collections – with the aim of identifying the species. This collaboration is ongoing.

On 16 January I gave an interview to the Falkland Islands Broadcasting Service.

Saturday 18 January I attended a meeting of the junior Conservation Watch Group in Stanley. I talked to them about the ecological importance of seaweeds. We collected seaweed specimens and I showed them how to prepare and dry herbarium specimens.

On the evening of 22 January I gave a public lecture at the School entitled "Seaweed Biology" - with an emphasis on the Falkland Islands. This consisted of a powerpoint presentation and slides. It was very well attended and has led to a number of contacts that I hope will be ongoing. A copy of my presentation is attached to this report.

Acknowledgements

I am very grateful for the award of a Shackleton Scholarship that supported my visit and field work in the Falkland Islands. In addition the work would not have been possible without the enthusiastic encouragement and extensive logistic support I received from Sarah Clement, Rebecca Ingham and other staff at Falklands Conservation and the help of Ronnie Snyder, a volunteer and qualified marine biologist. I am also grateful to Monash University for funding a co-worker Dr Louise Phillips who worked with me on the seaweed collections. Many individuals went out of their way to help us during our stay in the Falklands. I am grateful to

them all, including those who willingly granted us access to their land. During 10 days of field work around "camp", we were greatly assisted by the interest and enthusiasm of our various hosts at the farms, hotels and lodges where we stayed. They helped us with access to collecting sites and also generously allowed us to use buildings such as vacant cottages and shearing sheds and even on one occasion a dance hall, for the purpose of preparing our herbarium specimens.

Future work and ideas

I shall continue with my studies of Falklands Islands Seaweeds. In due course when the publications mentioned above are complete, I will, of course, acknowledge the Shackleton Scholarship Fund and send them a copy of the publications. When they are fully identified, a set of herbarium specimens will be returned to the Falkland Islands National Herbarium at Falklands Conservation and another will be sent to the Natural History Museum in London. I will retain a third collection in Melbourne.

I am planning to present papers on our Falkland Islands research at future scientific meetings, including probably the International Seaweed Symposium to be held in Bergen, Norway in 2004. I am also scheduled to give a lecture at the Monash University London office in August 2003. I will circulate details of this presentation to interested persons when they are available.

It is very clear from my recent experience in the Falklands that there is much more research to be done on the seaweeds of the Falkland Islands. Documenting the diversity of species is a major task and my research will only just begin to scratch the surface. A thorough study would require collections from a much greater range of localities than we were able to visit, and preferably involve collections throughout the year as many seaweed species have a seasonal occurrence. Ideally, this kind of work could be conducted by a PhD student who was able to spend extended periods of time working in the field. I would be interested in any suggestions as to where I might seek funding for a scholarship that would support such a student.



Professor Margaret Clayton
School of Biological Sciences
Monash University
Victoria 3800
Australia

margaret.clayton@sci.monash.edu.au

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