



# **DARWIN INITIATIVE FOR THE SURVIVAL OF SPECIES**

**Project Reference: 162/8/204**

**Algal Biodiversity of Southern Oman**

**Annual Report 2000/01**

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# Darwin Initiative for the Survival of Species Annual Report

## 1. Darwin Project Information

<i>Project title</i>	Algal Biodiversity of Oman
<i>Country(ies)</i>	Oman
<i>Contractor</i>	HTS Development Limited
<i>Project Reference No.</i>	162/8/204
<i>Grant Value</i>	£167,973
<i>Start/Finishing dates</i>	June 1999 – April 2002
<i>Reporting period</i>	April 2000 – March 2001

## 2. Project Background

The coastal waters off Oman are home to diverse macroalgal communities which until now have received little attention from taxonomists and are therefore relatively poorly understood. The macroalgae are an important natural resource that has considerable potential for commercial exploitation. Broadly the aim of the project is to identify and catalogue this marine plant diversity and establish fully referenced collections as important research and educational resources. Through a variety of media the project will also raise public awareness both nationally and internationally of the conservation value of this important ecosystem whilst training local staff in curation techniques and the management of biodiversity information.

To date the project has focused on the stretch of coastline between Salalah and Sadh in Southern Oman. It is anticipated that the information collected will feed into plans for the in-situ conservation of Oman's unique macroalgal communities.

## 3. Project Objectives

- Establish a fully referenced algae collection at the Oman Natural History Museum with a parallel collection at the Natural History Museum, London
- Develop an informative museum display illustrating the importance of the macroalgal communities and raising awareness of Oman's unique coastal ecology.
- Develop a website for the Oman Natural History Museum and disseminate project findings through it.
- Transfer knowledge to Omani museum staff in collection and curation techniques and the management of biodiversity information.

- Contribute to science through the publication of journal papers on Oman's macroalgae.
- Promote increased awareness of the importance of Oman's marine plants through a popular publication and poster.
- Develop a plan for the in-situ conservation of Oman's macroalgal communities.

The project's objectives remain unaltered. There have been delays in attaining several of the planned outputs. These delays have been explained in all monitoring reports submitted to Darwin and are reported under Sections 4 and 7 below. The delays have been due to difficulties in getting approval of project outputs within Oman. All outputs are now progressing well but slightly behind schedule.

#### **4. Progress**

**1999/2000** - Once equipment had been purchased and logistical arrangements put in place extensive collections of marine macroalgae were made during September 1999 and January 2000. A database was designed to catalogue collections. HTS staff trained counterpart staff in collection and curation techniques and the management of biodiversity information. Having identified approximately one fifth of the specimens collected in 1999/2000 the HTS phycologist was able to submit 4 scientific papers for publication ahead of schedule, all of which have since been accepted. Dissemination networks were established culminating in the publication of two popular articles and one national press release in Oman, an interview on Oman national television and the submission of press releases to UK national and regional newspapers. All gave details of project activities and promoted the work of the Darwin Initiative. Reference books and a computer were donated to the partner institution and exchanges began with project partners regarding the format of the remaining project outputs.

**2000/2001** - As planned a further field phase took place in September 2000 and considerably expanded the macroalgae collection. Along with several of the original collection sites six new sites were visited and approximately 1000 specimens covering 300 species were collected. Approximately one quarter all specimens were identified and accessioned into the database and Natural History Museum herbarium. A further two scientific papers were submitted for publication. All fieldwork and the identification and accessioning of specimens progressed according to schedule.

The establishment of a website for the partner institution through which project results would be disseminated had been a planned output for 1999/2000. However this work was delayed as the local partners remained undecided on whether or not to implement a larger website encompassing a number of government departments. Progress has now been made and the project has presented a draft website to the local partners. Approval of the design is currently awaited. The web technician will commence work as soon as the designs are approved.

The museum display was a planned output for 2000/01 and has now been designed. However production is currently delayed pending approval by the partner institution. As a result of the delays in starting work on the museum display and website a lot of design work and exchanges have gone into these two tasks over the last 6 months and much work remains. As

a consequence of this, work on the poster has had to be postponed until further progress is made on these two products.

As planned a draft design of the booklet was produced and work will continue on this during the final year of the project.

During the period a study tour to the UK for a key member of counter-part staff was organised. The tour is an additional output requested by the partner institution and should take place in June or July of 2001. Approval of this is currently awaited.

During the current reporting period the project method remained unaltered. All species were collected in triplicate. Specimens were collected intertidally (both attached and in the drift) and, using scuba equipment, from depths up to 13 metres. The majority of specimens were wet pressed using standard herbarium techniques although several were preserved in 5% formalin in sea water to be pressed or examined at a later date. Several specimens were air-dried. For each specimen site location, site name, collector, depth, and any notable ecological or morphological characteristics were noted

To date approximately one quarter of all specimens have been identified and accessioned into the database and Oman Natural History Museum herbarium. Full details of these are included in Annex 1.

Taxonomic studies on the collections have revealed 47 species not previously recorded from the Sultanate of Oman (Wynne 2000 and Wynne 2001). Several of these including 5 species of Rhodophyta, 2 species of Phaeophyta and 1 species of Chlorophyta are new records for the whole of the Indian Ocean (Wynne 2000). One species of Chlorophyta, previously known as *Pedobesia Lamourouxii* and before that *Bryopsis simplex* was reclassified as *Pedobesia simplex* (Wynne and Leliart 2001).

Copies of publications are included in Annex 1

As indicated above difficulties have been caused by delays due to the nature of the bureaucratic process, which seems to be part of the culture in Oman. Every project output that will eventually belong to the partner institution has to be passed up through several levels of administration, with a delay at each level, before approval can be obtained. Although the partner institution seems pleased with the progress of the project there seems little sense of urgency on behalf of the partner to keep up the project's momentum. Currently this problem is hindering progress on 3 of the projects outputs. A similar problem in obtaining permissions from senior ministers to collect specimens can be a frustrating obstacle during the field phases of the project.

A temporary problem during the period was a disagreement between the project staff and the partner institution regarding the magnitude of one of the outputs. It appeared as though expectations had been elevated due to exchanges of letters between Oman ministries. The expectations of some senior people had been unreasonably raised without any input from the UK side. Having raised expectations the partner institution argued its case for a grander design for the museum display, but one which could not be covered by the project budget or original project plan.

A further difficulty is that many of the project outputs rely on good quality underwater photography and whilst the project team does have experience of this there is a considerable amount of effort and trial and error involved in getting an adequate photograph. This problem was foreseen to some extent at the proposal stage but it is not always possible to guarantee that the required photographs and of the desired quality can be easily obtained. This is a particular problem because the field phase is necessarily conducted towards the end of the monsoon season when the bulk of the algae are present, which means turbulent waters and degrading algae can mean poor visibility severely hinders photography. While we would prefer to use photographs of material collected in situ we will revert to photographs of preserved specimens or library materials if we are unable to get good quality photos in the next field phase.

Although the project's design has not deviated from the original plan, Intense collections over 3 collecting periods have meant that a great deal of material has been accumulated. It has now reached the stage where whilst new material is always found a lot of duplicate collections are being made. Therefore a slight change of strategy may be required for the final year in order to maximise the benefits of time spent in the field. This change of approach may involve the following:

1. Extension of the collection range by sampling other parts of Oman's coast and to greater depths to access new species.
2. More photography in order to improve the quality of images used in dissemination materials
3. Preferential collection of particularly interesting/notable species in order to carry out further ex-situ research later.

A number of strong exit strategies and possibilities to attract further funding are under consideration.

## **2001/02 WORKPLAN APPENDED AT THE BACK OF THE REPORT**

### **5. Partnerships**

The partnerships between the UK and host country institutes have been very successful. However there have been 2 minor problems:

1. Delays in obtaining approval for project outputs.
2. A misunderstanding regarding the scale of the museum display..

Both these difficulties have been described in more detail under Section 4. The main advantage of the partnership is that the local institution plays a central role in keeping, maintaining and disseminating biodiversity information. The institute is also growing not only in terms of resources and number of members of the public that visit the institute to learn about Oman's ecology but also the number of students and academics visiting to use the institute's resources as an aid to formal education and research. For this reason the institute will have a growing significance as a pivotal organisation in the conservation of Oman's ecology and contributing to the objectives of the Darwin Initiative.

During 2000/2001 there was some collaboration with the Oman Whale and Dolphin Research Group. Resources were shared and two members of the group worked on the project on a voluntary basis. The group intends to incorporate its recent research findings into a proposal for work on the conservation of Oman's cetaceans to be submitted to potential donors including the Darwin Initiative.

## **6. Impact and Sustainability**

Within Oman those institutions with an interest in environmental issues have continued to be well informed of the project's progress and are pleased with the work. Many members of the general public in Oman seem unaware of the ecological value of the country's natural resources, which is why the project places considerable emphasis on public awareness of biodiversity. During the first year of the project unforeseen delays in developing some of the project's outputs allowed more time to be devoted to promoting the project through a variety of popular media. During the current reporting period more attention was focused on making progress with the project's main promotional outputs and in particular the draft designs for the website and museum display which have now been presented to the main local partner for approval. Once the final designs of these outputs have been agreed production will begin immediately.

Increasing interest and capacity to conserve/manage biodiversity is a gradual process. The main role of the partner as a natural history museum is in promoting increased interest in biodiversity and once complete the project outputs will considerably enhance the museum's promotional materials/activities although this will only be realised at the end of the project.

There has been some evidence of increasing capacity to manage biodiversity information. Partly stimulated by the project's database work and extensive biological collections the museum is now actively developing a master database of biological records. The continuation of this kind of work is likely to see the museum established as a national biodiversity records centre.

Although none are in place a number of exit strategies and possibilities to attract further funding are under consideration. However time is proving to be a restricting factor in thoroughly exploring these opportunities.

## 7. Outputs, Outcomes and Dissemination

**Table 1. Project Outputs (According to Standard Output Measures)**

Code No.	Quantity	Description
6a	1	An Omani national working for the Raysut Marine Research Laboratory accompanied the HTS team for the duration of the field phase
6b	2 weeks	Over the course of the field phase the HTS phycologist provided training in the identification and curation of marine macroalgae
8	15 weeks	This included a field collection phase during which time 1000 specimens covering approximately 300 species were collected. The remainder of the time was spent labelling specimens identified from a previous collection visit, accessioning them into the herbarium, refining the species database and working jointly with the partner on designs for the museum display and website and finalising plans for a study tour.
11a	5	4 papers have been published or accepted for publication during the reporting period. Details are provided in Table 2.
11b	1	1 Paper was published in a university journal. Details are provided in Table 2.
12b	1	The species database designed for the museum during year one of the project was considerably enhanced with minor design modifications and further species entries. Although enhanced the database cannot yet be reported as an output as it has not yet been handed over to the host country
13a/b	1	A further collection of marine algae was handed over to the host country building on the previous collection.
20	£700	Approximately £700 worth of herbarium equipment was handed over to the overseas partner institution

The outputs planned for this reporting period include:

**Website** – Designs submitted and awaiting approval – website will be launched for September field phase.

**Museum Display** – Designs submitted and awaiting approval –display will be launched during September field phase.

**Booklet** – According to schedule the initial booklet design has been produced. Work will continue on this during the final year of the project.

**Poster** – A number of preliminary designs are under consideration.

**TV/Radio features** – This output was achieved during the first year of the project when an interview with a member of the project staff was broadcast on Oman TV. There have been no further opportunities for TV or Radio coverage. Encouraging Omani counterparts to give press release for launch of website and display.

**Study tour** – This additional output is a study tour for a senior member of the partner institution and has been added to the programme at the request of host country government. The arrangements are in place and it is anticipated that the tour will go ahead in June or July 2001.

**Dissemination networks/activities** – Apart from the website and museum display being the project's main dissemination outlets the exploration of possible dissemination networks is an ongoing feature of the project. The project is working towards establishing two potential networks in the host country but more work will be required in order to explore these further.

### **Table 2: Publications**

Type	Detail
Journal	<b>M.J. Wynne and F. Leliaert. 2001.</b> <i>Pedobesia simplex</i> (Kutzing) comb. nov. (Chlorophyta), a new name for <i>P. lamourouxii</i> and its first report from the Indian Ocean. <i>Cryptogamie, Algologie</i> 22: 3-14.
Journal	<b>M.J. Wynne. 2000.</b> Further interesting connections between the marine algal floras of Japan and the Arabian Sea. <i>Phycological Research</i> 48: 211-220.
Journal	<b>M.J. Wynne. 2001.</b> <i>Stirnia prolifera</i> gen. et sp. nov. (Rhodymeniales, Rhodophyta) from the Sultanate. of Oman. <i>Botanica Marina</i> 44: 163-169.
Journal	<b>M.J. Wynne 2001.</b> New records of benthic marine algae for the Sultanate of Oman, northern Arabian Sea. II. <i>Nova Hedwigia</i>
University Journal	<b>Wynne, M. J. 2001.</b> New records of benthic marine algae from the Sultanate of Oman, northern Arabian Sea. III. <i>Contributions University Michigan Herbarium</i> 23.

Copies of the above are available from Professor Mike Wynne at [mwynne@umich.edu](mailto:mwynne@umich.edu) or from the journal in which they were published

## **8. Project Expenditure**

**Table 3: Project expenditure during the reporting period**

Item	Budget	Expenditure
<i>Total</i>	59,331	55,951

- *Highlight any recently agreed changes to the budget and explain any variation in expenditure where this is +/- 10% of the budget*

All budget lines, with the exception of Printing, are within the 10% variation figure and require no further explanation.

A total of £4,500 has been deferred until the 2001-2002 period in order to cover the costs of printing the museum display and biodiversity booklet. The Darwin Secretariat have been informed of this request and have approved the deferral.

## **9. Monitoring, Evaluation and Lessons**

There is only really one formal project monitoring procedure. Project annual and 6 monthly reports are reviewed against the proposal by the Project Director to examine the project's progress. However there are other informal indicators of the project's achievements:

1. Six scientific papers have either been published or accepted for publication, which demonstrates that the project has successfully met one of its primary objectives of contributing considerably to science and the understanding of the components of biodiversity.
2. Stimulated by project activities the partner institution has begun work on a master biological records database demonstrating increased capacity and incentive to manage biodiversity information.
3. Interest has been shown from possible donors in a number of exit strategies indicating the potential for work to continue following project completion.
4. Work on accessioning and mounting specimens continues in the absence of the UK staff demonstrating that the training in curation, preservation and database techniques has been successful.
5. As a result of the project the macroalgal collection at the Oman Natural History Museum has more than doubled in size.

6. Visitors to the museum have asked to see the new macroalgae collection demonstrating an interest in the project.
7. Residents in Oman had heard about the project prior to meeting project staff indicating that the dissemination activities/networks had to some extent been successful

**10. Author(s) / Date**

Glenn Richards, HTS Development Ltd      20/4/01