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Front cover pictures

Outside:

Clematis tangutica (photo Richard Milne)

Inside:

Top: Roseroot on Colonsay (photo Debbie Butler)

Bottom left: Thrift on Colonsay (photo Debbie Butler)

Bottom right: Samphire at Dunbar (photo Richard Milne)

Botanical Society of Scotland

(Incorporating the Cryptogamic Society of Scotland)

c/o Royal Botanic Garden Edinburgh

20A Inverleith Row, Edinburgh, EH3 5LR.

BSS website: <http://www.botanical-society-scotland.org.uk>

RBGE website: <http://www.rbge.org.uk>

Founded in 1836 as the Botanical Society of Edinburgh, the Society became the Botanical Society of Scotland in 1991. Meetings are held in Edinburgh, Glasgow, Aberdeen, Dundee, St. Andrews and Inverness. The Society incorporates the Cryptogamic Society of Scotland and so encourages the study of flowering and non-flowering plants. Activities of the Society include lectures, field meetings, symposia, surveys, and an annual exhibition meeting for exchange of information between botanists working in different areas. All people interested in plants are welcome to be members of the Society, including professional academic plant scientists, amateur field botanists and students. All members receive information about events of the Society, including programmes of lectures and field meetings, as well as a twice-yearly newsletter, *BSS News*. Standard membership also includes the scientific journal: *Plant Ecology & Diversity*, published by the Botanical Society of Scotland and Taylor & Francis.

Applications for membership of the Botanical Society of Scotland should be made to the Hon. General Secretary at the address at the top of this page. Please ask for a Banker's Order form if required.

Subscriptions fall due on 1st October each year, and the annual rates are currently as follows, but may be increasing in 2011:

Standard rate	£32.00
Standard rate for undergraduate students	£28.00
Basic rate (without the journal)	£15.00
Basic undergraduate student rate (without the journal)	£2.00

Subscriptions can be paid by cash, cheque (payable to the Botanical Society of Scotland), or Banker's Order.

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The Newsletter of the Botanical Society of Scotland

EDITORIAL

Thank you to all contributors to this issue of BSS News. We have articles on topics as diverse as bryophyte taxonomy, old plant remedies and woodland habitats. There is an entertaining look at the name changes in the latest edition of Stace's 'New Flora of the British Isles', and some beautiful drawings by our President. We also have our regular seasonal items of the Students' Thesis Prize and the report of the BSBI/BSS Annual Meeting.

Sadly, we include three obituaries and two further notices of the deaths of BSS members. We hope you will be as fascinated as we are to read about the lives of these former members with their very different botanical backgrounds.

As BSS News goes to print, the hazel catkins are out and the snowdrops are flowering, the robins are pairing up and a song thrush is singing, but the snow on the ground and the bramblings in the garden are signs that winter is not over yet. Lets hope that spring is properly underway by the time the newsletter arrives through your letterbox. After the extreme weather of the last few months, we wish you a long and sunny summer of botanising in 2011.

Jane Mackintosh and Jill Thomson



ANNOUNCEMENTS

Happy Anniversaries to Us! A double celebration!

The Botanical Society is 175 years old this year. On February 9th 1838 Dr John Hutton Balfour held a meeting at his home (15 Dundas Street, Edinburgh) to discuss the formation of a botanical society and this led to the founding of the Botanical Society of Edinburgh on March 17th June the same year.

2011 will also mark the 20th anniversary of our development to the Botanical Society of Scotland.

This is a fantastic opportunity to strengthen botanical ties and increase membership by promoting the Society to friends and colleagues cross Scotland and the rest of the world. Look out for special meetings and events throughout the year.

Congratulations

The Society sends hearty congratulations to Professor Stephen Blackmore, Regius Keeper of the Royal Botanic Gardens Edinburgh, on his being awarded a CBE in the 2011 New Year's Honours List for services to Plant Conservation.

New Vice President and Honorary Members

Dr Chris Jeffree has accepted the post of Vice President of BBS. We welcome new honorary members Prof. John Raven, Prof. Janet Sprent and Prof. Mary Gibby.

Success for BBS Journal Plant Ecology & Diversity

Our scientific journal, Plant Ecology & Diversity, has been evaluated by the Content Selection & Advisory Board and Elsevier has included the journal in SciVerse Scopus. SciVerse Scopus is the world's largest abstract and citation database of peer-reviewed literature and quality web sources.

This listing is in addition to inclusion of Plant Ecology & Diversity in the Journal Citation Reports and the Science Citation index reported last year. We look forward to an award of an impact factor during 2011. Congratulations to the Editor (Dr. Laszlo Nagy), the Editorial Board and the Publishers (Taylor & Francis and the BSS).

New post for Dr. Laszlo Nagy editor of Plant Ecology & Diversity

Congratulations to Dr. Nagy on his new post as Science Officer for the Large-Scale Biosphere and Atmosphere (LBA) programme. Laszlo will be based in at Instituto Nacional de Pesquisas da Amazônia (INPA) in Manaus Brazil. He will retain his editorship of Plant Ecology & Diversity. We wish Laszlo and his family success and happiness in their new life in Brazil.

Facilities for members at RBGE

All members of the Botanical Society of Scotland may visit and use the reference facilities at Royal Botanic Garden Edinburgh. The library and herbarium are immensely valuable but rather underused resources that can be consulted.

To arrange a visit to the Herbarium contact Adele Smith, the assistant herbarium curator, beforehand to let her know you are coming (Tel: 0131 248 2992). If you have never used the herbarium and handled specimen sheets before, Adele or one of her colleagues can be on hand to guide you. It is not necessary to make contact prior to library visits.

October Symposium

The BSS is pleased to announce its support for an international workshop, in collaboration with the British Ecological Society and the Genetics Society, called "Next Generation Plant Ecology and Evolution". This will focus on exciting new developments in DNA sequencing technologies, and the technical challenges that are faced by researchers aiming to apply these technologies to plants. The workshop will include a series of 'how to' sessions, where leading researchers in the field explain how these technologies can be applied to major evolutionary questions, such as understanding the genetic changes in speciation, and obtaining more informative molecular markers.

The symposium will be held at the Royal Botanic Garden Edinburgh on the 18th and 19th October 2011. Interested participants should email Alex Twyford (a.twyford@rbge.org.uk) or check the website for updates.

BBS Student activities – Science Festival

Our student members are preparing an event for the Science Festival. Further details will be available in early 2011 from Catherine Kwella (catterinarosa@msn.com)

Deaths

BSS members will be sad to learn of the deaths in 2010 of Dr Barbara Ballinger, Professor Elizabeth Cutter, Mr Robert Galt, Dr Robert Saville and Professor Hugo Sjors. Appreciations can be found within the newsletter. We are very grateful for their contributions to botany and the life of the BBS. We offer our sympathy to their families and friends and thank the contributors of the obituaries.

Remember!

You are a vital part of the Botanical Society of Scotland. Please contact us if you would like to take part in or contribute to any of these events or proposed new ventures. Let us know if you have additional ideas for, or information about, botanical events in your area.

Contact:

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or see the BSS website for details:
www.botanical-society-scotland.org.uk

PROPOSED CHANGES TO BSS CONSTITUTION

At the September 2010 meeting of Council a proposal to present amendments and updates to the constitution of the Botanical Society of Scotland for consideration at the next Annual General Meeting (June 2011) was agreed.

All members of the Botanical Society of Scotland will be invited to cast two votes at the AGM. Firstly on amendment 1] which represents a major change to the constitution and secondly on amendments 2-6] which are minor updates and formatting changes.

Postal votes can be made using the ballot paper enclosed with BSS News and must be received by Tuesday 31st May 2011 (address: BSS Hon Gen Secretary, Botanical Society of Scotland, c/o Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR).

These will be allocated by the Chairperson at the meeting. There will be no online voting facility on this occasion.

1] Council section, clause 2. The phrase “The President and Vice Presidents will be elected for a 2 year term and will not be eligible for re-election to the same office until after the lapse of 1 year.” to be replaced with “The president will be elected for a 2-year term which may be extended by 1 year on Council’s recommendation to the AGM. One Vice-president will be elected annually for a 2-year term. In the event of the president standing down within his term of office the senior Vice President will assume the presidency for the remainder of the year. The President and Vice-presidents will not be eligible for re-election to the same office until after the lapse of 1 year”. (*This amendment allows for very occasional instances when no candidates have been proposed for election to the Presidency and there is no available vice-president to take on the role.*)

2] References to “Botanical Journal of Scotland” to be changed to “Scientific Journal” throughout the document. (*This amendment is to allow for any future name changes to the Scientific Journal and will affect sections: Subscriptions, clause 1.; Privileges of membership; Discipline, clause 2.; Scientific Publications, clause 1.*)

3] Sections and clauses to be outline numbered throughout the document: sections 1], clauses 1., sub-clauses (i). (*This amendment is for ease of reference.*)

4] Council section, clause 4. “A. G. M.” to be replaced with “AGM” (*This amendment brings consistency of abbreviation to the document.*)

5] Scientific Publications section. “Scientific” to be replaced with “Society” (*This amendment provides a more correct description of the section which also refers to BSS News and other Society billets.*)

6] Scientific Publications section, clause 3. “, on the Society’s website” to be added. Clause to read “Society business and news will appear in a Newsletter published up to 3 times a year, on the Society’s website and in other Society billets as required”. (*This amendment reflects the Society’s commitment to continued development of and publication of information on the Society’s website.*)

PHYTOPHTHORA RAMORUM AND P. KERNOVIAE; THE MOST SERIOUS THREAT YET TO THE UK'S NATIVE FORESTS AND HISTORIC GARDENS

A number of particularly severe plant diseases have been introduced into forests and gardens over the past century including such well known examples as chestnut blight (*Cryphonectria parasitica*) and Dutch elm disease (*Ophiostoma* spp.) (Anagnostakis, 1987; Hubbes, 1999).

The latest serious threat to cause alarm in the UK are two recently discovered, potentially devastating fungal-like plant pathogens, *Phytophthora ramorum* (so called Sudden Oak Death) (Rizzo, *et. al.*, 2002) and *P. kernoviae* (Brasier, *et. al.*, 2005). These unpredictable and destructive *Phytophthora* species affect forest tree species as well as ornamental trees and shrubs causing leaf necrosis, wilting, shoot tip die-back and bleeding cankers on infected tree trunks and ultimately the death of a wide range of plant species. The host species that are susceptible to infection cover a much wider range of species in the UK compared to other affected countries. As of August 2010, there were 149 host species listed for *P. ramorum* globally and almost half of these (71) were found in the UK; *P. kernoviae* is currently very much a British problem as all but one of the known 37 hosts were found here (FERA, 2010). The most important host species for both of these pathogens in the UK is itself an invasive weed species, *Rhododendron ponticum* (Sheppard, *et. al.*, 2006).

The genus *Phytophthora* (Greek for 'plant destroyer') belongs to the class of organisms known as oomycetes. The most important developmental stage of oomycetes, which sets them apart from true fungi, and also allows oomycete diseases to become epidemics, is the formation of zoospores (Walker & Van West, 2007). Zoospores are asexual motile spores consisting of single nucleated wall-less cells which have two flagella that allow them to swim (Judelson & Blanco, 2005), an adaptation that makes them highly dependent on water.

It is the sporulation of zoospores on to surrounding plants that drives *Phytophthora* epidemics at such an alarming rate. Zoospores that are released from multinucleated sporangia land on leaves and stems of surrounding plants through air or in rain splashes, then germinate (Walker & Van West, 2007). Depending on the species, a variable number of zoospores are formed within the sporangia and are released during a period of low temperature (below 12 – 15°C) through the

sporangial apex. At temperatures above approximately 15°C the sporangia germinate directly on the leaves by producing a germ tube (Hardham, 2007).

Due to the dependency on water shown by *Phytophthora*, the climatic conditions in certain parts of the UK have proved particularly conducive to infection and spread. Gardens, parkland and the wider environment in Cornwall have been severely affected and it is here that *P. kernoviae* was first discovered, hence its name (Kernow is Cornish for Cornwall) (Brasier, *et. al.*, 2005). The first infected larch plantations were also discovered in south west England (Webber, *et. al.*, 2010). The wetter west of Scotland also appears to provide ideal conditions for the spread of these pathogens and this is where the majority of Scottish garden and parkland infections have been found (Schlenzig, 2008).

The origin of both pathogens remains an enigma. It is thought that *P. ramorum* may have originated from somewhere in Asia, and was transported around the world on collected ornamental plants. Asia is a centre of diversity for many of the known hosts of *P. ramorum* (Vannini, *et. al.*, 2009) and plant collectors have been bringing plants back from Asia for at least 150 years. More specifically, Yunnan Province in northern China has been suggested as the possible origin for *P. ramorum* due to the abundance of hosts and favourable climate (Goheen, *et. al.*, 2006).

The origin of *P. kernoviae* is also unknown but it has been suggested that it too may have originated from Asia, however, it has been found in native and exotic forests in New Zealand (in soil samples) from several regions on North Island (Ramsfeld, *et. al.*, 2007). Historical records also show that *P. kernoviae* has been recorded in New Zealand since the 1950s (as *Phytophthora* sp.) (MAFBNZ, 2008), and the only diseased plants found in New Zealand are *Annona cherimola* (Ramsfeld, *et. al.*, 2007) which is the only host known outside of the UK. These theories remain speculative as *P. ramorum* and *P. kernoviae* have not yet been found in natural environments in these regions.

The direct and indirect effects of such pathogens on the structure of natural plant communities are of increasing interest, particularly the reduction of mature tree populations by the direct influence of exotic pathogens (Dobson & Crawley, 1994). The resulting effects on relative abundance of the species involved within the wider plant community are discernible for many years after the initial disease outbreak has passed. This is particularly the case for *P. ramorum* and *P. kernoviae* as it is not yet known how long these organisms can survive in the soil in the

absence of a host, thus new plant recruitment is severely affected as seedlings become infected and die before maturity. Further to this, given the trade-off between disease resistance and other fitness components, the competitive abilities of genotypes are altered during epidemics which may affect the genetic composition of populations (Alexander & Holt, 1998).

Concern about the impact of exotic plant pathogens in the wider UK environment has recently significantly increased after the discovery of infected plants in both heathland environments and commercial plantations. In 2008 *P. kernoviae* was discovered infecting wild heathland plants of blaeberry (*Vaccinium myrtillus*) in a Scottish woodland and Cornish heathland (FERA, 2009b), whilst *P. ramorum* was found on the same species in Staffordshire (FERA, 2009a). These infections have important implications for heathland biodiversity.

More recently, forest plantations have also been found to be infected with *P. ramorum* on *Larix kaempferi* (Japanese larch) (Brasier & Webber, 2010). As of July 2010, *P. ramorum* has been found in 68 larch plantations in England (Webber, *et. al.*, 2010) and has also been found infecting this host in Wales and Northern Ireland. The main concern with larch infection, apart from the commercial implications, is that many other species have been infected as a result of growing in close proximity to the infected trees, the foliage of which is providing a platform for *P. ramorum* to sporulate heavily onto surrounding plants. The other species infected include *Fagus sylvatica*, *Nothofagus obliqua*, *Castanea sativa*, *Betula pendula*, *Rhododendron ponticum*, *Tsuga heterophylla* and *Pseudotsuga menziesii* (Webber, *et. al.*, 2010).

The nursery trade throughout the world has had an important role both in the spread of pathogens from wherever they may originate, and in the spread of plant species on which the pathogens depend. This has certainly been the case in spreading *P. ramorum* but in contrast *P. kernoviae* has been found on very few occasions in nurseries. In the UK, the horticultural plant market is based on >73 000 plants species and cultivars, to which the native flora (~1500 species) make a negligible contribution (Perrings, *et. al.*, 2005). Globally, this trade has been a major source of invasive species. In one infamous example of pathogen spread from the US in 2004, millions of *Camellia* plants infected with *P. ramorum* were shipped from west coast America to the east, involving 1200 nurseries in 39 states increasing fears of endangering the oak resource in the eastern United States (Stokstad,

2004). Studies using microsatellite markers have also shown frequent migration between Oregon, California and Washington state nurseries (Goss, *et. al.*, 2009).

Given these problems, and that they are newly discovered, managing the spread of *P. ramorum* and *P. kernoviae* is very challenging. There are three management levels to consider: the individual plant, the landscape (or forest stand), and the regional to international scale (Rizzo, *et. al.*, 2005), and each level poses its own set of challenges. A number of actions have been attempted in the past to control exotic pathogen invasions including widespread clear-cutting which was ultimately unsuccessful at stopping chestnut blight (*Cryphonectria parasitica*) across the north-eastern United States in the early 1900s (Anagnostakis, 1987), and the large scale removal of host material which was attempted for the control of white pine blister rust (*Cronartium ribicola*) (Kinloch, 2003).

Prior to the findings of *P. ramorum* and *P. kernoviae* in plantations and heathland, management had already proved very difficult in historic gardens such as Botanic Gardens and National Trust properties. Generally speaking, the nursery trade was more used to dealing with pests and diseases, along with the associated plant health measures involved, whereas historic gardens had not been as widely involved until the *Phytophthora* outbreaks, and DEFRA had no experience with dealing with the historic garden sector in this context (Tomlinson, *et. al.*, 2009). The initial bad communication and slow realisation of the problem, the large number and variety of hosts in close proximity, a long tradition of plant collecting and plant swapping and, in some gardens, apathy towards the adoption of new hygienic horticultural techniques has certainly had a detrimental effect on some historic gardens that will persist into the future.

Sanitation programs have also been tried against a number of pathogens including Dutch elm disease (*Ophiostoma ulmi*, *O. novo-ulmi*) in North America and Europe, *Phytophthora cinnamomi* in Australia, and *P. lateralis* in Oregon and California (Cannon, *et. al.*, 1977; Hansen, *et. al.*, 2000; Hardy, *et. al.*, 2001). Fungicides were also applied widely against *P. cinnamomi* in Australia to try to reduce the spread (Hardy, *et. al.*, 2001). The success of these programs was very variable with some effective control on one hand, and continued tree mortality on the other.

Within the public garden setting, management has particular considerations and problems, such as the potential inadvertent spread of pathogens by visitors and staff. Management of infected plants in

these gardens in the UK have so far focused on the eradication of infected plants upon their discovery (Tomlinson, *et. al.*, 2009). The problem with eradicating the infected plants as soon as they are discovered is that this action reduces the opportunities for studying these pathogens in this particular ecosystem. The removal of *R. ponticum* from gardens and parks has started and this is an important measure to reduce hosts and therefore sources of inoculum.

Our understanding of the spread of infection within public gardens and from one garden to another is very limited. These aspects are critical if these pathogens are going to be managed successfully as the movement of people through public gardens could be spreading infection both within the garden and from one garden to another. Before effective management techniques can be developed, more research is needed into the epidemiology of these two *Phytophthora* species to increase our understanding of how they are spread.

Mathew Elliot, Uni St Andrews and Centre for Ecology and Hydrology

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WHAT'S IN A NAME?

The BSBI Newsletter no. 115, September 2010 included a list of name-changes and additions to be found in the 3rd edition of Stace's 'New Flora of the British Isles'.

Reading through the name changes set me musing. Some plants are great ditherers. When I first started taking botany seriously I came across some attractive grasses, the Oat-grasses, which had an equally attractive name *Helictotrichon*. It rolled off the tongue and was instantly memorable. Unfortunately it didn't last; it soon changed to *Avenula*, but by Stace 1 it was back to *Helictotrichon*. Now it's back to *Avenula* again! Will it ever make up its mind?

Other plants run through names like a young couple with their first child. I first knew Alpine Foxtail as *Alopecurus alpinus* which seemed to describe it perfectly. Then it became *A. borealis*, literally Northern Foxtail, well – OK. But now we must call it *A. magellanicus*. What's it got to do with Magellan?

Similarly Northern Rock-cress used to be *Cardaminopsis petraea*, then it became *Arabis petraea* (it has also been *Arabis hispida*) and now it's *Arabidopsis petraea*. Presumably the last change is the result of molecular studies.

Some genera seem to be very predatory, gobbling up rivals. *Veronica* (Speedwell) has collected the *Hebes* (Hedge Veronicas); *Malva* (Mallow) the *Lavateras* (Tree Mallows) and most of the *Althaeas* (Marsh Mallows); *Lepidium* (Pepperwort) having gathered up Hoary Cress, formerly *Cardaria draba*, has now acquired *Coronopus* (Swine Cresses) - and the *Chionodoxas* (Glory-of-the-snows) have all gone to *Scilla* (Squill).

Silene (Campion) has also become very acquisitive. When I first became a recorder I inherited some old record cards which included a mysterious plant *Melandrium rubrum*. It was some time before I discovered it was Red Campion, by then *Silene dioica* (it has also been known as *Melandrium dioica*, *Lychnis diurna* and *Lychnis dioica*). And now *Silene* has acquired the Catchflies *Lychnis* and *Cuculus* as well as *Melandrium*.

Other genera have lost out. When I first got into botany *Scirpus* was a broad genus, but by Stace 1 its members had been scattered wide, leaving only one plant *Scirpus sylvatica* (Wood Clubrush) – still there. *Chrysanthemum* by contrast has lost out entirely: Oxeye Daisies

were moved to *Leucanthemum* some time ago, and now the rest of the genus has gone to *Glebionis*. Similarly *Listera* has disappeared, the Twayblades having been moved to *Neottia* the Bird's Nest Orchid genus.

Several Fescues have moved from *Festuca* to *Schedonorus* and Autumn Hawkbit, formerly *Leontodon autumnalis*, is now *Scorzoneroidea autumnalis* (where do they get these names from?). I recently discovered a single plant of Bristly Oxtongue *Picris echioides* in West Lothian, only to discover I now had to call it *Helminthotheca echioides*, a bit of a mouthful.

Some recent changes, however, are welcome reversions to familiar names. It's a relief to discover Sea Wormwood is back to *Artemisia maritima*, Bog Stitchwort to *Stellaria alsine* (though I had begun to get used to *S. uliginosa*) and the Watercresses have been removed from *Rorippa* and gone back to *Nasturtium*.

Some of the 'new' names come from further back in time. The Salad Burnets *Sanguisorba* have returned to *Poterium*, and Betony has left *Stachys* to become *Betonica officinalis* again – re-linking it to its English name. Similarly *Senecio fluviatilis* Broad-leaved Ragwort, introduced as a medicinal plant, has reverted to *S. sarracenicus* reminding us of an alternative English name – Saracen's Woundwort. Burnet Rose *Rosa pimpinellifolia* has gone back to an earlier name, *R. spinosissima* which is descriptive of the plant – but both names remain commemorated for the plant has a gall caused by a wasp *Diplolepis spinosissimae*, and a rust called *Phragmidium rosae-pimpinellifoliae*.

Two *Carex* species have reverted to what appear to be Linnean names (White Sedge *Carex curta* to *C. canescens* and Oval Sedge *C. ovalis* to *C. leporina*). Since Linnean names have precedence, they must once have been declared 'illegitimate' but now are mysteriously OK.

I fear this is not the end of name changes. Scientific names may be international, they're certainly not stable. Just as well to learn the English names too (and be grateful you're not a mycologist). And to conclude on a happy note, there was one name change which really made me smile: Yellow Birdsnest is no longer *Monotropa hypotyris* - instead it's *Hypotyris monotropa*!

Jackie Muscott, BSBI Recorder, VC 84 West Lothian

TAXONOMIC STUDIES ON *TORTULA FREIBERGII* DIX & LOESKE

Introduction

Tortula freibergii is a rare moss, endemic to Western Europe, whose known range in the UK has increased in recent years. Once thought to be a plant of the Mediterranean and southern Britain, it has also been found in West Yorkshire and Fife. Its diminutive size and lack of sporophytes at higher latitudes may mean that it has been overlooked. It is of conservation interest throughout its range, appearing on the UK Biodiversity Action Plan (BAP) bryophyte list and IUCN Red List as "Near Threatened".

T. freibergii is closely related to *T. solmsii* and *T. cuneifolia* (of which it was once relegated to a subspecies). Its taxonomy, in relation to these two species is not yet clearly resolved. There is at present a BAP Bryophyte Project being carried out at RBGE. The project aims to clarify issues of taxonomy and identification of 25 BAP list bryophyte species using DNA barcoding. *T. freibergii* is one of the species targeted for barcoding, and this study aimed to provide morphological information on it, from measurements of taxonomically relevant characters, which will contribute to the BAP Bryophyte Project. Since ecological differences are also important in distinguishing between taxa, it will also investigate, as far as possible, whether the specimens studied show trends in habitat preference.

Materials and Methods

Fresh material of *T. freibergii* was collected from near Cammo (NO 617109) in Fife (vc. 85) about a month prior to the start of the project. Collections were also made from Hayburn Wyke (TA 009970), Brotton (NZ 676198) and Runswick Bay (NZ 811159) in North Yorkshire (vc. 62) during the course of the study. Herbarium material of *T. freibergii*, *T. solmsii* and *T. cuneifolia* was also used.

Permanent slides of the samples were prepared. Observations of the type specimen were also made, but, to avoid damage to the material, no permanent slide was made up, nor quantitative data collected from it. Measurements were taken to allow comparisons to be drawn between populations and between species. These included leaf length:width ratio; number of papillae per cell (visible at x400 total magnification) and spore size. Leaves were also categorised in terms of

their shape (using Smith, 2004, as a reference) and whether they were widest above, at, or below the middle.

The presence and density of papillae (tiny projections on the leaf cell surfaces) are often used to distinguish between *T. freibergii* and its related species. Since the papillae on the cell surfaces were sometimes obscure, especially in *T. solmsii*, it was not always easy to describe and count them using light microscopy. Both dry and rehydrated samples were observed under a scanning electron microscope to obtain more detailed pictures of the papillae.

Results and Discussion

There is a great deal of variation within *T. freibergii* - the large, lingulate leaves with smooth cells of the plants examined from Giglio (the type site in Italy) or Shropshire are very different in their general appearance to the much shorter, rounder, apiculate leaves with distinct papillae of plants from Fife (Fig 1). This variation, however, does not appear to be discontinuous, and any correlations between traits could be explained by environmental influences. Traits that can be seen across the species include at least the ability to produce papillae – predominantly non-papillose samples sometimes had one or two leaves with faint papillae (Fig 2 and 3); differentiated cells at the leaf margin and long, cylindrical capsules, with spores 9-11µm across.

The habitat requirements appear fairly consistent: sandstone or granite rock in damp places, often near the coast. There are several records of this species from the North Yorkshire, including the new one from Runswick Bay. It appears to be fairly widespread along this stretch of coast, wherever suitable habitats exist. The absence of any known populations between those in Yorkshire and the small number of plants in Fife raises the question of whether there is more of it on coastal sandstone, which has not been recorded. This is quite possible, given the size of the plants and the inaccessibility of many cliffs.

The populations of *T. freibergii* in the UK are fairly widespread and disjunct, which raises the question of how it has spread. If it is dioecious (Blockeel & Rumsey, 1990) then it would take at least two spores to establish a population capable of producing sporophytes. Fertile plants have been recorded from the Sussex sites and from Bridgewater, but not from further north. *T. freibergii* is thought to have spread predominantly by fragmentation along the canal sides in Cheshire (Blockeel & Rumsey, 1990). Theoretically this would also be possible

along the cliffs in Yorkshire, though less likely, since suitable habitats can be several km apart. No gemmae or other methods of vegetative propagation have as yet been recorded. It will be interesting to see if the barcode data identify any of the populations as being particularly different from, or similar to, one another. If there appears to be little genetic difference between populations, it would suggest that the wide range of phenotypic variation seen, such as the density of papillae and leaf shape, are mostly environmental responses.

From the morphology and, as far as could be deduced, the ecology of the *Tortula* species in question, it is possible to find differences between them. *T. freibergii* differs from *T. solmsii* in the density of papillae (but see discussion) and capsule morphology, and from *T. cuneifolia* in spore size and nerve length.

There is some overlap in leaf characteristics; possibly more than has previously been acknowledged. In atypical plants that intergrade, it could prove difficult to distinguish between the species without capsules. In most cases, it should be possible to say whether a plant has a closer affinity to what is known as *T. freibergii*, *T. solmsii* or *T. cuneifolia*, whilst taking into account the variability of all three species.

Given the degree of morphological plasticity of each of these species, it would be difficult to guess at how genetically distinct they are, based on how they look. It is possible to describe what the majority of each group look like, the range of variation and where they overlap; the same would be true of a habitat study. What is more difficult is defining how much difference is needed to classify separate species. Although the same problem is encountered when looking at molecular data alone, a combination of morphological and molecular data will be useful in resolving the taxonomic status of *T. freibergii* and its related species. MatK and rbcL sequences have recently been obtained for *T. freibergii*, *T. solmsii* and *T. cuneifolia* (D. Bell, pers. Comm.). The sequences from all of the material that had been identified as *T. freibergii* were very similar, and differed from those obtained from the two related taxa. This provides strong support for *T. freibergii* being a distinct species.

Acknowledgements

I would like to thank David Long and David Chamberlain for supervising this project; David Bell for his advice and information on his barcoding work, and for sharing the long drive down to Yorkshire and back; and to Frieda Christie for patiently teaching me how to use the SEM.

Catherine Kwella (University of Edinburgh)

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UK BAP Homepage: <http://www.ukbap.org.uk/>

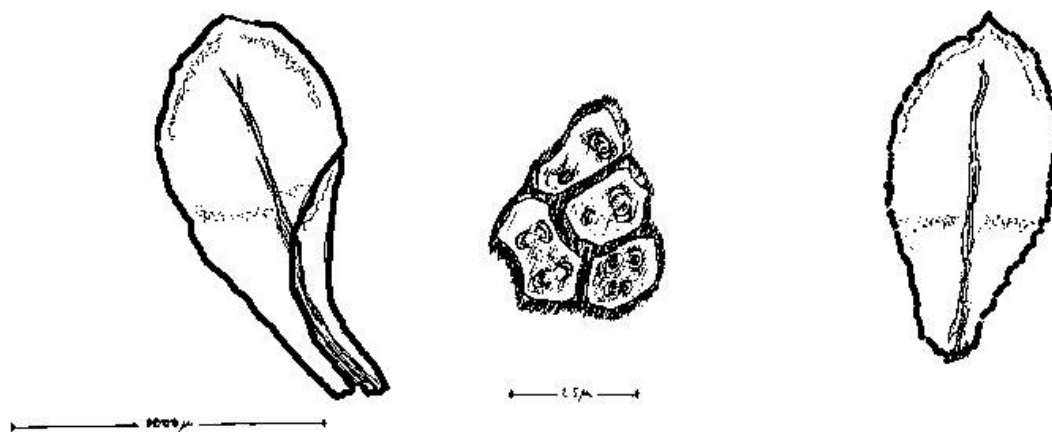


Fig. 1: *T. freibergii* from Fife: Leaves (scale bar = 1000μm); upper leaf cells with papillae (scale bar = 25μm)

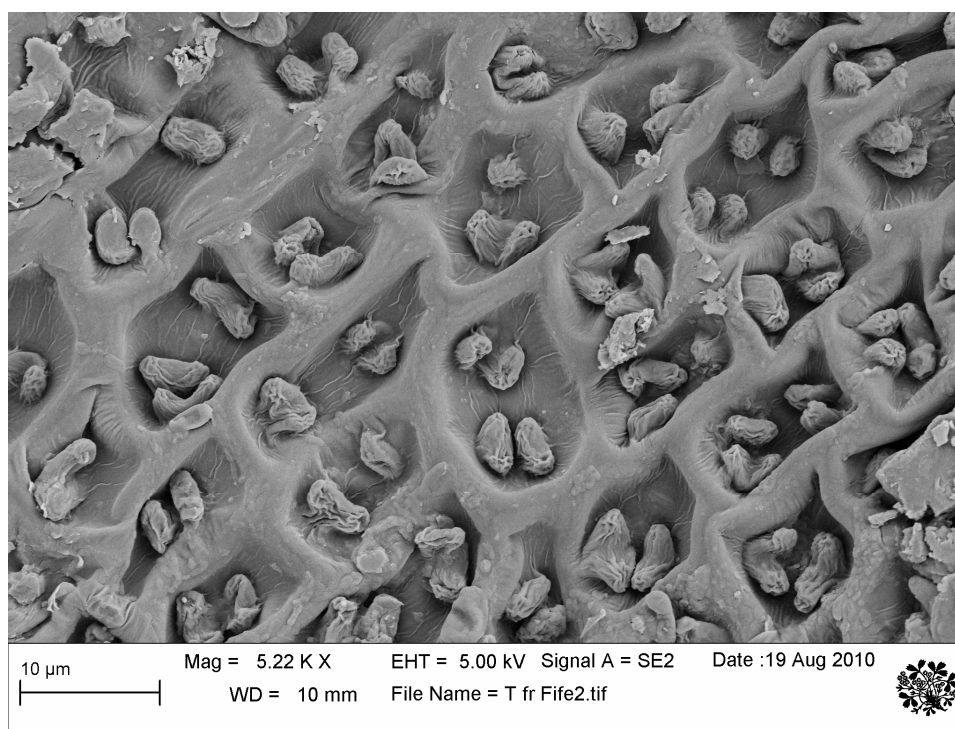


Figure 2: Leaf cells of *T. Freibergii* from Fife x 5220, showing pairs of papillae.

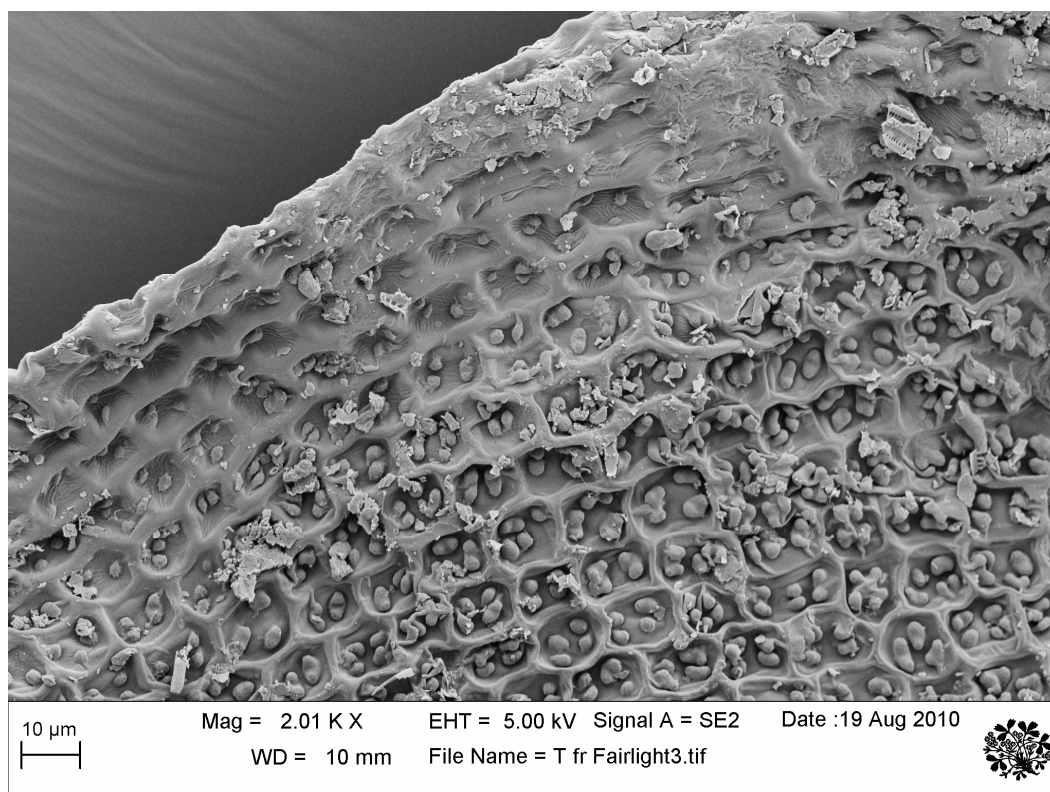


Figure 3: Leaf of *T. Freibergii* from Fairlight Glen, Hastings, x 2010, showing papillae and the less papillose marginal cells.



Figure 4. Shoot of *T. Freibergii*.

ETHNOMEDICA IN ORKNEY

The Ethnomedica Project, known as Remembered Remedies, is an oral history project based at the Royal Botanic Gardens, Kew. Formed more than a decade ago by botanists and herbalists, project volunteers record and archive people's memories of using simple plant remedies in Britain particularly before the introduction of the NHS in 1947. I visited Orkney for the project in August 2010.

From my base in West Mainland I visited the surrounding parishes, and gave a talk at the Dounby Community Centre, which elicited several contributions afterwards. These ranged from a different use of dockan than I had encountered elsewhere in Scotland, a game involving ribwort, and a memory of 'thistle cheese' (from the flower head of the melancholy thistle). The following day in Dounby, contributors told me, among many other stories, about the medicinal uses of tormentil and onion from the island of Rousay, the use of black currants in Birsay, and sphagnum moss collection in 1939-41 for the war effort.

In the long twilight of the August evenings, I could just make out the call of curlews above the distant honking of geese in the fields. The odd hare ran about the fields. In the morning sunshine, a flock of starlings near the palace of Birsay splashed about together in a large puddle by the side of the road, before taking to the air in looping skeins. I had some time for botanising at the Brough of Birsay. Walking along the coastal path towards Skipi Geo, a natural harbour used until the 1950s by local fishermen, I noted a clutch of eider ducks in moult (looking a dirty brown), floating in close formation among tangles of seaweed in the surf. In the grass up above Skipi Geo, I found bird's foot trefoil, bedstraw, silverweed, coltsfoot, yarrow, purple vetch, ribwort, and an eyebright with scale-like, succulent leaves. Many of these plants feature in plant lore that I have collected in other parts of Scotland.

On the path to the Ring of Brodgar at Harray, meadowsweet (frequently mentioned in collections from Skye and Sutherland) and water mint were in flower. Inside the Ring, which is situated on a narrow strip of land between the Lochs of Stenness and Harray, there were great carpets of heather, with moss growing at the roots, as well as tormentil, devil's bit scabious, and more eyebright.

Anne Barker, Ethnomedica Scotland Co-ordinator

For further information about the project, see www.kew.org/ethnomedica

SAMPHIRE IN EAST SCOTLAND!

Belhaven Bay, just north of Dunbar on the east coast of Scotland, boasts a long but low line of sand dunes, separated from the mainland by a belt of flat saltmarsh. At first sight, its flora does not appear to be as exciting or diverse as that of Aberlady Bay, a reserve a little further NW along the coast. However, a couple of visits over the last few years have turned up two exciting finds – the rare alien *Clematis tangutica*, and apparently the first ever record of *Crithmum maritimum* from the coast of eastern Scotland.

Interesting plants that occur in fair numbers at Belhaven Bay include blue fleabane (*Erigeron acer*), which is abundant on the dunes, sea wormwood (*Artemisia maritima*) in scrubby areas of saltmarsh, and strawberry clover (*Trifolium fragiferum*) in grass at the drier edges of the saltmarsh and nearing its northern limit on the British mainland. In a wet few places the knotted pearlwort (*Sagina nodosa*) also makes an appearance, and *Salicornia* species form fine populations in the most exposed parts of the saltmarsh. On the fixed dunes, hound's-tongue (*Cynoglossum officinale*) occurs in fair numbers, especially in one area where clearance of sea buckthorn (*Hippophae rhamnoides*) has left an area of bare dune with, apparently, a high nitrogen content.

I encountered the orange-peel clematis (*Clematis tangutica*) at Belhaven on my first visit there, in 2008. There was a single patch, comprising several apparently separate plants over a 20 metre radius. The plants were healthy and producing copious amounts of seed. Whether the plant had spread by clonal means or seed is unclear, but the plants were still present in 2010 and appear to be naturalised.

In 2010 I took a group of Edinburgh University students to see the site, and we came upon a single plant of rock samphire (*Crithmum maritimum*). It wasn't until quite a while later that I determined what a remarkable discovery this was. Stace (2010) follows Preston et al (2002) in stating that it doesn't get any further north on the east coast than Suffolk, whereas the BSBI website includes a post-2000 record from near Newcastle. Outside of the British Isles, the species barely occurs around the North Sea at all (see map in Kadereit *et al.*, 2005). The only record from the east side of Scotland is an alien record from inland NE Scotland (Preston *et al.*, 2002). Hence the plant at Belhaven is the first record of *C. maritimum* from the coast of eastern Scotland,

and could be the first record as a native from the whole eastern side of Scotland.

There is just a single plant of *C. maritimum* at Belhaven, growing in bare sand near the top of a slope of fixed sand dune. Hence the habitat is also somewhat anomalous, given that the plant normally grows on rocky shores. The plant seems to be in fine health, but whether it seeds may depend on whether it can self-pollinate, which does not appear to have been investigated (Kadereit *et al.*, 2005). As to whether the plant is native, the presence of *C. tangutica* demonstrates that seed from gardens can reach the dunes at Belhaven, but *C. maritimum* is not normally grown in gardens. Hence, the arrival of wild seed by natural currents might be the more likely hypothesis, because seed can float in seawater for up to a year (Ridley, 1930) although it is not known how long they remain viable while floating (Kadereit *et al.*, 2005).

Given that it survived the harsh winter we've just had, this particular instance of a southern plant appearing north of its usual range may not be attributable to climate change, but it does attest perhaps to the ability of at least some of our plants to move large distances and hence possibly respond to climate change. However, as sand dunes are by nature an unstable habitat, the future of *Crithmum maritimum* at Belhaven is far from secure. Nonetheless it will be very interesting to see whether this species succeeds in becoming established here.

Dr Richard Milne, Institute of Molecular Plant Sciences, The University of Edinburgh

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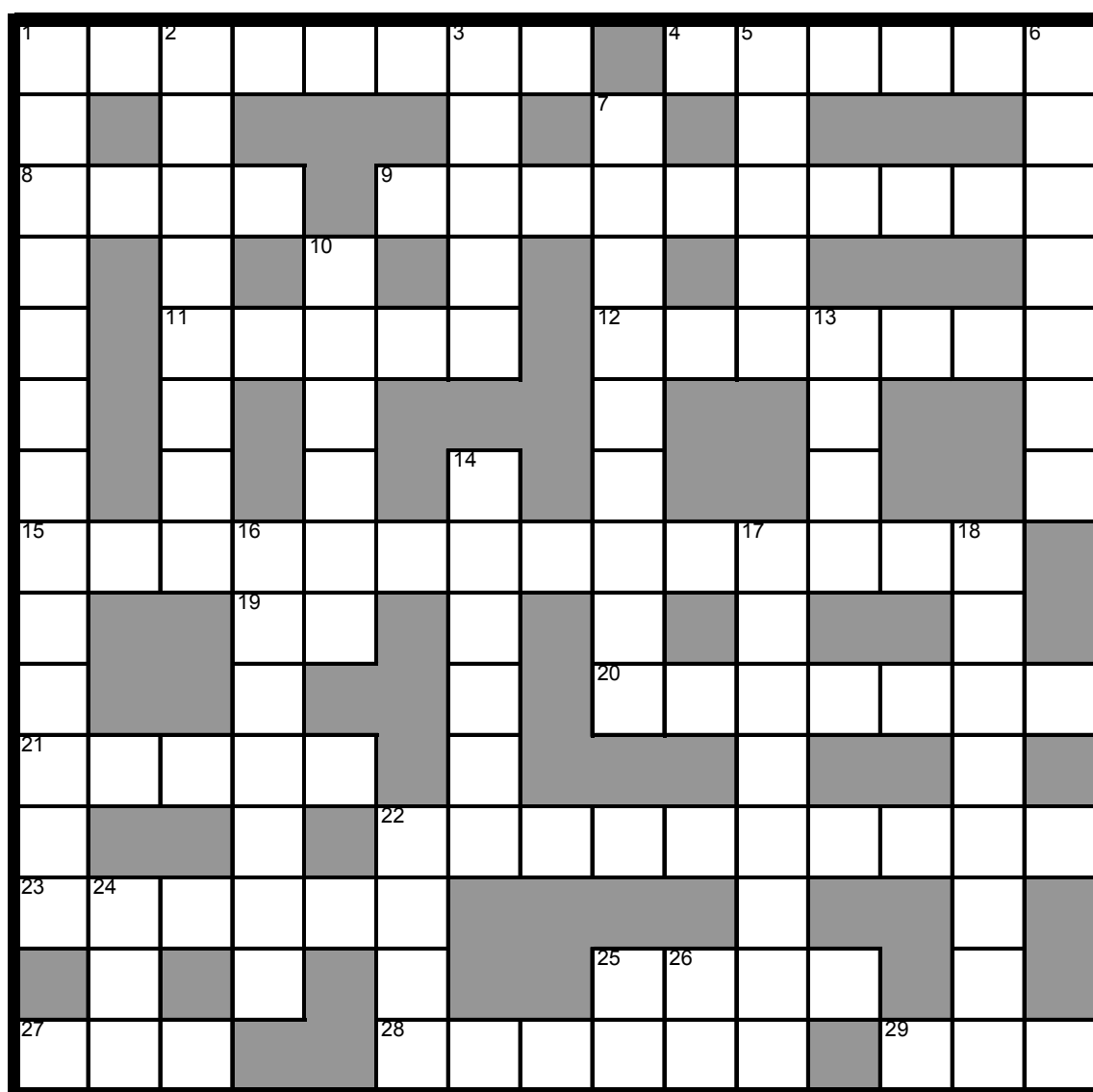
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PHYTOLEXICON CRUCIFORMIS B.S.SCOT EX WORD

Xword 2. In this crossword there are thirteen botanical names, mostly angiosperms but including two vernacular names; ten words of botanical or ecological terminology; and some other words to fill in the gaps. I hope you don't find it too easy or too difficult.

I have decided that the cryptogrammic garden shall be laid out as a maze with a large and particularly impenetrable specimen of *Araucaria araucana* at the centre, and crossword plants and similar species will be planted around it.

Roger West



Solution on page 68

Across

- 1 and 16d. So, Cupid's lass is up! She combs wool. (8, 7)
4 Plant, not edible but quite a dish, pheasant pie perhaps. (6)
3 In tracheids that can't get any worse. (4)
4 Late princess and ourselves hold electrical equipment describing structure of flower. (10)
11 In Nuphar a phenomenal mark on seed coat. (5)
12 Aquatic South American in eastern England (5).
15 Sounds like river guide ties us up in technical description of ovule. (14)
19 Exists as island perhaps.
20 Maybe member of 13d. (7)
21 Plant caught caught on film when I photograph loxodrome (Polemoniaceae). (5)
22 Confused, so Mo, metal plated, holds code. (1)
23 Smart conifer. (6)
25 Fibre discovered by treating 27a with fluorine. (4)
27 Lazy inflorescence. (3).
28 Straight leaf or straightforward equation. (6)
29 Herb used in Caesar salad, but it went to his head. (3)

Down

- 1 Copper rust aid confuses tropical tree. (13)
2 Lost a route map, but I entered to find angiosperm (8)
3 Entandrophragma ... (Meliaceae), a specifically appropriate name for a useful timber. (5)
5 Sounds as dull a plant as you could find. (5)
6 Insist erstwhile sibs imprisoned here. (7)
7 Insecticide obtained from Tanacetum cinerarifolium. (9)
10 Could be bee or fly, but certainly not an insect. (6)
13 A noted group. (5)
14 Buff this language. (6)
16 See 1a. (7)
17 Before tooth? Not before leaf tooth anyway. (8)
18 Masses of fungal hyphae right in leaf pores. (8)
22 22a imprisoned in here? (4).
24 Grass held back from Jura opportunity? (3)
25 Elementary requirement of all plants. (2)
26 Symbolically, element found more in Milan than Umbria (2)

STUDENTS' THESIS PRIZE, 2010

We were happy to receive five entries for the students' thesis prize from four institutions. Thank you to everyone who contributed to this annual prize competition. The academic standard of all entries was, as always, extremely high. We are grateful to the assessors for their careful consideration of all the entries and for selecting the winner. The winner receives a certificate and £100. This will be presented at a Botanical Society Meeting.

Congratulations to Lena Pokorny from University of Edinburgh (School of Biological Sciences – Plant Science), winner of the 2010 students' thesis prize.

Below we reproduce Abstracts from the winning entry followed by a short summary from the abstract of the other theses in alphabetic order.

An investigation into the shape of flowering curves, its variation and possible causes

Summary: Many plant phenological studies use the first flowering approach. More information and higher accuracy can, however, be gained by examining the flowering distributions of species' populations from the onset to the end of flowering. This study examined the shapes of flowering curves of four species and the possible effect of temperature on these. The majority of observed curves did not follow normal distributions. Curves were found to vary more between species than within different populations of one species. Flowering curve shape is probably fixed to an extent but is also influenced by environmental and other factors, especially temperature.

Lena Pokorny – Winner

Supervisors: Dr Richard Milne and Dr Chris Jeffree

Awarding Institute: University of Edinburgh (School of Biological Sciences – Plant Science)

A study of the effects of herbivory on woolly willow (*Salix lanata*) growth and reproduction, Coire Sharroch, Scotland

Summary: Sub-arctic willow scrub, and in particular *Salix lanata*, has been recognised as threatened by a range of factors. Sub-arctic willow scrub is highly endangered and fragmented, and the populations of *S. lanata* that remain in Britain are very scarce. Of 13 known sites only 5 were considered to hold viable populations and the species was

classified as “vulnerable”. One of the major concerns is that heavy grazing is limiting the vigour of these few remaining viable population. Grazing can be necessary to keep competition at a low level, but it could also be detrimental to growth vigour and flowering success, and the wounds left by mammalian herbivores could mean that plants are further attacked by invertebrate herbivores and pathogens.

The effects of herbivory on *S. lanata* growth and reproduction were studied at Coire Sharroch (Scotland), which sustains the second largest population of *S. lanata*. Browsing damage was most likely done by mountain hares but the degree of damage was not unusually high. However, browsing damage led to higher levels of invertebrate herbivory at least for *S. lapponum*. Invertebrate herbivory seemed to be abnormally high and affected the general vigour of the plants. Although *S. lapponum* was more affected than *S. lanata* by mammalian herbivory, it was able to respond better by re-growth. Catkin production was very low this season both for *S. lanata* and *S. lapponum*, and this could be related to heavy browsing and removal of buds during winter/early spring.

Recommendations are directed toward the continuous protection of *S. lanata*, which is in a vulnerable state at Coire Sharroch and is more vulnerable than *S. lapponum*. Close monitoring, augmentation of the populations when possible and keeping fences in place to keep mammals away are feasible strategies at least in the short and medium term. Also, further research and action regarding invertebrate herbivory need to be developed, with special consideration to the climate change scenario.

Josefina Hepp Castillo

Supervisors: Dr Heather McHaffie and Dr Bob Rees

Awarding Institute: Royal Botanic Gardens Edinburgh and Scottish

Agricultural College

The effects of *Zostera noltii* on sediment stability over winter

Summary: The importance of seagrasses within intertidal systems has become well established in the scientific literature for their role in promoting biodiversity, provision of ecosystem services and as a source of nutrients. Concomitantly, seagrasses have also become well recognised for their ability to alter their own physical environment through modification of hydrodynamics and sediment dynamics. However the relationship between the effect of seagrasses on

sediments and the physical environment they occupy is not fully understood. The overall aim of this study was to assess the effect of dwarf eelgrass (*Zostera noltii*) on sediment stability within and between two estuaries over winter. The aim was investigated through different temporal scales and density of *Z. noltii*. Measurements of estuarine sediment depth were taken at Tynninghame and Tayport estuaries from September 2009 to March 2010. At each estuary measurements were made within plots of high density and low density seagrass and related to measurements of bare sediment depth over time and between plot types. Overall, it was concluded that the density of *Z. noltii* can influence sediment stability over winter, however the effect is limited by the site-specificity of each estuary.

Adam A P Cross

Supervisor: Dr Kate Heal

Awarding Institute: University of Edinburgh (School of GeoSciences – Ecology)

The effect of *Rhododendron ponticum* L. on the growth of Scots pine *Pinus sylvestris* L. and the consequences for commercial forest management

Summary: The ecological consequences of *Rhododendron ponticum* as an invasive species are well known and documented. However, despite an extensive knowledge of its environmental impacts, the effect of the shrub on the growth rate of Scots pine, as an important crop tree, is hitherto unstudied. The present study aimed to rectify this situation and determine the consequences of a dense understorey of *Rhododendron ponticum* for the growth rate of Scots pine trees in a commercial plantation in central Scotland. The diameter at breast height (DBH) and annual growth rings of sample trees in three different stand types, with respect to the presence of *R. ponticum*, are compared to show that the presence of the non-native results in significantly reduced growth rates in Scots pine trees. The economic consequences of the exotic's presence are also investigated, with the existence of a dense understorey over an extensive period of time found to reduce revenues for timber production by approximately £1143.04 ha⁻¹ across a 60 year rotation. Finally the implications for management arising from the presence of the shrub in a stand are investigated using cost-benefit analysis. The suggestion is made that, for economic purposes, *R. ponticum* is removed 10 years prior to felling using a machine excavation, burn and follow up method of control. However, it is

concluded that to maximise the benefits from modern multi-purpose forestry, commercial forests must be managed for more than just timber production. Therefore, it is recommended that removal of *R. ponticum* is carried out as soon after invasion as possible using the most inexpensive method of control available.

Tony A Marshall

Supervisors: Dr Maurizio Mencucini and Dr Colin Edwards
Awarding Institute: University of Edinburgh (School of GeoSciences – Ecology) and Forest Commission Northern Research Station

Scottish peatlands: using UKCP09 projections to map their future under climate change

Summary: Peatlands are unique and highly sensitive habitats, many of which have been subject to overexploitation, particularly over the last century. The cool oceanic climate typical of Scotland has allowed the development of large areas of peat, much of which is now protected under national and international conservation designations, giving many peatlands protection from harmful anthropogenic activities. Climate change also poses a threat to this fragile ecosystem, it is thought that the level and magnitude of predicted change will affect all of the world's ecosystems. The Intergovernmental Panel on Climate Change (IPCC) have predicted that the direct impacts of climate change will include temperature increase and altered precipitation patterns.

The overall aim of this thesis is to map the effects of predicted climate change on Scottish peatlands; and the three main objectives are to identify areas where peatlands may be degraded as a result of climate change, identify areas where peatlands may benefit from climate change and identify areas where Scotland's peat resources might be transformed from a carbon sink to a source. Five case study peatlands were selected, all of which have conservation designations. UKCP09 (UK Climate Projections 2009) datasets were overlaid with peatland distribution maps in ArcMap.

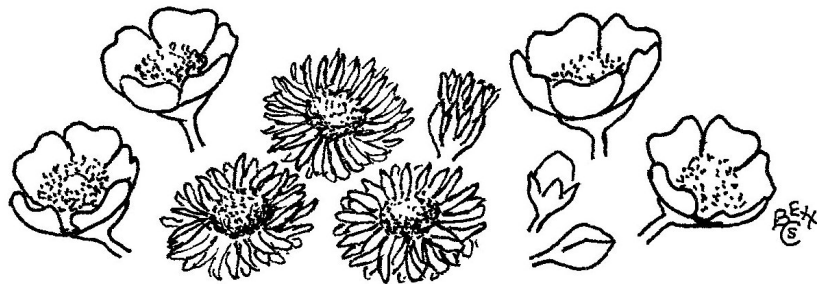
The results varied greatly between high and low emission scenarios; high emission scenarios showed summer temperature increases coupled with precipitation decreases and winter temperature increases matched with large precipitation increases. In this scenario, the majority of the case study sites may experience summer drought and winter peat erosion, potentially leading to large CO₂ releases. In the low emission scenario, temperature increases were matched with precipitation increases during summer and winter. In this scenario,

peatlands could benefit from climate change and potentially experience increased productivity.

Kirsten Milliken

Supervisor: Dr Alistair Hamilton

Awarding Institute: Scottish Agricultural College



ACACIA CORNIGERA (BULLHORN ACACIAS)

These are myrmecophilous plants.
That means that they make friends with ants.
The plants grow lunch packs on their leaves
Which ants defend, from insect thieves,
for their own use. From dusk to dawn
the ants live in a hollow thorn
provided by the plant, quite free,
for their exclusive tenancy.
Because ants fight for food and home,
all others leave the plants alone.
Two species help each other out,
and that's what this is all about.

Roger West

COMMUNITY WOODLANDS PROJECT

The field season of 2010 was the last opportunity to complete the fieldwork for the Community Woodlands Project, a collaborative project between the BSS and members of the Community Woodlands Association (CWA), which has been in progress since 2006. The aims of the project were set out in BSS News No. 90 and can be viewed on the BSS website (<http://www.botanical-society-scotland.org.uk>). Four woodlands were visited in this final season, as summarised below.

Taliesin Woodland, near Castle Douglas, Kirkcudbrightshire (approx. centroid: NX790557)

This site is a roughly rectangular area (9.3 ha) enclosed by walls and orientated NW-SE on the SW side of the road from Castle Douglas to Auchencairn, just over 2 miles SE of Gelston village. The road separates the enclosure from mixed Forestry Commission plantations on Potterland Hill. There are coniferous plantations on the opposite hill (Screel Hill) and against the SE wall of the community woodland. Taliesin is managed by the South West Community Woodlands Trust (website: www.swcwt.org).

Inside the enclosure the low-lying ground beside the road is a former cattle meadow and is still predominantly an open area, with occasional plantings of young trees, including Pedunculate Oak (*Quercus robur*), Gean (*Prunus avium*), Apple (*Malus domestica*), Osier (*Salix viminalis*) and a Purple Willow (*Salix purpurea*). Mixed meadow grasses, Brambles (*Rubus fruticosus* agg.), Meadowsweet (*Filipendula ulmaria*) and Hemlock Water Dropwort (*Oenanthe crocata*) abound in this damp meadow. A newly created pond at the SE end has some disturbed bare ground around it, in which a few plants have found footholds, including Changing Forget-me-not (*Myosotis discolor*), Common Hemp-nettle (*Galeopsis tetrahit*) and Persicaria (*Persicaria maculosa*).

The Potterland Burn separates the meadow area from the rest of the site, which rises up a slope to the SW boundary wall and forms a hillock at the NW end. Although there is historical evidence of woodland at Taliesin, especially at the NW end, much of the current woodland on the slope and the hillock is fairly recent and consists largely of mixed broad-leaved species, including Ash (*Fraxinus excelsior*), Downy Birch (*Betula pubescens*), Gean (*Prunus avium*), Sycamore (*Acer*

pseudoplatanus), Goat Willow (*Salix caprea*), Rowan (*Sorbus aucuparia*), Wych Elm (*Ulmus glabra*), Hazel (*Corylus avellana*) and Pedunculate Oak (*Quercus robur*). The trees have grown since the cessation of grazing in 1996/7, partly planted and partly natural. The slope is crossed diagonally by another burn which joins the Potterland Burn about halfway down the site. Established willows line both burns, especially the subspecies of the Grey Willow known as the Rusty Willow (*Salix cinerea* ssp. *oleifolia*), and in the boggy ground near the burns are extensive areas of Bog Myrtle (*Myrica gale*). Above the upper burn the ground flora includes heathers, moorland grasses and Bog Asphodel (*Narthecium ossifragum*), not yet in flower on the date of our visit (23rd May). A pre-existing pond near the wooden buildings at the hub of the site contains a variety of water plants including water-lilies, Water Mint (*Mentha aquatica*) and Bulrush (*Typha latifolia*). A few Osiers have been planted in this area for basket-making.

Tyndrum Community Woodland, Tyndrum, Perthshire (approx. centroid: NN335292)

This extensive site (92.2 ha) stretches SE from Tyndrum to Dalrigh and lies SW of the main road (A82), which forms the hypotenuse of a very large triangle. The western boundary of the site lies next to the railway and the southern boundary is beside the rivers, R. Cononish and R. Fillan. The ground is hummocky owing to gravelly moraine features left by a retreating glacier at the end of the Ice Age and since covered by grass. The area is crossed, NW-S, by the West Highland Way and the Crom Allt. The latter joins the R. Cononish to form the R. Fillan. Much of the site used to be covered with conifers planted by the Forestry Commission but a fire destroyed the conifer plantation and, later, the land was acquired by the community. Strathfillan Community Development Trust is attempting to restore the kind of diverse native woodland that might have grown wild in Strathfillan originally. Locally obtained seed from mixed broad-leaved and coniferous species were planted around the time of the millennium.

As the site is so large and was recorded in detail in 2001, we decided to focus on four sample areas for the BSS study on 2nd July. The largest of these is a roughly rectangular area sloping up from the railway to the West Highland Way and containing some of the millennium plantings. They include Downy Birch (*Betula pubescens*), Rowan (*Sorbus aucuparia*), Scots Pine (*Pinus sylvestris*), oaks and willows, which are mostly at pole stage (or less) at present. The

plantings are quite widely spaced and should have plenty of room to grow. Bog Myrtle (*Myrica gale*) grows here too. The ground flora contains moorland and bog species, e.g. Bell Heather (*Erica cinerea*), Cross-leaved Heath (*Erica tetralix*), Bog Asphodel (*Narthecium ossifragum*), Lousewort (*Pedicularis sylvatica*) and Hare's-tail Cotton-grass (*Eriophorum vaginatum*). Beside the West Highland Way are a few small plants of Slender Eyebright (*Euphrasia micrantha*). This type of ground flora extends across the West Highland Way into another of our selected sample areas, the annular area round Kettle Hole Lochan. This area is mostly open damp ground but Bog Myrtle abounds and there is a small plantation of tall larches and spruces crowded closely together at the SE edge, part of the former forestry plantation.

The two remaining sample areas selected for study are the linear area beside the road leading from the Dalrigh Car Park to the bridge over the R. Fillan and the linear riverside area between this bridge and the inflow from the Crom Allt. Both the roadside and the riverside are partly lined by established trees, mainly willows and birches. The Eared Willow (*Salix aurita*) is the commonest tree along the roadside, but the Downy Birch is commoner by the river. Shrubs include Broom (*Cytisus scoparius*) and Bog Myrtle. The ground flora by the road includes wayside, grassland and moorland species, e.g. Cow Parsley (*Anthriscus sylvestris*), Yorkshire Fog (*Holcus lanatus*), Field Horsetail (*Equisetum arvense*), Heather (*Calluna vulgaris*) and Lemon-scented Fern (*Oreopteris limbosperma*). By the river further moorland species, e.g. Purple Moor-grass (*Molinia caerulea*), are joined by woodland and wetland species, e.g. Hairy Woodrush (*Luzula pilosa*), Great Woodrush (*Luzula sylvatica*), Cuckoo Flower (*Cardamine pratensis*), Kingcup (*Caltha palustris*) and sedges. Goldenrod (*Solidago virgaurea*) grows on rocks in the river. West of the wooded part of the riverside is a more open, damp, grassy riverside area with Purple Moor-grass (*Molinia caerulea*) and Marsh Ragwort (*Senecio aquaticus*), which then gives way to river shingle near the inflow from the Crom Allt. Growing in the shingle there are scattered saplings of Tea-leaved Willow (*Salix phylicifolia*).

Corpach Woods, Corpach, near Fort William, Inverness-shire

The two woods comprising Corpach Woods are situated at each end of Corpach village on steeply sloping ground rising up from the Fort William-to-Mallaig road (A830) on its north side. These woods may

originally have been planted many centuries ago and their interesting oral history is recounted by Donald B. MacCulloch in his book: *Romantic Lochaber, Arisaig and Morar* (Lines Publishing, Spean Bridge, 1996). The woods are currently managed by Kilmallie Community Company (www.kilmalliewood.bravehost.com).

Tom Giubhais (Pine Hillock, approx. centroid: NN095770)

This compact pinewood (1.92 ha), at the eastern end of Corpach, appears from a distance to be entirely composed of Scots Pines (*Pinus sylvestris*) because these trees are impressively tall and have spreading canopies, which obscure the view of anything else. However, on entering the wood, as we did on 4th July, the understorey becomes apparent. The understorey trees look younger than the Scots Pines and are mostly broad-leaved, including Ash (*Fraxinus excelsior*), Beech (*Fagus sylvatica*), Downy Birch (*Betula pubescens*), Silver Birch (*Betula pendula*), Pedunculate Oak (*Quercus robur*), Rowan (*Sorbus aucuparia*) and Sycamore (*Acer pseudoplatanus*). They are represented by several age classes from seedlings upwards. In contrast, the Scots Pines are almost all trees and mature trees and there is little evidence of regeneration. Shrubs include Holly (*Ilex aquifolium*) and Rhododendron (*Rhododendron ponticum*). Ivy (*Hedera helix*), Honeysuckle (*Lonicera periclymenum*) and brambles scramble amongst the understorey species. The ground flora includes woodland and acid moorland species, such as Broad Buckler Fern (*Dryopteris dilatata*), Pignut (*Conopodium majus*), Bracken (*Pteridium aquilinum*), Bilberry (Blaeberry, *Vaccinium myrtillus*), Heath Bedstraw (*Galium saxatile*) and Purple Moor-grass (*Molinia caerulea*). There are a few garden escapes near the lower entrance to the wood, e.g. Snowberry (*Symphoricarpos albus*) and the variegated cultivar of Yellow Archangel (*Lamium galeobdolon* ssp. *argentatum*).

Cnoc nam Faobh (Hillock of the Spoil, approx. centroid: NN085769)

This oakwood (3.75 ha), at the western end of Corpach, may once have been a pinewood. The pines are said to have been chopped down during the First World War, when there was a great need for timber to line trenches. The oaks may have been planted to replace them. Although the Sessile Oak (*Quercus petraea*) is regarded as the characteristic native oak in the north and west of Britain, the Pedunculate Oak (*Quercus robur*) is the species more often planted. This may explain why the oaks here are mostly Pedunculate Oaks, a

finding that surprised us at first. They are mostly trees (occasionally mature) and younger age classes are scarce. These oaks form the main body of the wood and are mostly on and around a knoll from which the wood may get its name. Other species of tree in this area are less frequent and include Ash (*Fraxinus excelsior*), Beech (*Fagus sylvatica*), Goat Willow (*Salix caprea*) and Sycamore (*Acer pseudoplatanus*). Shrubs include Holly (*Ilex aquifolium*) and Rhododendron (*Rhododendron ponticum*), with Bog Myrtle (*Myrica gale*) on the lower damper ground. The ground flora includes woodland and acid moorland species such as Broad Buckler Fern (*Dryopteris dilatata*), Wood Sorrel (*Oxalis acetosella*), Chickweed Wintergreen (*Trientalis europaea*), Bilberry (Blaeberry, *Vaccinium myrtillus*) and tussocks of Purple Moor-grass (*Molinia caerulea*), the latter especially on the NW side of the knoll.

This large, well-wooded area curves round an open boggy, tussocky area with few trees, which lends variety to the whole woodland. The few, widely scattered trees present include Downy Birch (*Betula pubescens*) and Pedunculate Oak, at pole stage or younger. Shrubs are represented by Bog Myrtle (*Myrica gale*). The ground flora includes Heather (*Calluna vulgaris*), Bell Heather (*Erica cinerea*), Cross-leaved Heath (*Erica tetralix*), Heath Spotted Orchid (*Dactylorhiza maculata*), Bog Asphodel (*Narthecium ossifragum*) and many tussocks of Purple Moor-grass.

The top (N) end of the site is wooded but looks younger and more mixed than the main body of the wood. Trees include Ash, Downy Birch, Silver Birch (*Betula pendula*), Hazel (*Corylus avellana*), Pedunculate Oak, Sessile Oak and Rowan (*Sorbus aucuparia*). Shrubs include Holly and Bog Myrtle. The ground flora includes wayside, woodland, acid moorland and wetland species, such as Common Knapweed (*Centaurea nigra*), Wood Anemone (*Anemone nemorosa*), Wood Sorrel, Broad Buckler Fern, Lemon-scented Fern (*Oreopteris limbosperma*), Heath Bedstraw (*Galium saxatile*) and Marsh Violet (*Viola palustris*). At the top entrance to the wood there are a few garden escapes, e.g. Montbretia (*Crocus x crocosmiiflora*) and the variegated cultivar of Yellow Archangel (*Lamium galeobdolon* ssp. *argenteum*).

Comments

At the conclusion of the 5-year project we have learnt, from the sample of woodlands we have visited, that community woodlands are very diverse and provide rich habitats for nurturing and increasing biodiversity. Furthermore, they are being managed by enthusiastic people who care for their future. The signs are good.

The disappointing aspect of the project is that so few BSS members took part. The non-participants missed a great opportunity and a treat.

Plans for publication

Once we have completed the data processing we propose to write up the project in two ways, for popular and scientific readers. Please watch the BSS website for further information (<http://www.botanical-society-scotland.org.uk>).

Acknowledgements

We are indebted to the community woodland management groups for making us welcome at each woodland and, in some cases, assisting with the fieldwork. In particular we thank Ed Iglehart and Jools and Jem Cox at Taliesin, John Holland at Tyndrum and Ossie Veitch and members of the Kilmallie Community Company at Corpach.

Barbara Sumner and Barbra Harvie (Co-organisers)



SCOTTISH ANNUAL MEETING, 2010

The BSBI/BSS Scottish Annual Meeting on November 6th was a great success, with nearly 120 enthusiastic delegates filling the lecture theatre at the Royal Botanic Gardens Edinburgh, viewing the exhibits in the conference room, joining the lunchtime tours, browsing through the Summerfield Books display and meeting friends.

Heather McHaffie, RBGE Conservation Officer, welcomed delegates and told us about some recent work at the Garden, including a project to scan herbarium specimens so that every type specimen held by RBGE will be available for public viewing over the internet.

Chris Miles, Chair, BSBI Scottish Committee, announced the sad news of the death of Barbara Ballinger, vice-chair of the BSBI Scottish Committee until recently. He introduced the lunchtime tours to the Herbarium and the Scottish Rare Plant Collection and thanked the BSS organisers.

Michael Braithwaite, BSBI President, talked about the BSBI's future recording plans and emphasised the need to record location details and the need to share skills and records. The Rare Plants Register will be linked to Google Earth and made available to Scottish Natural Heritage. The next Atlas will get underway next year and is planned for publication at the end of the decade. The BSBI has prepared a booklet, 'Recording the British and Irish flora 2010-2020' (available on the BSBI website) outlining its programme of recording, surveillance and monitoring activities for the decade.

Barbara Sumner, BSS President, described the Community Woodlands project, which had the two aims of scientific recording and botanical outreach. At each wood visited, BSS volunteers, along with community woodland volunteers, recorded the vascular plants and the structure of the wood by the age classes of the woody species. The woods visited fell into four categories: originally open country, originally industrial sites, conifer woodland and estate woodlands. Ideally the ground flora will be re-assessed annually and the age class analysis repeated every 10 years or so. Barbara thanked all those involved with the project.

Jeff Waddell, Forest Enterprise Scottish Open Habitats Ecologist, explained the structure of Forestry Commission Scotland (FCS) and the National Forest Estate, Scotland's publicly owned forest, which covers 8.5% of the country. Two thirds of this is woodland and

one third open land. FCS is restoring ancient semi-natural woodlands which were under-planted with conifers in the past, improving the condition of other ancient woodlands and expanding the area of woodland of native species. Jeff thanked the BSBI for supplying species records and showed how detailed locality records allow FCS staff to avoid damaging species during forestry operations.

Kevin Walker, BSBI Head of Research & Development, talked about county floras and illustrated their changing style from the early unsystematic lists of sites through the rather dull sets of tetrad maps of the 60s to the recent Flora of Hertfordshire with systematic repeat tetrad mapping, interesting species accounts and discussions of change. He showed how species losses vary across the country and are related to the human population. BSBI records are very valuable – this year they contributed to a report to Government on local extinctions in England.

Jim McIntosh, BSBI Scottish Officer, reported on the year's activities. Memory Map is being made available to every VC recorder who wants it and new data sets, such as SSSI boundaries, will be provided in 2011. A huge effort is being made to digitise nearly one million records by the end of the financial year and all records will be made available on-line through the BSBI distribution maps and the National Biodiversity Network (NBN) Gateway. 2010, the Year of Biodiversity, saw one of the fullest field meeting programmes ever. Jim illustrated some of the highlights of his year, including trips to St Kilda and Mar Lodge. He thanked SNH, RGBE and BSBI for their support, as well as all volunteers, and finished by saying that he is now working on his next grant.

Richard Clarkson, National Trust for Scotland property manager at Grey Mare's Tail, described his site. This is the most notable site in southern Scotland for montane and sub-montane plant communities, with 8 communities of European importance and 12 nationally rare or regionally scarce vascular plants. The site is managed according to the Trust's wild land policy but also has large numbers of sheep as well as feral goats so grazing levels must be reduced. Fences have been erected to protect downy willow (*Salix lapponum*) and flushes with alpine foxtail (*Alopecurus alpinus*). Oblong woodsia (*Woodsia ilvensis*) has been transplanted onto scree in the enclosure, where it is doing well so far.

Angus Hannah, BSBI Recorder for the Clyde Islands, introduced the concept of axiophytes - valuable plants – and the way in which they can help to define good sites objectively. You choose good

habitats within your locality, list species more or less restricted to the habitat, exclude aliens, casuals and any species occurring in more than 25% of tetrads, and the rest are axiophytes. The number of axiophytes in a locality as a proportion of the total species gives an assessment of quality.

Alison Murfitt, BTCV Natural Talent Apprentice, based with the National Trust for Scotland and RBGE, talked about her work on CHEG fungi – that's Clavarioids (fairy clubs), Hygrocybes (waxcaps), Entoloma (pinkgills) and Geoglossacea (earthtongues). They are found in short, unimproved or semi-improved grasslands with a long history of grazing or mowing. Puzzlingly, there seems to be no relationship between the diversity of CHEG species and vascular plant species-richness. The UK holds the best waxcap grasslands in the world but the decline of hill grazing seems to lead to longer swards and a decline in the fungi. Kew Gardens are developing a soil sampling system to investigate whether they are still abundant underground.

The question and answer session dealt with the topics of storing paper archives - give them to your local archive - and of species names - Stage 3 is recommended until the BSBI compiles a list of preferred names.

Finally, **Fred Rumsey** gave a well illustrated talk on in-breeding and hybridisation in British ferns and asked the audience to go out and find him more interesting fern hybrids. DNA bar-coding does not work too well on ferns so it is good to hear that traditional taxonomy is still necessary.

SUMMARIES OF EXHIBITS

Northern Deergrass: habitats from calcareous flush to blanket bog. Jeremy Roberts.

Northern Deergrass *Trichophorum cespitosum* sensu stricto occurs in the distinctive habitat of calcareous flushes, for instance in Teesdale and in Perthshire, associated with relict species such as Alpine Bartsia *Bartsia alpina* and Brown Bog-rush *Schoenus ferrugineus*. By way of contrast, in summer 2010 it was found in great abundance on Butterburn Flow by the river Irthing on the Cumbria/Northumberland border in relatively undisturbed blanket bog.

Most plants were along, or at least near, seepage areas on the bog, with the more stagnant or drier areas being dominated by the sterile hybrid deergrass *T. x foersteri*.

Specimens, photos of the plants in varying habitats and comparative lists of associates from various habitats were displayed. Differences in the nuts between the two species, *T. cespitosum* and *T. germanicum* (the familiar deergrass) and other identification hints were also illustrated.

***Meum athamanticum* (Spignel) in Cumbria. Geoffrey Halliday**

Apart from a single site in South Northumberland, *Meum* is restricted in England to south Cumbria, where it occurs almost exclusively in the south-east in Westmorland (v.c.69) and North-west Yorkshire (v.c.65). This nationally Scarce Species was recorded in *A Flora of Cumbria* (1997) from 22 tetrads. During the recent Threatened Plant Project survey visits were made to 17 of these. It was refound in 13 but discovered in two new tetrads. The picture generally is a fairly healthy one, all the apparent extinctions resulting from grazing. Most sites were on laneside banks and verges on mildly acid brown-earth soils. Associated species were generally few.

A Cumbrian Rare Plant Register. Geoffrey Halliday

This exhibit featured a draft page of an electronic Rare Plants Register of Cumbria's native vascular plants. Sites for about 290 Nationally Rare, Nationally Scarce or Threatened Species were given together with about 50 additional species occurring in 20 or fewer tetrads.

Plant pearls and perils in VC 77 in 2010. Peter Macpherson

The specimens on display were collected in 2010 and proved to be new records for Lanarkshire. During the year one Peril was encountered!

Spindle *Euonymus europaeus* from the wood at Auchenshuggle- in the shadow of the M74 extension. Distribution given as native up to central Scotland.

Goat's-rue *Galega officinalis* from a hollow at Bogleshole, Rutherglen. Distribution given as tips and waste places in south and central Britain. Two previous Scottish records.

Red Jasmine *Jasminum beesianum* from the wood at Auchenshuggle. Distribution given as not commonly grown, sometimes self-sown in southern England. No previous Scottish record.

Beauty-bush *Kolkwitzia amabilis* from a wood at Robroyston. Distribution given as occasionally produces seedlings or persists as an isolated bush. No previous Scottish record.

Columbine *Aquilegia vulgaris* 'Nora Barlow' from a lane side at Uddingston. Distribution not given. Possibly first "in the wild".

I am indebted to Douglas McKean who determined most of the above records. The only Peril was self inflicted! In order to obtain a specimen from part way down a very steep bank, I tied one end of a rope to a tree, put the other end round my waist and slowly lowered myself down (mobile phone in pocket).

Some plant records from Roxburgh (v.c. 80) and Selkirk (v.c. 79): 2010. Rod Corner

v.c. 79

- Floating Club-rush *Eleogiton fluitans*.. A second v.c. record by Jeff Waddell from near Selkirk.

v.c. 80.

- A Lady's-mantle *Alchemilla tyttantha*. Only known in the vice-county from a single site by the Ettrick since 1984.
- Sand Leek *Allium scorodoprasum*. Reinstated to the vice-county as a new native population from near Yetholm.
- Delicate Michaelmas-daisy *Aster concinnus*. A new v.c. record by M. E. Braithwaite. It is described in edition 3 of Stace.
- Purple Small-reed *Calamagrostis canescens*. A new site for this rare Scottish grass.
- Rough Horsetail *Equisetum hyemale*. From the only known extant site discovered by the late David Ellis in 1996.
- Spreading Mouse-ear-hawkweed *Pilosella flagellaris*. A new site for this almost exclusively railway plant within the v.c.
- Olive Willow *Salix elaeagnos*. This striking planted willow was first found by the late Margaret Little near Selkirk in 1996 and remains the only record.

Crop escapees to look out for: a sales catalogue. Rod Corner

A commercial catalogue lists a large number of plant species used for “Game Cover, Environmental Stewardship and Forage Seeds.” Some escape into the wild and may be confusing.

A Berwickshire BSBI Botanical Site Register. Michael Braithwaite

A conventional printed CRPR presents the data species-by-species. This may be unfriendly to conservationists and to the planning of repeat recording. My current project is a ‘second generation’ CRPR that presents data site-by-site within hectads. I soon found that data tables for rare and scarce species alone were not satisfying. So I have added data at decreasing levels of detail for ‘selected axiophytes’ and ‘other axiophytes’. Details of former rare and scarce species are also listed. Each site has a brief habitat note and a grading. A separate descriptive section gives an overview of each hectad with a map localising the sites. A digital version will allow species-by-species data to be obtained. A rolling programme of repeat recording is updating the data hectad by hectad. 60% of the VC has been repeat-recorded since 2004 when a CRPR was published.

By whom was the Berwickshire (VC 81) flora discovered and when? Michael Braithwaite

Charts were presented to show the date of the first localised record for the Berwickshire flora grouped into native species, archaeophytes, neophytes, casuals, hybrids and the rest (microspecies and infraspecific taxa). The date of the ‘first localised record’ for many widespread species is very much later than the ‘first record’ in the early floras. ‘Full’ native species are still being discovered: 26 since 1970. For example Lily of the Valley *Convallaria majalis* was first found in 2009. The publications of ‘CTW’ in 1952 and ‘Stace’ in 1991 alongside the two BSBI Atlas projects were seen as major stimuli to the discovery of neophytes and hybrids. A few specialists had made important contributions to the recording of hawkweeds *Hieracium*, brambles *Rubus*, and dandelions *Taraxacum*. Infraspecific taxa remain much under-worked. Over the 239 years from 1740 to 1978 an average of 5 taxa have been added per year, over the 32 years from 1979 to 2010 an average of 15 taxa have been added per year.

New interesting Lothian plants. Douglas McKean

Mainly various NEW escapes from the Lothians collected by D. McKean, Barbara Sumner, Jackie Muscott & Mary Clarkson were exhibited: Purple Small-reed x Narrow Small-reed *Calamagrostis x gracilescens* (a new vice-county record), Palm Sedge *Carex muskingumensis*, cult., Stearn's Cotoneaster *Cotoneaster stearnianus*, Connolly's Knotweed *Fallopia x bohémica*, Bloody Crane's-bill *Geranium sanguineum* var. *striatum*, Large Leaved Avens *Geum macrophyllum* & hybrid, Oceanspray *Holodiscus discolor*, *Paeonia mascula*, Cross Maltese *Silene chalcedonica* and Arrow Bamboo *Pseudosasa japonica*.

Corn Marigold *Glebionis (Chrysanthemum) segetum* Threatened Plant Project in Fife vc85. Sandy Edwards

Corn Marigold, *Glebionis (Chrysanthemum) segetum* is on the list for 2010. It used to be relatively common, especially along field edges but recently the only site where it regularly occurs is between Ladybank and Dunshelt (George Ballantyne) at field corners and along some edges.

Much driving around the highways and byways of Fife did not find any more. However, on one of my many trips from St. Andrews to Dundee I saw a few plants at the edge of a bit of "set aside" field area. This was a new site and was dutifully recorded.

A week later, the field of parsnips nearby had *G. segetum* not only all along the edges but throughout the whole field! An estimate was made of about 2,500 plants.

Two points of interest:

1. The adjacent field was in carrots the previous year and had been left uncultivated. There was a wonderful collection of arable weeds but no marigolds. They only occurred in this year's parsnip field.
2. My questions are: For how long do the seeds of *G. segetum* remain viable and what stimulated their germination?

A Fife mixed bag. G.H.Ballantyne, Joint Recorder, VC 85

The main exhibit, entitled "Two for the Price of One" comprised two unusual knotgrasses *Polygonum* found at Tentsmuir on the NE coast of Fife and suggested that the *P. oxyspermum*, ssp *oxyspermum* perhaps confirms the taxon as being native in Britain; and it noted that *P. polycnemiforme* (a segregate of *P. aviculare*) also occurs. Other species discovered in the same area, a rapidly developing saltmarsh,

included Frog Rush *Juncus ranarius* and Slender Spike-rush *Eleocharis uniglumis*, both rare in the county.

Two 'proper' grasses new to VC85 were also shown: Hungarian Brome *Bromus inermis* and the Common Couch subspecies *Elytrigia repens* ssp *arenosus*, along with two rare rushes Round-fruited Rush *Juncus compressus* and Slender Rush *J. tenuis*.

(Thanks are due to Bill Hay for collecting many of the plants mentioned.)

Finds in VC87, West Perth, in 2010 VCRs Jane Jones, Paul Stanley, Liz Lavery

Our display of photographs and pressed specimens illustrated some of the most unusual finds made in West Perth in 2010. Angel's trumpets *Datura ferox*, Low Valleyfield, identified by Angus Hannah; Shaggy-soldier *Galinsoga quadriradiata*, Auchterarder (VC88) by Bertie Robinson; Late Michaelmas-daisy *Aster x versicolor* (*A. laevis* x *Aster novi-belgii*), Loch Achray by Jane Jones, Marsh Stitchwort *Stellaria palustris*, found at several sites in Loch Lubnaig Marshes, BSBI Field Meeting; Purple Small Reed *Calamagrostis canescens*, by Liz Lavery at Inverlochlarig Car Park, identified by Alistair Godfrey; Purple Fumitory *Fumaria purpurea*, by Paul Stanley and Liz on a new roundabout, A823 at A9 Junction, a fantastic first for VC87, sadly mown 3 days later; Musk Thistle *Carduus nutans*, first record since 1930, Northern Knotgrass *Polygonum boreale*, and Cornflower *Centaurea cyanus*, nearby beside the A823. Paul Stanley displayed specimens of three vice-county new records - Tall Tutsan *Hypericum inodorum*, Marsh x Meadow Foxtail *Alopecurus x brachystylus* (*A. pratensis* x *A. geniculatus*), Giant Fescue x Tall Fescue *Festuca gigantea* x *F. arundinacea* (*F. x fleischeri*), and a remarkable first for Scotland, Perennial Centaury *Centaureum scilloides*, from the lawn at Shambellie House Museum, Dumfriesshire. Sarah Longrigg provided beautiful photographs of Bog Orchid *Hammarbya paludosa*, from Inverlochlarig and near Inverarnan, and 3 Bladderwort species *Utricularia*: *U. stygia*, *U. minor* and *U. vulgaris* agg from Loch Lubnaig Marshes.

Evaluating the usefulness of comparative estimates of nuclear DNA content for Orchid taxonomy. Leslie Tucker & Ben Zonneveld

The results presented arose from an ongoing collaboration between an amateur botanist (LT) with a keen eye for finding unusual hybrids, who selected and mailed appropriate plant samples from

Scotland, and a professional geneticist (BZ), who has expertise and laboratory facilities in the Netherlands for estimating the weight of whole chromosomal DNA content by flow cytometry.

This past summer more than 50 orchid plants were examined. Despite a few determinative difficulties and admittedly speculative rationalisations, some clear successes resulted.

C-values of Marsh Fragrant-orchid *Gymnadenia densiflora* (13.6 pg) and Heath Fragrant-orchid *G. borealis* (15.2) appear to be consistent at widely separated locations. At the largest site, where populations intermixed, even smaller flowers which appeared morphologically closer to *G. borealis*, nevertheless analysed as *G. densiflora* when they grew in the calcareous flushes and flowered later; only two plants among hundreds were found to have intermediate c-values (14.2, 14.5) indicating hybridity.

Investigating apparent hybrids between *Gymnadenia* and *Dactylorhiza* also revealed a few with appropriately intermediate c-values. Others, while appearing and smelling of *Gymnadenia*, analysed resolutely in the *Dactylorhiza* region – maybe repeated back-crosses to the usually odourless parents becomes undetectable by c-value, but not by nose.

Undoubtedly this technology shows considerable potential, but providing good plant samples has some pitfalls.

Alpine Woodsia *Woodsia alpina* in Angus – Back from the Brink? Dr Theo Loizou

Evidence suggested that the healthy colony of *W. alpina* in Corrie Fee, described by Lynne Farrell in the 1980's as comprising up to 13 clumps, was decreasing. In 2007, one "dead" plant had been noted by H. McHaffie and R. Marriott (at the south site) and in another location where *W. alpina* was known (the north site), no plants were detected. Having searched widely for this fern in 2008, I failed to find any plants. Ken Slater who had known the *Woodsia* colonies for many years reported that they were faring badly.

However, in 2009, I unexpectedly found one plant with two fronds (north site) and later in the same year H. McHaffie and R. Marriott discovered several more crowns at both north and south sites. Some of these were in exactly the same locations as seen in older photographs.

In this report evidence was presented which shows that this species has recovered in Corrie Fee. The fluctuations in numbers of

visible crowns / fronds of *W. alpina* in Corrie Fee may reflect just a response to changing weather patterns rather than a change in actual numbers of plants.

Brown New Zealand sedges. Alison Rutherford

The light brown/copper/bronze or reddish-brown New Zealand sedges are widely cultivated and are increasingly seen outside gardens. Their names are possibly confused by growers.

To make matters more difficult, many species can be green or bronzy-brown and selections have been made of different colour forms. *Carex comans*, for instance, has 12 cultivars listed in the current 'RHS Plant Finder'. I do not know whether the exhibited plants are true-to-name!

How useful are axiophytes? Angus Hannah

A list of axiophytes for vc100 was compiled using BSBI guidelines, but allowing flexibility to include 'good' species present in up to 50% of monads. (Still leaving out Heath Spotted Orchid *Dactylorhiza maculata*, Marsh Hawk's-beard *Crepis paludosa*, Round-leaved Sundew *Drosera rotundifolia*, Ragged-Robin *Lychnis flos-cuculi*. -..there's just too much good habitat!)

A set of 32k monad species-records for Bute was mapped, showing

1. total species-count per monad
2. axiophyte-count per monad
3. axiophytes as percentage of species in square

There was general similarity but subtle differences between the three maps.

1. picked out squares with varied habitats, regardless of quality
2. showed where habitat is both varied and good
3. focused on quality only, and avoided underrating less species-rich (e.g. acid bog) areas and fragmentary coastal squares.

Species lists from 430 small plots on Bute were also analysed. Almost half had one or no axiophytes, but 10% had between 8 and 11; these represented a wide range of good habitats, including fens, flushes, outcrops, saltmarsh and dunes. One exceptional sample had 20 axiophytes in a 4m square.

It was concluded that axiophytes can be useful in highlighting important botanical sites and adding some objectivity to our opinions.

Brown Sedge *Carex disticha* new to Mull. Rod Corner

A large healthy colony was found in July 2010 in N.W. Mull on the Glengorm Castle Estate.

On the edge in West Sutherland (vc.108). Pat and Ian Evans

Since West Sutherland occupies the 'top left hand corner' of mainland Britain, it is no surprise that a number of species appear to reach their geographical limits here. This year we have found Common Toadflax *Linaria vulgaris* and Reflexed Saltmarsh-grass *Puccinellia distans* ssp. *borealis* at their apparent western limits on the north coast, a new northern site for Brown Sedge *Carex disticha*, and the first record since 1970 for Pale Persicaria *Persicaria lapathifolia*. New sites 'on the edge', in other senses, include several for the coastal Slender Spike-rush *Eleocharis uniglumis* and an albino form of Trailing Azalea *Loiseleuria procumbens* right on the vc. boundary with East Sutherland.

***Calamagrostis scotica* or *stricta*? Clare Rickerby**

There is some confusion over the taxonomy of Scottish Small-reed *C. scotica* with DNA tests not conclusively separating it from Narrow Small-reed *C. stricta*. Ten characters were measured on the RBGE herbarium specimens of 111 *C. stricta* plants and 22 *C. scotica* plants to see whether there was any morphological (physical) difference between them. A principal component analysis (PCA) showed some clustering of *C. scotica* and *C. stricta* samples but did not separate the two species unequivocally. In fact owing to high levels of variation within *C. stricta* it is possible that *C. scotica* plants represent the extreme end of this variation in *C. stricta*.

Hieracium maps. David McCosh and Tim Rich

A BSBI book of hawkweed *Hieracium* maps is in production and information about it was exhibited.

Heather McHaffie

Leaflets with courses at the Royal Botanic Garden Edinburgh and at Kindrogan Field Centre were displayed, along with posters and specimens of ferns and information about the British Pteridological Society with a recently produced leaflet on where to see ferns.

Identification Help. Douglas McKean

A table was provided for the display of unidentified specimens and/or photographs. It was well used and many identifications were made.

BSBI, BSS, Plantlife, NTS and SNH

These organisations variously displayed publications, reports, posters and membership information etc.

Advertisement

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**DR BARBARA BALLINGER O.B.E., M.R.C.P.,
M.R.C.PSYCH. (1941-2010)**



Barbara Ballinger was born on 13 May 1941 in Middlesbrough and was always proud of her Yorkshire roots. She led a distinguished career as a psychiatrist and was thought of extremely highly by colleagues, students and patients. After her retirement she had more time to pursue her interest in botany and wildlife. Barbara and her husband Brian were appointed as joint BSBI vice county recorders for Easter Ross (vc106) in 2003 and they were later appointed by Butterfly Conservation as joint moth recorders for the same vice-county.

Barbara excelled at school and was greatly encouraged by a biology teacher to go on to higher education. She initially considered studying to be a vet, but was deemed unsuitable because she was too small, so she read medicine. Veterinary's loss was medicine's gain. At Sheffield University she was a prize-winning student as top of her year. After qualifying in medicine, she initially worked in general medicine and rapidly gained Membership of the Royal College of Physicians (MRCP), qualifying in 1965. She later went on to specialise in psychiatry and gained her MRCPsych.

While living in Sheffield she met Brian and they married in Sheffield in 1967. In 1969 they moved to Dundee when Brian, who was working in psychiatry, accepted a senior post. Their first son was born soon after and later that year Barbara returned to work part-time, joining Brian in the psychiatric service in Dundee. Barbara impressed people, passed exams, was good with patients and was promoted to Senior Lecturer. She later switched to a NHS consultant post and her

distinguished career saw her active in teaching, research, varied clinical work in psychiatry, management and advisory work with a number of organisations.

Barbara's main clinical interests were in general psychiatry and learning disability, but she also developed an interest in women's disorders, particularly post-natal depression, the menopause and psychosexual disorders and she published many papers on her wide-ranging research. Her management roles included membership of the Board of Management of the State Hospital at Carstairs and she also worked in the voluntary sector, both before and after retirement, including as chairman of Tayside Couple Counselling and chair of Helm Training Organisation. In recognition of all these achievements Barbara was awarded the O.B.E. in 2003 for services to women with mental illness.

Barbara always had a love of plants and took a lot of pleasure from the splendid plant collection in their garden in Dundee and her tropical orchid collection in the conservatory for the dark evenings. After retirement Barbara had more time to pursue her interests in botany. She enjoyed studying the wildlife in the woodlands that she and Brian had bought. Despite her lack of height, Barbara trained to use a chainsaw and became a skilled chainsaw operator, a valuable skill for woodlands management.

I first met Barbara and Brian in 1999 on a Field Studies Council Sedges and Rushes identification course at Kindrogan, taught by Clive Jermy. By then they had bought a flat in Fearn near Tain, and invited me to visit their lovely wood nearby. They have since helped me on numerous occasions with fieldwork for *Carex recta* and *C. salina*. I can vouch firsthand for Barbara's good humour, good cooking, common sense and an ability to get on with people, as well as her expertise in plant identification.

In the seven years since Barbara took on BSBI Recordship with Brian they tirelessly worked to systematically botanise Easter Ross. It is one of the biggest vice counties in Britain with much remote and mountainous country including 25 Munros (mountains over 3,000 foot) so they also became quite fit. They supported workshops for Scottish recorders run by the BSBI Scottish Office and enthusiastically undertook various projects in vice counties with few members, and were available to be called upon for help and to deal with logistical challenges. Their practical approach, negotiating with local landowners and factors for easier access to a site, even hiring a boat to take them along a loch to

enable them to reach a tetrad for Local Change records, good organisation and a good sense of humour enabled them to cheerfully get on with the task in hand.

They made some interesting botanical discoveries, rediscovering *Carex maritima* (Curved Sedge) at Tarbatness after an absence of 100 years. As well as collecting large numbers of new records annually via MapMate, other notable achievements included publishing the excellent *Easter Ross Rare Plant Register* in 2009 and an *Easter Ross Plant Checklist (VC106)* in 2010 – both of which are available on the Easter Ross webpage of the BSBI website. If that wasn't enough, they surveyed and completed four Vascular Plant Site Condition Monitoring Reports – for Kyle of Sutherland (2004 & 2010), Morrich More (2005) and Beaully Firth (2007). It was definitely a case of the sum of the parts was greater than the whole with Barbara and Brian!

Several years ago Brian gave Barbara a moth trap for a birthday present, an inspirational choice that fired her imagination and she soon became skilful in moth identification. She and Brian were appointed joint moth recorders for Easter Ross, a very under-recorded vice county with hectads with no or few records. They set about filling in some of the gaps, sometimes travelling some distance to reach an under-recorded area. Of particular luck, Ardgay Community Wood, not far from their base in Fearn, straddles four hectads and was a source of new records. They also set about increasing the number of moth recorders in Easter Ross, lending moth traps to potential recruits. Barbara's enthusiasm inspired others to develop an interest in moths and she successfully enlisted a number of new moth recorders in Easter Ross and beyond.

Barbara's family was always important to her and she and Brian led a happy family life, bringing up two sons, Geoff and Bill. More recently she derived a lot of pleasure in her role as grandmother, helping to look after her two grandchildren. Barbara was an excellent cook and hostess and enjoyed good food and the company of friends. She died in Dundee on 27 October 2010 after a short illness.

I would like to express my thanks to Brian Ballinger, Jim McIntosh and Sue Whyte for providing much of the material in this account.

Mary Dean

ELIZABETH CUTTER; RESEARCH BOTANIST WITH A WORLDWIDE REPUTATION



Elizabeth Cutter, who has died of cancer aged 81, had an international reputation for her extraordinarily precise, microsurgical approach to her studies of the structure and development of plants. She employed this approach to understand how various types of plant cells originate, are modified and function. For example, with Lewis Feldman she described how an aquatic plant formed root hairs, structures used by the plant to take up water.

Her research, published in journals such as *Nature* and *Science*, was a magnet for graduate students from around the world. Her reputation was further enhanced by the publication in 1969 and 1971 of a two-volume work, *Plant Anatomy; Experiment and Interpretation*, that was widely adopted as an undergraduate text in Britain and north America.

Elizabeth was the only daughter of Roy and Alix Cutter, who had met while travelling to Sudan, where Roy was a judge in the colonial civil service. Until her parents returned from Africa, Elizabeth lived with three maiden aunts in Edinburgh before going to Rothesay House School, where she became head girl. Subsequently, she obtained a first in botany from St Andrews University and a PhD in botany from Manchester University. After a period (1955-64) in the department of botany at Manchester, Elizabeth was headhunted by the University of California. Four years later she was promoted to a full professorship.

However, in order to care for her mother in Britain, she resigned in 1972 and moved to a senior lectureship in Manchester, where seven years later she was promoted to the George Harrison chair of botany – one of only six women among Manchester's 225 professors. Perhaps this was the reason that when Elizabeth arrived in her office as the new professor the cleaner greeted her with: "Good morning, sir."

On assuming the post, Elizabeth knew that a great deal of work needed to be done if the department was to regain its former reputation for research. Unfortunately, various factors made this task difficult, in particular, the drastic reduction in university funding that followed the election of the Conservative government in 1979. In 1986, after a long period of uncertainty, botany and 10 other departments in science and medicine merged to form Manchester's School of Biological Sciences (now the Faculty of Life Sciences), containing more than 125 academics. Elizabeth was able to guide the botanists through this difficult period. In the new school, she led a revision of the undergraduate curriculum, which eventually resulted in the foundation of 18 modular-based BSc degrees in biological sciences.

Elizabeth retired to Gattonside in the Scottish borders. There she pursued her lifelong hobbies of angling (often on the Isle of Skye) and photography, activities that require the kind of patience and attention to detail that she always displayed in her work.

Although she had no living relative, she had a devoted "family" of former students and colleagues who will remember her great kindness.

Elizabeth Graham Cutter, botanist, born 9 August 1929; died 23 October 2010

Anthony PJ Trinci (Manchester University)

(Printed with permission from Guardian Newspaper, appeared Tuesday 23 November 2010 guardian.co.uk, (18.34 GMT) and in the newspaper Wednesday 24 November 2010.

Additional information from Barbra Harvie

Elizabeth Cutter was a BSS Council member from 1994 to 2000 serving as Vice president from 1996 to 1998 then President from 1998-2000. In addition she examined the annual student dissertation prize from 1995-1998. Her presidential address, entitled Adventures of the Shoot Apex, was presented in October 1999 in the BSS lecture programmes at Edinburgh, Glasgow, Aberdeen, Dundee and St Andrews.

BOB SAVILLE PHD

With the death of Bob Saville the biological recording world has lost one of its key inspirers. As the leading light of the record centre for the Lothians over the last 25 years Bob was known to almost everyone who was interested in recording wildlife in Scotland regardless of their specialist interest. Even those who never met him had had various telephone and/or email discussions with him as he tracked down and investigated some aspect of wildlife data. His enthusiasm and determination on behalf of The Wildlife Information Centre (TWIC), and its predecessor, was a lesson to us all on how to understand what was happening in the very complex community of natural historians.

Bob was born on the 9th February 1952 in Wolverhampton and went to Wolverhampton Municipal Grammar School. He went on to read chemistry at Southampton University and obtained a Master of Philosophy degree from Wolverhampton Polytechnic in 1977.

After a short time working using his chemistry skills Bob wanted to try something different and, choosing at random, came up to Edinburgh and joined the Scottish Wildlife Trust (SWT) as a trainee biological recorder and developed his interests in many different groups of wildlife as he learnt about surveying and recording. He obtained a job with the SWT as a Team Supervisor and in this role he trained a great number of people in the skills and disciplines he had developed.

Eventually Bob secured the job to create and manage the first biological records centre for the Lothians, Wildlife Insite. This ground breaking initiative involved collecting together all known data about the wildlife of the area and adding to it through original surveys. Many of these were carried out by Bob's Team but others such as the Secret Garden project in 1995, involved substantial promotion and publicity to encourage the public to provide wildlife information. At his peak, photographs of Bob looking for bugs of some sort were frequent in the local papers.

With the decreasing funding for training through the SWT the records centre became an independent company the Lothian Wildlife Information Centre with Bob as the only member of staff. In this role he developed contracts with the local authorities and other bodies in the Lothians to supply biological data and services to help them fulfil their biodiversity duty. LWIC proved to be so effective and successful that it

currently covers the Scottish Borders as well as the Lothians and now operates as The Wildlife Information Centre (TWIC).

To make sense of the wildlife sites in the Lothians and of the relevance of the other data available to the records centre Bob immersed himself in botany. Even while Bob himself was originally undergoing training he learnt the fine details of the National Vegetation Classification (NVC), which is no mean feat as it requires a thorough knowledge of both the flowering and lower plants, including identifying species from their non-flowering parts. One of his first triumphs was a NVC survey of Holyrood Park, which went on to form the basis of the first Management Plan for this internationally important site. Bob's interest in the natural world included mosses and eventually lichens and he did a very detailed study of the lichens found on elder trees, looking for an explanation for the variation in the distribution of the species.

As Bob took on the job of running the record centre his personal interests moved to invertebrates and his special interest in one of the more obscure and least studied group the barkflies (previously known as booklice). These tiny creatures live almost everywhere but especially on the trunks and leaves of trees and bushes. More recently Bob turned his attention to the question of why were several species of barkfly living on the same tree trunk. On the hypothesis that they may be eating different food, such as algae or lichens, he set up, with help from staff from the Royal Botanic Gardens, miniature experiments of different samples of these foods presented to samples of barkflies. Meticulous measurements of what had, and had not, been eaten clarified what each species favoured but, as with all good research, this identified a lot more questions that needed to be answered.

However the record centre's priority was to find ways of identifying which habitats, species and sites were of the greatest importance and to do this he sought help from all of the VC botanical recorders and many other experts on higher and lower plants. Not only did these colleagues help him with verifying records held by the Centre but they also provided guidance on which habitats the various species were associated with. Using this information Bob drew up detailed statistical guidance for the Centre on the biodiversity richness of the different habitats and on the rarity of plant species. His techniques are still used by TWIC and the Local Authorities for both identifying Local Biodiversity Sites and for screening all planning applications for their potential biodiversity impact.

The associations between Bob and both local and national botanists continued throughout his working life. He consulted those in BSBI, BSS and RBGE who had local knowledge about a plant, a record or a place almost on a daily basis. He was also instrumental in computerising the data from the Botany of the Lothians and working with the BSBI to digitise the mass of data held by their recorders. Equally important, in his eyes, was the active participation of most of the leading botanists who faithfully over the years took part in the surveys of the important local sites that Bob organised every summer.

Fundamentally Bob was a great enthusiast and never stopped both enthusing others and investigating some new aspect of wildlife that caught his imagination. Certainly there are very few naturalists in the Lothians and elsewhere who do not know Bob either directly or by reputation. As the sole staff member of LWIC, and then TWIC, he managed to turn his hand to all aspects of this complicated job. In particular he loved looking at the data TWIC held and finding ways in which the analysis could be automated. Using the power of modern computers with their databases and Geographical Information Systems, he devised many procedures which are now being used in several of our sister LRCs.

Bob met his wife Val while working at the Scottish Wildlife Trust and they married in 2008. He has a son Paul. Bob passed away peacefully in hospital in Edinburgh on Thursday 9th September after a sudden deterioration in his longstanding condition and will be greatly missed by us all.

Dr Alastair Sommerville, Chair of The Wildlife Information Centre



2011 FESTIVAL OF SPRING ON THE ISLAND OF COLONSAY, 30TH APRIL – 20TH MAY

Plant enthusiasts will be interested in this first time event on the stunning Hebridean island of Colonsay; the starting point for the Festival is the promotion of the rare and varied bird and plant life on the island in Spring.

Wildflower Walks and Talks will be lead by Dr. Richard Gulliver, between 5th and 20th May 2011. Dr. Gulliver is an ecologist with a lifelong interest in plants, who has lived on Colonsay for six years, so is familiar with the varied habitats and the plants that they contain. He has led residential wildflower courses in Colonsay and Islay and particularly enjoys sharing his knowledge and enthusiasm. Together with his wife, he has produced three wildflower field guides for the Field Studies Council. Dr Gulliver has also written numerous scientific papers, one, currently in press, deals with the rare dune gentian, Colonsay being its only Scottish location. He is an Honorary Research Fellow at the University of Glasgow and recently received a Paddy Coker Memorial Trust Award to write up his woodland biogeographical studies.

Colours in the Hebridean landscape and wild flower identification will form the twin themes of the set of walks and talks led by Dr Gulliver. The colours and habitats will range from the china blue of the Atlantic loving spring squill, through the varied pinks of the thrift, the lemon yellow flowers of roseroot set in a saucer of succulent leaves, and the white of sea campion on the cliffs; to moorland areas with the blue of the first flowering of heath milkwort, the pink of the ground hugging common lousewort, the bright yellow blooms of tormentil and the subtle charm of the hare's tail cotton grass with its silvery-white heads.

Spring is an ideal time to become familiar with wild flowers, and beginners and naturalists of all types are welcome. The new growth of grasses and sedges form a bright green background carpet, and there is the thrill of finding the first example of a plant just coming into bloom. Spring has a further advantage if you are starting out on learning about wild flowers, in that a manageable number of plants will be encountered each day. To help with remembering plant names, a host of other information will be given. You will discover how plants such as bird's foot trefoil, milkwort and bugle came to have these names and how some plants were used in the past, such as for medicinal uses. You will also learn how to locate a natural source of tooth-picks, which plants were

once used for stuffing pillows, for trapping flies (not, perhaps, the one you might expect) and in a system of love divination.

Colonsay has an amazing range of views and landscape types for a relatively small island; indeed part of the charm is that when walking one quickly passes from dunes to cliffs; from loch or sea shore to woods; and from hill to in-by fields. The complete set of walks will form a comprehensive introduction to the fascination of the island.

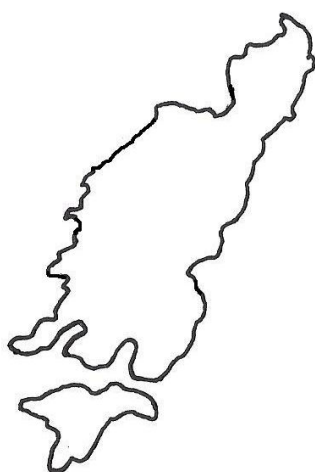
Bird Lovers will also be well catered for during the Festival, with Mike Peacock of the RSPB leading guided walks around the island; the star attraction will likely be the corncrake, but large colonies of breeding sea birds, many birds of prey including golden and white-tailed eagles, peregrines and hen harriers, plus many breeding waders and migrant birds, may be visible.

For further information about the WildFlower Walks and Talks, please contact Debbie Butler on 01337 810236 or e-mail: butlerjackson@googlemail.com

Further information about the Festival in general, including guided walks by the Resident RSPB representative, please contact Sarah Hobhouse on: 07850 230000 or e-mail: springfest@isleofcolonsay.co.uk

The island website www.colonsay.org.uk also has a downloadable pdf with full details of the festival, plus details about accommodation on the island.

Debbie Butler



Colonsay

KINDROGAN FIELD STUDY CENTRE COURSES 2011

Date	Course title	Tutors	Price
26 th – 30 th April	Sphagnum Moss	Martha Newton	£275
29 th – 1 st May	Big Tree Country (1) Introduction to Tree Identification.	Jerry Dicker	£160
30 th April – 7 th May	Mosses and Liverworts	Martha Newton	£475
1 st – 5 th May	Big Tree Country (2) Tree Identification for Improvers	Jerry Dicker	£205
13 th – 16 th May	NVC Woodlands	Ben Averis	£189
3 rd – 10 th June	Freshwater Algae	Dr Eileen Cox, Prof Elliot Shubert, Dr Laurence Carvalho	£475
17 th – 21 st June	Orchids of Scotland	Martin Robinson	£205
17 th – 24 th June	Identification of Highland	Bob Callow	£475
21 st – 25 th June	Discovering and Identifying Wild Flowers	Martin Robinson	£205
24 th June – 1 st July	Plant communities of the Scottish Highlands	Robert Callow	£475
24 th June – 1 st July	Aquatic Plants	Nick Stewart	£475
27 th – 30 th June	Mountain Flowers and How to use a Flower Key	Heather McHaffie	£189

Date	Course Title	Tutors	Price
4 th – 8 th July	Fern Identification	Heather McHaffie	£205
8 th – 15 th July	Grasses Identification	Judith Allinson	£475
11 th – 14 th July	Introduction to NVC	Ben Averis	£189
1 st – 6 th August	Identifying Sedges and Rushes	Fred Rumsey	£340
12 th – 15 th August	NVC Heathlands	Ben Averis	£189
9 th – 16 th Sept	Identifying Fungi	Liz Holden	£475

Prices at Kindrogan based on Sole Occupancy. Discounts are available for shared accommodation and Non Residents.

There are other courses on invertebrates, mammals, birds, walking, astronomy and art.

Further details from FSC Kindrogan Field Centre, Enochdhu, Blairgowrie, Perthshire, PH10 7PG Tel: 01250 870150 Email: enquiries.kd@field-studies-council.org Web Site: www.field-studies-council.org/kindrogan



Kindrogan House

DAY AND EVENING COURSES AT THE ROYAL BOTANIC GARDEN EDINBURGH

Recognising Plant Families, (ILA*) RBGE Staff. Wed: 27 April – 29 June 2011 7.00 – 9.00pm. £80

Moss Walks, David Chamberlain and Liz Kungu. Wed: 4 - 25 May 2011 6.30 – 8.30 pm £50

Fern Identification, Heather McHaffie, Sat: 18 June 10.00 am - 4.00pm £45

Scottish Enthobotany, Greg Kenicer, Sat: 18 10.00 am - 4.00pm £40

Wildflower Identification, Phil Lusby, Sat: 25 June 10.00 am - 4.00pm £45

Fossil Plants, Greg Kenicer, Sun: 26 June 10.00 am - 4.00pm £40

There is a wide range of courses throughout the year that also include horticulture, art and craft and herbal medicine. The full programme is at www.rbge.org.uk/education. Contact Education Department Tel: 0131 248 2937 or education@rbge.org.uk. (ILA*): these courses are eligible for support for people on lower incomes who have an Individual Learning Account info@ilascotland.org.uk

RBGE Certificate in Practical Field Botany (ILA*). Heather McHaffie

Eight modules: Plant identification, Preparation for field work, Information recording, Pressing and mounting, Habitat surveying, Applied Fieldwork 1, 2 & 3

Option 1. Fri. – Mon. 3 – 6 June & 17 - 20 June 2011 at RBGE and sites in the Lothians. £450

Option 2. Sat – Sat 16 -23 July 2011 Residential course at Kindrogan Field Centre. Including all course materials field trips, assessment and one week's accommodation. £530

See website www.rbge.org.uk/certpfb or contact Education Department as above.

BBS LECTURE PROGRAM MARCH TO JUNE 2011

Edinburgh lectures (unless indicated) will start at 5.30 pm in the lecture theatre at RBGE – tea will be available from 5 pm.

Date Thursday, 17/03/2011 - 17:30

Lecture: **GM crops and food security: saviour or grim reaper**

Prof Howard Davies, SCRI, London.

Date Thursday, 21/04/2011 - 17:30

Lecture: **Browsing and forest regeneration (title to be confirmed).**

Dr. Alison Hester, Macaulay Land Use Research Institute

Date: Thursday 19/05/2011 - 17:30

Lecture: **Part 1 Why birches are a confused and confusing group...**

Part 2 ...and its not only birches that are confused and confusing!

Dr Hugh McAllister, University of Liverpool and Ness Botanic Garden
and Mr Ted Brabin, Amateur Botanist

Date: Thursday 23/06/2011 - 17:30pm

Botanical Society of Scotland AGM

Followed by: **Lecture: Araucians, Archeosarians and coniferous pseudoskeletons**

Dr Chris Page, University of Exeter

Lecture by Dr Chris Page, University of Exeter

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St Andrews

New Medical Building, University of St Andrews, North Haugh,
St Andrews, Fife.

Date: Tuesday, 01/03/2011, 19:30

Lecture: **Global Biodiversity Management**

Dr Eimear Nic Lughadha, RBG Kew

Joint meeting with Friends of the Botanic Garden St Andrews

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Inverness

Room 244, Millburn Academy, Inverness

Date: Tuesday 15th February 2011, 7.30pm-9.00pm

Dr Chris Jeffrees will be speaking on his undergraduate field courses.

Joint meeting with the Inverness Botany Group

BSS NEWS – INFORMATION AND GUIDELINES FOR CONTRIBUTORS

The Newsletter of the Botanical Society of Scotland
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Aims of BSS

The chief aims of BSS News are to communicate with the membership, to keep members informed and to act as a vehicle for members' contributions on all things botanical. By these means members can keep in touch with each other. There is also a further aim of providing interest, entertainment and stimulation for BSS members. Sometimes this may involve contributions from non-members. All contributions are welcome.

Scope of the newsletter

The content of BSS News is as kaleidoscopic as possible around the botanical theme and we are keen for this variety to continue. For a list of ideas for contributions see the BSS website (www.botanical-society-scotland.org.uk) and the following list, but please don't feel constrained by it. New ideas are welcome. Regular contributions include the following list:

- Reports of field excursions (leaders please take note) picking out the botanical highlights.
- Descriptions and recommendations of other botanical sites in the UK or abroad. (It might help people to plan their holidays.)
- Articles of current or historical interest, including ethno- and archaeo-botany.
- Biographical profiles of botanists.
- Botanical poems.
- Botanical notes, news items, announcements of future events, reports of meetings attended, correspondence, small ads., etc.
- Book reviews.
- Crosswords and quizzes.
- Illustrations, including paintings, photographs and line drawings (the latter to be in black ink on white paper). Subjects could include plants, habitats, people, events, or even witty cartoons if they are your forte!

Guidelines for contributors

Don't worry if you cannot comply with all the following guidelines. Just send what you can and the Editors will make adjustments.

File name

Please include your own name and indicate article content in the file name. Also add your name, preferred title and affiliation etc. to the end of your article.

Text

The Newsletter is set up on a PC and saved as a document in MS Word 2007. Although it is printed on A5 pages it is set up on A4 pages using Arial font (size 15 for major text). Margins are set at 2 cm (sides), and 2.5 cm (top and bottom), with headers and footers at 1.5 cm. Text is justified and single-spaced.

Text figures

Illustrations for the text can be line drawings, maps or graphs in black ink on white paper. Black and white photographs can also be reproduced. There is no colour reproduction in the text. Hard copy or digital images can be accepted.

Cover pictures

The cover is the display area for colour pictures (paintings, photographic prints or digital images). Original artwork will be returned to the author after careful use. Please ensure (and indicate in your correspondence)

that you have appropriate copyright permission and permission from any people in photographs for publication in BSS news.

Submission

Please send your contributions to the Receiving Editor in any of the following forms:

- 1) E-mail attachment. This is the preferred option but, if you have more than one image, please send the images on a CD.
- 2) CD.
- 3) Hard copy (computer print-out and original artwork).
- 4) If you have no access to a computer, a typewritten or handwritten manuscript will be acceptable.

Send CDs and written text by email to:

jill.thompson99@gmail.com

or by post to:

Dr. Jill Thompson
C/O Botanical Society of Scotland Newsletter
Royal Botanic Gardens Edinburgh
20A Inverleith Row
Edinburgh
EH3 SLR

Please phone 01312582358 to let me know you have mailed something.

**The LAST deadline for the next issue will be 15st July 2011.
Earlier submission would be appreciated.**

Back cover pictures

Outside:

Four images by Anne Barker, illustrating her article on Ethnomedica in Orkney. In landscape view:

Top left: Dounby sunset

Top right: Eyebright

Bottom left: Lichen on rocks

Bottom right: Heather at the Ring of Brodgar

Inside:

Top: Barbara Ballinger (second from left) with other Scottish BSBI recorders at Glenmore Lodge in August 2008

Bottom: Treborth Botanic Garden of the University of Bangor (N Wales), taken in September 2010 by Hugo Fletcher, who writes: "The garden is very hidden and it took three days and several enquiries to locate it, on the mainland side of the Menai Strait, c800m south west of the Menai Bridge."

CROSSWORD SOLUTION

