

BUSH TELEGRAPH

The House Magazine of the Edinburgh Centre for Rural Research

Web Watch ...

ECRR

Links to ECRR members' web sites can be found at www.ecrr.org.uk

Sites of Special Scientific Interest

Links to some of the world's best science and technology web sites at: www.worldbestwebsites.com/science.htm

Caring for our Natural Heritage

An excellent Scottish web site with some striking photography: www.snh.org.uk

SHEFC

The main funding body for higher education in Scotland: www.shefc.ac.uk

A Window on UK Science

UK science as it is presented to the world by the British Council: www.britishcouncil.org/science/index.htm

Science News

www.newscientist.com
www.nature.com
www.sciencemag.org

Inside ...

A New Leader

Professor Mary Bownes takes over as chairman of the ECRR Main Board in place of Assistant Principal DES Truman who retired in September 2002.

> **Page 6**

Kyoto and grassland fertilising

Research at Edinburgh University provides key guidance on how farming practice can have an impact on greenhouse gas emissions.

> **Page 8**

Northern timber

Forest Research's Northern Research Station is establishing links as far afield as Siberia and China.

> **Page 10**

... and Southern timber also

The Edinburgh Centre for Tropical Forests has a unique, and very active, role in promoting Scotland's expertise in tropical forestry.

> **Page 13**

And more ...

Warming up

Do increased sightings of warm-water species along the West Coast of Scotland, by scientists at the University Marine Biological Station, Millport, provide further evidence of global warming?

> **Page 15.**

Relocation

The plans for the move of the Scottish Agricultural Science Agency's headquarters to Gogar are taking shape.

> **Page 17**

Coming Events

ECRR Annual Lecture

Professor John Lawton, CEO of NERC, will speak on 14 February 2003 on the topic "*Life on a little known planet and unsustainable development*".

Scotland's Landscape

A one-day Forum will be held on 8 May 2003 under the title "*Scotland's Landscape - A Fixed Asset?*".

For more information about these events please go to the ECRR web site

CONTENTS

	Page
Editorial	3
Rota of solicited contributions	4
ECRR events	5
Scientific Director's notes	6
 December Contributors:	
School of Earth, Environmental & Geographical Sciences <i>Assessing nitrous oxide emissions from soils, and how to reduce them</i>	8
Forest Research - Northern Research Station <i>Compressed Wood, tree doctors, the chinese and rare moths- intrigued then read on.</i>	10
Edinburgh Centre for Tropical Forests <i>Are there really tropical forests in Edinburgh?</i>	13
University Marine Biological Station, Millport, Isle of Cumbrae <i>Rare summer visitors to the Clyde Sea-area</i>	15
Scottish Agricultural Science Agency <i>Relocating from East Craigs</i>	17

Editorial

The ECRR AGM was held in early November at which Professor Mary Bownes took up the post of Chairman of the ECRR Board. Our thanks are due to the out-going Chair, DES Truman and we wish Mary well in her new role. (for more see Scientific Editor's Report below).

The AGM was surprisingly well attended as the initials AGM are usually the world's most negative advertising phase! It demonstrates the participant's commitment to maintaining the network role that ECRR is playing.

One of the items touched on at the AGM was that the name Edinburgh Centre for Rural Research or ECRR did not really do justice to either explaining what type of organisations belonged or the wide range or activities in which they were involved. The representatives of ECRR members sitting round the table were confident they knew what their sister organisations did but less certain that outsiders, including influential scientists and policy makers really understood. In consequence the ECRR Board will in due course examine whether the title 'ECRR' should evolve into something more transparent.

One other aspect of the meeting was the new relationships that are still developing between old University of Edinburgh departments having been 'cut and pasted' together within the newly formed Schools. Some of the new relationships will offer very interesting opportunities as well as challenges.

Remember you can catch up with the electronic version of the Bush Telegraph at www.ecrr.org.uk

Here's to a successful 2003.

Mike Steele
Editor

Correspondents please note.

**Deadline for copy for the next issue is
February 24nd 2003.**

**All contributions, comments and
suggestions can now be e-mailed to
M.Steele@ed.sac.ac.uk with copies to
m.talbot@bioess.ac.uk please.**

ROTA OF SOLICITED CONTRIBUTIONS TO BUSH TELEGRAPH

MARCH

British Geological Survey
Biomathematics & Statistics Scotland
Heriot-Watt University, Department of Biological Sciences
Royal Society for the Protection of Birds
SAC Research & Development
University of Edinburgh, School of Engineering & Electronics
University of Edinburgh, School of Biological Sciences

JUNE

Centre for Ecology & Hydrology Edinburgh
MRC Human Reproductive Sciences Unit
University of Edinburgh Royal (Dick) School of Veterinary Studies
Napier University, School of Life Sciences
Royal Zoological Society of Scotland
SAC Vice-Principal's Office
University of Edinburgh, School of Earth, Environmental & Geographical Sciences

SEPTEMBER

Edinburgh Centre for Tropical Forests
Lasswade Veterinary Laboratory
National Museums of Scotland
Roslin Institute
Royal Botanic Garden Edinburgh
Scottish Natural Heritage
University Marine Biological Station, Millport
University of Edinburgh, Centre for the Study of Environmental Change
& Sustainability

DECEMBER

Forest Research Northern Research Station
Moredun Research Institute
Scottish Agricultural Science Agency
Scottish Centre for Animal Welfare Sciences
Scottish Crop Research Institute
University of Edinburgh, Centre for Tropical Veterinary Medicine
University of Stirling, Institute of Aquaculture

ECRR EVENTS 2002/03

Feb 3	Directors' Lunch	Royal Zoological Society of Scotland Corstorphine Road, Edinburgh Host : David Windmill
Feb 14	Annual Lecture	Prof John H. Lawton, CEO, NERC <i>"Life on a little-known planet and unsustainable development"</i> Royal Society of Edinburgh, George St (17.00)
Mar 3	Director's Lunch	SAC, Bush Estate (12.30pm) Host : Prof John Oldham
	Main Board Meeting	SAC, Bush Estate. (14.00)
May 8	Forum	"Scotland's Landscape - a Fixed asset?" One-day meeting, SNH Battleby Centre, near Perth.

SCIENTIFIC DIRECTOR'S NOTES: *Professor Ian Aitken*

The Fairer Sex

A late announcement in the last issue of the *Bush Telegraph* noted the appointment of Professor Mary Bownes as the University of Edinburgh's representative on the ECRR Board, following the retirement of Assistant Principal Dr. D. E. S. Truman. At the Board's Annual General Meeting on 4th November Dr. Truman formally demitted office as Chairman and the role transferred to Professor Bownes. She thus becomes the first woman to chair the Board and does so almost synchronously with publication of a Government-commissioned report on women in science, engineering and technology.*

'SET Fair' records the findings and recommendations of an advisory panel chaired by Baroness Greenfield, Director of the Royal Institution and Professor of Synaptic Pharmacology at Oxford University. The Report draws attention (and not for the first time) to the several obstacles with which women have to contend in professional career advancement. Understandably, career breaks for family reasons can interrupt progression but subtle institutional sexism and patronising attitudes (gender stereotyping) are real factors in discouraging women from returning to science and taking their careers further. Though women have accounted for rather more than 50% of bioscience graduates for some three decades fewer than 1 in 10 university science professors are women, nor are they by any means proportionately represented among senior researchers and managers in either public or private sector science. The sparsity of women in senior positions is both a deterrent to 'returners' and a wastage of investment in training and skills that weakens the UK's global competitiveness in science, engineering and technology.

Among its recommendations the Report advocates enhancement of 'returner'

programmes to enable women who have had a career break to update their knowledge and skills, more opportunities for part-time working and job sharing, and a female-weighted (75%) panel to advise the UK's Science Minister on equality issues. Government has undertaken to respond to the Report and its recommendations early in 2003.

In passing, it may be noted that, including Professor Bownes, only 3 of ECRR's 30 Board members are women, reflecting the statistic given in the Report!

*www2.set4women.gov.uk/set4women/research/the_greenfield_rev.htm

Gardeners Beware

A former Director of ECRR was wont to remind his colleagues that gardening is the UK's most popular form of science in action, though not all exponents would so recognise it. Gardening also featured in the annual address of the President of the Royal Society delivered recently by Lord May of Oxford. In the context of GM crops, their underlying technology and associated public concerns on safety issues he contended that plants exotic to the UK, now readily available in garden centres, included species capable of causing considerable ecological damage if they spread into the wild. Some, such as the Australian swamp stonecrop, already choked ponds. Ongoing interest in GM technology is assured however, given the impending review of the underpinning science to be chaired by Professor David King, the UK Government's Chief Scientific Adviser. Any such review is certain to be controversial and this one has already been criticised because its findings will be produced before the outcome of field trials of GM crops becomes available. The debate is set to continue.

Business & Environment Network

For next May's one-day Forum on Scotland's Landscape (8th May at Battleby, near Perth) one of the co-sponsors is the Business & Environment Network (BEN), a voluntary body set up in 1993 in response to a CBI initiative to promote awareness of environmental issues in business decision making. Centred in the Edinburgh Chamber of Commerce BEN is a registered company supported by membership subscriptions that seeks to promote best practice through seminars, information exchange, networking and promotion of joint initiatives with other bodies having environmental interests. The

latter objective, in particular, has provided the basis for the liaison that ECRR has formed with BEN, although individual member organisations already have links and it is expected that others will follow.

For more information about BEN contact Caryl Paterson or Louise Morrison at BEN, 27 Melville Street, Edinburgh EH3 7JF. (Tel: 0131-477-7000 Fax: 0131-477-8051/7002). E-mail: mail@business-environment-network.org.uk

Assessing nitrous oxide emissions from soils, and how to reduce them

Keith Smith & Karen Dobbie,
School of Earth, Environmental & Geographical Sciences, Univ. of Edinburgh

Nitrous oxide, N_2O , is one of the "Kyoto" greenhouse gases. Its main anthropogenic sources are agricultural soils receiving nitrogen in the form of fertilisers or manures.

Research* carried out by the University of Edinburgh has demonstrated that the Intergovernmental Panel on Climate Change (IPCC) standard, or "default", method for estimating N_2O emissions, simply multiplying the amount of N applied to land by an emission factor (EF), irrespective of the form of N applied, or the nature of the crop receiving the N, does not work well under British conditions.

The project showed that there are clear differences in EFs between grass grown for silage and arable crops (analogous to known differences between grazed and ungrazed grassland), and that there are also large weather and soil-associated differences in EFs between sites under similar management and between seasons at the same site, as shown in Figure 1 for fertilised grassland.

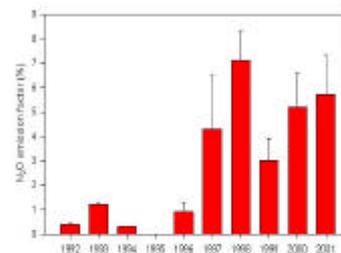


Fig. 1. Annual N_2O emissions from a grassland site at Glenroose Mains, Bush Estate, fertilised and cut for silage 3 times per season. The "Emission factor" is the percentage of the N fertiliser applied over the year that is emitted as N_2O . The inter-annual variation is mainly caused by increased summer rainfall in the later years.

Multiplication of the quantities of N applied to the different land uses by the mean EFs obtained in this project gives an estimated UK emission that is quite similar to that calculated by the IPCC method (with over 80% of UK soil emissions coming from grassland). However, the agreement with IPCC is fortuitous, arising from the current ratios of the land areas devoted to grazed grass, cut grass and arable crops. A change in these ratios, e.g. a reduction in the area of intensively managed grass and an increase in the area devoted to cereal crops, would alter the overall emission, even if the total amount of N used remained unchanged. This has possible implications for emission factors used in the Greenhouse Gas inventories.

Soil wetness (and associated reduction in aeration) is the main variable controlling N_2O emission. As soil water tables under grassland fall to greater depths, emissions decrease, suggesting that improved land

drainage -- or at least the restoration of drains that are now partially defunct -- should reduce emissions. The project has also shown that adding chemical inhibitors of nitrification to urea or ammonium-containing N fertilisers reduces emissions substantially, by retarding the microbial oxidation of ammonium to nitrate, in which form it can be reduced to N₂O (see Figure 2).

*DEFRA Project CC0233. Contact:

Professor Keith Smith, SEEGS, University of Edinburgh, Darwin Bldg, Mayfield Rd, Edinburgh EH9 3JU. Email: keith.smith@ed.ac.uk

(An article from the DEFRA Newsletter)

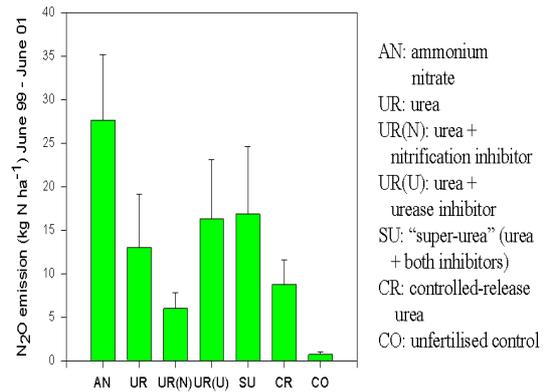


Fig. 2 Effect of N fertiliser form on N₂O flux from silage grassland, measured at Glencorse Mains, Bush estate, 1999-2001.

FOREST RESEARCH - NORTHERN RESEARCH STATION

Mr Martin Abrahams, Head of Administration (North)
Tel: 0131 445 6918
E-mail: martin.abrahams@forestry.gsi.gov.uk

Northern Research Station

Tel: 0131 445 2176
E-mail: nrs@forestry.gsi.gov.uk

RESEARCH NEWS

Forest Research Quinquennial Review

We reported last year that, in common with other government agencies, Forest Research was to be subject to a five year review. Progress on the FR Quinquennial Review was delayed due to the announcement by the government in the autumn of 2001 of a Forestry Devolution Review (FDR). The terms of reference were:

“To review the current administrative arrangements for delivering sustainable forestry policies in England, Scotland and Wales and the UK’s international commitments, including options for further devolution of these arrangements.”

Stage 1 of the FR Quinquennial Review was completed in early 2002 and recommended maintaining the existing agency status. This recommendation was endorsed by the FDR in August 2002. However, it was agreed that research priorities needed to reflect better the interests of the devolved administrations.

Stage 2 of the FR Quinquennial Review is now with Ministers for their approval and is expected to be published before the end of this year.

SCIENCE AND BUSINESS NEWS

Compression Wood project

Forest Research is co-ordinating the EU ‘Compression Wood’ research project, which aims to increase knowledge of the mechanics of compression wood formation, to enable raw material properties to be linked to the end product performance of construction timber. The three-year project is already one third complete, with partners having finished initial fieldwork and started industrial and laboratory evaluation of timber samples. Barry Gardiner, Elspeth Macdonald and Shaun Mochan attended the recent project review meeting in Sweden and an interim report will be submitted to the EU at the end of July. For more information about the project, take a look at the website

<http://www.forestry.gov.uk/compressionwood>

Tree Doctor CD-ROM

An interactive CD-ROM, Tree Doctor, was published in November 2001 by FR in conjunction with French, Dutch and Italian partners, under the EU’s Leonardo da Vinci programme. It deals with 460 pests and diseases affecting 49 of the most widespread tree genera in the UK and other European countries. The multilingual CD-ROM is being marketed as a tool for anyone who cares for trees. FR will have a share in the profits from the world-wide sales.

To find out more or place an order for the Tree Doctor CD-ROM, please contact David Rose
or e-mail tree.doctor@forestry.gsi.gov.uk.

PEOPLE

In May 2002 our Chief Executive, Jim Dewar, took voluntary early retirement. Recruitment of a successor is presently underway. In the meantime Dr Peter Freer-Smith, Forest Research's Chief Research Officer has taken over the CE role. Peter is based in our southern station at Alice Holt Lodge in Farnham. Bill Mason, (Head of Silviculture (North)) has taken on the role of Head of Station at our Northern Research Station.

Jim Pratt retired at the end of April after 42 year 'man and boy' with the Forestry Commission. During his long and successful career as a forest pathologist, Jim has worked at various locations, including Alice Holt and, for the past 20 years, Northern Research Station. He is particularly known for his work in reducing chemical usage in forests and his work on the control of Fomes rot and butt rot is internationally respected. This year he was awarded an MBE in recognition of his services to forestry and in particular his work at gaining PSD approval for PG suspension, urea and borate for stump treatment. We shall undoubtedly miss Jim's energy, expertise and above all his humour.

Juan Suárez has recently been elected to the Council of the Association of Geographic Information Laboratories of Europe (AGILE). The association is now 5 years old and has 64 members from 21 countries. AGILE aims to influence EU policies on Geographic Information Science and industry applications.

Around 40 tree-breeders from across the Nordic countries and Baltic States met near Edinburgh recently to discuss 'Clonal Forestry? Who are you kidding!' As technology advances quickly in the areas of cryopreservation and somatic embryogenesis, clonal forestry is becoming a possibility over the next 5 to 10 years in

countries with more applied tree breeding programs such as Sweden, Finland and Britain. As well as scientific presentations, there were others reminding us of the environmental and societal aspects which will have to be addressed if clonal forestry is ever to get out of the laboratory. The presentations will be published on the FC website in due course.

The ForestSAT Symposium in Edinburgh, 5-9 August on the use of remote sensing in forestry, attracted 160 participants from more than 30 countries. It was a rare opportunity for scientists, forest managers, forest practitioners and developers to review the latest developments in remote sensing applications in operational forestry. The symposium concluded that there are very good applications, already implemented in other countries, which could be used in the UK. The next symposium will be in Sweden in 2005.

Chinese Accord

Following a recent 4 day tour by a Chinese forestry delegation, which included a tour and presentations at NRS, the Forestry Commission has signed a Memorandum of Understanding with The State Forestry Administration of China. The MOU is a statement of intent to develop co-operative relationships between FC and China, it opens pathways of communication for future research collaborations.

Social Forestry Research

In January, Dr Suzanne Martin joined the group of social forestry researchers in FR. Her background in tourism and recreation complements the other disciplines within the group. In June, Max Hislop (Social Forestry project leader) joined members of a five-person team (mostly FC) who assisted a British Council / DFID funded project 'Lake Baikal Eco-Plan' in Southeast Siberia. Lake Baikal is the largest body of freshwater on earth and it is estimated to contain about 20% of all the freshwater on the planet. It is a unique ecosystem with many species found

nowhere else on earth (including a freshwater seal). Listvyanka is a small village on the shores of the lake and is increasingly suffering environmental damage due to the increasing numbers of visitors going to the lake for recreational purposes. The project aims to exchange ideas about environmental education, recreational design and community planning. Max's role is to lead the community-planning element of the project, working with the villagers. He is using a community planning tool called 'Planning for Real' which was developed by The Neighbourhood Initiatives Foundation, based in Telford. This technique primarily uses a 3D model of the planning area and the community use 'options' cards to express their concerns or ideas about their local environment. It is largely a non-verbal tool - which is just as well as Max's Russian is limited.

A rare moth in the north

Staff from FR's Newton office working in Sutherland have recently recorded a rare moth found only in a few montane districts in Europe, and only in east Inverness-shire in the UK. Duncan Williams (Lairg Fieldstation) found the larval form of *Swammerdamia passerella*, which is restricted to dwarf birch, *Betula nana*, as a larval host plant, during fieldwork on peatland experiments. A brief survey subsequent to this initial discovery revealed the moth to be abundant in several locations, all with *Betula nana* nearby, in Dornoch Forest District. This small moth was formerly known only from a few sites centred on Glen Affric, at altitudes of 300-600m.

As yet *Swammerdamia passerella* has never been recorded in the wild in the UK as an adult. All records are of larvae feeding in their characteristic webs on the host plant. Further surveys in 2003 at these recently discovered sites could potentially result in field observation of adults on the wing for the first time in Britain.



Are there tropical forests in Edinburgh?

Anyone who is aware of the world's biomes knows that there are no tropical forests in Edinburgh. However, each time someone enquires where I am working now I tend to be asked the above question. Despite the usual sniggers I am generally able to satiate my conversationist by explaining that, "The Edinburgh Centre for Tropical Forests (ECTF) is an association of five institutions who have drawn together to promote Edinburgh as a centre of excellence on tropical forestry."

Why? The reason for creating the association was to harness the complementary skills, relating to forestry, of the partners involved. These skills include land use; taxonomy; policy; capacity building; project developmentand the list goes on!

The partners involved are Forestry Commission; Centre for Ecology and Hydrology; LTS International; Royal Botanic Garden Edinburgh and University of Edinburgh.

Most people are aware that the buzzwords in the sustainability field are 'partnership working' and 'integration'. ECTF could be viewed as a successful example of a partnership. More than 10% of all projects conducted over the last five years by the members have been under an ECTF banner. ECTF are approaching their fourteenth year in existence.

In June this year ECTF organised a one-day workshop in conjunction with the International Institute for Environment and Development (IIED). The workshop was concerned with 'Forestry and Poverty Reduction' and how development, research and training agencies could help.

The barriers to poverty alleviation marred ideas that the forest was an important store for long-term investment and a resource during times of crisis. Among the barriers discussed were institutional ones; clarification of tenure/access; and forests as a national security problem. The forest's treasures are unfortunately not always accessible to the people who need them most.

More recently ECTF assisted in the organisation and gave financial support to a conference on the World Summit on Sustainable Development (WSSD) and Forestry. The conference was mainly organised by the Commonwealth Forestry Association (CFA) (UK) and the Institute for Chartered Foresters (ICF). The day comprised of ten talks that were an interesting mix of industry; policy; socio-economic and environmental issues.

Although forestry had not been a central issue at the WSSD the EU had organised a side event, 'Forest law enforcement, governance and trade.' Focus was upon illegal logging and the support against this activity prompted Michael Meacher to comment that it was one of the most important achievements of the Johannesburg World Summit.

The **Forestry Commission (FC)** continue to play an active role on the international scene. An example of this work was the Memorandum of Understanding on Forestry that they signed in August with The State Forest Administration of China at the Royal Botanic Garden of Edinburgh.

FC's extensive work with various fora includes the active role that they take in the UK Tropical Forest Forum (TFF). TFF brings together individuals and representatives of Government, NGOs, business, research and

the academic community to discuss mainly tropical forest issues.

The **Royal Botanic Garden in Edinburgh (RBGE)** are continuing and extending their conifer research through collaboration and partnership with other scientists in Edinburgh. The integration of ex-situ and in-situ conservation is one of the fundamental aims of the international Conifer Conservation Programme (ICCP). A recent award from the Darwin Initiative helps to support this programme.

The above project is based in Vietnam. The project's purpose is the 'Preservation, rehabilitation and utilisation of Vietnamese montane forests'. Collaboration between RBGE; the **Centre for Ecology and Hydrology (CEH)**, Edinburgh and the Central Forest Seed Company of Vietnam has made this work possible.

CEH's work continues in a diversity of areas. These areas include studies of the distribution of genetic diversity in tropical forests; optimisation of tropical land use systems, here trees and crops are grown in mixtures; measuring greenhouse gas emissions from tropical soils; and developing models to improve understanding of forests, agroforest and rangeland systems.

The University of Edinburgh has research and development projects in the tropical zones of Asia, Latin America and Africa. In Brazil the University is currently estimating the fluxes of carbon and water from the Amazon, essential knowledge required to understand the contribution of these forests to global change.

Local researchers in Brazil, Guyana, Ecuador and Bolivia are adapting SYMFOR, a forest management tool developed by the University to support sustainable management of the forests in these countries. This work follows extensive research in Indonesia where SYMFOR was first implemented to support sustainable production of timber. The work in Indonesia has now moved to consider the

wider range of goods and services supporting the livelihoods of local communities.

The University has recently started to assist the Government of Ghana to utilise information from their recent multiple resource inventory to revise forest policy and management plans for the state forest reserves.

In the commercial sector **LTS International** has continued to provide consultancy support to the forest sector, particularly guiding policy and institutional reforms in developing countries. LTS' work to support change in the forestry institutions in Uganda has been looking closely at how forestry fits into wider themes of poverty reduction by linking into agriculture and environmental agendas.

This project highlights the importance of setting up the right profile for winning support from central government. The whole concept of conservation not just being there for conservation's sake is integral to the ethos of sustainable development.

There may not be tropical forests in Edinburgh but they are not far away nor forgotten ecosystems. ECTF exists to promote the expertise available in Edinburgh to effectively work in partnership with overseas bodies where there are mutual concerns and needs to be met related to the tropical forest.



Contact: The Co-ordinator
Edinburgh Centre for Tropical Forests
Pentlands Science Park
Bush Loan
Penicuik
Edinburgh, EH26 0HP
Tel: 0131 440 0400
Email: mail@ectf-ed.org.uk
Web: www.ectf.co.uk

Rare summer visitors to the Clyde Sea-area

Philip Smith

University Marine Biological Station, Millport, Isle of Cumbrae, KA28 0EG

During the summer of 2002, there were several unusual occurrences of ‘warm-water’ species in the Clyde Sea-area (the sea between the Kintyre peninsula and the mainland of Scotland to the east). In early June, By-the-Wind Sailors, *Verella verella* (L.) were washed up in very large numbers along the shores of the Galloway peninsula and the outer Solway Firth. A week later, smaller numbers of *Verella* were stranded on the shores of Cumbrae and Bute also. This invasion of strange, vivid blue “jellyfish” caused some consternation among local water users and raised interest in the national media. *Verella* is a colonial hydroid which floats on the sea surface suspended from a flattened, transparent, chitinous float, which when viewed from above has the shape of a rounded parallelogram. The stranded specimens ranged in size from less than 1 cm to approximately 4 cm in length. The float bears a triangular fin (the “sail”) set across one or other diagonal, which affects the angle of drift with respect to the wind direction. All of those examined were of the “left-sailing” form, as is typical for strandings on the British Isles.

Verella is common in the warmer regions of the Atlantic and in the Mediterranean and is occasionally carried north towards the British Isles. In recent years, *Verella* has occurred quite frequently on the southwest coasts of England. However, the event in June 2002 was on a much larger scale. Reports on the internet indicated that there had been a massive influx from the southwest approaches into the Irish Sea, with large strandings recorded in southwest England, south and northwest Wales, the Isle of Man and southwest Scotland. There were strandings on the south and west coasts of Ireland too and the most northerly report was from the Outer Hebrides.

Edwards listed previous strandings of *Verella* on the western shores of Scotland, including the first record in the Firth of Clyde, near Turnberry in September 1957. The winds on that occasion were predominantly from the west and northwest, so *Verella* were not carried further north into the Firth and were not found on Cumbrae. The strandings on Bute and Cumbrae in 2002 therefore appear to be the first reported occurrence on these islands.

On 9 July 2002, an Ocean sunfish, *Mola mola*, was caught by a trawler off Troon. The sunfish was a comparatively small specimen, being 70 cm long and weighing 20 kg. This species can reach 4 m in length and 1500 kg in weight. The fish appeared to have died recently from two deep, diagonal wounds to the back, which cut through the dorsal musculature to the body cavity. Since Ocean sunfish are typically seen near the sea surface, it seems likely that these were propeller wounds. The Marine Station also received a report of a live sunfish sighted near the water surface off Inchmarnock (just west of the Isle of Bute) on 4 August 2002.

Sunfish are creatures of the open ocean, with a worldwide distribution in warm and temperate waters. They feed on planktonic organisms, especially gelatinous forms, such as jellyfish, salps and comb-jellies. Coincidentally, *Verella verella* is one their prey species. Wheeler assesses the status of *Mola mola* in European waters as relatively widespread, but uncommon. Its occurrence in the Clyde Sea-area is “very rare”, with previous records from 1881 and 1909, although fishermen apparently see them somewhat more often than these published sightings would suggest.

The latest oddity has been a long-fin tunny, or albacore (*Thunnus alalunga*) washed up dead in Kames Bay, Millport on 20 September. This fish was approximately 1 m long. A few days previously, an angler fishing from Farland Point claimed to have hooked a tuna-like fish, but was unable to land it. Long-fin tunnies have a worldwide distribution in tropical and warm-temperate waters. In the eastern Atlantic they make a summer feeding migration north from waters around the Iberian peninsula, through the Bay of Biscay, normally reaching the latitude of Cornwall . Long-fin tunnies are rarely found in coastal waters and Wheeler regards those in British waters as 'accidental vagrants'. Other tunny species have been recorded in the Clyde Sea-area , but this appears to be the first record of *T. alalunga*. In the same week, a thresher shark (*Alopias vulpinus*) was seen by a yachtsman in Loch Fyne .

What could have caused this incursion of warm-water species? Writing about an influx of warm-temperate surface-dwelling species to the south of England in 1954, Wilson & Wilson (1956) wrote: "The summer of 1954 will long be remembered for lack of sunshine, excess rain and frequent high winds". The same could be said of the early summer of 2002. Persistent southerly and westerly winds appear to have pushed surface-dwelling organisms, such as *Verella* and perhaps also sunfish, further north and further into coastal waters than normal. The sea was not unusually warm during the early summer, however. Mean monthly sea surface temperatures at Millport during May, June and July were close to the corresponding long-term averages. The late summer was somewhat warmer than average, with mean monthly temperature anomalies in August and September of +1.0°C and +1.7°C, respectively. In addition, the preceding winter and spring sea temperatures at Millport were the highest on record, following a warming trend in those seasons since the early 1990s. This may have allowed the geographical range of warm-temperate fishes to extend northwards. This certainly seems to have been the case with warm-water copepod species in the Northeast Atlantic. Given that the

temperature of coastal waters around the British Isles is forecast to increase further over the coming decades, it seems likely that sightings of warm-water species will become more frequent.

*Keith McLaren
Relocation Project Manager
SASA, East Craigs
Tel : 0131 244 4031
Email : Keith.McLaren@sasa.gsi.gov.uk*



SASA Relocation

The background to our planned move from East Craigs to Gogarbank Farm was described previously in the Bush Telegraph (December 2001 edition).

One of the principal objectives of the project is to bring together all of our laboratories, specialist storage and office accommodation into a single building – in contrast to the fragmented layout which currently exists at East Craigs. The best means of arranging the facilities on the new site has therefore been the primary focus of recent activity. In approaching this task of “site masterplanning”, it has been necessary for the design team to have regard to a number of the Agency’s key operational requirements, in particular:

- promotion of SASA’s corporate identity – especially with the provision of a common entrance for all staff and visitors;
- appropriate groupings of laboratory etc functions, with maximum integration;
- provision of secondary access to buildings eg for goods/mail deliveries, deliveries of samples (seeds, plants etc);
- containment areas for particular functions, for quarantine/avoidance of cross-contamination;
- positioning of glasshouses to avoid shading/overshadowing;
- certain laboratories (eg for microscope work) to be north facing; and

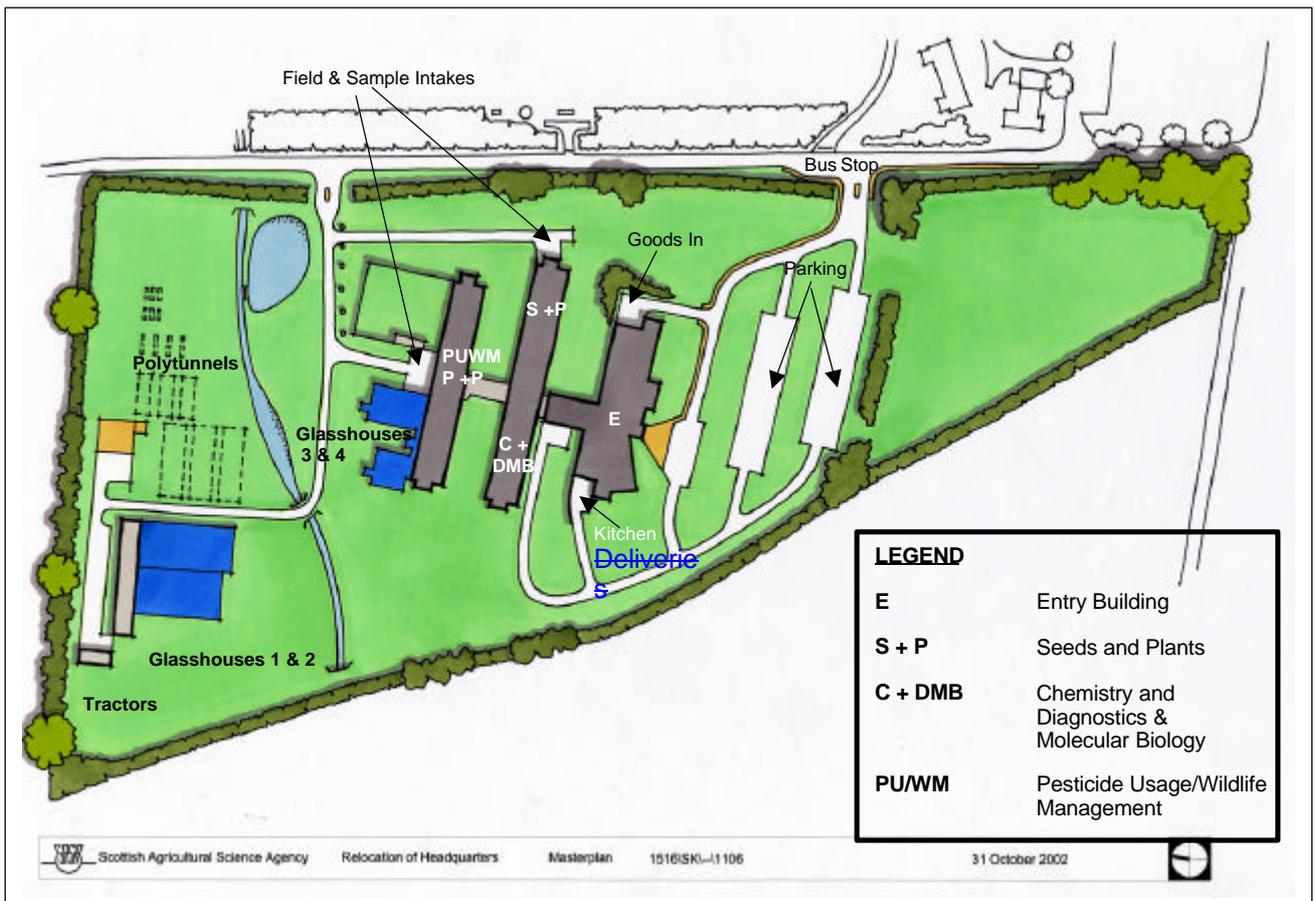
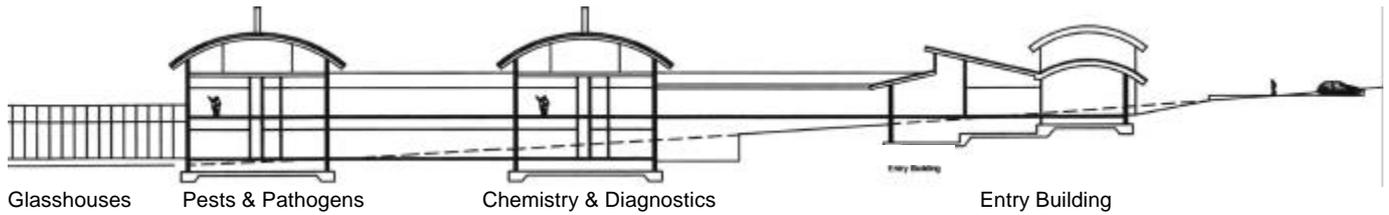
- scope for future expansion.

In addition, a major limiting factor has been that, because Gogarbank is within the “inner zone” around Edinburgh airport, there is a height restriction of some 75 metres above sea level, above which no parts of the building can protrude. This has meant positioning the building towards the lower (northern) end of the site. The latest site masterplan shows a single storey entry building which links in to the upper floor of the remainder of the complex.

The draft masterplan provides for a main entrance to the site, leading primarily to the entry building which will contain all of the communal facilities, including the entrance foyer/reception, conference rooms, lecture theatre, cafeteria, library and central administration (finance, personnel etc). Beyond the entry building the current layout shows 4 laboratory wings, each in 2 storey formation, leading off the main link corridor. Also included within the wings are specialist storage rooms for potatoes, seed samples, herbage & vegetables and cereals. Two of the major glasshouse units, required for plant health investigatory work, are physically attached to the building for containment reasons. The remainder of the glasshouses and polytunnels are located separately at the northern end of the site.

As currently planned, provision has been made for a secondary entrance to the site, principally to allow sample material from the adjacent field trials to be brought into the complex as efficiently as possible.

Some adjustments to the current site masterplan are anticipated, but the layout is expected to be generally along the above lines. As indicated earlier, we hope to be in a position to start building work during 2003 with the completion of the construction, and the transfer to the new accommodation, achieved by late 2005 or early in 2006. We will keep you abreast of developments in future editions.



ECRR MEMBER ORGANISATIONS

University of Edinburgh

Heriot-Watt University

Napier University

University of Stirling

Scottish Agricultural College

Biomathematics & Statistics Scotland

British Geological Survey

Centre for Ecology & Hydrology Edinburgh

Forest Research

DEFRA Lasswade Veterinary Laboratory

Moredun Research Institute

MRC Human Reproductive Sciences Unit

National Museums of Scotland

Roslin Institute

Royal Botanic Garden Edinburgh

Royal Society for the Protection of Birds

Royal Zoological Society of Scotland

Scottish Agricultural Science Agency

Scottish Crop Research Institute

Scottish Natural Heritage

University Marine Biological Station Millport

ECRR web site : www.ecrr.org.uk