

# auktalk

the newsletter of the zoology department of trinity college dublin  
number 6, michaelmas term 2005

## Just beginning .....



The 2005-6 Junior Sophister Zoology intake listen to Frank Jeal's 'Sermon on the Mount' on the Portaferry marine field trip.

Despite the notable absence of any accompanying miracles involving water and wine or loaves and fishes (except for the disappearance of the latter items), everyone had a good (and educational) time. One highlight was helping in the return of rescued seal pups.

## While in the middle .....

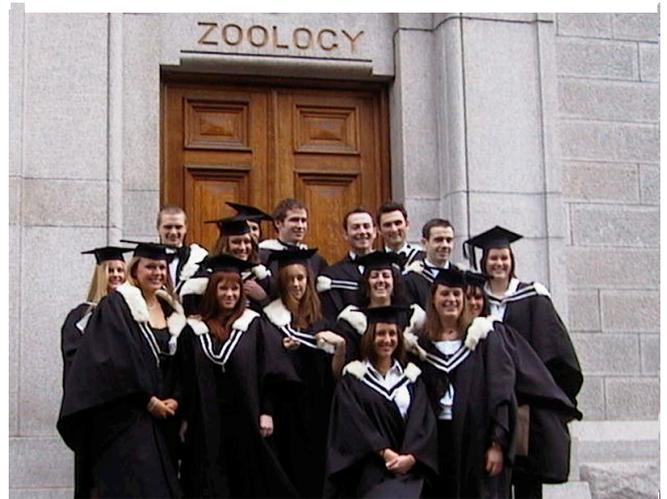
*there's a lot going on*

In the time since the last **auktalk**, there have been a lot of changes to Zoology. Turn the pages to find out more.



THE NEW MOLECULAR LAB ON THE TOP FLOOR:

## ..... and just leaving.



The 2004-5 senior Sophister Zoology Class get their picture taken in front of Zoology at the November 2005 Commencements.

The Department wishes them all good luck in their future careers.



The new tearoom on the ground floor. The pictures on the wall are by Cathy Fitzgerald, our erstwhile artist-in-residence, from images supplied by the Department. See page 3 and her website ([www.seeartscience.com](http://www.seeartscience.com)) for more details.



## EDITORIAL

Welcome to the latest *auktalk*, which hopes to bring you all up to date with what's been happening in the Zoology Department in the last year or so and keep you in the picture with recent developments.

The big picture is the re-organisation of College and the formation of schools and this is covered in the article in this issue. Hopefully, this will set you straight over what actually has come about and perhaps answer the questions which have been raised by the various somewhat sensationalist newspaper articles. Rumours that the schools follow the UK Dickens' model (Dotheboys Hall, in which the part of Nicholas Nickleby will be played by our new Head of School Prof. David Taylor - readers might like to suggest candidates for the other prominent roles) are unfounded and Zoology continues to be as active and as popular as ever.

The medium picture or rather pictures (see front page and elsewhere in this issue) is the refurbishment of the Department top floor and ground floor as well as the Museum. The pictures we hope tell their own story of modern and efficient labs and offices and Martyn Linnie brings you up to date with the Museum story in his article. These have been further enhanced by our artist-in-residence, Cathy Fitzgerald, whose work was exhibited at the official opening of the labs in the Department.

Finally, if you're looking for the little picture, we will refer you to the *Congratulations* section that contains the news of the smallest individuals featuring in this *auktalk*.

As ever, we will be delighted to receive news and views (and photos) from any of our readers out there. We do try to keep you in touch, so please pass this on if you think we've missed anybody out. Note that *auktalk* is also on the Zoology website, so if you can't bear to part with your copy, you can direct them to [www.tcd.ie/zoology](http://www.tcd.ie/zoology). The web version is in colour, so if you want to see any of the pictures in colour, that's where to go.

Lastly my own thanks for all the inputs to this issue, particularly my co-editors Frank, John and Paddy, and to all those who contributed words and/or pictures. Keep up the good work!

*Jim Wilson*

## FROM THE ARCHIVES



**When? Where? Who?** (see page 8 for answers)

## ON HIS BIKE

Having recently submitted my research masters in Developmental Biology under the guidance of Dr. Paula Murphy I now mark a tearful end to my four-year stint in Zoology. One of the great things about this department is the diversity and disparity of specimens that it holds within and I am not talking about the museum exhibits. Whilst it will be difficult to wean myself from the warm and welcoming confines of that great granite edifice I feel it is time for a challenge of a less cerebral nature.

With this in mind I have decided to cycle from Dublin to Cape Town, embarking on December 1<sup>st</sup> and hopefully arriving at the Southern tip of that great and long continent in mid-May 2006. I shall be accompanied by two companions (below) and together we are acting under the auspices of Oxfam to raise funding and awareness for HIV/AIDS in Africa. This is something I feel passionate about and hope to make this cycling challenge the biggest success it can be.



## VISITORS

The Department had a number of visitors over the past year including past graduates. Among them were Donal Mullen (1966) and Mike Greer-Walker (1966), Dave Havers (1970) Alison née Richardson (1965) Alex Leonard (1984) Roger Byrne (1978) and Eamonn Mallon (1997).

Visiting academics came from around the globe. Among those visiting the Marine Group were Prof. John Morrison (Wollongong, Australia), Manuela Krakau, (Alfred Wegener Institute, Germany) and a former Fulbright Fellow with the Department, Prof. George McManus (Rhode Island, USA).

## Zoology Department Artist in Residence **'A DIFFERENT LANGUAGE'**

'All artists are resident aliens' states Irish poet Eamon Grennan. This was a comment I recently came across and I thought a fitting start to explain my presence as an artist in the Zoology Department.

You may be surprised to learn that there is a small but growing interest in science for some contemporary artists. Why is this? Well, from an artists' perspective, it seems important to engage with science and technology, since science occupies a powerful role in how we understand ourselves and how we relate to our environment. Artists have often translated, reflected and questioned the new in society. In recent years we can find artists that have sought to collaborate with scientists, not so much in Ireland but overseas, the Wellcome Trust, and other international organisations have in the last decade funded artists from all fields: visual artists, musicians, poets, actors and film makers, to engage with science. There appears to be a growing belief that artists can engage the public in science in a manner that is not currently available to scientists.

While not supporting specific art science projects, the Irish Arts Council through residencies and projects allows artists an uninterrupted period in which to research ideas for a new body of work. In my case, a joint application with Dr Paula Murphy, received an unusual Arts Council residency award to undertake an art project in the Zoology Department for 3 months, September – December 2004. My main reason for working in the Zoology Department is a strong interest in biology. Having worked in biological research for many years before attending Art College, ideas and questions about science drive the content of my art projects. I also feel the importance of gaining first hand knowledge from scientists rather than relying on popular (and often sensationalist) media.

My initial contact with the Zoology Department was sitting in on Dr. Murphy's 4<sup>th</sup> year developmental biology tutorial class in 2003. These tutorials involve students examining recent research papers, which gives an exciting context for the student's developmental biology knowledge. At the same time, students are expected to debate and think of the

wider issues and misconceptions surrounding the field. We looked at transgenic animals as tools for research, cloning and stem cell research etc.

During the residency I designed a project that asked staff and final year students for an image that was important to their work and a short description of why they chose it. Responses ranged from photographs, drawings, and diagrams created or selected by the scientists and students (one adventurous staff member even had me create a temporary tattoo of their image on their back!). Interestingly, while their comments alongside the images provided ideas about why the image was important to them, it also created a means to identify the person behind the science. In so doing, a visual, subjective and often very creative 'conversation' of the work undertaken by the Zoology Department took place; personal snapshots of what makes up this truly fascinating department. The project also introduced ideas for recognising the potential to communicate in new ways, creating an opportunity to those in science to value 'the poetic and the curious' in their daily work.

The work produced during the residency is on display in the Zoology Department. However, the real aim is to exhibit, the work more widely, thereby connecting and engaging a wider audience. The work was displayed during the British Association Festival of Science hosted in TCD in September 2005. There has also been much public media response, with interviews both on RTE Radio 1 and in the Irish Times. The residency will be the subject of an RTE radio documentary that will be broadcast on Lyric FM in

December and on RTE radio 1 in 2006. I find that both the public and educators are fascinated with science but have limited avenues to approach science directly.

Finally, a big thank you to Dr Paula Murphy and the staff and students in the Zoology Department for making me feel welcome, putting up with a lot of questions while willingly trying their hands at art-making.

*Catherine Fitzgerald, MA Fine Art*  
For more information visit  
<http://www.seeartscience.com>



*unwanted genes (weeds) on DNA spiral (2003)*

# RESEARCH FOCUS 1:

The HABMAP Project  
[www.habmap.org](http://www.habmap.org)

HabMap is an EU Interreg IIIA project which aims to produce habitat maps for the southern Irish Sea. The project is a joint Irish-Welsh project involving TCD, UCC, Aquafact, Ecoserve, the Council for the Countryside of Wales (CCW) and the National Museum of Wales.

The field work for the project took place this summer on the *RV Celtic Voyager*. The field work consisted of two cruises. For the first trip most of my time was spent in front of a computer monitoring sub bottom profile data for 12 hours a day from midday to midnight, very exciting stuff! I did manage to take the odd sediment sample though. The highlight of the cruise was probably seeing a pod of 10 – 15 dolphins surfing at the bow of the boat.

Three main areas were surveyed: an area close to the Arklow Bank; a section of the Celtic Deep; and an area in Caernarfon Bay off Wales. The seabed maps were completed to Irish National Seabed Survey (INSS) standard, thanks to the help of the Marine Institute, who provided us with the extra people to make it possible. The seabed maps from the first cruise were used to designate potential sampling sites for the second cruise by Katrien Van Landegham, a geology PhD student from UCC who is also working on the HabMap project.

This was mainly done by looking at backscatter data which shows the reflectivity of the seabed. Areas of high reflectivity indicate areas of rock while areas of low reflectivity indicate softer sediments. Multibeam and backscatter data was also used to locate any interesting features which may have required further study, such as some interesting ridges and possible sand waves.

The second sampling cruise took place in July/August 2005. Biological and sediment samples were taken at each site using a Van Veen grab where possible, or, if the ground was too hard, a Tjarno dredge was used instead to retrieve biological samples. We often first used the video camera (operated by Charles Lindebaum from CCW – see below) at a site to get an idea of the sediment type as there was no point in using gear on very rocky ground where it might get damaged. The scientists would all crowd around the TV waiting impatiently to see what the seabed was like.

Sometimes we were rewarded with crystal clear images but other times the tides and weather conspired against us to make the camera race across the seabed making it difficult to see much. We also had a Sediment Profile Imager (SPI) on board to take still images of the seabed which was operated by Stiofan Creaven from Aquafact.

The biological samples had to be sieved through three sieves (2mm, 1mm and 0.5mm) so we were kept busy every day usually working from 7am to 7pm, only stopping to grab (sorry!) meals and maybe the odd cup of tea if we got a chance.



The biological samples had to be sieved through three sieves (2mm, 1mm and 0.5mm) so we were kept busy every day usually working from 7am to 7pm, only stopping to grab (sorry!) meals and maybe the odd cup of tea if we got a chance. We had to sieve four grabs samples for every site so it was quite time consuming but everyone pitched in to help. However, we did have time to stop and admire a sunfish (*Mola mola*) as it swam by.

We were very lucky with the weather. We managed to avoid some gales by working in Caernarfon Bay before venturing south to the Celtic Deep. We had just completed our first station in the Celtic Deep when we received a distress call near by. We found a small yacht called the *Farlow* (pictured above) with two Irish lads on board who were having engine trouble. They



had set off from Waterford the day before and were on their way to the Scilly Isles of Cornwall. It took us about 12 hours to tow them safely to Rosslare!

Despite the loss of the day we managed to have a day at the end of the trip to do some extra sampling west of Anglesey. All in all, it was a very successful summer of field work and I'd like to thank the crew of the *Celtic Voyager* and all my HabMap colleagues for making it so successful. If you'd like to find out more about the project, you can check out our website [www.habmap.org](http://www.habmap.org)

Fionnuala McBreen

## THE CLASS OF 2005-06



Some of the current Senior Sophister students on their Junior Sophister Terrestrial Field Course to Killarney National Park earlier this year

## PRIZE WINNERS

The joint winner of the 2004-05 J.B.Gatenby prize (for JS practical work) were Emma Hastings and Caitriona McFall, while the 2003-04 prize went to Katie Reeve-Arnold.

## STILL GOING STRONG

Peter Stafford (Senior Specialist Technician) has just celebrated his 40<sup>th</sup> year in the Department, as has Frank Jeal who, despite officially 'retiring' in 2002, is still lecturing. The dispute continues over which of them arrived first – can anyone out there throw some light on this?

## BUG DAYS

Lots of children enjoyed the Bug Day activities in the Botanic Gardens on November 5<sup>th</sup> 2005. The newly founded Entomology Group, run by postgraduate students in Zoology and Botany has linked up with the Botanic Gardens and are running workshops for kids.

The workshops aim to develop an interest for nature in kids by introducing them to a variety of terrestrial and aquatic animals.

## BA Festival of Science



The zoology stand, one of only two TCD Natural Science displays, attracted great attention over the week long BA Festival of Science. Our star attraction was no doubt the Hippo Head which was met with lots of 'oohs' and 'ahs' and 'what kind of dinosaur is that?' from young and old alike.

Also at the stand we had a collection of Irish insects collected by Andrew Byrne, a nematode display as presented by Rick Rolfe, and Gillian Roddie (pictured above left, with hippo skull) used the opportunity to show dog-owners what kind of debris can be found in their pets' hair as seen under a microscope!



# RESEARCH FOCUS 2: 2005 POSTGRADUATE SYMPOSIUM

On Monday 14<sup>th</sup> March 2005, the Zoology postgraduates held the first Annual Postgraduate Symposium. The Symposium was run over two days. Each postgraduate had to present a 12 minute talk followed by 3 minutes of questions. The talks were judged by two external judges; Prof. Grace Mulcahy and Dr. Robbie Macdonald, and a prize was awarded to the best presentation. Last year's prize was awarded to Victoria Peart in the Developmental and Neurobiology section.

The 2006 symposium will be held in March. Keep an eye on the Zoology website for further details and the abstract booklet. Last year's abstract booklet is also posted up on the website. Below is a list of the talks presented by the postgraduates at the 2005 symposium.

## Session I: Developmental and Neurobiology

Patrick Frankel *Secreted Frizzled-related Proteins: Modulators of the Wnt signaling pathway.*

Elizabeth O' Brien *An examination of the relative effects of Type I and Type II Inositol 1,4,5 – Triphosphate Receptors on Ca<sup>2+</sup> - mediated secretion in model cell systems.*

Victoria Peart *BDNF expression in a brainstem/spinal cord regenerating model, Anguilla anguilla*

## Session II: Conservation Ecology

Geoff Hamilton *Red squirrel ecology in Irish commercial forests – A GIS approach*

Laura Finnegan *Morphological divergence within the Irish red squirrel (Sciurus vulgaris) population.*

Michael McGoldrick *Implications of genetic structure for control of Sciurus carolinensis populations.*

## Session III: Freshwater Ecology

Valerie McCarthy *Resource quality effects on Zooplankton community structure and fecundity.*

Blaithín Ní Áinín *The use of littoral macroinvertebrate body-size structure in freshwater biomonitoring.*

Louise Quinn *The effect of nutrient enrichment on the distribution and behaviour of littoral lake macroinvertebrates.*

Brendan O Hea *Sediment Transport in the Burrishoole Catchment.*

Antoin Lawlor *The movement of nitrogen through fields of differing management intensities.*

## Session IV: Evolutionary Parasitology

John McMullan *Impact of small-cell brood combs on honeybee tracheal mite susceptibility.*

Samina Rutrecht *The effects of Nosema bombi on its host Bombus lucorum.*

Mario-Ruiz Gonzalez *Males versus workers: testing the assumptions of the haploid susceptibility hypothesis in bumble bees.*

## Session V: Conservation Ecology

Grainne Cleary *The changing diet of the Eurasian Badger (Meles meles) throughout the year*

Lynsey Stewart *The reproductive cycle of the male and female Eurasian Badger (Meles meles)*

## Session VI: Medical Parasitology

Ranjith Lewis *The development of a mouse model to explore resistance and susceptibility to early Ascaris suum infection*

Patrick Kirwan *Geohelminth and Malaria infection in children under 59 months*

Gillian Roddie *Transmission of Toxocara through direct contact with dogs*

Clare Hamilton *A murine model for cerebral toxocariasis*

## Session VII: Marine Biology

Sandrine Laurand *Stable isotope analysis and modeling of the Dublin bay food web*

Fionnuala McBreen *Habitat Mapping in the Southern Irish Sea*

Tim O'Higgins *Controls on Phytoplankton bloom formation in the Liffey estuary*

## Session VIII: Conservation Ecology

Phillip Duggan *Habitat use of Irish stoats*

Chris Johnson *Habitat effects and landscape influences: Granivores across an agricultural gradient*

Lughaidh O'Neill *Movement, habitat and population dynamics of the otter and mink in Ireland*

Aine Lynch *Estimating small carnivore presence and abundance – Lessons to be learnt from pine martens*

## REFURBISHMENT

### ZOOLOGICAL MUSEUM



Following a fund-raising appeal to our friends, colleagues and alumni earlier this year, the much-needed refurbishment to our beloved museum is now well underway (see photo of one of the new cabinets above).

The response to our fund raising efforts has been simply fantastic, with over 50K euro raised so far. Although there were some mixed feelings as the old cases were dismantled and removed, everyone agrees that the new design looks much better and will serve the collection well in the years ahead. Sincere thanks to all those who contributed and we hope to see you all at the official opening later next year. For those of you that may have forgotten about our appeal, don't worry, it's not too late!

Making contact with our graduates gave us an insight into what they are now doing and where they are based. For the record – here is just a small sample from the many responses.

*“ .... The museum holds a very specific memory for me. Just before the degree finals I was gazing at specimens in the museum and for some reason my attention was drawn to the lower jaw of a tasmanian devil. A few days later I was in the final practical exam and there it was – the lower jaw of a tasmanian devil.....”*

Dr William Campbell, Drew University, Madison, NJ.

*“...I trust the department thrives,,, what a great idea!...”*

Ruth Laidlaw, Hong Kong,

*“ I am delighted with the opportunity to help the fund for the very poorly housed collections in TCD.....”*

Canon Dr Peter Norton

*“ I recall that one of the pleasures of the museum was a collection of beautiful glass models of plankton, the full importance of which only struck me last year when visiting the museum at Harvard....”*

Miles Parker, Deputy Chief Scientist, DEFRA, London.

*“ ...the museum holds great memories for me.....”*

Peter (Pedro) O' Connor, R & A Bailey, Dublin.

*“ It gives me great pleasure to enclose a donation..... towards the above most worthwhile project...”*

Lawrence Swan, Managing Director Research & Development, Fyffes.

If you would like to become a 'Friend of the Zoological Museum' or would like to donate in some other way, please contact Martyn Linnie at the Department of Zoology, Trinity College, Dublin 2 (email: [mlinnie@tcd.ie](mailto:mlinnie@tcd.ie))

### ZOOLOGY DEPARTMENT REFURBISHMENT CONTINUES

In March 2004, the newly refurbished top floor of the zoology building was officially opened. Following the long awaited departure of Pharmacology the area was completely revamped and is now equipped with bright, modern research laboratories (see photo front page), together with staff and graduate student offices. This however was only the beginning. Since then we have obtained 'ownership' of the entire building and the upgrading has continued unabated.

New facilities recently completed include a library, wet room, histology laboratory, behavioural laboratory, museum storage area, a common room (*aka* tearoom – see front page) and graduate student offices.

While retaining much of its original character, the building has improved dramatically over the last two years. Why not pay us a visit next time you visit Dublin? We would be delighted to show you around.

## CONGRATULATIONS

Congratulations to all the following who have married since the last edition of **auktalk**:

**Richard Hollinshead** (Staff) to **Michelle White** (1998)  
**Martin Robinson** (Post Doc) to **Mary Hayes** (PhD 2005)

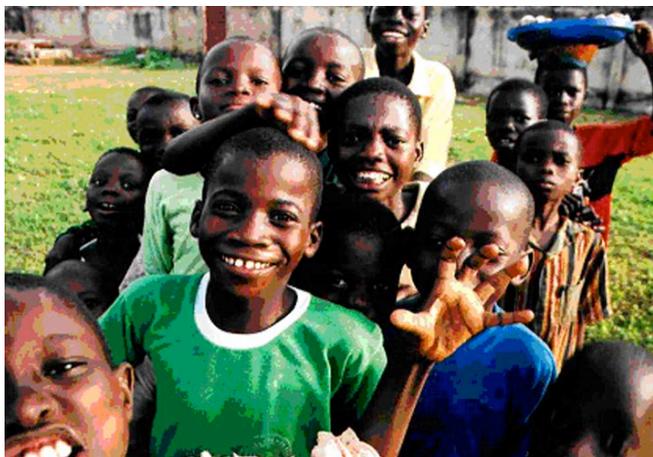
**Victor Vendrell** (Post Doc) to Yolanda Alvarez  
**Sinead Barry** (1994) to Mike Parr  
**Fergal Guilfoyle** (1996) to **Aisling O'Leary** (1996)  
**Ashley Harrison** (1996) to Susan Holly.  
**Geoff Hamilton** (2000) to Kelly Dawson  
**Mike Bailey** (Post Grad) to Desiree Murphy  
**Mike Kelly** (Post Grad) to Alex Hawker

Congratulations also to the new arrivals:

Lisanne O'Toole (Constanza, Post Doc)  
Tom Thorne (Kate, Research Assistant)  
Finn Fitzpatrick (Una, Post Doc)

## ON THEIR BIKES.....

The members of the Department have also been very assiduous in their travels, accounting for 4 of the 5 continents. As well as the (comparatively) routine destinations of the USA and Australia, staff have also been working in Africa, in Asia and in a variety of pan-European destinations from Scandinavia to Spain to Ukraine and Georgia.



Some of Paddy Kirwan's friends from his research in Ile-Ife, Nigeria.



Celia Holland on a recent study visit to China.

## ZOOLOGY SEMINAR SERIES

### Michaelmas Term 2005

- Dr. Brian Quinn** (Environment Canada) "*ATLANTIS & other current research being undertaken by Environment Canada*"
- Prof. Barry Roberts** (Department of Cellular and Molecular Pharmacology, The Chicago Medical School) "*Regeneration of the vertebrate nervous system*"
- Dr. Karsten Hokamp** (Department of Genetics, TCD) "*A stab at understanding innate immunity using cross-species microarray analyses*"
- Dr. Eamonn Mallon** (Department of Biology, University of Leicester) "*A tale of two experiments: Immunity and Behaviour in bees*"
- Dr. Maurice Clarke** (Marine Institute, Galway) "*Denizens of the deep: Biology, exploitation and management of deepwater sharks in Irish waters*"
- Dr. Emma Teeling** (Department of Zoology, UCD) "*A molecular perspective on the evolution of echolocation and flight in bats*"
- Dr. April DeLaurier** (Division of Developmental Biology, National Institute for Medical Research, London) "*Developing 3-D imaging methods to characterise limb morphology: an analysis of the mechanisms controlling forelimb and hindlimb patterning*"
- Mr. Chris Huxley** (Ecological Consultant, Castlebar, Co. Mayo) "*Elephant conservation and the ivory trade*"

## RESEARCH & GRANTS

Dr. Paula Murphy was recently awarded an SFI Interdisciplinary studentship for 4 years, together with Prof. Patrick Prendergast (Mechanical engineering) on *The combined role of mechanics and genetics in joint morphogenesis in the developing limb, and identification of mechanosensitive genes*. This came as well as 3 scholarships from the SFI UREKA programme for undergraduate projects.

Dr Adrian Dervan (1995; PhD 2001) returned to the Department in August 2004, to take up a prestigious HRB Post-Doc to work with Dr Suzanne Borich on spinal cord regeneration in zebrafish. Adrian is collaborating with Dr Kevin Dowling (1995) from Colaiste Dhulaigh to set up a cell culture laboratory in Zoology. Also assisting in the project is Gerry McKeon (1997).

In Parasitology, Celia Holland has recently been funded for two projects, namely Potential zoonotic transmission of *Toxocara canis* through direct contact with dogs funded by Bayer (with Alan Wolfe); and for a study of the interrelationship between geohelminths and malaria in children under two years, an IRCSET postgraduate scholarship to Patrick Kirwin and further support from the National Children's Hospital Research fund.

Finally Mark Brown has succeeded where hundreds have failed in getting an SFI 2005 Research Frontiers Program 3-year PhD grant to study the ecology and evolution of nematodes in bumble bees.

## WHEN? WHERE? WHO?

**When?** Academic year 1965-6.

**Where?** Lincoln's Inn (as if you needed to ask!)

**Who?** Left to right: Frank Jeal, John Mercer, Nick Frewin, Jim Carstairs, Donal Mullen, and Mike Greer-Walker

Offers of similar pictures, please, to **auktalk** Zoology Department, TCD, Dublin 2 or by email to the editor ([jwilson@tcd.ie](mailto:jwilson@tcd.ie)) or indeed anyone else in the Department. Journalistic confidentiality (if required) is guaranteed and absolute.