

# NATUR CYMRU

The Nature of Wales Number/Rhif 28 • Autumn/Hydrif 2008

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- Bottlenose dolphins
  - Llên Natur
  - Polecat recovery
  - Ducks at sea
  - Free living seaweeds
  - Valuing nature
  - Books, News, Comment...

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# NATUR CYMRU

The Nature of Wales

Cyhoeddir *Natur Cymru* bedair gwaith y flwyddyn, mis Mawrth, mis Mehefin, mis Medi a mis Rhagfyr. Cyhoeddir erthyglau yn yr iaith wreiddiol. Mae crynodeb yn yr iaith arall yn dilyn pob erthygl. Ceir rhai colofnau arferol yn y ddwy iaith. Os dymunwch gael cyfieithiad o unrhyw erthygl, cysylltwch a'r golygydd.

Bwriedir i *Natur Cymru* hyrwyddo a chyfnewid gwybodaeth am fioamrywiaeth a hyrwyddo dadl. Os oes gennych wybodaeth, erthyglau neu waith celf y credwch a allai fod o ddiddordeb i'r darllenwyr, cysylltwch â'r Golygydd os gwelwch yn dda.



*Natur Cymru* is published four times per year, in March, June, September and December. Articles are published in the language in which they are submitted. They are followed by summaries in the other language, and some regular columns appear in both languages. If you would like to receive a translation of any article, please contact the editor.

*Natur Cymru* is intended to promote the exchange of information about biodiversity and encourage debate. If you have information, ideas for articles or artwork which you think might be of interest to readers, please contact the Editor.

Mae *Natur Cymru* wedi'i argraffu ar bapur di-glorin a ddaw o goedwigoedd cynaliadwy sy'n cael eu rheoli.

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**Kim Atkinson -**  
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# NATUR CYMRU • CYNNWYS • CONTENTS

<b>Golygyddol / Editorial</b> .....	<b>2 - 3</b>
James Robertson	
<b>The bottlenose dolphins of Cardigan Bay</b> .....	<b>4 - 9</b>
Peter Evans	
<b>Llên Natur</b> .....	<b>10 - 12</b>
Duncan Brown	
<b>The polecat marches on</b> .....	<b>13 - 17</b>
Johnny Birks	
<b>Marine energy developments</b> .....	<b>18 - 21</b>
Mick Green	
<b>A pinch of salt</b> .....	<b>22 - 26</b>
Mike Alexander	
<b>Valuing nature</b> .....	<b>27 - 30</b>
Morgan Parry	
<b>Anglesey's free living seaweeds</b> .....	<b>31 - 33</b>
Kathryn Birch	
<b>The scoters of Carmarthen Bay</b> .....	<b>34 - 38</b>
Andy Musgrove	

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## ***NODWEDDION ARFEROL / REGULAR FEATURES***

<b>Nature diary</b> Brian Macdonald .....	<b>39</b>
<b>Cymru a'r byd / Wales and the world</b> Peter K Jones .....	<b>40 - 41</b>
<b>Marine matters</b> Ivor Rees .....	<b>42</b>
<b>Silff lyfrau amgylcheddol / Green bookshelf</b> James Robertson, Rob Collister, David Saunders, Dafydd Roberts .....	<b>43 - 45</b>
<b>Nature at large</b> Trevor Dines .....	<b>46 - 47</b>
<b>Hysbysfwrdd / Noticeboard</b> Mandy Marsh .....	<b>48</b>

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**M**ae'r brigiadau ar hyd un o'm hoff rannau o'r arfordir yn frith o liw cochbiws grug y mêl. Dydw i byth yn cofio'n iawn pa mor lliwgar a llachar ydy'r blodau yma hyd nes y gwela' i nhw unwaith eto. Rydw i'n cerdded ar hyd llwybr yr arfordir, yn anadlu'r awyr hallt sy'n llawn osôn, ac yn chwilio am siapiau'r tonnau a'r fflyd o wylanod ar y dŵr, gan feddwl pa mor eithriadol o lwcus ydw i.

Allwch chi bennu gwerth ar hyn i gyd? Wel, na allwch mewn un ystyr, mwy nag y gallwch roi pris ar fywyd ei hun. Ond eto i gyd, dyna mae'r Llysoedd yn gorfod ei wneud byth a beunydd. Wrth ddisgrifio'r datblygiadau diweddaraf yn y drafodaeth bwysig yma, mae Morgan Parry yn dangos pa mor hanfodol ydy hi i ddatblygiadau economaidd ddod o hyd i ffyrdd o gynrychioli'r gwerth aruthrol y mae pobl yn ei gael gan natur. Yr unig reswm y gallwn ni fyw ar y blaned ydy gan fod ecosystemau'n cynnal ei chyflwr – felly, os ydym eisiau cael planed y gallwn fyw arni, byddai'n dda o beth i ni werthfawrogi ein hecosystemau.

Fe fydd datblygu ffordd newydd o ystyried yr elfennau economaidd sy'n gysylltiedig â datblygiadau sy'n effeithio ar ecosystemau yn dylanwadu ar benderfyniadau'n ymwneud â phrosiectau ynni adnewyddadwy morol. Mae Mick Green yn trafod yr angen i fod yn ofalus wrth ddelio efo datblygiadau morol na wyddom ryw lawer amdany'n nhw; ac mae Peter Jones yn sôn yn benodol am Forglawdd Hafren.

Hyd yn oed a hithau'n haf siomedig, fe fydd miloedd ohonom wedi mentro i'r arfordir, gyda swyn y môr a rhyfeddodau'r pyllau glan môr a'r cildraethau tywodlyd wedi llwyddo i'n denu. Mae arfordir hardd a hir ein gwlad, y dyfroedd arfordirol a'r ynysoedd yn y môr yn ased economaidd enfawr, a hynny gan eu bod yn dda i'n lles, yn cynnig cysur, mwynhad a chyfle i ni ymlacio. Mae erthyglau yn y rhifyn yma'n trafod gwahanol agweddau ar yr adnodd enfawr yma - gan gynnwys gwymon hynod, hwyaid môr a dolffiniaid trwyn potel.

Un rhywogaeth yn y rhifyn yma nad oes ganddi gysylltiad o gwbl efo'r môr yw'r ffwlbart. Am flynyddoedd, llwyddodd i oroesi ar y tir creigiog yma – tir garw sy'n hollbwysig i natur Cymru a diwylliant pobl. Efallai nad ydy'r gyfatebiaeth yn gorffen yn y fan yma. Fel mae Johnny Birks yn ei ddatgelu, mae arolwg wedi darganfod bob poblogaeth y ffwlbart wedi atgyfodi. Yn wir, mae'r goroeswr yn ffynnu ar adeg pan mae gennym ni well dealltwriaeth o werth gwirioneddol ein hamgylchedd.

Gobeithio'n wir mai dyma hefyd fydd hanes *Natur Cymru*. Mae nifer o ddatblygiadau diweddar, gan gynnwys paratoi i werthu'r cylchgrawn mewn siopau, yn arwydd o hyn. Fis Gorffennaf, fe gynhalion ni ein hail gyfarfod cyffredinol blynyddol yn y Sioe Amaethyddol Frenhinol, yn ystod cyfnod prin o dywydd poeth, braf. Roedd pawb yn teimlo'n galonogol iawn – efallai gan fod gennym reolwr busnes newydd a brwd, sef Huw Jenkins, sy'n benderfynol na fyddwn yn parhau i guddio cannyll y cylchgrawn dan lestr. Golyga hyn y byddwn yn rhoi mwy o bwyslais o lawer ar farchnata, ac fe fydd hyn yn cael ei adlewyrchu yn y ffurflen danysgrifio a welwch yn y rhifyn yma. Ys dywed Huw yn y mewnosodiad, fe fyddai tansgrifiad i *Natur Cymru* yn anrheg Nadolig ddelfrydol. Felly pam na wnewch chi roi natur Cymru yn anrheg i'ch teulu neu i'ch cyfeillion er mwyn eu swyno yn ystod holl dymhorau'r flwyddyn?

*James Robertson*





# NATUR CYMRU EDITORIAL

The rocky outcrops along a favourite piece of coast are splashed with the reddish-purple of bell heather. I never remember quite what a vivid, deep hue these flowers have until I see them again. I am walking along the coastal path, breathing in the ozone-rich, salty air, looking at the shapes of the waves and the flotilla of gulls on the water, and thinking how lucky I am.

Can you put a value on this? In one sense no, any more than you can put a price on life itself; and yet this is what insurers and the Courts have to do all the time. In describing the latest developments in this important debate, Morgan Parry shows how crucial it is that economic development finds ways of representing the enormous value which human society derives from nature. The planet is only habitable because ecosystems maintain it in this condition, so we had better value ecosystems if we want a habitable planet.

Developing a fresh way of looking at the economics of developments which affect ecosystems will influence decisions about marine renewable energy projects. Mick Green looks at the need for caution when dealing with the relatively uncharted waters of marine developments; and Peter Jones looks specifically at the Severn Barrage proposals.

Even during a disappointing summer, thousands of us will have made it to the coast, drawn by the deep appeal of the sea, and the delights of rock-pools and sandy coves. Our long and beautiful coastline, coastal

waters and offshore islands are a huge economic asset, precisely because they are a source of non-material welfare, of comfort, relaxation and pleasure. Articles in this issue examine various aspects of this huge resource, from strange seaweeds to sea ducks and bottlenose dolphins.

One species we feature which doesn't have a particular affinity with the sea is the polecat. For years it hung on in this rocky land, the rugged geography of which is integral to the nature of Wales and to human culture. Perhaps the analogy doesn't end there. As Johnny Birks reveals, a survey has discovered a resurgent polecat population. The survivor is thriving in these times when the true value of our environment is becoming better understood.

That, too, will be the story of *Natur Cymru – The Nature of Wales*, I hope and believe. Several recent developments, including moves to sell the magazine through retail outlets, point the way. In July we held our second annual general meeting, at the Royal Welsh Show, during a rare blast of summer heat. The mood was upbeat, not least because we have a dynamic new business manager, Huw Jenkins, who is determined that we won't continue to hide the magazine's light under a bushel. That means much greater attention to marketing, which you will see is reflected in the subscription form in this edition of the magazine. As Huw points out in the insert, a subscription to *Natur Cymru* is the perfect Christmas gift. So why not buy a relative or friend a gift of the nature of Wales to delight them in every season of the year?

*James Robertson*



# The Bottlenose dolphins

## of Cardigan Bay

*Every summer, Cardigan Bay receives masses of visitors from around England & Wales, eager to visit its sweeping coasts – its rugged cliff scenery, sandy beaches, and the wealth of marine wildlife that inhabits its waters. One species that attracts particular attention is the bottlenose dolphin, and boatloads of tourists travel out daily to see them from places like New Quay. How much do we know about these charismatic marine mammals? PETER EVANS has some answers.*

It is likely that Cardigan Bay has been home to bottlenose dolphins for centuries. Certainly there are records of them present in the Bay over one hundred years ago. In that time, we know rather little of their changing fortunes. During the 1970s, following the movements of a sociable lone dolphin nicknamed Donald around the coasts of Wales, the Isle of Man and southwest England, an oceanographer, Bob Morris, took up summer residence in New Quay. Armed with lots of hydrophone gear, he started to study the dolphins of the bay. He discovered from drawings of different individuals that the same ones could be seen from year to year.

Then in 1988, two individuals (a mother and her calf) turned up on the beach at Aberaeron, and they contained so many toxic chemicals (notably PCBs and chlorobiphenyls) that it raised serious questions as to how they could have been exposed in this way. The following year, a male bottlenose dolphin stranded at Aberporth, and it too had disturbingly high levels of PCB concentrations. Suddenly the 'family' of dolphins



studied in New Quay appeared very vulnerable, and as coastal populations of bottlenose dolphins became scarce in other parts of UK and continental Europe, concerns were expressed that the species could disappear from many coastal regions.

### Protecting the bottlenose dolphin

In 1992, the European Union established the Habitats and Species Directive, placing the bottlenose dolphin (along with the harbour porpoise) in a special Annex for specific protective measures. Special Areas of Conservation (SACs) were proposed for the species and, by 2004, three of these had been formally declared in the UK: one in the Moray Firth (NE Scotland), and two in Cardigan Bay – Pen Llŷn a'r Sarnau SAC in the north of the Bay and Cardigan Bay SAC in the south. A management plan

Peter Evans



was developed, led by Ceredigion County Council in association with the Countryside Council for Wales and other management authorities, and an SAC Officer was appointed.

At this stage, our knowledge of the biology and ecology of bottlenose dolphins in the Bay remained pretty rudimentary, whereas studies of the Moray Firth dolphins started in 1989 and have run continuously over the last 18 years. There had been some short-term surveys in the Bay by Greenpeace and the Sea Watch Foundation during the 1990s, but no sustained funding for longer-term research efforts until 2003. However, with the proposal and establishment of these SACs the Countryside Council for Wales, in particular, directed funds to learning more about these animals so as to better inform conservation management of the species.

Marine mammal protective measures involve more than the establishment of protected areas. Through revisions to the Wildlife & Countryside Act, which makes it an offence to engage in 'reckless disturbance', and new amendments to Habitats Regulations with respect to 'deliberate disturbance', there are now laws in England & Wales about what activities are permissible in our waters. The aim of the new Marine Bill, with its emphasis upon marine spatial planning, is to ensure that activities that are harmful to wildlife have more effective regulation.



### What have we learned so far?

A key piece of information required for conserving the local population of a species is its population size, and whether numbers are stable, increasing or decreasing. For an animal that spends 95% of its life underwater out of sight, this is no easy task. Two survey methods are typically used. The first involves systematically surveying the area by line-transects (either by vessel or plane), usually crisscrossing it in a zigzag manner and, from sightings and measures of how far they occurred from the track-line, determining the densities of animals in the area being surveyed. The second involves taking photographs of individual animals and on the basis of unique markings (for example, nicks in the dorsal fin) building up a catalogue from which an overall estimate of the population can be made. This technique is known as photo-ID. Both methods have their limitations and logistical challenges. So far, resources have concentrated upon the more southerly SAC, where surveys indicate a population of between 150 and 250 bottlenose dolphins, making it the largest inshore population of the species in the British Isles. Numbers have fluctuated since 2001 (when the first survey was conducted), but show a slight upward trend.

It is not long ago that people spoke of a family of dolphins residing in New Quay, as if they never moved anywhere else. There is some truth in this perception. We do find individuals favouring particular areas and occurring there from year to year, and New Quay seems to be one locality where dolphins can be seen year-round. But one interesting finding from our photo-ID studies is that there seems to be quite a turnover of the population. Some individuals are seen every year, others come and go, and yet others



Nicks in the dorsal fin help to identify individuals





A dolphin and her calf

disappear altogether whilst new animals appear. We are coming to the conclusion that the Cardigan Bay population may be a mixture of groups with different ecologies. And as we survey farther afield, we obtain proof of longer distance movements than were previously known. Surveys last winter around the coast of Anglesey and eastwards towards Liverpool Bay revealed at least sixty of the Cardigan Bay dolphins occurring there. Winter sightings in this area tend to be of much larger groups (numbering up to 100) than those seen in summer, when they appear to split up into smaller family units. This places the population at particular risk from human activities. And the presence of groups along the North Welsh coast, traveling towards Liverpool Bay, throws light on a possible way that bottlenose dolphins stranding in relatively unpolluted Cardigan Bay could have obtained high levels of industrial chemicals. Whatever is the case, clearly, management of Special Areas of Conservation for this species will have to consider a wider geographical area than it does at present.

During wintertime, days are short and seas generally rough so it becomes difficult to spot dolphins. Because of winter storms and the scarcity of sheltered anchorages in Cardigan Bay, boats are often brought out of the water for safety. Thus the only practical means available over this period is to

conduct aerial surveys. Although expensive, they can cover large areas in a short space of time, and allow one to capitalize on narrow windows of fine weather. We have only been able to conduct three such surveys of the Bay but already they have demonstrated that, in winter, bottlenose dolphins have a very different distribution to summer, being spread over much wider areas and further offshore, whereas in summer the vessel surveys have shown that they largely hug the coast.

Another method of monitoring dolphins and porpoises is to use acoustics. Both bottlenose dolphin and harbour porpoise regularly emit ultrasonic clicks for echolocation, and a device called a T-POD has been developed that logs these clicks and uses different channels to distinguish between the two species. Since 2004 we have had ten of these instruments deployed along the coast within the Cardigan Bay SAC. The results have been fascinating. They have revealed that although both species are present year-round, their patterns of behaviour differ considerably. Bottlenose dolphins are much less frequent in the area in winter, whereas porpoises are most often detected then. Even their behaviour in relation to diurnal and tidal cycles contrasts with each other. Dolphins are recorded most in the hours preceding dusk and following dawn whereas porpoises appear to be most active at



Members of the research team conducting surveys by boat

night. Dolphins are recorded most on a flood tide and porpoises particularly on an ebb tide. Thus, although both species share the same waters, when dolphins are present, there is a much greater likelihood that porpoises will be absent. Whether this has always been the case is not known. But what is known is that in the last five years the biggest known cause of mortality in porpoises that have been found dead along the Welsh coast has been from dolphin attacks.

#### What burning questions remain?

No self-respecting marine mammal scientist would expect to draw any firm conclusions on population trends from only six years of data, given the mobility of the species and the difficulties to obtain precise estimates of population size. So it will be some years before we can with confidence decide whether the bottlenose dolphins of Cardigan Bay are in Favourable Conservation Status.

The dynamics of the dolphin population and its social structure can only be fully investigated by following the fortunes of individual dolphins using photography. We still do not know whether Cardigan Bay is host to a single population of dolphins; how isolated they are

from populations elsewhere; or how far individual animals range in a year or over several years.

Both bottlenose dolphins and harbour porpoises are protected species for which Special Areas of Conservation are recommended under European law. What happens when one species actually threatens the other? As yet, we don't know why such attacks occur. It may be competition for food or simply for space, or there may be some completely different reason.

It is really important to have answers to these various questions if one is to wisely manage the dolphin and porpoise populations around our coasts.

#### The future

Over the last century, Cardigan Bay has witnessed a range of human activities come and go. Recreational activities have become very popular, particularly in coastal waters. On the other hand, large-scale commercial net fisheries are no longer present, and generally the watersheds and coasts have become cleaner with tighter restrictions on untreated sewage and the disposal of toxic chemicals such as pesticides. Seismic exploration for gas has taken place in the past, west of Cardigan Bay, but has not

been developed further, although this may change in the future given the high energy prices at present. In this context, the search for new renewable energy sources is attracting interest in Welsh waters for the building of offshore wind farms, and turbines making use of tidal or wave energy. Needless to say, amongst areas being considered are the shallow seas of Cardigan Bay.

If dolphins and porpoises are to remain icons of the richness of marine life occurring in Welsh seas, we must ensure that we fully understand their needs and how those can best be integrated with our own

activities. Unfortunately, due to the present economic climate the Welsh Assembly Government, through CCW, has now decided it cannot give priority to dolphin monitoring in Cardigan Bay, and so the monitoring research that is described above will have to come to an end. It is ironic that just as the UK government is attempting to place marine conservation higher on the public agenda, here in Wales we are moving in the opposite direction.

*Dr Peter G.H. Evans is Director, Sea Watch Foundation & Hon. Senior Lecturer in Ocean Sciences, University of Wales Bangor.*

## Dysgu mwy am Ddolffiniaid

Mae Bae Ceredigion yn Ardal Cadwraeth Arbennig ar gyfer dolffiniaid trwyn potel (a llamidyddion). Defnyddiwyd cyfuniad o dechnegau arolwg i ddysgu mwy amdanynt; cofnodi arsylwadau ar hyd trawslinau, casglu lluniau o ddolffiniaid unigol, tynnu lluniau o'r awyr a chofnodi synau uwch-sonig. Tybir bod 150-250 dolffin trwyn potel yn y Bae ac mae'n bosib bod y boblogaeth yn gymysgedd o grwpiau gwahanol sydd ag ecoleg wahanol. Mae'n hysbysu teithio'n bellach nag y tybiwyd cynt - fe'u cofnodwyd llynedd ar arfordir gogledd Cymru ac ym Mae Lerpwl, sydd efallai'n esbonio pam y canfuwyd cemegolion diwydiannol yng nghyffwrdd dolffiniaid ar arfordir Ceredigion yn yr 80au. Yn ystod y gaeaf mae'r grwpiau'n fwy o faint ac yn aros yn bellach o'r lan. Mae ymddygiad dolffiniaid a llamidyddion yn wahanol iawn. Mae

llamidyddion yn fwy cyffredin ger y glannau yn y gaeaf a hefyd pan fydd y llanw ar drai. Mae'n hysbysu hefyd yn brysurach gyda'r nos, a'r dolffiniaid yn amlycach wrth iddi nosi ac wedi toriad gwawr. Felly, er yn rhannu'r un dyfroedd, mae llai o bosibilrwydd gweld llamidyddion pan fydd dolffiniaid yn bresennol. Yn wir, ymosodiadau gan ddolffiniaid fu'n gyfrifol am y rhan fwyaf o farwolaethau ymhlith llamidyddion ar hyd glannau Cymru yn ystod y 5 mlynedd diwethaf.

Mae cwestiynau dyrys i'w hateb o hyd, ond nid oes cyllid bellach ar gyfer y gwaith monitro. Mae un peth yn ddigon amlwg: rhaid i reolaeth yr Ardal Cadwraeth Arbennig ymestyn ymhell tu hwnt i'w ffiniau presennol os am warchod dolffiniaid trwyn potel Bae Cerdigion.

# Llên Natur yn cysylltu Natur, Hanes a Phobl

*Mae Cymdeithas Edward Llwyd yn unigryw yn y ffordd y mae'n hybu diddordeb mewn gwahanol agweddau ar ein hamgylchedd - daeareg, bywydeg, hanes, archeoleg, iaith a diwylliant. Bydd prosiect newydd Llên Natur yn adlewyrchu'r diddordeb eang hwn ac yn rhoi cyfle newydd i bobl astudio, mwynhau a rhannu gwybodaeth am amgylchedd Cymru. **DUNCAN BROWN**, cydlynnydd y prosiect, sy'n egluro mwy am y datblygiad ac yn rhoi blas o'r math o gynnyrch y bydd y Llên Natur yn helpu creu.*



Cyfoeth o astudiaeth natur Cymru  
A wealth of Welsh natural history

**D**eng mlynedd yn ôl, ym mis Awst 1998, i ddathlu ei hugeinfed penblwydd, cyflwynodd **Cymdeithas Edward Llwyd - Cymdeithas Naturiaethwyr Cymru** brosiect Llên y Llysiâu i geisio llenwi bwch ym maes astudiaethau amgylcheddol yng Nghymru. Y nod oedd casglu a dathlu ein cysylltiadau ni yng Nghymru gyda phlanhigion trwy'r oesoedd hyd heddiw a'r bwriad oedd cyhoeddi erthyglau a gwybodaeth ar y wefan [www.llenyllysiau.com](http://www.llenyllysiau.com). Roedd y deunydd yn cynnwys pob math o gysylltiadau, o chwarae plant i enwau lleoedd, o lenyddiaeth i wyddoniaeth, ac o feddyginaethau i fwyd. Gwefan Gymraeg ei hiaith ydyw, ond mae'r drws yn agored led y pen i bob math o brofiadau a thystiolaeth, yn llenyddol, llafar a gweledol, beth bynnag eu hiaith wreiddiol, gyda'r bwriad o gyflwyno'r wybodaeth ar ffurf mor agos at y gwreiddiol ag sydd yn bosibl.

Eleni, i ddathlu degfed penblwydd ar hugain y Gymdeithas, mae'n fwriad i ehangu Llên y Llysiâu i gynnwys meysydd eraill megis Llên yr hin (tywydd), Llên y creigiau (daeareg), Llên y llefydd (enwau lleoedd ag elfen amgylcheddol iddynt), a Llên y milod (anifeiliaid). Enw'r cynllun newydd



fydd Llên Natur a fydd yn cynnwys gwefan ac amrywiol weithgareddau a chyhoeddiadau eraill. Ar hyn o bryd tra bo'r wefan newydd yn cael ei hadeiladu mae Bwletin Llên Natur yn ymddangos yn rheolaidd am ddim i gefnogwyr y prosiect (chi efallai?) neu mae pob ôl-rifyn i'w weld ar yr egin wefan [www.llennatur.com](http://www.llennatur.com) ar hyn o bryd trwy bwysu'r botwm *Cylchgrawn*.

Dyma un enghraifft o gynnyrch Llên Natur, wedi'i addasu, a ymddangosodd yn Rhifyn 5 o'r Bwletin. Mae ambell addasiad arall wedi ymddangos yn y golofn deu-wythnosol o'r un enw, yn *Y Cymro*. Fel y

gwelir o'r enghraifft hon, bydd pob math o dystio-laeth a ffynonellau diwylliannol o fas data'r wefan yn cael eu defnyddio i ddarlunio'r erthyglau yn y Bwletin, gan greu adnodd newydd sydd efallai yn unigryw. Mae'r ddau hen gerdyn post isod, sydd o ddiddordeb hanesyddol yn eu hawl eu hunain, hefyd yn fodd i amseru cyrhaeddiad y cordwellt ar Y Fawddach.

Os hoffech gael mwy o wybodaeth, neu os hoffech gynnwys llun neu ffotograff yn yr oriel, cysylltwch â'r canlynol: **Haf Meredydd, 14 Stryd Wesla, Porthmadog, Gwynedd LL49 9DS.**

## Cronicl y Cordwellt – enghraifft gynnar o Beirianyddiaeth Genetig?



Tynnwyd hwn cyn y flwyddyn 1910 (dyddiad y marc post). Tywod moel heb llystyfiant sy'n ymestyn i fae Glandŵr, Y Fawddach).



Tynnwyd cyn 1953 (blwyddyn lledu'r lôn). Sylwch fel y mae'r llystyfiant wedi dechrau lledaenu dros y bae – y cordwellt *Spartina anglica* yw hwn. Sylwch fel y mae'r ddau gar yn cael trafferth pasio ei gilydd ar yr A496 rhwng Y Bermo a Dolgellau cyn lledu'r ffordd.

Llun cerdyn post Harvey Barton and Son Ltd., Bristol

**M**ae pawb wedi gweld y cordwellt os y gwyddant hynny neu beidio. Mae meysydd eang ohono heddiw ar hyd y Foryd, ger Caernarfon, neu ar y Fawddach rhwng y Bermo a Dolgellau, neu ar unrhyw forfa neu aber yng Nghymru neu du hwnt. Er nad ydych efallai yn gwybod ei enw, nac wedi sylwi arno yn arbennig, mae'n blanhigyn unigryw.

Pam fod hwn felly yn haeddu ein sylw? Ganrif yn ôl doedd y planhigyn ddim yn bod o gwbl – yn unman yn y byd. Ac yn awr mae'n drwch ar yr aberoedd lle bu ond tywod moel gynt. Son am *Spartina anglica* yr ydw i, sef y cordwellt. Wrth gwrs mae yna blanhigion eraill o'r hil *Spartina* i'w cael ym Mhrydain, Ewrop ac America, ac ar gyfandiroedd eraill hefyd. Does dim problem gyda nhw - maen nhw'n gwybod eu lle ac yn aros yno. Sut felly daeth *Spartina anglica*, y cordwellt cyffredin, i fod o gwbl, heb son am fod mor ymosodol? Dyma'r hanes...

Bu cordwellt y môr *Spartina maritima* (y cordwellt bach - yr unig gordwellt cynhenid i Loegr) yn byw fel y bu fyw erioed, yn ddi-fai a di-drafferth yma a thraw ar hyd arfordir dwyrain Lloegr. Ni fu erioed yn tyfu yng Nghymru o gwbl, a dydy' o ddim rwan. Yn 1829 cafodd *Spartina alterniflora* (y cordwellt llyfn) ei gofnodi am y tro cyntaf ym Mhrydain yn ne Lloegr ar yr afon Itchen. Credir iddo gyrraedd Ewrop o America ac mi gafwyd hyd iddo yn

Bayonne, Ffrainc yn 1803. Yn 1870 sylweddolodd y gwybodusion bod y ddau gordwellt yn croesi â'i gilydd lle bynnag y tyfent yn yr un man. Yr enw a roddwyd ar y croesiad hwn oedd cordwellt Townsend *Spartina x townsendii* (wedi ei enwi ar ôl y botanegydd Fictoraidd, yr Athro F. Townsend). Croesawyd y croesiad fel modd i ennill tir amaethyddol ar yr aber. Ni feddyliondd neb y byddai'r planhigyn hwn yn mynd yn rhemp (os oedd hynny yn achos pryder o gwbl yr oes honno) gan nad oedd, fel y rhan fwyaf o groesiadau, yn ffrwythlon.

Ond rhywsut (a does neb yn gwybod yn union sut hyd heddiw) yn 1890 bu newid genetig yn y croesiad *S. x townsendii* a daeth i fod yn groesiad ffrwythlon a fyddai'n gallu ymledu nid yn unig trwy ei wreiddiau ond trwy hadu hefyd. Yr enw a roddwyd ar hwn oedd *Spartina anglica* a threuliodd yr hanner canrif nesaf yn gwladychu aberoedd Ewrop, gan gynnwys rhai Cymru. Ddaeth yn destun pryder cynyddol i warchodwyr er yn achubiaeth posibl i ffermwyr yr arfordir. Yn wir fe'i plannwyd ar lawer o aberoedd y tu allan i dde Lloegr er mwyn adennill tir tywodlyd ar gyfer cadw stoc. Sylweddolwyd yn raddol nad oedd y gwelltyn hwn yn werth dim i stoc, ond parhaodd i ymledu.

Yn y 1950au cyhoeddodd y botanegydd o'r Bermo Peter Benoit, yn y cylchrawn *Nature in Wales* 9(2) 1964 (y cylchrawn a ragflaenodd *Natur Cymru*), fod *Spartina anglica* yn goresgyn aber y Fawddach, a galwodd ar y cyrff amgylcheddol i gymryd camau i'w reoli. Ddeng mlynedd ar hugain yn ddiweddarach, tua 1980, cychwynnodd y Cyngor Gwarchod Natur (y corff cadwraethol ar y pryd) ar y gwaith o geisio rheoli'r planhigyn ar aber yr Afon Cefni; parhaodd ei olynnydd Cyngor Cefn Gwlad Cymru gyda'r gwaith. Ond bu'n rhy ychydig yn rhy hwyr. Yn ffordus, erbyn troad y ganrif newydd roedd *Spartina anglica* yn ymddangos fel petai wedi cyrraedd ei anterth. Roedd bygythiad "rhodedendron yr aber" i un o'n cynefinoedd pwysicaf o bosib wedi cilio – am y tro o leiaf. Ond mae'r cordwellt yn dal yn drwch – ai diwedd y stori yw hwn, ynteu diwedd pennod?

## 'Llên Natur' – Lore of the Natural World

A decade ago, Cymdeithas Edward Llwyd launched a web-based project to celebrate people's connections with plants in Wales. This year the project will be extended to cover other areas, such as animals, weather and geology. The connections between people and their natural surroundings are present in various forms - place names, literary references, recipes, medicines and children's games. The website will be a unique resource in Wales, but the sources of information within it will also be used to produce articles and

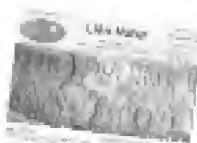
other materials for a wider readership. A regular Bulletin is currently being published to keep project supporters informed of progress and to provide a taste of what's to come once the new website is live and populated.

If you would like more information, or would like to contribute a picture or a photograph for the gallery, please contact:

**Haf Meredydd, 14 Stryd Wesla, Porthmadog, Gwynedd LL49 9DS.**

### Gwefan natŷ (aethol) a phobol Cymru

#### Satle Aderfadu Gwolan Llên Natur



Nid ad arallnagel sefydlu gwefan o ymroddiadau ymroddol, na'r a'r rhwybryddia, am amgylchedd a chreir gw... am gwybodaeth a rhwybryddia, am amgylchedd a chreir gw...

Wan ymroddiadau a llyso yn cynnal gwefan Llên Natur a llyso yn...

Ma'r gwaith o ddarparu'r gwefan wedi cyrraedd y llyso a'r rhwybryddia, am amgylchedd a chreir gw...

Fel y gwefan hon yn darparu'r gwefan wedi cyrraedd y llyso a'r rhwybryddia, am amgylchedd a chreir gw...



# The Polecat marches on

*Remote parts of Wales once provided a vital refuge for polecats. A survey in the 1990s showed that they were doing well here and expanding their range (see Williamson and Birks, Natur Cymru 17). Now the latest survey brings welcome findings about the rising fortunes of a skilled predator which has survived against the odds, as JOHNNY BIRKS reports.*

A dose of good news goes down well in these uncertain, climate-changing times, and confirmation of the polecat's continuing spread from its historical Welsh stronghold is just what the doctor ordered. A recent survey by The Vincent Wildlife Trust (Birks, 2008) shows that this unfussy, bandit-masked mustelid has made great gains recently in central and southern England. It sheds encouraging new light upon relations in the wild between polecats and ferrets, and raises some questions about the status of the polecat in Wales: has it really become scarce in some areas, or is the paucity of records just a case of recorder complacency?

The latest polecat survey covered the period 2004-2006 and relied upon an impressive volunteer effort. Local naturalists and members of the public rolled up their sleeves and wrinkled their noses to provide the typically mucky and whiffy evidence required to verify polecat records. (The need to separate true polecats from ferrety specimens meant that photos or bodies of road casualties had to be collected, so that visual evidence was available for examination). Nearly 1300



records were gathered, of which 930 could be verified by inspection; road casualties made up 77% of all records.

### Sorting polecats from polecat-ferrets

Work by Andrew Kitchener at the National Museums of Scotland shows that polecats can reliably be distinguished from specimens with some ferret in their make-up (called polecat-ferrets) by assessing a series of pelage characters, such as the extent of pale fur on the head, throat and feet (these characters are described in a free leaflet published by the VWT). On this basis, true polecats comprised 86% of all verifiable records collected during the 2004-2006 survey; the remainder were polecat-ferrets and approximately half of these were dark, polecat-like specimens with minor evidence of ferret. There were big regional variations in the proportions of true polecats and polecat-ferrets, and these were used to define 'Polecat Purity Zones'. The purest populations (comprising more than 95% true polecats) were found in Wales and the Marches, with the least pure (less than 85% true polecats) around the periphery

of the species' main range (now in southern and eastern England) and in outlying areas where polecats are present following translocations (such as north-west England and parts of Scotland). This pattern is consistent with an increasing tendency for polecats to 'make do' with feral ferrets as mates as they spread far beyond their western stronghold. However, this ferrety dilution effect is not as serious a threat to the future integrity of our polecats as it might seem.

The latest survey uncovered tantalising evidence of a significant difference in survival and/or breeding success between true polecats and polecat-ferrets in the wild. Over the three years, the occurrence of road casualties showed a spring peak in both forms, suggesting that each was taking an active part in the mating season. However, in the autumn when the young disperse, polecat-ferrets were greatly under-represented in the road casualty figures; this probably indicates that, compared with true polecats, proportionately fewer polecat-ferrets are born in the wild and/or survive to disperse (an alternative suggestion, that polecat-ferrets are more careful when crossing roads, should not be taken too seriously!).

The optimist's conclusion, and one that has long been suspected by observers of the UK polecat scene, is that the original process of domestication put the ferret (and, apparently, any 'ferrety' polecats) at a serious disadvantage when it has to compete in the wild with true polecats. In the long-term, therefore,





the polecat form should tend to dominate the British population even despite a trickle of matings with ferrets, especially around the fringes. This encouraging prognosis contrasts sharply with that facing the Scottish wildcat, where feral cats and hybrids offer much more effective competition in the wild, and have consequently eroded the genetic integrity of what is now one of our scarcest British mammals.

#### Welsh survey results

So how is the polecat faring in its Welsh heartland, where 95.3% of all specimens examined were true polecats (compared with 84.6% in England and 40.9% in Scotland)? Surprisingly, Wales generated relatively few records (only a third of the number from England, for example), and many 10km squares, especially in west Wales, produced no records at all during the 2004-2006 survey. Beyond the simplistic conclusion that polecats have become inexplicably scarce in parts of Wales, there are other

explanations for this difference: firstly, human populations are relatively low over much of the Principality, so observer effort is bound to be limited when compared with England; secondly, the density of main roads and traffic is also low in Wales compared with England, leading to proportionately fewer road casualties; finally, the polecat is a new and unfamiliar mammal to naturalists in much of England, so the likelihood of a carcass on the tarmac being spotted and reported is higher than in Wales, where such a sight is less remarkable.

So, there is every reason to believe that the sparse coverage in Wales is a consequence of recording effects, rather than a sign that something is amiss with the conservation status of a quintessentially Welsh mammal. Nevertheless, while there is no immediate cause for concern, a push over the next few years to tick off many of the recently 'polecat-blank' 10km squares would be a valuable exercise.



polecats crossed the Menai Bridge during the 1990s) and in the densely populated valleys of Glamorgan.

### On the march in England

With Wales now all but fully recolonised by the polecat, it was inevitable that most of its recent spread would occur east of Offa's Dyke. Sure enough, 85% of the 130 new 10km squares added to the polecat's known range during the latest survey are in England. The six counties with the greatest recent

This might be a worthwhile project for the new Wales Mammal Group, and for other people and organisations involved in biological recording in Wales.

We can draw further reassurance from the observation that polecats were recorded from more 10km squares in Wales during the latest survey than during its predecessor (104 compared with 62 in 1990-1997); also, that 13 new 10km squares were added to the previously recorded post-1950 Welsh range, leading to a cumulative total of 219 occupied squares in Wales. All of the 13 new 10km squares were on the northern (Anglesey, Denbigh and Flint) and southern (Glamorgan and Monmouth) fringes of the species' Welsh range. If we dare to have confidence in the post-1950 cumulative approach to mapping the polecat's Welsh range (which rests on the assumption that any 10km squares recorded as positive since Ken Walton started mapping polecats in the late 1950s remain positive today), then the only truly 'blank' areas remaining in Wales are on Anglesey (which is still being re-colonised after

expansion are Derbyshire, Buckinghamshire, Berkshire, Hampshire, Wiltshire and Dorset. It is thrilling to find the polecat now thriving so far from those mountains in mid-Wales that provided a vital refuge during the bad old days of predator eradication. Parallels with the red kite's tale over the past 150 years are striking, though there have been huge differences in the resourcing, publicity and modus operandi of recovery - the polecat's was zero-budget, low profile and mainly DIY! In common with many of our mammals, accessibility is an issue. There is an undeniable gulf in charisma and appeal between the kite's buoyant displays over the M40 motorway and the furry, black and tan carcasses flattened on the tarmac beneath! If only polecats would show themselves a little more before the dastardly radials do their stuff.

But there is some cause for optimism on this front... Good surveys often provide incidental insights into the behaviour of their target species, and happily the recent VWT survey conformed to this maxim.



## Y Ffwlbart yn Ffynnu

O'r 1300 cofnod ffwlbart a gasglwyd rhwng 2004-6, roedd 86% ohonynt yn ffwlbartiaid llawn a'r gweddill yn ffwlbartiaid-ffured. Yng Nghymru ac ar hyd y gororau y mae'r poblogaethau ffwlbart 'pura' (>95% gwir ffwlbartiaid). Cafwyd llai o gofnodion o Gymru - nid o reidrwydd am fod y ffwlbart yn prinhau mewn rhannau o'r wlad ond efallai oherwydd natur wledig llawer o Gymru, lle nad oes llawer o bobl i arsylwi, na llawer o ffyrdd a thraffig i achosi damweiniau. Mae'n bosib hefyd bod gweld ffwlbart ar y ffordd yn llai hynod yng Nghymru ac yn felly'n llai tebygol o ysgogi cofnod. Ond byddai'n dda llenwi'r sgwariau 10km 'gwag' dros y blynyddoedd nesaf. Cofnodwyd ffwlbartiaid mewn 13 o sgwariau 10km newydd yng Nghymru yn ystod 2004-6, ar ymylon gogleddol a deheuol yr ardal ddosbarthiad. Os derbynnir bod cofnodion y 1950au dal yn ddilys, dim ond ym Môn ac yng nghymoedd poblog Morgannwg y ceir sgwariau gwirioneddol wag.

Cofnodwyd nifer o sgwariau newydd yn Lloegr sy'n dangos bod y ffwlbart wedi lledu'n bell o'i gadarnleodd yng nghanolbarth Cymru lle cafodd loches pan oedd erledigaeth ar ei waethaf. Cyrff celain ar ffyrdd oedd y mwyafrif o'r arsylwadau ond cofnodwyd cryn dipyn o ffwlbartiaid mewn gerddi hefyd, yn bennaf yn ystod yr haf.

Notably, it highlighted the rise of the garden polecat. Although sightings of live polecats were dominated by animals on roads (pre-radial contact!), polecats in gardens were the next most frequent category and most were summer sightings. Over one third of garden sightings were backed up by photographs and these, together with detailed observations of 'wild' behaviour, helped to suggest that most of the animals involved were true polecats rather than tame, ferretty specimens. Reports included several instances of predation of wild prey (rabbits, frogs, birds) and consumption of food put out for foxes, hedgehogs and cats. Polecat families were reported from 18 gardens, and many of these were living (and some had bred) in or beneath decking, sheds, garages and other outhouses. Importantly, most people who contacted the VWT were delighted to have seen polecats in their gardens, and some put out fresh meat for them at night. Tempting though it is to regard these 'garden polecats' as exhibiting new behaviour, for centuries polecats have been attracted to human dwellings in search of shelter and easy prey. The difference today is that we have wire mesh to protect our pets and chickens, so are more likely than our forebears to tolerate a night-time visit from the long-lost poule-chat. Those garden rats had better watch out!

*Johnny Birks organised the latest polecat survey while he worked for The Vincent Wildlife Trust. He now works for Swift Ecology.*

*The Vincent Wildlife Trust is grateful to all those who contributed to its 2004-2006 polecat survey.*

Birks, J.D.S. (2008). *The Polecat Survey of Britain 2004-2006: a report on the polecat's distribution, status and conservation*. The Vincent Wildlife Trust, Ledbury (copies available from the VWT at [www.vwt.org.uk](http://www.vwt.org.uk))



# Marine energy developments - good or bad?

*On land, development is regulated by planning law, and assessments of ecological impacts are relatively straightforward. The same cannot be said for the sea, especially inshore waters, where development pressure coincides with high wildlife value. In the rush to develop renewable energy generation at sea, a cautious approach based upon a proper understanding of the likely impacts of these developments is essential if they are to contribute to sustainable development, as MICK GREEN argues.*

St. Bride's Bay, Pembrokeshire

Stand on any headland in Wales on a stormy day and the power of the sea is obvious, through the surge of the tides, the power of the waves and the force of the wind. For years man has dreamed of capturing that power but it is only relatively recently that the technology and economics have come together to begin to make large-scale harnessing of offshore and coastal marine renewable energy a reality.

The development of offshore renewable energy can be seen as environmentally desirable, especially for the amelioration of climate change, including meeting international carbon dioxide reduction targets. Whilst renewable energy sources are seen as clean and inexhaustible, there are some adverse impacts from any energy development. The renewable energy industry is still in relative infancy and, as such, not all of its impacts are clear or fully assessed. These impacts need to be carefully considered, costs and benefits fully evaluated and impacts minimised through careful project design and implementation if marine renewable projects are to be seen as part of a move towards sustainable development. Such investigation will help ensure appropriate placement of renewable energy sites and careful monitoring will feed into adaptive

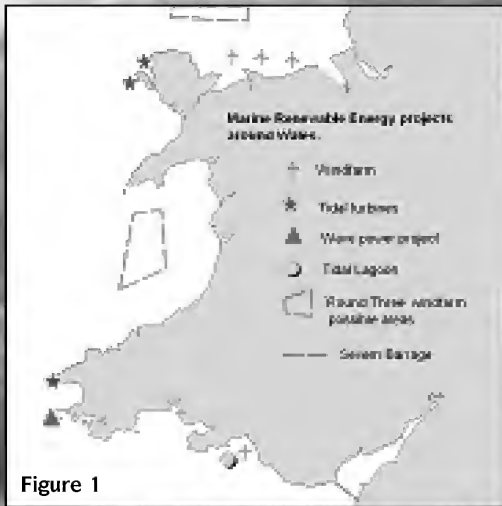


Figure 1



MD Smith

These are underwater turbines constructed in sites of high tidal currents. The technology is not yet commercially proven, but is developing fast.

Wave power generators are the third type of development. These come in several forms. One, the Wave Dragon project, uses the force of the waves to get a head of water which is run down through conventional turbines to generate power. A trial mechanism is being installed off the Pembrokeshire coast this summer. Other wave generators use a variety of technologies, though none are currently planned around Wales.

Tidal lagoons - where an area of seabed is banded to trap water on the falling tide which is then released through turbines - have been proposed in several sites including Liverpool Bay and within the Severn Estuary. One, in Swansea Bay, has gone through a formal investigation, though its current status is unclear.

Finally, tidal barrages such as the Severn Barrage have been proposed many times though none built in the UK. The Severn Barrage is once again under investigation, with a feasibility study and environmental assessment being undertaken by the Government.

Current developments around Wales, in operation, under development or proposed, are shown in **Figure 1**.

### Potential Impacts

The impacts on marine wildlife from the development of renewable energy are unfortunately little known, especially for the newer technologies. Some of the

management. A thoroughly precautionary approach is necessary in all developments.

### Types of development

Offshore wind generators are the most advanced technology, with one windfarm, North Hoyle, already operating off the north Wales coast, another under construction and two more in planning. This technology is commercially proven, with large developments under construction or planned in many European waters. Turbines are generally constructed in shallow waters on soft sediments. The Government is currently consulting on 'Round Three' - a new set of sites proposed for licensing the construction of windfarms which includes a further area off north Wales and a large area in outer Cardigan Bay.

A new development, but one that is being investigated in at least three sites around Wales, is tidal turbines.

potential impacts that have been suggested are summarised below.

Type of Development	Potential impacts	Species or habitats impacted
Wind turbines	Noise from piling during construction Collision risk Alteration of seabed through scour Disturbance from maintenance visits Cabling – electromagnetic and construction impacts	Cetaceans, seals, fish Birds Soft sediment habitats Birds, cetaceans Elasmobranchs, seabed habitats
Tidal turbines	Noise during construction Collision risk Operational noise Cabling – electromagnetic and construction impacts	Cetaceans, seals, fish Cetaceans, seals Cetaceans, seals, fish Elasmobranchs, seabed habitats
Wave power	Cabling – electromagnetic and construction impacts Anchoring points	Elasmobranchs, seabed habitats Seabed habitats
Tidal lagoon	Loss of seabed habitat Use of large quantities of aggregate in construction Cabling – electromagnetic and construction impacts	Benthic species Depends on source of aggregate. Elasmobranchs, seabed habitats
Tidal barrage	Loss of intertidal habitats  Change in tidal regime Use of large quantities of aggregate in construction	Birds, fisheries, saltmarsh species Fisheries Depends on source of aggregate

The extent of the impacts will depend on factors such as the scale and location of the developments, the habitats and species present, and so on. Some impacts, such as the noise from pile driving the foundations for wind turbines, are potentially lethal to fish and cetaceans nearby and very disturbing over considerable distances. However, they are relatively short lived and there are mitigation measures possible to some extent.

Other impacts, such as collision risk to birds from wind turbines, or to cetaceans and seals from tidal turbines, continue for the life of the development. The magnitude of these risks is unknown and is probably very site specific. There will undoubtedly be deaths by collision but what we need to know is if

those death rates are high enough to impact on a population as a whole. This is very difficult to predict

given our current level of knowledge so there is an argument for avoiding areas of known concentrations of birds and cetaceans until our knowledge improves.

Unfortunately our knowledge of the distributions of many marine species, which are often highly mobile, is not good enough to give thorough advice. An assessment of a proposal to drill for oil and gas in Cardigan Bay recently concluded that our knowledge of cetaceans was insufficient to make an informed decision of possible impacts – and this is in an area more thoroughly studied than many. Recent studies in north Wales have shown the importance of many fast tidal areas for porpoises, and these are the very areas being targeted for power

developments. Internationally important numbers of common scoter were only discovered in Liverpool Bay following investigations for wind developments.

### Sustainable development?

One of the problems we have is the lack of any coherent planning policy in the marine environment. Different projects - renewable energy, oil and gas, marinas, aquaculture and so on - are dealt with by different authorities. There is no mechanism to look at the cumulative effects of different developments on an area of sea. This is at a time when there is unprecedented development pressure around our coasts. Even with the proposals in the Marine Bill there will be different decision-making processes for coastal waters, offshore waters, large renewable





schemes, and oil and gas developments. Despite the promise of 'marine special planning' there is still no mechanism to look at overall cumulative effects of all uses of our marine habitats.

Harnessing renewable power from the marine environment can undoubtedly help us meet carbon reduction targets (as long as demand from conventional sources is replaced). However it cannot be seen as sustainable development if there are serious impacts on our marine wildlife.

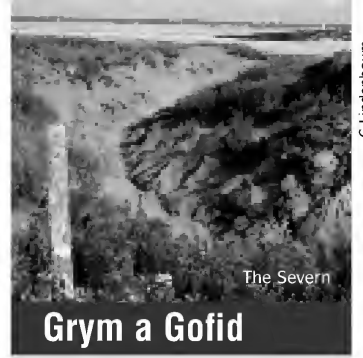
Developments should be

carefully planned to avoid impacts, and novel technologies should be carefully monitored and revised where necessary to enable us to understand their actual effects on species and habitats around our coasts. The lure of the available power should not be seen as a green light for wholesale industrialisation of our seas, and conservation priorities must be built in from the outset.

*Mick Green is a Director of Ecology Matters.*



View from Barry of the main proposed Cardiff-Weston Barrage, showing Steep Holm (top mid right) and Brean Down, England. This view would be of a high wall if the barrage goes ahead.

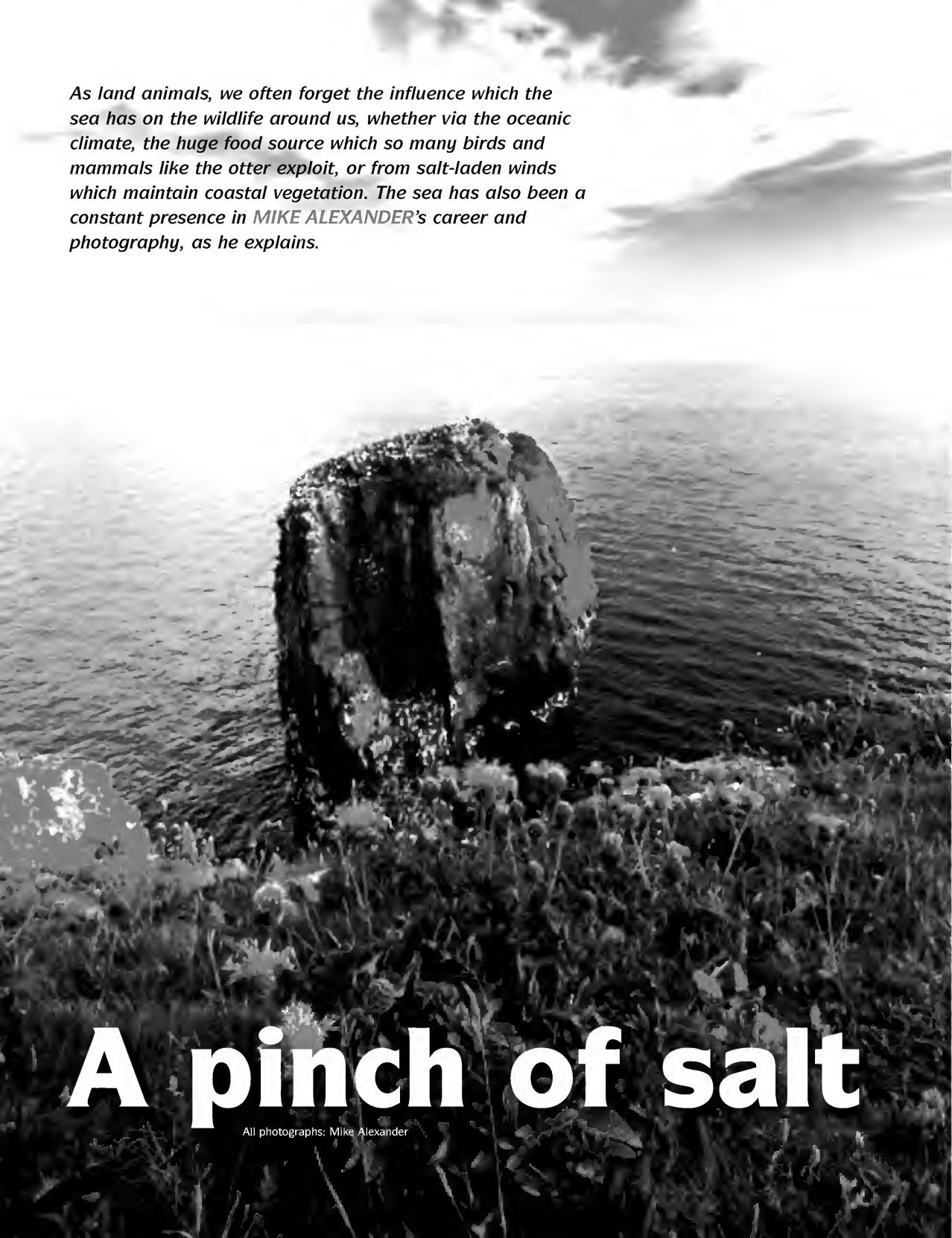


## Grym a Gofid

Gall neb wadu grym y môr. Mae melinau gwynt arfor, tyrbinau tonnau ac argaeau, tyrbinau a lagwnau llanw yn manteisio ar y pŵer hwn. Ond gweddol newydd yw'r diwydiant ynni môr a'i effaith ar yr amgylchedd yn aneglur. Gall rhai effeithiau fod yn ddirifol ond byr-hoedlog, fel effaith sŵn adeiladu ar bysgod. Mae eraill yn effeithiau hirdymor, fel gwrthdrawiadau adar a morloi yn erbyn tyrbinau. Does wybod eto a fydd y fath ddamweiniau'n effeithio ar boblogaethau cyfan.

Anodd yw rhoi cyngor manwl pan fo cyn lleied o wybodaeth am ddogsbarthiad nifer o rywogaethau morol. Daw ffeithiau newydd i'r golwg o hyd - dysgwyd yn ddiweddar bod llamidyddion gogledd Cymru yn hoffi ardaloedd gyda llif llanw cyflym, sef yr union fannau sy'n cael eu hystyried gan ddatblygwyr ynni môr. Mae'r ffaith bod gwahanol awdurdodau'n ymdrin â gwahanol fathau o ddatblygiadau morol yn broblem fawr. Nid oes unrhyw ffordd o asesu effaith cronol gwahanol ddatblygiadau ac ni fydd y Mesur Morol newydd yn newid hyn.

Rhaid i flaenoriaethau cadwraethol fod yn ganolog wrth ystyried a chynllunio'r datblygiadau hyn er mwyn sicrhau eu bod yn cyfrannu'n adeiladol at ddatblygiad cynladwy.



*As land animals, we often forget the influence which the sea has on the wildlife around us, whether via the oceanic climate, the huge food source which so many birds and mammals like the otter exploit, or from salt-laden winds which maintain coastal vegetation. The sea has also been a constant presence in MIKE ALEXANDER's career and photography, as he explains.*

# A pinch of salt

All photographs: Mike Alexander



A career in conservation is perhaps like any other: you take the rough with the smooth, glide through mill-pond seas and hold on tight through choppy waters. I am not sure how good an analogy this is, for I find heavy seas invigorating, and don't regret a moment spent in the elements; it's time in the office which can be less rewarding.

Perhaps my most formative years were spent as warden on Skomer. This was a privilege which brought me nose to nose with endearing animals such as the puffin. This is a bird whose appearance and demeanour hover between comical and surreal. I hope that I was able to do something practical for the management of this wonderful island, not least by collecting valuable data and advancing scientific understanding of the maritime ecosystem.

Hardly surprising, then, that I find it hard to separate out the marine world, however different its organisms are - jellyfish, anemones, urchins and crabs - and the land. I am a land animal with salt coursing through my veins. Island life is a bridge between land and sea, for not only does it support seabirds which spend much of their life at sea, its vegetation and soils are shaped and adapted to salty sea sprays and deposits from the sea.

Wardening on Skomer involved the systematic collection



Pembrokeshire cliffs



of data about seabird populations and vegetation, so that we could manage the island to best effect. I spent hours and hours at night waiting for Manx shearwaters to come back to their burrows to feed their young at dusk. Long days ended in nights fortified by, among other things, good conversation with fellow enthusiasts. I also developed another passion, by which I found I could record life on the island through the lens of my own sensibilities.

#### More than a record

Photography is a useful tool in the business of monitoring habitat change, and a sequence of fixed-

point photographs over a number of years can reveal a pattern of gradual change which more systematic monitoring methods sometimes miss. This has been the reason why I have often had a camera with me when working. It doesn't explain why so much of my own time is spent with camera and tripod, searching out the perfect vantage point in the still of the early morning or evening, when the light has a translucent glow.

People often talk about the quality of the light which we get especially along the west coast, but I find no words do it justice. The language you need to use to



Skokholm from Skomer

understand it is a visual one. The perfect image I pursue with a lens is not part of an intellectual quest. It is much more visceral than that. Light falling onto a sea flecked with white, an ocean of sea life, lifts the senses. These words, as I have said, don't do justice to what I see, and what I want my photographs to record. So I will leave it to the photographs themselves to do the job for me.

### A new phase

After more than three decades working for the Nature Conservancy Council and, since 1991, the Countryside Council for Wales, I am now in a position to help steer



## Heli yn y Gwaed

Bu'r môr yn rhan annatod o fywyd Mike Alexander ers degawdau. Fel warden ar Ynys Sgomer flynyddoedd nôl, bu'n rheoli cynefinoedd sy'n cael eu dylanwadu'n drwm gan yr heli ac yn casglu gwybodaeth am ecosystemau morol er mwyn helpu gwarchod adar fel y pâl a'r aderyn drycin Manaw. Datblygodd ddiddordeb mewn ffotograffiaeth - nid yn unig fel arf i gofnodi newidiadau mewn cynefinoedd, ond hefyd fel ffordd o ddal eiliadau hudolus ym myd natur. Mae'n brysur y dyddiau hyn yn sefydlu 'Natur', sef corff newydd ar gyfer rhai sy'n gweithio ym maes yr amgylchedd yng Nghymru. Trefnwyd dwy gynhadledd eleni gan Natur - cynhelir un ar thema morol ar Dachwedd 18/19 (gweler tud. 48).

NATUR, The Welsh Institute of Countryside Management and Conservation, as its Chairman.

NATUR has existed for some years as an informal grouping which organises the annual Welsh Conservation Management Conference. This year we have managed to put on two shorter conferences. The first, a conference on people and nature in urban and post-industrial Wales, took place in March (for information see *Natur Cymru* 27 p.43). The second will take place on 18/19 November at St George's Hotel, Llandudno (see page 48).

### Management with a pinch of salt

Subtitled *Bringing land and sea together to prepare for change in the environment*, the conference objective, more prosaically, is to bring marine and terrestrial conservationists together and illustrate the parallels and similarities between the two. The format will include presentations, workshops and poster displays.

Talks will cover islands, sustainable fisheries and the Marine Bill. Leading researchers and writers who have agreed to speak include Tim Birkhead, whose long run of seabird data from Skomer will inform his talk on terrestrial and marine influences on the guillemot population, and John Rodwell, who will be talking about changes in island environments. I hope to see some of you there.

*Mike Alexander is Chair of NATUR. He is author of Management Planning for Nature Conservation (see Green Bookshelf p.43)*

# Valuing nature

*The debate about valuing nature has often seemed rather theoretical. But in the wake of a changing climate, and spurred by the Stern Report, policy-makers are waking up to the pressing need to put a value on the full range of ecosystem services. So far, though, it is a salutary fact that we have only managed to put a price on carbon, but not on any living creature. MORGAN PARRY explains how far putting a value on ecosystems has got, and why it is such a critical issue for all of us.*

Wet woodlands - economically valuable as carbon sinks

In a world which knows the price of everything and the value of nothing, it's not surprising that many naturalists and ecologists have a suspicion of economics. But although we may have resisted the idea of giving a financial value to a species or habitat (because it makes them easier to buy and sell), the emerging field of ecosystem service valuation may be our best response to our current economic model which attaches no value to nature.

Ecosystem function emerged as a science in the 1960s, and by the 1990s the idea of giving an economic value to the services that ecosystems provide was becoming a focus of academic research. Nutrient cycling, climate regulation, pest and disease control, pollination, biological and genetic diversity and water purification are all ecosystem services, as are aesthetic, recreational and spiritual resources. The value of these services is not recognised by commercial markets or quantified like industrial outputs, and so doesn't contribute to official measures of economic progress. But because our global economy is entirely dependent on these life-support systems, their total value to the economy is in one sense infinite. Neglecting this knowledge may ultimately compromise the sustainability of humans on the planet.

### Giving ecosystems a value

Many naturalists argue that nature has an intrinsic value beyond price. On an ethical or spiritual level this argument is true, but the economic values that are emerging from the research are surprising many in the environmental movement. Robert Costanza and co-researchers calculated that ecosystems provide at least US\$33 trillion dollars worth of services annually, several times greater than global Gross Domestic Product (GDP). This year a WWF report to the Convention on Biological Diversity estimated that the value of goods and services provided by our oceans is US\$21 trillion. The UN's Millennium Ecosystem Assessment in 2005 concluded that, in almost every case, the net economic benefits from a sustainably managed ecosystem are greater than those from converting that ecosystem to agriculture or other commercial use. Ecosystems are converted because private (market) benefits accrue, and in past centuries this resulted in development. But in an era when ecological limits are being exceeded, the public interest is clearly now in conservation not conversion.

There are many different ways of valuing ecosystems of course, and the figures above are the subject of considerable debate. They may be underestimates or overstatements. The full range of benefits provided

by biodiversity and ecosystems cannot be assessed because our understanding of ecological functions is limited, and estimates from case studies take into account only some of the benefits. But a standard methodology will emerge to challenge traditional economic thinking.

This has profound implications for the economic theories that drive development in Wales and across the world. Development through gains in financial and industrial capital has all too often been at the expense of natural capital, but the new science shows that this can be economically very costly. As global biodiversity declines (by more than a quarter in the last 35 years according to WWF's Living Planet Report), and the UN's 2010 Biodiversity Convention goals will be missed by a wide margin, a new model of economic development is required. Economic growth is now becoming uneconomic.

### The climate change example

Sir Nicholas Stern's review of the economics of climate change focussed on the cost of degrading one ecosystem function: the capacity of the atmosphere and other carbon sinks to absorb our greenhouse gas emissions. A report published earlier this year by the German Government and the European Commission focussed on another: biodiversity. Like the Stern

C. Lindenaubum



Severn estuary





The true costs of pollution are often ignored

report, which transformed the climate change debate by describing its adverse consequences for the world economy, the 'Economics of Ecosystems and Biodiversity' (EEB) report recognises the economic value of biodiversity to the millions of people directly dependent on natural resources for their livelihoods. It also shows how the loss of biodiversity is now affecting regional economies in many ways, from the depletion of fish stocks to agricultural pollution of river basins. The author, Pavan Sukhdev, a senior figure in Deutsche Bank, said "we are trying to navigate uncharted and turbulent waters with an old and defective economic compass and this is affecting our ability to forge a sustainable economy in harmony with nature." The next phase of the work will examine how to improve our economic models and policies to ensure the flow of ecosystem services, protect biodiversity, and improve the well-being of present and future generations.

So what are the lessons for Wales? Research suggests that our woodlands are worth hundreds of pounds per hectare per annum just as carbon sinks, and our wetlands a similar amount as watershed protection. Other research suggests that every £1 invested in enhancing and conserving these ecosystem services produces £100 of economic benefits. The future of agriculture, as the 2020 Report for the Welsh Assembly Government concluded, looks very different if we factor in the value of ecosystems: we must move towards a proper valuation of environmental goods and services. The Countryside Council for Wales has made this a theme of their work in the coming years

and has identified some priority issues for research.

We face a number of big infrastructure projects here in Wales, which current valuation methods judge to be of 'overriding public interest'. Take the case of the Severn barrage, which many politicians and business people want to see built to stimulate economic development and contribute to renewable energy targets. The Government has begun a Feasibility Study into the tidal power options, including a Strategic Environmental Assessment (SEA), and will look at the economics of carbon abatement, the relative costs and benefits of the alternative technologies and the cost of providing compensatory habitat. But these assessments currently don't look at the present or future economic value of the environmental resource that will be lost. It will look in great detail at the impact of the development on the environment but, however great that impact, it will be traded for what is seen as a greater economic good unless we can demonstrate an even greater economic loss.

#### Learning to value the environment

European and UK processes to evaluate environmental impacts have yet to catch up with the new thinking around ecosystem services. They measure the effects of a project on the environment, rather than the value of the environment itself. The EU defines SEA as "*an environmental assessment of plans and programmes which are likely to have significant effects on the environment*" and this is interpreted by the UK Government as "*the process of appraisal through which environmental protection and sustainable development may be considered... through consideration of the environmental implications of the proposed action*".

The argument (made by Cabinet Ministers and ex-Secretaries of State) - that because the biodiversity of the Severn will change with increasing climate change we should sacrifice it for low-carbon electricity production - is a false one. Ecosystem resilience in the face of climate change is an important concept with huge economic significance. The Severn estuary and its tributaries are a spawning ground for eels and salmonid fish which are critical components of

ecosystems many thousands of miles out in the Atlantic ocean. The consensus amongst fisheries biologists is that the barrage would cause the local extinction of these populations. Loss of these keynote species would be significant, but by creating a highly modified and impoverished habitat, the barrage would also prevent other species emerging to take their place as key species in the system.

Threats to ecosystem function are increasing across the world, and are becoming critical to our survival as a species. Opposition to the barrage is not a rejection of action on climate change, nor an argument against renewable energy. A recent report from Frontier Economics, commissioned by the RSPB, WWF and nine other NGOs, showed that a range of other renewable energy technologies could produce the same output as the barrage at half the price. Ensuring ecosystem resilience (particularly of those systems that are major carbon sinks) is every bit as important as reducing carbon emissions. It is perhaps ironic that in the whole debate about climate change, an inanimate element, carbon, now has a price – but no living thing does.

## Gwerth Natur

Mae'r cysyniad o 'wasanaethau ecosystem' yn ennill tir ac yn cynnig ffordd o herio'r model economaidd presennol nad yw'n rhoi unrhyw werth ar yr amgylchedd naturiol. Mae'r gwasanaethau hyn yn cynnwys rheoleiddio hinsawdd, rheoli pla a haint, peillio, puro dŵr ac ati. Yn ôl ymchwil, mae ecosystemau yn cynhyrchu gwerth triliynau o wasanaethau bob blwyddyn - sawl gwaith yn fwy na Chrynswth y Cynnyrch Domestig. Yn ddiwahan bron, ceir mwy o fanteision economaidd wrth reoli ecosystem yn gynaldwy o gymharu a throï ecosystem at ddiben amaethyddol neu fasnachol. Mae cryn drafod am yr union ffigyrau – amcanion ydynt, yn anorfod, oherwydd nad ydym yn deall yn llawn yr ystod o wasanaethau a gynigir gan ecosystemau.

Mae gwaith pwysig diweddar, fel adroddiad Stern ynglyn ag effaith newid hinsawdd ar economi'r byd ac adroddiad Pavan Sukhdev ar werth economaidd bioamrywiaeth wedi sbarduno ymdrechion i wella modelau a pholisïau economaidd fel bod

As the threats to our natural world become ever greater, so conservationists are obliged to seek more innovative and far-reaching approaches. Addressing the root causes of biodiversity loss, rather than the symptoms, can offer solutions to seemingly intractable problems. We are learning to think beyond protected areas, and to plan on bigger scales, across whole landscapes and eco-regions. Similarly, addressing the root cause of climate change by understanding our relationship with ecosystems will be more effective than simply fixing the symptoms. For both of these, economic valuation is an important new shield in the battle to defend the natural world and our own survival in it.

*Morgan Parry is Director, WWF Cymru.*



CCW

gwasanaethau ecosystemau yn cael eu gwerthuso'n iawn. Nid yw'r dulliau presennol o asesu ardrawiadau amgylcheddol wedi cwmpasu'r syniadaeth hon eto; maent yn mesur effaith prosiect ar yr amgylchedd yn hytrach na gwerth yr amgylchedd ei hun. Mae prosiectau fel argae'r Hafren yn amlygu'r gwendid hwn. Nid yw'r asesiadau yn edrych ar werth economaidd (nawr ac yn y dyfodol) yr adnodd amgylcheddol a gollir os créir yr argae - fel y llyswennod a'r eogiaid sy'n elfennau o ecosystemau filoedd o filltiroedd i ffwrdd. Nid yw gwrthwynebiad i'r argae yn gyfystyr â throï cefn ar ynni adnewyddol a'r ymdrech i daclo newid yn yr hinsawdd. Mae cynnal gwytnwch ecosystemau yr un mor bwysig â lleihau allyriannau a rhaid rhoi gwerth i bethau byw yn ogystal â charbon.



# Anglesey's Free living seaweeds

*You never know what you will find when you are out on survey. In one case the unusual observation was of free-floating wracks in the sea. KATHRYN BIRCH tells the surprising tale of a group of seaweeds which very occasionally can dispense with holdfasts and hang free.*

Most people are familiar with the brown seaweeds: channel, spiral, bladder, serrated and knotted wrack, so named because of their different field characteristics. These are all abundant around Welsh coasts, living attached to rocks, boulders, cobbles and seawalls. They often form a thick, slippery coating to the rocks that need to be crossed to reach the best rockpools! The 'wracks' (also known as fucoids) can also be found in sheltered sedimentary conditions such as estuaries, but again they are usually found attached to cobbles or pebbles, so it was very exciting to discover some

unusual free-living forms of some of these species in the Cymyran Strait, which separates Holy Island from Anglesey.

The discovery took place in 2003 when the area was surveyed as part of the Welsh intertidal survey carried out by the Countryside Council for Wales (CCW) between 1996 and 2005. I was part of the survey team, and we were making our way along the Strait between Plas Cymyran and Four Mile Bridge, checking out the worms and molluscs living in the sediment and mapping the extent of the different marine communities. It was here that we made a remarkable find - scattered patches of free-living spiral, bladder and knotted wrack, often at high abundances within the lower saltmarsh amongst the cord grass *Spartina anglica* and the mid-shore seagrass beds of dwarf eelgrass *Zostera noltii* and beaked tasselweed *Ruppia maritima*.



The Cymyran Strait

Kathryn Birch



Bladder wrack anchored in the Cymyran Strait



Figure 1 - *A. nodosum* showing large egg-shaped air bladders and the epiphytic red alga *Polysiphonia lanosa*

The knotted wrack was of particular interest as it did not exhibit the usual growth form of large swollen egg-shaped air bladders that occur at intervals along the middle of the narrow frond (Figure 1). Instead it had lost its air bladders and holdfast, become more branched and had formed into pom-poms about 10-15cm across (Figure 2). The survey team knew of a special free-living form of knotted wrack, known as sea loch egg wrack *Ascophyllum nodosum* *ecad mackaii*, a UK BAP species, which is known mainly from sheltered Scottish sea lochs. We wondered whether we had stumbled upon the first Welsh colony.

The shores of the Strait between Plas Cymyran and Four Mile Bridge run along the outflow from the Inland Sea. They have a series of sheltered, muddy sand inlets where streams and drainage channels run onto the shore (Figure 3), which seemed to create the right conditions for the *mackaii* form. We collected specimens of the knotted wrack, carefully wrapped them and sent them off with photographs of the species in situ to Harry Powell, a marine scientist in Oban, for a second opinion. Had the team indeed discovered the first Welsh record?

Within the month there was a reply from Harry, in the form of a beautifully handwritten letter thanking the team for the specimens, which he was 'pleased to see and comment on'. He thought that the survey

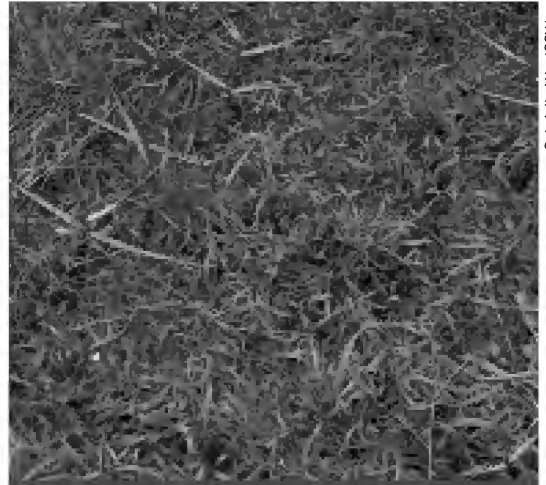


Figure 2 - *A. nodosum* *ecad scorpioides* without air bladders growing as a free-living tangled mat amongst saltmarsh plants

team would be disappointed to know that they had not found the first Welsh colony of the *mackaii* form but, almost as exciting, they had found another ecotype known as *A. nodosum* *ecad scorpioides* (marsh form) which is halfway towards the habit and morphology of *mackaii* and, perhaps more importantly, also seems to be a first for Wales.

Under normal conditions, knotted wrack lives attached to rocks or large boulders, but sometimes fragments of frond become detached from the main plant after injury or breakage and, under certain conditions, when they are not thrown up onto the strandline and die, these fragments can survive and grow into free-living plants. If conditions are right (e.g. very sheltered shores) both ecotypes develop initially from broken-off parts which branch prolifically. First they develop into the habit shown by *scorpioides* form living in the Cymyran Strait, but regular alternating short periods of immersion in fresh/brackish water and sea water are required to produce the more distinctive *mackaii* form which tends to be larger and show more extreme branching. Plants are usually sterile and reproduction is vegetative, although receptacles can sometimes form.

Gibb (1957) has carried out the most extensive work on these ecotypes in Britain. She found that a combination of specific conditions is required to

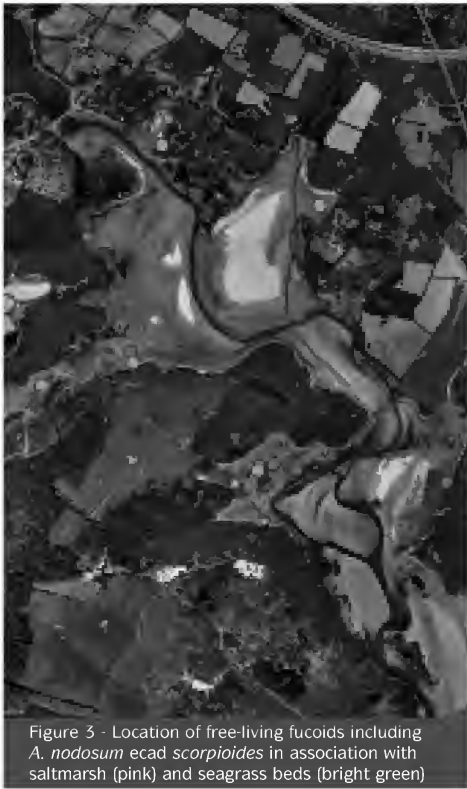


Figure 3 - Location of free-living fucoids including *A. nodosum ecad scorpioides* in association with saltmarsh (pink) and seagrass beds (bright green)

cause the formation of these ecotypes. For example, as well as a source of normal knotted wrack, conditions need to include: frequent alternation of high and low salinities, so a supply of freshwater is of primary importance; good shelter from wave action; absence of fast moving water; flat, undulating or slightly sloping shore profile where stability is high; and a suitable substratum.

It seems that for now at least, *mackaii* will continue to be restricted to very sheltered shores, in sea

lochs on the west coasts of Scotland and Ireland, whilst *scorpioides* is probably more widespread, occurring in suitable sheltered shores around Britain, although actual published records are few. It is known to be abundant in saltmarshes and other estuarine situations in New Hampshire (USA) where many studies have been carried out. There it occurs as entangled masses with other forms of bladder and spiral wrack and is often associated with the marsh grass *Spartina alterniflora*, a similar situation to that observed in the Cymyran Strait.

For the present, the Cymyran Strait is the only known location for *A. nodosum ecad scorpioides* in Wales: certainly the intertidal survey did not find any other areas and a search on the NBN gateway did not yield any other records, so it would be interesting to know if it occurs anywhere else. Milford Haven (the nearest thing Wales has to a Scottish sea loch) might be worth a closer look. So get your wellies on and get out there. Who knows, there may be some 'free-living' seaweeds somewhere near you!

*Kathryn Birch* works for CCW, formerly as a member of the Welsh Intertidal Survey Team. She is currently working on the Welsh Lowland Peatland Survey.

## Gwymon Gwahanol

Fel rheol mae gwymonau brown cyfarwydd yn tyfu'n sownd wrth greigiau a cherrig. Ond yn 2003, ar rannau isaf morfa heli Môr Cymyran (rhwng Ynys Cybi ac Ynys Môn) darganfuwyd planhigion gwymon troellog, gwymon codog mân a gwymon codog bras yn tyfu'n rhydd. Roedd y gwymon codog bras yn arbennig o ddiddorol am ei fod yn arddangos ffurf wahanol iawn – heb bothelli awyr ac angor ac yn tyfu ar siap 'pom-pom'. Edrychais fel ffurf o wymon codog sy'n tyfu'n bennaf mewn morlynnoedd yn yr Alban (ffurf *mackaii*). Gwyddom bellach bod gwymon codog bras Cymyran yn ffurf sy'n gysylltiedig â chynefin morfa (ffurf *scorpioides*) a'i fod hanner ffordd at fod yn wymon codog morlyn (*mackaii*). Roedd hefyd yn gofnod cyntaf yng Nghymru.

Mae'r ddwy ffurf yn datblygu pan fydd darnau o wymon codog yn torri ffrwd ac yn llwyddo tyfu eto dan amgylchiadau cysgodol, ar lannau graddol a sefydlog iawn. Mae trochiad dŵr croyw, am yn ail â dŵr heli, yn hanfodol i dyfiant y ffurfiau hyn.

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# The Scoters of Carmarthen Bay

Photo: Sean Gray [www.grayimages.co.uk](http://www.grayimages.co.uk)

*The shallow coastal waters of Carmarthen Bay, rich in invertebrates, provide vital feeding areas for overwintering flocks of an often overlooked seaduck, the common scoter. The Sea Empress oil spill killed large numbers of these ducks, but in response to this disaster, their wintering numbers are now monitored carefully. With numbers falling, vigilance remains essential, as*  
**ANDY MUSGROVE**  
*explains.*

The common scoter is an intriguing species of seaduck which occurs in internationally important numbers around the Welsh coastline. The species nests by lakes and pools in tundra regions from Iceland eastwards to the River Olenek in Siberia, whilst in eastern Siberia, Alaska and northern Canada, its place is taken by the very similar black scoter (the two were until recently considered to be the same species). Very small numbers also breed in Scotland (and until recently, did so in Ireland). However, survey work in 2007 concluded that the British breeding population had declined by 45% since 1995 to stand at just 52 pairs'. Research is ongoing to try to establish the precise characteristics of the lakes favoured by breeding common scoters in Scotland, to see if this gives a clue as to how to help support this tiny population.

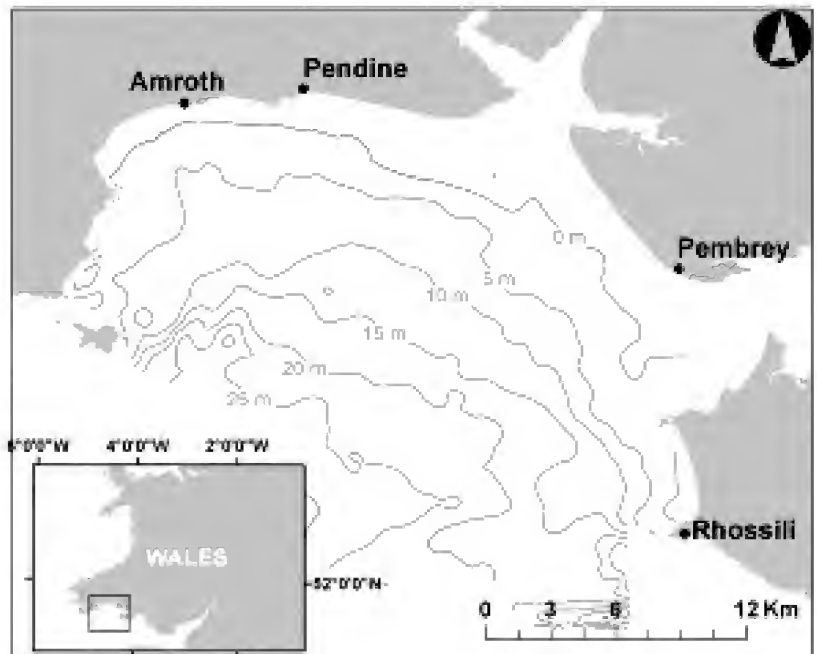
After breeding, the males leave the breeding grounds very rapidly, during the incubation stage. They then gather in favoured areas to moult, some close to the breeding areas, but others make a moult migration over greater distances back towards the wintering grounds.

As with many other species of waterbirds, the northern nesting grounds are deserted after the breeding season, as the females and juveniles migrate in September to make their way to more hospitable climes. In fact, the common scoter deserts the land altogether and the entire world population – an estimated 1.6 million birds<sup>2</sup> – spends most of the year in shallow offshore waters off western Europe and north-west Africa, with the largest numbers in the Baltic Sea and off the coast of

the Wadden Sea. In some areas, they mix with other seaducks such as velvet scoters and long-tailed ducks although, in Britain at least, the majority of common scoters prefer to form single-species flocks.

Because of their offshore habits, it is not easy to get a good look at a common scoter. Scanning shallow bays around the Welsh coastline with a telescope, however, may produce sightings of tightly-packed flocks of dark ducks, either on the sea or in flight. The males are unique in their entirely black plumage, the only hint of colour being a yellow patch on the upperside of the bill (which is not always easy to see at a distance). The females and juveniles are a dark brown colour, relieved by noticeably paler cheeks. It is not uncommon to find sexually segregated flocks, with a tendency for males to winter further north.

Outside the breeding season, common scoters feed on bivalves and other invertebrates such as polychaetes and amphipods<sup>3</sup>. To access these, the scoters need to dive to the sea-bed. Whilst the species is well-adapted to do this, it is nonetheless energetically costly to reach increasingly deeper areas and, as a result, common scoters seldom feed at water depths of



Map of Carmarthen Bay showing ground count stations and seabed depth contours

greater than 10 metres. Clearly then, this restriction is one of the principal determinants of the winter range of the species. Although common scoters can be seen almost anywhere off the coast of Britain, only a few places really have the capacity to host large flocks. In recent years, consistently larger numbers have been located off north-west Norfolk, in the Firth of Forth, St Andrews Bay, Aberdeen Bay, the Moray Firth, around much of the Irish Sea, in Cardigan Bay and in Carmarthen Bay<sup>4</sup>. Although most of the key sites have been recognised for years, recent survey work produced a surprise in revealing the existence of many thousands of birds using the shallow waters over Shell Flat, extending beyond the horizon off Blackpool into the Irish Sea.

#### Britain's largest flock

Although determining numbers of this species is problematic, the largest discrete British flock appears to be that wintering in Carmarthen Bay in south Wales. Irregular reports were made in the past of large numbers (up to 25,000 birds) present in the bay. However, in 1996, the monitoring of the



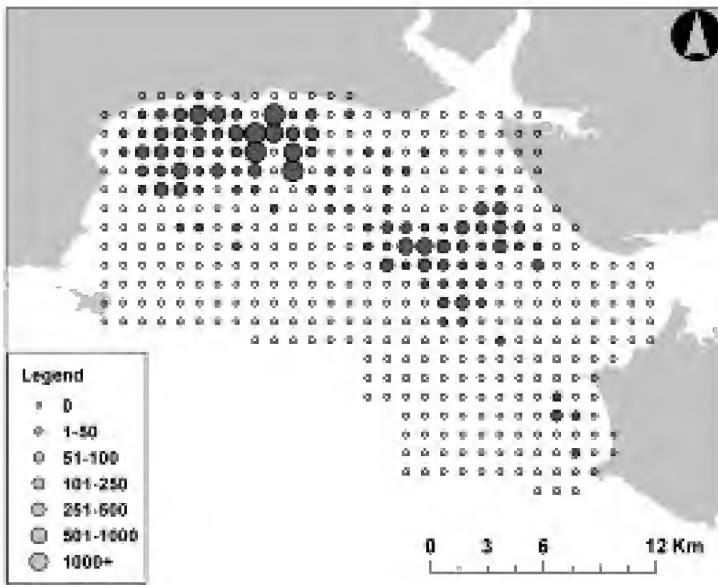
Common scoter pair

Carmarthen Bay scoters was given new impetus. In February 1996, the *Sea Empress* oil tanker ran aground in Milford Haven and leaked approximately 72,000 tonnes of crude oil, of which approximately 15,000 tonnes drifted around into Carmarthen Bay. Within days, dead scoters were being found washed up on the beaches around the bay, with approximately 4,000 birds actually recovered dead; the true number killed by the spill is thought likely to be substantially higher. Moreover, mass strandings of bivalves were reported following the spill, suggesting that key feeding areas for the scoters were also severely damaged.

As a result of this catastrophic event, a detailed monitoring program was instigated by the Countryside Council for Wales. Whilst most waterbirds in the UK are well-monitored by the Wetland Bird Survey (WeBS), counting common scoters is not an easy undertaking. When the birds are close enough to the shore, then it is possible for a skilled observer with a high-powered telescope to count the birds. However, such counts are often

difficult to near-impossible. The most important factor is the sea-state; a choppy sea will make it harder to count even close individuals, and will render more distant birds all but invisible. However, a glorious sunny day is also unsuitable for such counts, as the glare of the sun off the water makes viewing extremely difficult. So, a cloudy day with a flat sea is ideal. Even then, however, the fact that scoters spend much of their time underwater feeding makes assessing numbers difficult. Finally, parts of Carmarthen Bay are used for military live-firing training which, along with occasional low-flying aircraft, can make the birds a little nervous and, consequently, mobile.

Even with ideal conditions for a land-based count, many of the scoters may well go uncounted simply due to the sheer distance of the birds from the shore. In Carmarthen Bay, the majority of birds usually feed within about 4km of the north shore, but many can feed up to 10km out. The only way to monitor these birds is to get out there, either by boat or by plane. Therefore, in the years since the oil



Summed distribution of common scoter in Carmarthen Bay on February 4, 2006

spill, trained observers from the British Trust for Ornithology (BTO) and the Wildfowl & Wetlands Trust (WWT) have been surveying using a small aircraft. The approach has been to fly transects of the bay, each separated by 1km, at a speed of approximately 50 ms<sup>-1</sup> and an altitude of 160m. Along each transect, a pair of observers counts birds out of each side of the plane, no mean feat at this speed, but the task is further complicated by the fact that birds have to be recorded as being present in one of four 'distance bands' away from the plane. The reason for this is that one assumes that birds closer to the plane are more likely to be noticed than those further away, and by recording the distribution of the birds in these bands, it becomes possible to estimate the numbers of birds which went unnoticed.



#### Regular scoter counts in Carmarthen Bay

Over every winter since the *Sea Empress* spill, a number of counts of the Carmarthen Bay scoters has been undertaken to assess the impact of the spill

and the recovery of the population from it<sup>5</sup>. During the winters 1996/97 and 1997/98, numbers were extremely low with peaks of just 4,768 and 2,895 birds respectively. However, a substantial recovery was noted by the winter of 1998/99 and was maintained thereafter until 2005/06; a peak in excess of 15,000 birds was recorded every winter during this period, with the highest count being 24,460 in February 2005. Interestingly, although the scoters generally favour the northern edge of the bay, between Amroth and Pembrey, in the years immediately following the oil spill a larger proportion were to be found

in the south-east corner, off Rhossili. The feeding grounds are presumably less favourable here but were resorted to when the northern part of the bay was affected by the oil. As numbers have risen again, the scoters seem to have deserted Rhossili once more<sup>5</sup>.

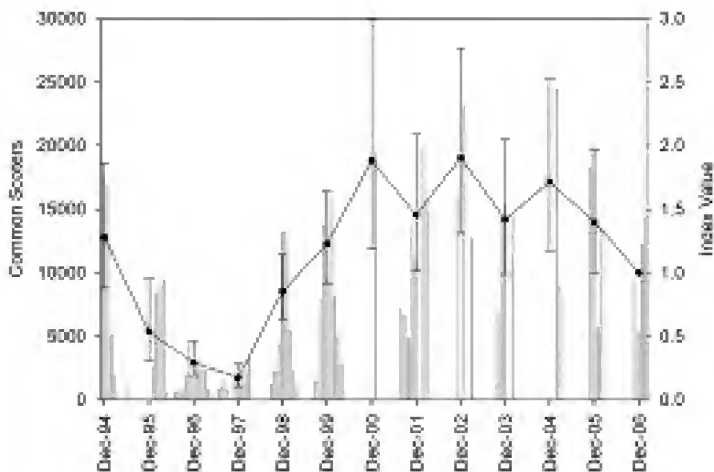
In 2003, Carmarthen Bay was designated as the UK's first marine Special Protection Area on the basis of holding at least 1% of the international common scoter population (i.e. over 16,000 birds). It is great to see such recognition being given to this internationally important site. There is an obligation now to maintain its status and maintain a regular and comprehensive programme of monitoring. The need for such vigilance has been emphasised by a drop in numbers in the last few years. An apparent decline in scoter numbers in the bay between 2005/06 and 2006/07 was initially considered likely to be a temporary blip, but counts made in early 2008 reveal a worrying picture, with numbers having fallen unexpectedly again to their lowest level since the period immediately following the oil spill. The reason for this latest decline remains unknown, and the 2008-09 winter's counts are now awaited with interest.



## Monitro môr-hwyaid du Cymru

Mae'r boblogaeth fyd-eang o fôr-hwyaid du (tua 1.6 miliwn aderyn), yn treulio'r rhan fwyaf o'r flwyddyn mewn moroedd bas oddi ar arfordir gorllewin Ewrop a gogledd-orllewin Affrica. Mae nhw'n bwydo ar wely'r môr ac felly'n aros mewn dyfroedd sy'n ddim dyfnach na 10m. Ychydig o leoedd ym Mhrydain all gynnal heidiau mawr – baeau Caerfyrddin a Cheredigion yw'r manau gorau yng Nghymru. Mae Bae Caerfyrddin yn cynnal yr haid aeaf fwyaf ym Mhrydain (cy maint â 25,000 aderyn). Yn dilyn trychineb y *Sea Empress* yn 1995 canfuwyd 4,000 aderyn marw ond lladdwyd llawer mwy na hyn, mae'n siwr. Dinistriwyd ffynhonnell bwysig o fwyd hefyd gan yr olew. Dechreuwyd ar raglen fonitro ofalus wedi hyn. Mae'r gwaith yn anodd oherwydd wyneb anwastad y môr, adlewyrchiad haul, arferion bwydo tanddwr yr adar a'u nerfusrwydd oherwydd ymarferiadau milwrol yn y bae. Rhaid hedfan, felly, dros yr ardal a chyfrif ar hyd trawslinau. Canfuwyd bod niferoedd wedi adfer, o ychydig filoedd yn 1996, i uchafbwynt o 24,460 yn Chwefror 2005.

Rhaid parhau â'r monitro i helpu cynnal cyflwr y safle hwn, a ddynodwyd yn ardal rhyngwladol bwysig ar gyfer y rhywogaeth hon - yn enwedig gan fod niferoedd wedi gostwng eto yn diweddar.



Index of common scoter numbers in Carmarthen Bay from ground-based surveys 1994-2007

Elsewhere, around the Welsh coastline and further afield, the common scoter remains vulnerable to oil-spills. Moreover, its requirement for shallow offshore areas also overlaps with many favoured areas for the construction of offshore windfarms. Indeed, much of the survey work carried out around the UK over the last decade has been instigated and funded by the renewables industry. Potential conflicts include disturbance during windfarm construction and maintenance, collision risk with active turbines, birds possibly being deterred by active windfarms and changes to benthic fauna. A great deal of research is ongoing into assessing these issues. Hopefully, there will be enough space in Welsh waters to ensure these scoters remain an integral part of the Welsh avifauna.

*Andy Musgrove works for the British Trust for Ornithology, where he is the national organiser of the Wetland Bird Survey (WeBS), the volunteer-based monitoring scheme for non-breeding waterbirds in the UK.*

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# Nature diary

ARDUDWY IN AUTUMN - BRIAN MACDONALD

Peregrine Kill - 26 September, 2007

Out on the Maes on a bright, showery day, a grey wagtail (siglen lwyd) slips, lemon bellied, around the corner of the muddy drain. Reaching the spot, no wagtail is visible down the shining zigzag channel, nor on green salting. Looking again, beyond the drain, on the bend of the ebbing estuary, a slate-grey, sharp-winged form sweeps low over grey water, fluttering at each turn to swoop again over a particular spot, like a falconer's bird at the lure. The telescope finds a wader in the water, struggling to keep head and long bill aloft, wings unused to swimming, ducking as black-hooded, sharp-winged death swoops low.

We move too fast to look long at wheatears flitting ahead, flirting white tails along the dyke, or a young buzzard leaving a gatepost. Closer now, pinkish base to long bill, medium size and visible plumage identifies the struggling victim as a bar-tailed godwit, one of two lately associated with the curlew flock. Five mallard swim close to mob an instinctively recognised predator. We approach too close and the peregrine flickers across to the far salting, pale streaked breast contrasting with slate-grey wings, black hood with white cheeks. As we retreat, the godwit reaches shining mud shore, wings fluttered high to dry: no visible injury but too sodden for flight. The peregrine leans forward, keen and alert for an opportunity to complete a botched execution. Turning again, we miss the kill. Now standing, still alert for danger, with yellow talons gripped on the prostrate bird, the peregrine

rips the breast with a strong, hooked bill, notched like secateurs, and quilts back fresh red meat. By the time we leave, the mud is bare of predator and prey, the going missed like the kill, presumably moved to a safer spot as soon as light enough to lift.

***B**rian Macdonald has been running Wildlife Activities since 2006, with the aim of helping people to discover and appreciate the rich landscape and wildlife of the coast and mountains of Arduwy, Meirionnydd. Participants include seasonal visitors of all ages, local schools and a regular Saturday children's group. Both the activities and a weekly wildlife diary, from which the above is an*

*extract, aim to distil an essence of this richness.*

*Wildlife Wales activities and wildlife diary are aimed at the 60% of the UK population with a general appreciation of 'nature', rather than those with a serious or professional interest, but diary entries are available as a 'blog' on <http://wildlife-wales.blogspot.com> and posted by email weekly to a growing number of recipients.*



Michael Hammett/CCW

# Cymru a'r byd

## Morglawdd Hafren - safbwynt yr RSPB

Fe fyddai cael morglawdd llanw yn arwain at newid sylfaenol yn natur Aber Afon Hafren – dyna oedd casgliad y Comisiwn Datblygu Cynaliadwy yn ei adroddiad ar ynni'r llanw o fewn y DU, a gyhoeddwyd fis Hydref diwethaf. Dyma hefyd yw sail pryder yr RSPB ynghylch effeithiau'r morglawdd rhwng Caerdydd a Weston ar fywyd gwyllt yn yr aber, oherwydd mae hyd at 60% o'r gwastadeddau llaid rhynglanwol a'r morfa heli y mae'r adar yn dibynnu arnyn nhw'n debygol o ddiflannu.

Er hyn, daeth yr adroddiad i gasgliad pellach fod yna achos cryf dros gael morglawdd *cynaliadwy* (myfi sydd wedi rhoi pwyslais ar y gair). Trwy ddweud hyn, roedd y Comisiwn yn golygu na ddyllid, ymhlith pethau eraill, wanhau na lleihau gofynion Cyfarwyddbau Adar a Chynefinoedd yr UE. Yn wir, mae rhan helaeth o aber Afon Hafren i fyny'r afon o'r morglawdd arfaethedig wedi cael ei dynodi'n Ardal Gwarchodaeth Arbennig gan yr UE ar sail yr adar a geir yno. Ar hyn o bryd, mae Afon Hafren yn cynnal oddeutu 68,000 o adar dŵr ar gyfartaledd, gan gynnwys niferoedd rhyngwladol bwysig o elyrch Bewick, elyrch dof, hwyaid yr eithin, hwyaid llofstfain a phibyddion y mawn.

Mae gan Lywodraeth y DU amcanion hollbwysig yn ymwneud â newid hinsawdd, sef annog ffyrdd eraill o gynhyrchu ynni di-garbon heb ddefnyddio tanwydd ffosil.

Dyma sydd wedi arwain at yr astudiaeth ddichonolrwydd i asesu ffyrdd o ddefnyddio'r llanw yn Afon Hafren, gan gynnwys technolegau'n ymwneud â morgloddiau a morlynnoedd. Mae'r RSPB yn cyfrannu at yr astudiaeth ddichonoldeb, ac yn gobeithio'n arw y bydd y penderfyniadau'n cael eu gwneud ar sail dystiolaeth yn hytrach nag ar sail gwleidyddiaeth. Yn ôl y Llywodraeth, fe fyddan nhw'n penderfynu yn yr hydref pa un a fyddan nhw'n parhau efo'r astudiaeth ai peidio. Pe bai rhwystrau anferth yn dod i'r fei – boed y rhain yn rhai amgylcheddol neu'n rhai economaidd – efallai y bydd yn rhaid dirwyn yr astudiaeth i ben.

Yn ddiweddar, fe gomisiynodd yr RSPB a'i bartneriaid – WWF, Ymddiriedolaeth Adar y Gwlyptir (WWT), United Usk Fishermen's Association, Sefydliad Gwy ac Wysg, a Grŵp Perchnogion Pysgodfeydd Eog Gwy – adroddiad gan Frontier Economics Ltd i ymchwilio, ymhlith pethau eraill, i'r gost a'r buddion o gael morglawdd yn aber Afon Hafren. Daeth yr adroddiad i'r casgliad bod cael morglawdd mawr ar draws Afon Hafren yn ddrud o'i gymharu â ffyrdd eraill o gynhyrchu trydan adnewyddadwy. Ymhellach, gan ddefnyddio ffigyrau'r Llywodraeth, daeth yr adroddiad i gasgliad pellach nad fydd modd defnyddio technolegau [adnewyddadwy] eraill mewn modd digonol er mwyn cyrraedd potensial y morglawdd na thargedau'r Llywodraeth.

Pryder arall o ran morglawdd Caerdydd/Weston yw'r amseru. Fe fydd llawer o'r gwaith cynhyrchu

trydan yn cyd-ddigwydd ag adegau lle na fydd yna fawr o alw am drydan – rhywbeth a fydd yn gwneud y cynllun yn llai defnyddiol ac yn gwanhau ei gyfraniad at ollwng llai o garbon. Yn ôl yr adroddiad, ni fydd y morglawdd yn gweithio cystal ag y gallai o safbwynt cynorthwyo i ddiwallu cynnodau lle ceir llawer o alw am drydan.

O ystyried y ffaith fod y morglawdd arfaethedig yn debygol iawn o niweidio amgylchedd Afon Hafren i'r graddau y bydd angen creu cynefinoedd eraill ar gyfer yr adar, ymddengys fod casgliadau adroddiad Frontier yn glŷn â'r gost a'r dewisiadau eraill sydd ar gael yn cefnogi'r safbwynt na fydd morglawdd Hafren yn debygol o ddatrys problem y DU o ran cynhyrchu ynni cynaliadwy.

## Peter K Jones, Swyddog Polisi Amgylcheddol RSPB Cymru



Paul Glendell, Natural England

# Wales and the world

## A Severn Barrage - An RSPB Perspective

"A tidal barrage would fundamentally change the nature of the Severn Estuary". This was the conclusion of the Sustainable Development Commission (SDC) in its report last October, *Tidal Power in the UK*. It is also the basis of the RSPB's concern about the implications of the proposed Cardiff/Weston barrage for birdlife in the estuary, with up to 60% of the intertidal mudflats and saltmarsh upon which birds depend likely to be lost.

Nevertheless, the report further concluded that "there is a strong case to be made for a *sustainable* barrage" (my emphasis). By this, the Commission meant *inter alia* that there should be no weakening of, or derogation from, the requirements of the EU Birds and Habitats Directives. Much of the Severn estuary upstream from the



proposed barrage line is designated by the EU as a Special Protection Area for birds. The Severn currently supports an average of around 68,000 waterfowl, including internationally important numbers of Bewick's and mute swan, shelduck, pintail and dunlin.

The UK Government has a key climate change policy objective of encouraging the development of zero-carbon energy alternatives to fossil fuels, and hence its current feasibility study to assess tidal range options in the Severn, including barrage and lagoon technologies. The RSPB is contributing to the feasibility study and trusts that it will lead to evidence-based rather than politically-based decisions. The Government has said that an initial decision whether to proceed further with the study will be taken this autumn; the study could be abandoned should it indicate major 'show-stopping' obstacles to a barrage, whether environmental or economic.

The RSPB, together with partners including WWF, the Wildfowl and Wetlands Trust, the United Usk Fishermen's Association, the Wye and Usk Foundation and the Wye Salmon Fishery Owners' Group, recently commissioned a report from Frontier Economics Ltd, to examine amongst other matters the costs and benefits of a barrage in the Severn estuary. This report concluded that "under a range of plausible scenarios, a large barrage on the Severn is expensive compared to alternative ways of generating renewable electricity". Moreover, using UK Government figures, the report further concluded that "there

appears to be sufficient capacity to use other [renewable] technologies to meet the barrage's output and Government's targets".

An additional concern with the proposed Cardiff/Weston barrage is that the timing of much of its generating capacity would coincide with periods of low electricity demand, reducing both its utility and its contribution to carbon emission savings. In the words of the SDC report, the barrage would be "sub-optimal in terms of helping to meet peak electricity demand periods".

Given the strong likelihood that the proposed barrage would so damage the Severn environment as to require the provision of compensatory habitats for the birds likely to be displaced, the findings of the Frontier report about costs and available alternatives would seem to support the view that a Severn barrage is unlikely to form part of a sustainable energy solution for the UK.

**Peter K Jones, Environmental  
Policy Officer, RSPB Cymru**





# Marine matters

The Welsh Assembly Government (WAG) has recently had two consultations, relating to fisheries which could have incidental consequences for marine nature conservation. The first was a proposal to extend Welsh fisheries jurisdiction out to median lines, from the 12 nautical miles originally devolved (except where a very long narrow wedge extending into the Celtic Sea might result). The current 12 mile line cuts across some key offshore habitats such as the reefs north-west of Anglesey, so it might be appropriate for the interface between CCW and JNCC responsibilities to fall into line.

The second consultation was on wider issues of fisheries management. Various reports in advance of the Marine Bill indicated that in England there was a preference for reorganising and strengthening the Sea Fisheries Committees (SFCs). One intention behind this was that uniformed SFC officers could help enforce various marine wildlife conservation measures, given that fisheries and wildlife interact in so many ways. The Welsh proposal, however, would see the SFCs abolished and all fisheries management would come directly under a division of WAG. Little consideration seems to have been given to connectivity with marine wildlife conservation or how to bring in the best scientific advice.

A recent issue highlighting the complex interrelations between wildlife, environmental quality and fisheries has been the so-far unexplained mass die-off of cockles in the Burry Inlet. This obviously has

consequences that are both socio-economic and environmental, influencing whether a Natura 2000 site meets EU requirements for favourable conservation status. Long-term monitoring by scientists from MAFF/ Centre for Environment, Fisheries and Aquaculture Science (CEFAS) and South Wales SFC showed that in the Burry Inlet the cockle stocks had until recently been more stable than in almost any other estuary round the UK, allowing a degree of stability in both fisheries and bird populations.

It is not unusual for cockles to come to the sand surface, to gape and die in small numbers. This most often happens to older individuals which have accumulated a greater burden of parasites. Cockles are an intermediate host for several trematode worms whose final hosts are birds, particularly oystercatchers, so there is an ecological feed-back loop. Strangely however, cockles dying in such large numbers in the Burry Inlet have far fewer parasites than those from other beds such as

in the Menai Strait. Unravelling the sources of stress that may have led to the pathological conditions that ultimately kill the cockles will be a challenge for a multi-agency and academic working group involving relevant scientists from Bangor, Aberystwyth and Swansea universities.

At the time of writing it seems easier to dismiss the more obvious suggestions because of contrary evidence than to tie down what may be complex microbiological interactions involving conditions in the interstices of the superficial sediment as well as disease. It is hardly surprising that no one agency or research group has all the expertise to tackle such a multi-faceted problem. Situations like this are bound to occur again, so mechanisms will be needed to foster collaboration across sectors, to bring together the most appropriate experts and to ensure that funding issues do not stifle willingness to respond to calls for scientific advice.

*Ivor Rees*



Michael D Smith



**MANAGEMENT PLANNING FOR NATURE CONSERVATION**

**Mike Alexander**

**Springer Books 2008**

**Softback, 425pp, £29.50**

Once, as a young warden given the task of writing a management plan, I consulted a fellow sufferer engaged in this endless task – Sisyphus comes to mind here. What was the secret, I asked? Keep it simple, he replied. He had written a series of articles on the horrors of grappling with a particularly intractable plan, in which ‘arguments... recoil back on themselves like the convoluted warps of a snail’s guts.’ This happened in the days when almost nothing was written about management planning, except the odd conservation course dissertation.

In the succeeding years the energy and apparent professionalism devoted to this activity has grown exponentially, but I have sometimes wondered about the balance between heat and light, and whether enough of the latter has shone onto the difficult questions at the heart of managing so many sites.

Mike Alexander’s introduction to this volume is a delight to read, and seems to me to deal with the heart of the matter. Although ‘keep it simple’ does

not exactly shout out from the text, the evocation of some basic questions, such as ‘why are we doing these things; what are we trying to achieve’ cuts through the detail to the most important advice anyone can give: think things out for yourself. The author’s own passion for nature, fired up on Skomer, his sense of *cynefin*, and his continuing journey of understanding, kick-start the guide and mark it out as a work of genuine substance.

Two things which this book is not supposed to be: first, although thoroughly comprehensive, it is not a bible, with all the answers, but an exploration of the questions which managers need to ask themselves. Second, it is not light reading for the interested bystander. The book is aimed at students and practitioners, and is published by a science publisher – it is referred to as a textbook on the website. It is for people engaged in the study or practice of site management for nature conservation.

With those two provisos, it is a masterly statement of the theory and practice of planning for nature conservation. I particularly liked its treatment of some of the theory, and found myself nodding in enthusiastic agreement at the personal view at the end of the chapter on ethics, which recognises the benefits of a plurality of approaches and of keeping all options open when managing for nature conservation. In summary, this volume is a welcome addition to the literature, which should become a valued text for students and land managers in the future.

**James Robertson**



**ON THIS MOUNTAIN**

**Essays on Ten Welsh Mountains.**

**Images by Ray Wood.**

**Gomer Press 2008**

**£19.99**

Originally published in Welsh, this handsomely produced book from Gomer is ostensibly about mountains. Ten Welsh authors and media personalities have been invited to describe their favourite mountain. A well known photographer – Ray Wood – has been commissioned to illustrate their essays. It seems a winning formula.

Not unexpectedly, given the portentous biblical quotations that preface it, the book proves to be far more about people than about mountains or, rather, about the way the two, in Wales, are inextricably entwined culturally and emotionally. Angharad Price sets the tone in the opening lines of the first essay: “Tynybraich: the name belongs to a house and a mountain; to a family too, at least in local speech. They have been farming Tynybraich for centuries, my mother’s forefathers.” Later Ray Gravell concludes that, “ultimately, it is people who make the place, and this mountain, Mynydd y Garreg, is the best place in the whole wide world.”

Place-names have a key role in the

relationship between people and landscape. As Dylan Iorwerth notes, “the Welsh language has turned the mountains into living creatures, and stories and histories are hidden in many of their names”, though he cannot resist continuing, “Unscathed by anglicisation and the mindless renaming by climbers, they tell you of the people who used to live and work here...”

Some of these essays are little more than guide book descriptions of a place or a walk, but the enthusiasm of the authors is so patent, the desire to share their knowledge of history, prehistory and folklore so fervent, that it seems churlish to mention it. And some of the writing is very good indeed. Angharad Price – whose masterpiece of Welsh prose “O! Tyn y Gorchudd”, we are told, was the inspiration for this book – does not disappoint in English. Jim Perrin’s mannered prose comes perilously close to the pompous in his opening paragraph, but he is wonderfully observant and evocative once he warms to his theme. Finest of all, to my mind, is Jane MacNamee’s account of Dinas Bran, near Llangollen. Like Perrin, she uses the words of an older writer – John Cowper Powys – as counterpoint to her own closely observed experience, allowing literary imagination to inform and enhance her perception of the landscape without romanticising it.

And the photography? Well, there are some stunning landscapes, as one would expect, alongside some fairly ordinary ones. The problem is that the majority of the pictures are just that – landscapes, (and fair

weather landscapes at that, in a country renowned for its rainfall). There is a striking incongruity between text and images, with not a single human figure to be seen anywhere, and precious few buildings or artefacts. Iolo Williams’ piece, unsurprisingly, is mainly about birds, yet the only picture of a bird is a plastic robin at a nature reserve. If this was intended to be a humorous admission of failure it should at least not have been given the full page treatment.

There are a number of things which seem like spoiling the ship for a ha’porth of tar. Why, for instance, have captions been relegated to the back of the book? It may be to allow the images to speak for themselves, or it may be simply an economy, but I found it nothing but an irritant. Why are we not allowed to know more about the authors than they choose to divulge in their essays? Would not a photo portrait of each have been illuminating?

All in all, this is a classy looking publication that does not quite live up to expectations.

**Rob Collister**



**THE  
NATURAL  
HISTORY OF  
SKOKHOLM  
ISLAND  
Graham  
Victor  
Frederick  
Thompson**

**Trafford Publishing 2007  
£30.00 paperback**

Never have I been more disappointed in a book than this volume about Skokholm. It claims to provide a ‘behind the scenes’ look at life and work on an island nature reserve, though the reader will be hard pushed to discover this in the 380 pages at almost A4 format. Instead it is a rehash of the island management plan which the author himself prepared while warden. Sadly he fails to bring matters up to date, for instance the bird list finishes in 2004 on his departure.

However, unlike a management plan, there is no map of the island or its location. Instead two oblique aerial photographs have been used upon which place-names have been handwritten. One, we are told, is a view from the south-east – actually it is from the north-east. The excellent vegetation map, in full colour, is useless as the key is illegible, even when using a magnifying glass. The photographs, other than the two cover illustrations, are all black and white and all poorly reproduced.

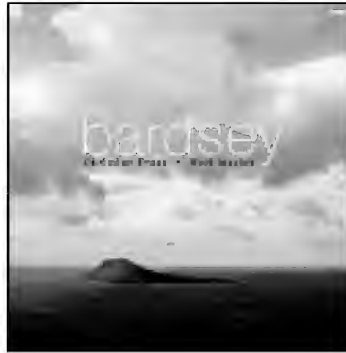
The preface and acknowledgements over five pages briefly outline how the author and his wife came to be appointed wardens, commencing

# Green Bookshelf • Silff Lyfrau Amgylcheddol

their task in 1996 at the same time as the *Sea Empress* disaster. Although Graham Thompson rightfully acknowledges the assistance in matters scientific which he received across the years, particularly with respect to species identification, there is no mention of the support, both ashore and afloat that was necessary to ensure he remained well fed and provisioned throughout his nine months sojourn on the island. Neither is there even a hint of the help from assistant wardens, other staff and volunteers, especially the volunteer work parties which achieved so much over the years, and helped ensure his own idyllic island existence. No reference either to his employers the Wildlife Trust, and the mainland staff upon which he was wholly dependent. What shines clearly through the introductory pages is a serious case of that affliction which affects some island dwellers, known as 'islanditis'.

If you want to have a list, say, of the island springtails or the bird lice, or learn when the common couch was last recorded, or discover something about the lepidoptera, and feel like expending £30, then make a purchase. If on the other hand you really wish to experience Skokholm then seek a copy of Jean Lawman's *Skokholm: An Island Remembered* (2000) or John Lewis's *Skokholm: The Islanders* (1997), not forgetting the marvellous books by R M Lockley commencing with *Dream Island* (1930). These will not disappoint, while the present volume does just that.

David Saunders



## **BARDSEY**

**Christine Evans & Wolf Marloh  
Gomer 2008, £16.99**

The packed launch of this book at the Hay-on-Wye Literary Festival 2008 is testament to this author's popularity. Here is, quite simply, a celebration of Bardsey Island (Ynys Enlli), a unique place held very dear by so many in Wales and beyond. And who could be better placed to present us with this celebration than Christine Evans, the humorous Yorkshire-born poet who married into a Llŷn family who've been making their living farming and fishing on Bardsey since 1770, and who herself has been visiting and summering on the island annually for 40 years?

This book is part island history, part author's stories of personal

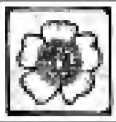


discovery, living and events on the island, with some fine island poems, mostly the author's, scattered throughout. A rich vault of anecdotes lies within, themselves only a small fraction of Evans' extensive repertoire. Wolf Marloh's vivid photographs of the weathered landscapes, waters, residents, human artefacts and natural wonders of the island beautifully complement the text on every turn of the page, and provide his own interpretation of the three main strands of the book – at first sight, living on the island, and horizons.

Evans writes evocatively about physical and spiritual aspects of the island. She knows and understands the realities of community life, both current and past, and sees Bardsey as a working place for its handful of inhabitants, as well as a haven for naturalists and people wanting a memorably different type of holiday.

Anyone who's been to Bardsey knows how the island can be a recurring theme in so many of your thoughts, and if you've been there this book will trigger many more such memories. If you haven't visited, it is sure to make you want to. Indeed, Christine Evans' aim is to share the island and some of its stories with people who are not so privileged. As my friend Colin (the author's son and now the island boat-man), who has this special island coursing through his veins, so enthusiastically told me, "Mother's book is brilliant. It's everything I've ever felt about this island, but in words!" Can't say better than that!

Dafydd Roberts



# Nature at large

## Red for danger:

### plants under threat

Traditionally, botanists have placed great value on rare plants, those species such as spotted rock-rose *Tuberaria guttata* that are found in just a handful of sites. Such measures of rarity per se, however, don't always capture the huge scale of change in plant populations in the countryside. In order to quantify these changes, emphasis is now placed on measuring the level of threat facing our flora. These threats are assessed using strict international criteria designed to take into account both the decline and the size of any remaining populations.

In 2005, the entire flora of Great Britain was assessed for the first time using these international (IUCN) criteria. The resulting Red Data List (Cheffings & Farrell, 2005) showed just how remarkable this shift in emphasis was, with many widespread but declining species, such as lesser butterfly orchid *Platanthera bifolia* and field gentian *Gentianella campestris* being identified as threatened for the first time.

In order for us to focus our limited conservation resources on the most deserving species in Wales, and to find out how our flora is faring compared with the UK as a whole, Plantlife Wales and the Botanical Society of the British Isles have just completed an analysis of threats facing all 1467 native and archaeophyte vascular plants in Wales. Shockingly, one in every five species analysed is either extinct or threatened with extinction.

Trevor Dines



Three-lobed water-crowfoot, *Ranunculus tripartitus*

Not surprisingly, there are considerable differences between the Welsh and UK lists - just 34 species having the same threat category in both areas. Wales has a much higher proportion of extinct species (2.6% as opposed to 1% in UK), probably because of the smaller area under consideration (extinctions are always more evident within smaller areas before they become apparent on a larger scale) and a much higher proportion of Critically Endangered species (3.4% as opposed to 1.9% in UK). This is probably due to the large number of species that reach the edge of their southern range in Wales: such populations are often

small and more vulnerable to extinction. Interestingly, it is plants of montane and inland rock habitats that are the most threatened in Wales, both in terms of numbers of threatened species and as a proportion of the total number of species in those habitats.

Some species are faring less well in Wales than in Great Britain. Bog orchid *Hammarbya paludosa* for example, is frequent in parts of England and Scotland and is not regarded as threatened in Great Britain. In Wales, however, it has suffered from overgrazing in upland sites and emerges from the analysis



as being Endangered due to a decline in range. As a result, this species has been added to the list of priority species (Section 42 list) in Wales. Conversely, three-lobed water-crowfoot *Ranunculus tripartitus* is regarded as Endangered in Great Britain, but is not threatened in Wales: mainly because cattle grazing is being reintroduced to its former heathland sites, the population is recovering. This does not mean that Welsh populations do not deserve attention, but rather that they are a vital part of the UK population which will become increasingly important should the population in the UK outside Wales continue to decline.

This is the first analysis of this type in Wales and we hope other species groups can be treated in the same way. A Red Data List using the same criteria for lichens in Wales is in preparation. Electronic copies of *A Vascular Plant Red Data List for Wales* are available from the Plantlife website ([www.plantlife.org.uk](http://www.plantlife.org.uk)).

**Trevor Dines**  
**Plantlife Wales Conservation Officer**

#### References

1. Cheffings, C.M. & Farrell, L. (Eds), Dines, T.D., Jones, R.A., Leech, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005). *The Vascular Plant Red Data List for Great Britain*. Species Status 7: 1-116. Joint Nature Conservation Committee, Peterborough.
2. Dines, T. D. (2008). *A Vascular Plant Red Data List for Wales*. Plantlife International, Salisbury.



Bog Orchid  
*Hammarbya paludosa*

Bob Gibbons



# Hysbysfwrdd / Noticeboard

If you would like your wildlife event to feature on these pages please contact us on 01248 387373 or email [info@naturcymru.org.uk](mailto:info@naturcymru.org.uk) (entries may be edited). Please mention Natur Cymru if you attend any of these events.

## North Wales Wildlife Trust

### LACEY LECTURE 2008

**21 Nov 7.30pm** *Plants, People & Gardens: the History of the Royal Horticultural Society*. Founded in 1804, the RHS reflects the interests of gardeners all around the world. Dr Brent Elliott is Librarian and Archivist of the Lindley Library, the best gardening library in the world with a huge collection of books and magazines. Come and hear how the RHS has developed over the last two centuries.  
**Venue:** Main Arts Lecture Theatre, University of Wales, Bangor. Adults £4 (in advance), £5 (at the door), Students £2, Children £1. Tickets from **NWWT, 376 High St, Bangor, Gwynedd LL57 1YE**, please enclose SAE.

## NATUR

### CONFERENCE

**18-19 Oct** *Management with a pinch of salt*, Llandudno. The conference will look at Wales' marine and coastal environment and focus on how to bring land and sea together to prepare for change in the environment. For more information, please contact Gwenno Griffith: **NATUR Office, Crafllwyn, Beddgelert, Caernarfon, Gwynedd LL55 4NG. 01766 510 132 / [gwenno@natur.eu.com](mailto:gwenno@natur.eu.com)**

## National Botanic Garden of Wales

### EVENTS

**18-19 Oct** *Apple Weekend*. A celebration of everyone's favourite fruit.  
**6 Dec** *Santa arrives*  
**13-14 Dec** *Christmas Craft and Food Fair*, 10-4pm, Principality House.  
**18 Dec** *Carols in the Garden*. Join members and friends of the Garden in a yuletide singalong.  
**NBGW, Llanarthne, Carmarthen SA32 8HG**  
**Tel: 01558 668768**  
**[info@gardenofwales.org.uk](mailto:info@gardenofwales.org.uk)**

School of Education and Lifelong Learning, Aberystwyth

### COURSE STARTING DATES

Contact 01970 621580,  
[www.aber.ac.uk/sell](http://www.aber.ac.uk/sell)

## Aberystwyth University

**6 Oct 10-12 daily.** *Birds of Local Nature Reserves*, 10 weeks.  
**9 Oct 1-3pm** *Life in the Seas*, 10wks. **CAT Machynlleth**  
**5 Oct 10am** *Freshwater Life - Natural History of Ponds and Streams*, 3 sessions.  
**Carmarthen Comm. Education Centre**  
**7 Oct 10am** *Reading the Landscape*, 10 weeks.  
**Cilgerran Wildlife Centre, Pembrokeshire**  
**2 Oct 1pm.** *Plant Diversity*, 8 sessions,  
**4 Oct 10am** *Birds from the North*, 5 sessions.  
**Old School Hostel, Trevine, H'fordwest**  
**2 Oct 11am** *Earth and Water*, 10 s'sns. **Tregaron**  
**27 Sept 10am** *Organic Gardening & Permaculture* 4 sessions.  
**West Wales Eco Centre, Newport**  
**4 Oct 9.30am** *Permaculture - Sowing the seeds of Sustainability*, 3 sessions.

## Plas Tan y Bwlch

### COURSES 2008

**14-16 Oct** *The Biodiversity Duty - Focus on Local Action*. Professional training course focussing on implementation of the NERC Act Biodiversity Duty. Further details: [www.biodiversitywales.org.uk/080408-118.aspx](http://www.biodiversitywales.org.uk/080408-118.aspx). To book: 01766 772600 or [www.plastanybwlich.com](http://www.plastanybwlich.com)

## Shared Earth Trust

### COURSES 2008

**23-24 Sept** *Phase 1 Habitat Survey*  
**£150/£100**  
Contact 01570 493 358  
[www.shared-earth-trust.org.uk](http://www.shared-earth-trust.org.uk)

## Fenn's, Whixhall & Bettisfield Mosses NNR

### EVENTS

**8 Oct** *Marvellous Moths of the Mosses* 7.30pm. Illustrated talk with Pete Boardman and Joan Daniels, Whitchurch Civic Centre. Free refreshments. No need to book.  
**12 Oct** *Fungal foray* 2pm. Meet at Manor House NNR base.  
[www.britmycolsoc.org.uk](http://www.britmycolsoc.org.uk)

**12 Nov** *Success Stories from the Mosses* slideshow with Joan Daniels, 7.30pm. St Oswald's Church Community Hall, Oswestry.  
**7 Dec** *Come and cut a Christmas tree* 10.30am. Meet at A495 Fenn's Bank lay-by. [www.volunteering.org.uk](http://www.volunteering.org.uk)  
**The Fenn's volunteer group meets on the 2nd Sunday and 4th Thursday of each month.** Full details: Caroline Evans 01743 282000 [caroline.evans@naturalengland.org.uk](mailto:caroline.evans@naturalengland.org.uk) or Joan Daniels 01948 880362, [joan.daniels@naturalengland.org.uk](mailto:joan.daniels@naturalengland.org.uk)

## Moelyci Environmental Centre, Bangor

### EVENTS & VOLUNTEERING

**5 Oct** *Fungus Foray* 2-5pm. Help us to break the Moelyci 2006 foray record, when 124 species were found!  
**8-9 Oct** *Grassland Fungi identification* 10-4pm.  
**19 Oct** *Autumn birds* 10-12.30pm  
**6 Nov** *Habitat Management for Farmland Birds* 10-4pm  
**29-30 Nov; 6-7 Dec** *Coppicing and hedgelaying*. Introduction to traditional woodland management.  
**14 Dec** *Festive Fair* 11-4pm – crafts, food and music.  
**Every Tuesday 30 Sept - 16 Dec** *Composting Volunteer Days*.  
**Every Wednesday 1 Oct - 17 Dec EXCEPT 8 Oct.** *Conservation volunteering and training days*.  
Contact 01248 602793;  
[office@moelyci.org](mailto:office@moelyci.org); [www.moelyci.org](http://www.moelyci.org)

## Centre for Alternative Technology

### COURSES

**27 Sept** *Trees of the Old Quarry*  
Please book early, 01654 705981,  
[courses@cat.org.uk](mailto:courses@cat.org.uk)

## Wales Biodiversity Partnership

### EVENTS

Many partners in the WBP run events - some are listed here. For full listings see the events calendar at [www.biodiversitywales.org.uk/English/Events/bioamrywiaethcymru.org.uk/cymraeg/Events/](http://www.biodiversitywales.org.uk/English/Events/bioamrywiaethcymru.org.uk/cymraeg/Events/)

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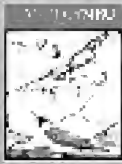
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