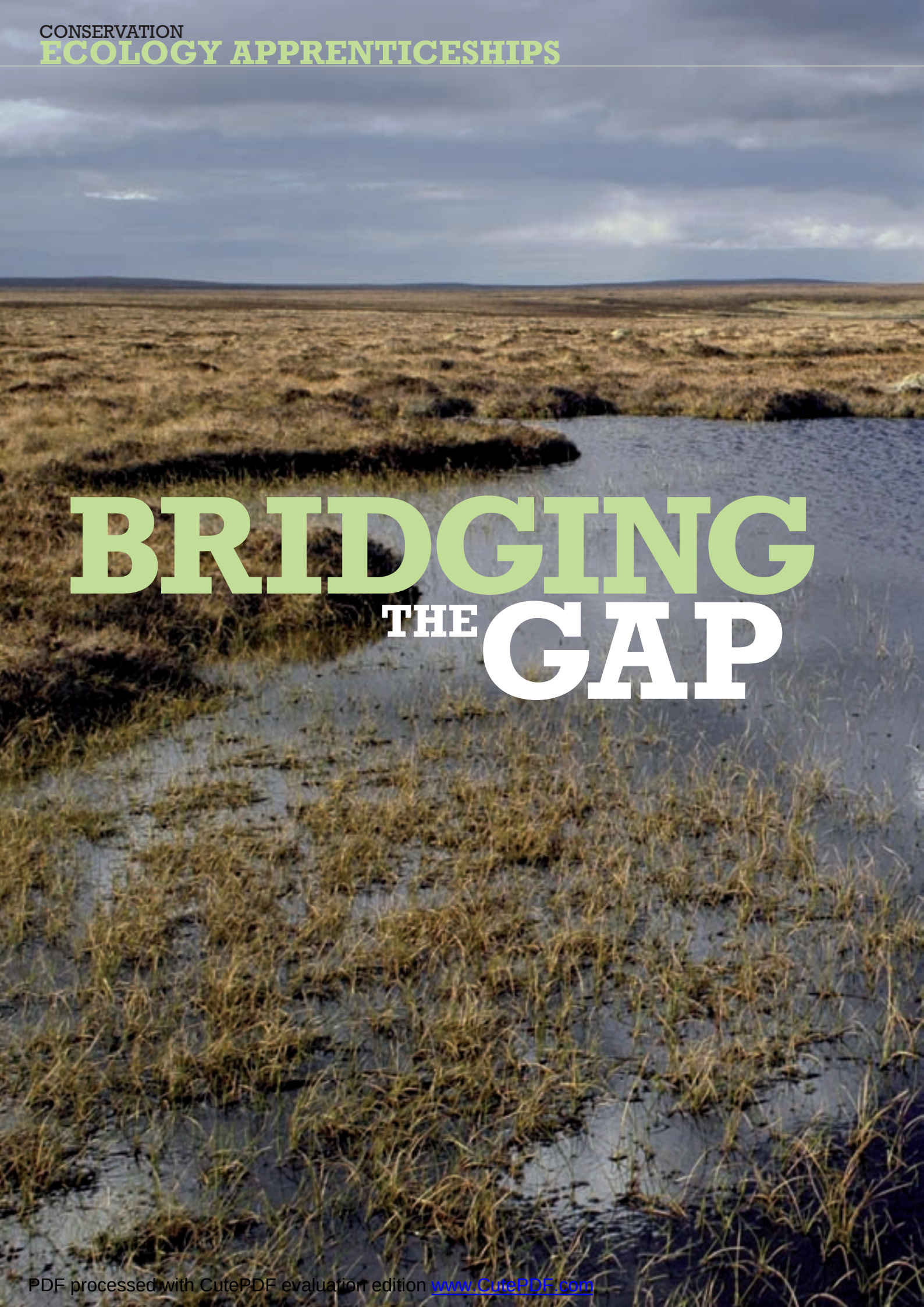


BRIDGING THE GAP

Drowned earth: peat bog landscape at the RSPB's Forsinard Flows reserve in Caithness (far left); a pine hoverfly (above) – the subject of Geoff Wilkinson's apprenticeship

SCOTLAND'S EYE-CATCHING ANIMALS AND PLANTS ARE WELL STUDIED, BUT WHAT ABOUT OUR NOT-SO-FLUFFY INVERTEBRATES, SECRETIVE FUNGI AND OFT-OVERLOOKED FARMLAND HABITATS? THIS IS WHERE A NEW BREED OF APPRENTICE COMES IN, FINDS **IDA MASPERO**

"THE CHAINSAW ROARS, shattering the peace of a Caledonian forest as it shears into a felled Scots pine stump. A pyramidal wedge of timber pops up, revealing a deep cleft as the saw splutters to a stop. The tree surgeon fills the hole with a mixture of pinewood chips and sawdust, then replaces the wedge as a cover before departing for a well-earned lunch.

During winter, the holes fill with rainwater, diluting the pine resin into an oily soup … this is the favoured conditions of *Blera fallax* larvae, who filter-feed on bacteria in the pine broth and, come spring, emerge from the rot and decay as stout flies resplendent with yellow face, black body and fiery red-tipped abdomen."

Blera fallax, the pine hoverfly, is not a creature most of us would pause to admire on a ramble in the woods. But to hoverfly apprentice Geoff Wilkinson, who wrote these lines in a blog, it is a thing of beauty. This small northern insect has suffered an alarming decline and is a priority species for conservation in Scotland. Yet many of us have never heard of it.

The same is true for scores of humble invertebrates, lower plants and habitats. While ecology and biology students graduate with a broad knowledge, most are drawn to working with the more glamorous species. In the meantime, experts devoted to niche groups, such as lichens, moths, beetles, mosses or indeed flies, face a shortage of enthusiastic young people to whom they can pass on their specialist knowledge and practical skills.

Enter the Natural Talent Apprenticeship Scheme, set up in 2006 by the conservation volunteering organisation BTCV. With funding from the Heritage Lottery Fund, Natural Talent aims to train the next generation of experts in the obscure to fill often critical skills gaps. By next year, when funding for the Scheme concludes, 20 apprentices will have received extensive practical and scientific training under the watchful guidance of mentors, many of whom are leading lights in their field.

Applicants are not required to have a degree, though many inevitably do. It's attitude that counts. "We look for someone with a passion specifically for that one thing – be it lichens or hoverflies. The aim is to train experts who can focus on one taxonomic group or habitat, rather than be general ecologists. That is the concept behind Natural Talent: to fill specific gaps," explains BTCV's John McFarlane, who co-ordinates the scheme.

Though managed by BTCV, Natural Talent brings together a constellation of partner organisations – from museums and research institutes to conservation bodies and government agencies. Apprentices are mentored by a range of experts, often working in placements at two or three different organisations in the course of their 18 months. While they learn taxonomy and identification, they also spend plenty of time undertaking field work, gaining hands-on skills in survey and monitoring techniques.

Of equal importance is the ability to communicate with the public, to lead a walk or do a talk, emphasises McFarlane. "The apprentices are also building their people skills. There is a massive gap between scientific academia and ordinary people on the street, and we hope the apprentices will bridge that gap. On the one hand, they're contributing to scientific papers and documenting new species, and on the other hand they're helping deliver community awareness at ground level."

"I love working with people, and plan to do schools education events and fungal forays this summer and autumn," says Samantha Ranscombe, mycology (fungus)

PHOTOGRAPHY: RSPB; ELLEN ROTHERAY

apprentice based at the Royal Botanic Garden Edinburgh (RBGE). Ranscombe worked in teaching and university administration for many years, volunteering with various conservation bodies just for fun. "But I wanted to make a career of it, and needed to find a way to make the leap." She'd become fascinated by fungi while researching the specimens sprouting in the urban wildlife reserve where she volunteers.

For both Ranscombe and lichen apprentice Vivyan Lisewski, also based at RBGE, the scheme provides a unique stepping stone to a much longed-for career change. "I did an ecology degree, but after graduating I felt unemployable – there seemed to be no job opportunities for me," explains Lisewski. "So I built a successful career in IT. Now, in my early thirties, I've decided to get back into conservation. I fell in love with lichens while doing an MSc here at RBGE and this apprenticeship is my one chance to keep working with them."

Lisewski and Ranscombe hope their spell under the wing of Scotland's leading lichenologists and mycologists will help them forge a path in their new careers. But, like all the other apprentices, they are not guaranteed a job. As ever in the cash-strapped conservation sector, much will depend on the availability of funds for posts.

TALKING INSECTS

McFarlane is confident the scheme is very much in tune with the wider Scottish conservation agenda. "We're sending these individuals right to the coalface of Scottish conservation. For instance, in the Scottish Strategy for Invertebrate Conservation, launched in January, the Natural Talent Scheme is named as a vital tool for training up the taxonomic capacity for entomological conservation. Also mentioned in the Strategy are riverflies, pine hoverflies and habitats like machair, peatlands and wetlands – fields we are recruiting in or already have apprentices for."

Craig Macadam of the invertebrate conservation trust Buglife is a riverfly expert and will mentor the riverfly apprentice currently being recruited. "Riverflies – comprising may-, caddis- and stoneflies – are not well studied; what's known about them is very general and mostly from an angling perspective," he explains. "Yet they are an important link in the freshwater food chain, feeding birds like dippers and swallows, as well as fish and bats. And they're a good indicator of a healthy environment: if the riverflies aren't thriving, it's a sign that something's wrong."

"NATURAL TALENT BRINGS TOGETHER A RANGE OF EXPERTS TO WORK WITH ONE PERSON, PASSING ON SKILLS AND KNOWLEDGE"

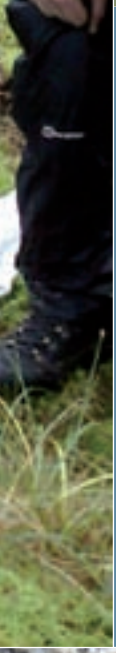
Macadam reckons the new apprentice, to be based at the Clyde River Foundation (CRF) in Glasgow and also working with the Scottish Environment Protection Agency (SEPA), will gain a "good understanding of what makes these insects tick. They will get lots of experience in the field – finding where the insects live, identifying them while out on the river and bringing them back to the lab".

With Buglife, CRF and SEPA by their side, the new apprentice will tap into Scotland's very best riverfly expertise. "That is the beauty of Natural Talent," says Macadam, "it brings together a range of experts to work with one person and pass on their skills and knowledge."

Apart from invertebrate and lower plant species, another aspect of Scottish conservation to receive a welcome skills boost through Natural Talent is niche habitats. This year, the RSPB will host understudies in peatland and machair conservation, as well as a moth apprentice. All three apprentices will be based at an RSPB reserve, so also honing their general reserve management skills alongside specialist knowledge.

"Our Forsinard Flows reserve [in Caithness] has areas of pristine peat bog untouched for thousands of years," explains RSBP Northern Reserves Officer Chris Donald. "Peatland is a threatened habitat, and Scotland's

PHOTOGRAPHY: STUART CROFTS; RBGE; CATHY FIEDLER; RSPB



Field day: Geoff Wilkinson and mentor Graham Rotheray look for hoverfly larvae in rot holes (left); the new riverfly apprentice will study species like the yellow spotted sedge (above) and large dark olive (right); the lichen *Cladonia* species (below)

AN APPRENTICE'S TALE

CATHY FIEDLER, HYMENOPTERA APPRENTICE
HUNTERIAN MUSEUM, GLASGOW

Cathy Fiedler has been interested in insects from a young age and studied biology at university. "As part of my Masters degree, I did a couple of insect-related research projects, in particular on the order Hymenoptera [sawflies, wasps, bees and ants]," she explains. "I found my project on parasitic wasps fascinating.

"After graduating, I wanted to learn more about this order of insects on a practical level, but struggled to find a route into a career in entomology. So, when I saw this apprenticeship advertised, it sounded like my dream job."

The apprenticeship has been "a very intensive programme; I have learnt so much in a short time," says Fiedler. She's looked down microscopes in the lab, using identification keys and preserved collections to hone her identification skills. She's got to grips with museum curation duties, mounting specimens and preparing them for public display. "And last spring, as it got warmer and the insects came out of hibernation, I started on field work, learning how to collect samples and identify them in the field."

Last summer, before moving on from her first placement at World Museum Liverpool to the Hunterian Museum, Fiedler spent five weeks on Islay studying the northern mining bee *(pictured above)*. "This species is very dependent on a particular habitat, namely machair. Not much is known about its ecology, so it really appealed to me as a project."

With encouragement from bee experts and the RSPB, who had surveyed the bee on Islay a few years earlier, Cathy arranged the field trip herself. "I was looking to find out more about the bee's ecology – where it chose to nest and what it foraged on. I intercepted the females as they returned to their burrows and carefully scraped samples of pollen off their hind legs … tricky as it's a tiny creature. The pollen was then analysed in the lab to find out what flowers the bees relied on to feed their young."

Encouragingly, Cathy's field research showed that the northern mining bee is much more adaptable in its nesting sites than previously thought.

peat bogs are globally important in terms of biodiversity and their role in climate change. On the reserve, we conduct annual surveys of birds and monitor how they're breeding and the impact of predators."

Other work includes the restoration of bogs that have been planted with commercial forestry, and controlling the impact of grazing on the reserve. "The apprentice will be involved in all these activities, including planning and practical management of the reserve. They will get training in how bogs work, how to restore them, and also the range of species – not just birds, but the wider biodiversity."

A very different landscape awaits the machair apprentice, to be posted to the RSPB's Balranald reserve on North Uist in the Western Isles. Machair – sandy coastal pasture or meadow – is one of the rarest habitats in Europe and almost unique to Scotland's Hebridean islands. "The key machair species we are involved with are corncrake, corn bunting, great yellow bumblebee and breeding waders," outlines Donald. The apprentice's tasks will include surveying and monitoring these species, but the remit extends to "taking forward the broader conservation objectives for machair".

The apprentice will also be given an understanding of crofting and its day-to-day activities – how to drive a tractor, plough a field and even sow crops. "We'd like this person to be a link between the RSPB and local crofters, working with them and promoting management practices that encourage the machair habitat and its biodiversity – face-to-face dialogue is a crucial tool in delivering conservation objectives," explains Donald.

This year's intake of five apprentices will be the last, unless, as BTCV hopes, the means can be found to run the Scheme beyond 2010. Certainly, many of the partner organisations would like to see Natural Talent continue. "This is a critical point for us," concludes McFarlane. "We are looking to develop this concept further with our partners, and we're hoping to find the funding to make this happen." ■

For more information, visit the BTCV website at www.btcv.org/naturaltalent

Bursting with life: corncrake breed on the machair of Balranald, North Uist (left); colourful clovers and vetches at Balranald (below left)

AN APPRENTICE'S TALE

MARY-JANE FLEMING, FARMLAND APPRENTICE
FARMING AND WILDLIFE ADVISORY GROUP, FORTH REGION

A farmer's daughter from the Borders with a lifelong love of nature, Fleming did a conservation biology degree at university. "I really wanted to work in the farming side of conservation – farms cover such a huge part of Scotland's landscape, so it's important to think of them in terms of conservation as well."

However, when she left university, Fleming felt there was a gap in her practical skills and knowledge of species and habitats, even though she had volunteered as a student. Now, her apprenticeship with the Farming and Wildlife Advisory Group (FWAG) is providing hands-on experience not only of farmland wildlife but also of its stewards, the farmers themselves.

"Now, in winter, I'm visiting the farmers that FWAG works with, helping them to complete their applications for the Scottish Government's agri-environment grant scheme. I go around their farm and talk to them about environmental measures they could put in – planting hedgerows and leaving areas of unharvested crop, for example."

Most farmers are concerned about conservation and just need a little encouragement to find out what they can do, she says. "One of my first visits was to a hill farm near Stirling, a very different landscape from the rolling hills of my parents' place in the Borders. I've also been to coastal farms with dune systems designated as Sites of Special Scientific Interest. It's interesting to see the range of countryside found just in the Forth area."

Spring and summer will bring surveys of farmland wildlife. In the meantime, Fleming is working on a Scottish Natural Heritage-funded project to create ponds for great crested newts *(pictured above)* on Lothian farms, together with the Lothian Amphibian and Reptile Group.

"I've been going around Midlothian asking farmers whether we can dig ponds on their farm – it's a big ask, but most have been fantastically helpful."

PHOTOGRAPHY: MIKE LANE; RSPB; MARY-JANE FLEMING; SCOTTISH NATURAL HERITAGE