Welcome to the Summer edition of the CANN newsletter. As lockdown eases (once again, and here’s hoping it will be for good this time), people have more freedom to get out and enjoy nature on their doorstep and further afield. Our fieldwork has also become easier. The fantastic work by staff and the small army of volunteers is recognised as they chase around our countryside, recording and observing our priority species. We cheer the return of some waders to sites where they haven’t been seen for years, attracted by re-wetting and the creation of impromptu pools, which are a side effect of building dams on historic drains. However, this does underline the sad fact that today we need to have a team of specialists dedicated to spotting a species that used to be common in our countryside. Generations-past speak of hundreds of waders breeding on our uplands, the summer alive with their calls and today we celebrate having 4 or 5 breeding pairs.

This is a prime example of shifting baseline syndrome, a social phenomenon that capitalises upon our human tendency to perceive current conditions against a small set of recent observations (or baseline), so we often do not recognise long-term environmental change. Therefore, historical information is lost as each generation creates their own new baseline based on only their own personal experience. As change is so gradual, we literally sleepwalk towards species extinction.

However, not to be all doom and gloom, sometimes the shifting baseline can be positive, as in the red kite, which is now a common sight across Co Down. This reintroduction means there is a generation of children that finds it difficult to imagine no red kites. Perhaps the 150 marsh fritillaries on Islay, where the previous peak was 27, indicates a baseline shifting in the right direction. Wouldn’t that be lovely?
Build it (Dig it), and they will come!

During April and May, CANN surveyors completed many long days including both early morning or late-night visits. The sunsets and sunrise make these antisocial hours worthwhile.

This year, on nearly all of the CANN raised bogs, the team have also been rewarded with the sounds of drumming and chipping snipe. This species seems to have responded rapidly to the drain blocking works completed and in particular to the pools of water formed from the sacrificial pits created when the diggers remove peat to make the dams. The high water level in the bogs then fills the pools. These pools are brimming with invertebrate life, this is a case of “for instant bugs, just add water”, and these insects are the perfect food for the waders. After several years with almost no snipe recorded, we are truly amazed at the bounce-back capacity of these birds, and as Marc Ruddock, our team ornithologist, says, “if you build it, they will come”. Lapwing have also been recorded feeding in water pooled in a digger track on Moneygall Bog and one of the hand reared curlew chicks from the Lough Neagh landscape partnership project has been tracked using its GPS tag to Peatlands Park. The team has also located a small number of breeding pairs of Golden Plover on both sides of Cuilcagh Mountain. They need shorter vegetation to allow them to see approaching predators and plenty of nearby wet ground rich in insect food.
‘Training on-line’, could this be the new ‘best practice’?

In 2020 the CANN project delivered a series of training sessions. These, due to Covid travel restrictions, were all held on-line using the Zoom platform. The sessions ranged from Interpretive Writing from Interpret Europe, via Crisis Communications and Press Release Writing with Marcomm, to On-line Consultation Methods with Dialogue Matters. We also hosted webinars from Kate Flood on Cultural Ecosystems and from Brendan Dunford on working with farmers and the wider community.

2021 has seen a continuation of this way of providing training. At a recent evening workshop from renowned macro-photographer Tina Claffey, over 70 people took part. They sat in living rooms as far apart as London, Sydney, Scotland, and Offaly, something that would never have happened if we had invited Tina to speak at a local hall or hotel. As people have become more used to this way of working, the use of the chat function for interactive questions has become familiar and people have relaxed into writing their questions, which means that quieter attendees who may not like to ask a question out loud can have their voices “heard” and their queries answered. Everyone has experience of sitting in a live audience during the embarrassed silence that falls as the speaker asks if there are any questions. We have also been able to record the training, so people who had booked but were then unable to attend have not missed the session. So although face to face interaction and casual networking is limited it is, overall, by far a more effective method of providing these events than the more traditional talks.

We are currently planning another workshop on Wildfire Management on 27th July, with speakers from Spain, the Mourne Mountains, and Monaghan, who are able to lend their expertise with a virtually zero carbon footprint for travel. If you are interested in taking part in this event please get your ticket from https://www.eventbrite.co.uk/e/wildfire-planning-and-management-in-ireland-tickets-161886239099

And finally, a webinar from Bord na Mona is being planned for later this summer, where we will hear about their plans for re-wetting their old diggings and recreating wetlands of value in the midlands of Ireland. Follow #theCANNproject on Twitter to keep in touch with this programme.
One of the major projects on Cuilcagh has been the restoration of approximately 17Ha of eroded blanket bog within the SAC around Lough Atona. The site had suffered significant erosion over time and had turned into a maze of peat hags and eroded gullies some as deep as a man is tall, with large expanses of bare peat in between. Current estimates by the James Hutton Institute put the loss of CO$_2$-equivalent at 5 Tonnes per hectare on eroding peat and while some of this may ultimately be locked up in ocean sediments, most is lost for good and since eroded peat is unable to trap new carbon like an intact healthy bog, this makes peat erosion a double whammy for climate change.

Ulster Wildlife enlisted RPS Hydrologists to develop a restoration plan for the site using LiDAR and detailed aerial imagery. This plan set out the ways and means of reducing erosion and moving the eroded habitats to a more favourable state.

We have been working with local landowners who farm the lands and want to see the habitats restored. These landowners were trained in hag-reprofiling techniques and installation of coir rolls to slow the flow and reduce the erosion.

Over the course of three months last winter these landowners reprofiled nearly 2km of peat hags and installed over 400 coir logs across this damaged area of blanket bog! In some areas which were inaccessible to the diggers and where fine finishing was needed this work was completed by hand. The positive changes can already be seen, with deep peat hags reprofiled to gentle vegetated slopes and coir rolls holding back water and creating shallow pools which will eventually fill with the all-important sphagnum moss, the building block of bogs!
Despite lockdown delays to filming The CANN video was finally finished in spring this year and we are all very proud of it. The filming and editing crew of ASG did a great job pulling together nearly a year’s worth of filming. It was impossible to do justice to a project spanning three jurisdictions, 11 partners and 27 sites in just the planned 4 minutes footage so the final video is 10 minutes long but we have also split it into three shorts for easier use. Please click this link to have a look at the full video The CANN Story on our website or visit our YouTube channel here to see both the full film and the shorts.

The Covid pandemic did have a silver lining for us in that funding was made available through the ‘Keep Well Fund’ for projects to encourage people to exercise safely outdoors. Monaghan Library service asked if we would be willing to work with them on a project about the wildlife of Sliabh Beagh. The resulting booklet, which focuses on 5 birds, 5 terrestrial animals, 5 insects and 5 plants that can be seen on the mountain, encouraging people to start recording the biodiversity on their doorstep has been fantastically successful and is now on its second print run. The library service accompanied its launch with fantastic window art on their branches showcasing the species we highlighted in the booklet.

We have also designed and produced an infographic about upland peat bogs and how to protect them and a series of information postcards featuring each of the priority species and habitats we are working on.
Hi–tech DIY for Radon work on Magheraveely

You may not know it, but Uranium is everywhere. It is one of the more common elements in the Earth’s crust, 40 times more common than silver and 500 times more common than gold. It can be found almost everywhere in rock, soil, rivers, and oceans. It is also found in the rocks underlying the Magheraveely Lake Cluster, and it is proving vital for tracking the source of groundwater flowing into the lakes.

So here comes a Nuclear Science 101 class: Most elements change through radioactive decay, making isotopes. In nuclear science, a decay chain refers to a series of transformations an element undergoes on its way to becoming a stable isotope that will not decay anymore. Radon is a naturally occurring radioactive noble gas formed in mineral Uranium’s decay chain on its way to becoming stable Lead. It is the only element in the chain that is a gas, and because it is what is called a “noble gas”, it is chemically inert, meaning that it will not bind to other elements. This allows Radon to free itself from the source of its parent material, the rock, and – should it meet flowing groundwater – be transported to a spring and gas-off into the atmosphere. All radioactive isotopes have a half life. This is how long it takes for half its atomic nuclei to decay and change to another element further down the chain. Due to Radon’s short half-life of 3.8 days, you can be assured that any Radon detected represents the current position because, in 30 days, you are left with roughly 0.4% of your starting concentration, i.e. it has almost completely disappeared. It is these characteristics that make Radon useful as a natural tracer for groundwater contribution to our lakes. It is important for understanding the lakes hydrology to know whether groundwater is a significant source for a lake rather than surface streams or rainwater.

Since our laboratories have been closed due to COVID19, the team from Ulster University has had to transfer much of their work in an innovative way to actually run from the kitchen table at home. Most of the work earlier this year was in creating a custom setup to detect Radon at the very low concentrations likely to be found in our lakes (<20 Bq/m³) and in a way that allowed multiple discrete samples to be taken at once and returned for processing in the lab/home. This was necessary because, at such low concentrations, it can take up to 4 hours per sample to get a result we can trust statistically (with uncertainty lower than 30%). After months of testing and quality assurance against other methods, our DIY setup is working well! In Magheraveely, water sampling has been completed for three lakes, with more to come. More work is still to be done to populate a mass-balance equation that will actually quantify the groundwater/surface water contribution. Still, right now, everything seems to be running smoothly.
The Pau Costa Foundation from Spain recently completed a Wildfire Management plan for Cuilcagh Mountain and are now hard at work creating a strategy for the Sliabh Beagh SACs north and south.

A Wildfire Management Plan aims to allow stakeholders and responders to understand the fire risk and the landscape management needed to alter fire behaviour in the area and reduce the risk of further landscape-scale fires in the future. The plan will provide recommendations to encourage actions to sustainably manage the environment, improve the responder’s (fire-service and local landowners/fire rangers) capacity to control wildfires and reduce their impact on peatland habitats.

Pau Costa has been working with Earthy Matters on Sliabh Beagh and have completed Phase 1 of the fieldwork. The high risk and key priority areas were identified by Pau Costa. This included areas where fires occurred in 2011 and 2017, allowing them to assess the damage caused, and quantify the land’s recovery. To do this, the team studied peat and moss depth, burn severity, vegetation cover, habitat degradation, signs of regrowth, and mapped physical features such as fire breaks. Many hundreds of quadrats were studied in these areas.

Some findings of this phase of the study were bad news, but there was good news too. On the downside, it was confirmed that most of the fires were deliberately set, forecasts for fire season were also poor, with predictions showing an extension in fire season from the current spring months on into August by 2050. However, looking at the upside, it appears that the 2011 and 2017 fire sites have made a good but not necessarily full recovery. Lots of healthy sphagnum was found in generally moist conditions. There was relatively little *Molinia* which, with its underground fireproof corms and a large amount of dry flammable dead leaf litter, is not only adapted to survive fire but substantially increases fire risk by its presence. It was also discovered that in this year’s fires, only the top surface of the moss was scorched, and underneath, the moss is still alive. The surveys also found that the habitats burned in 2011 and 2017 are being used for nesting birds again.

The next fieldwork phase will consist of looking at high-risk potential areas for fire as polygons on the map and the critical points where fires can start, spread and be stopped. Of particular interest will be wet anchor areas that won’t burn and can act as natural fire breaks, and man-made features like roads and lanes that act as firebreaks. This way we can reduce vulnerability and find ways to compartmentalise fire and prevent landscape-scale events like 2017 happening again.
The CANN team is carrying out positive conservation actions on 15% of the 25,000 ha of Special Areas of Conservation that it covers. As well as actions over the period of the project itself Conservation Action Plans will provide management goals for the next 10 – 20 years on each site. However, without buy-in from landowners, land-users, neighbours and local communities these plans could flounder.

We are now in the fourth year of our project and are continuing to raise awareness through community engagement. This work aims to help everyone appreciate and value the scale of the investment and the potential impact for biodiversity and climate resilience delivered through CANN.

Armagh City, Banbridge and Craigavon Borough Council is the partner in the CANN team charged with engaging with local communities around the CANN sites to increase levels of awareness and a commitment to sustaining the conservation work started under CANN.

“We have to start from where people are at” explained Chris McCarney, Biodiversity Information Officer,

“My first objective was to get to know the people living and working near the main CANN sites, I started by exploring what local people were proud of and finding out what they valued”

One of the core methods we used to reach out to local communities was to engage with existing social structures so that we did not have to re-invent the wheel. It is far easier and reaches many more people to add biodiversity and conservation issues to an existing community group’s list of interests than to try to start a wildlife group from scratch. This also means that you are speaking to people who wouldn’t have normally have been interested in joining a dedicated wildlife group.

Islay, Jura and Colonsay

Our first community engagement pilot project is with the Islay Natural History Trust. It is a charity established in 1984 dedicated to help local people appreciate and learn more about the geology and wildlife on Islay. In co-operation with CANN, the Islay National History Trust (INHT) agreed to spearhead a campaign to celebrate the bogs and wetlands on Islay but also the neighbouring islands of Jura and Colonsay. The INHT committee consulted with local distilleries, Gaelic language groups, schools and secured consensus for a campaign ‘Celebration of Peat - Our Wonderful Peat & Bog’ which provided the tools to reach out to a range of different audiences and groups. The programme delivered by INHT included creating a Peatland Passport to encourage spotting and recording wetland species; running guided walks and a community project to look at all the Gaelic words for bogs and wetplaces. Local schools on Islay were encouraged and facilitated
to take part in the John Muir award which encourages mapping, blogging, recording and active conservation of a place that is special to the young people

**Peatlands Park**

Based on the enthusiasm and innovative ideas brought to the project by INHT, we had the confidence to trial the same approach with communities around Peatlands Park in Co Armagh. Unfortunately here, despite extensive tendering, CANN were not able to find a partner with the expertise and track record of INHT to work with.

As a result we spent time building relationships with four community organisations; Birches Action Rural Network, Tamnamore Community Development Association, Maghery Matters and Blackwater Community Barge. None of the four groups had a particular interest in environmental issues and all saw Peatlands Park as a government-owned site that had little connection to their group and the local community. However this has now changed.

To increase the relevance of the project to these groups, the area of interest was extended out from Peatlands Park to the riparian corridor of the River Blackwater and the shores of Lough Neagh. This larger and more varied area, centred on Peatlands Park, provides many more opportunities for local people to connect with valuable wildlife habitats on their doorstep. We also discovered that many local people had connections to the old Church Hill Estate which was purchased by NIEA to form Peatlands Park. Many local people have stories of grandparents working long difficult hours extracting peat to power the mills in Portadown so the oral history of the area became key to our work.

Again, we have made a good start and agreed to establish a shared organisation to progress environmental and educational activities. Our first post lockdown event took place on 4th July and was a Bioblitz at Maghery Country Park.

Plans are now afoot to develop similar structures on Cuilcagh and on Sliabh Beagh, where we are already successfully organising training courses for local land-managers and interested volunteers in Herbicide application and use of chainsaws to deal with invasive rhododendron and pine.
Corbally Fens is a beautiful site near Downpatrick in County Down. We have been monitoring Corbally for marsh fritillary and Desmoulin’s whorl snail numbers. But while these are the highest priority species on the fen, it also hosts a range of other interesting and unusual invertebrates.

Whilst working on the fen for the CANN project last year, lepidopterist Dave Allen noticed something unusual in the trunks of the older willows on site: “These are the exit holes of the Lunar Hornet Moth,” he explained. This striking moth is one of the Clearwing groups of moths, so-called because of their characteristic transparent wings. The larvae burrow into the wood of willow trees and emerge in June and July.

So, on 21st June, Dave and Trish from Ulster Wildlife that works with all the private landowners on Corbally, returned to see if they could find the adults. So how do you find a Lunar Hornet Moth? By pretending to be a female! It’s a great big con trick.

Dave came ‘armed’ with a small selection of bags in which were tiny vials impregnated with the pheromones, chemicals secreted by insects to attract males of the particular species. “Over 20 different lures have been developed for different species of Clearwings”, said Dave.

The plastic vials or rubber bungs are placed in small nets and then positioned in trees for about 10 to 20 minutes at a time. If nothing appears, you move on about 50m to the next suitable tree and try again. Males can detect even one molecule of the pheromone many metres away and are drawn in.

Knowing that the moth uses Corbally has influenced our proposals for how the fen should be managed. Normally, we would suggest all trees are removed from a fen but in this case, because these large willows are being used by the moth, and because they
are hosting so many birds they will be left in place. In September the team will remove the smaller willows and ash which could dry out the fen and out-compete the flowering herbs.

Dave’s visit did not record any Marsh Fritillary adults; the day was very windy so they may have been hiding in the vegetation. However, dozens of the butterflies had been seen at Ballykilbeg fen just weeks before, so that species appears to having a good year (population fluctuations are normal). But other insects made up for a lack of Fritillaries and the plants were literally buzzing with life, pictured below are just a small selection.

1. *Anasymia lin-eata*. A hoverfly typical of wetlands, on marsh marigold or kingcup
2. Large red damselfly
3. Variable damselfly
4. Snipe fly
5. Small tortoiseshell on ragged robin flower
6. Marmalade hoverfly also on ragged robin
7. A reed beetle on yellow flag iris

All photos ©Trish Fox/UW
A New Generation of CANN babies

And it’s not only bird breeding records that we are pleased to announce! Since the last newsletter, we have celebrated the arrival of two new CANN babies:

On Christmas Eve 2020 Sara Meehan, our freshwater ecologist working with partners IT Sligo, on Lough Arrow had a beautiful baby girl, Mae Elizabeth (actually the third CANN baby at IT Sligo since the project began!)

And on 11th February Ulster Wildlife’s Roisin Grimes working on Cuilcagh also had a baby girl, Éabha, pictured here wrapped up in her handmade blanket crocheted by one of the CANN team.

Both babies will be introduced to the hills and wetlands over the summer, carried uphill and down dale in baby-backpacks and learning how to identify Charophytes and Hen Harriers with their mothers’ milk.

Project Partners

Lead Partner: Newry, Mourne and Down District Council (NMDDC).
- Agri-Food and Biosciences Institute (AFBI);
- Argyll and the Isles Coast and Countryside Trust (ACT);
- Armagh City, Banbridge and Craigavon Borough Council (ABCBC);
- East Border Region (EBR);
- Golden Eagle Trust (GET);
- Institute of Technology Sligo (ITS);
- Monaghan County Council (MCC);
- NatureScot (NS);
- Ulster University (UU);
- Ulster Wildlife (UW).

The CANN project partnership also works very closely with National Parks and Wildlife Service (NPWS) in Ireland and the Northern Ireland Environment Agency (NIEA).

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