



Episode 9: World Soil Day with Bruce Lascelles, COP28 & Scottish Biodiversity Strategy

Audio file

Transcript

Sophie

Hi everyone and welcome back to another episode of Nature in a Nutshell, the podcast which breaks down the latest ecology and environmental news. My name is Sophie and I'm the marketing officer at CIEEM, also known as the Chartered Institute of Ecology and Environmental Management. And as always, I'm joined by my 2 colleagues and co-hosts Jason and Doug.

Jason

Hi there, this is Jason. I'm CIEEM's Head of Policy.

Doug

And I'm Doug. I'm CIEEM's Policy Officer.

Sophie

And in today's episode we're also joined by Bruce Lascelles who's going to talk with us about soils in light of World Soils Day.

Bruce is a soil and environmental scientist. He is UK Director of Sustainable Land Management at Arcadis and the current Past President of the British Society of Soil Science. Bruce studied Forestry and Soil Science at the University of Wales, Bangor, and then went on to do a PhD at Bangor on pedogenic and environmental change over the Holocene. Bruce has focused on soil surveys, soil handling methodologies and habitat creation, restoration and translocation and has worked across a wide range of habitats, from floodplain and chalk grasslands to upland blanket bog environments.

Bruce

Thank you, Sophie. It's great to be here with you today.

Sophie

Now, before we start talking all things soils, then Jason, what else are we covering in today's episode?

Jason

Thanks. So along with soils, obviously we're going to talk a bit about COP28, the Scottish Biodiversity Strategy consultation and I'm going to sneak in a quick update on the BNG.

Sophie



So let's start off with soils then. Bruce, in a nutshell, why are soils so important generally, but also specifically in relation to climate change?

Bruce

Yeah, thank you. I was gonna try to sum this up with a couple of quotes. I think the 1st is the quote that's been attributed to someone called Paul Harvey, the man behind the, So God Made A Farmer Speech which reads "despite all our accomplishments, we owe our existence to a 6 inch layer of topsoil and the fact it rains." And then the second quote is from Franklin D Roosevelt from the time of the Dust Bowl disasters in the 1930s, who said "a nation that destroys its soils destroys itself." And I think these two quotes perhaps cover two of the key aspects of why soils are so important.

Soils comprises thin skin at the land surface, which provides us with so many benefits. 95% of our food is grown in soil, soils absorb and filter water, they support the vast range of habitats and landscapes around us and they're an ecosystem in their own right, supporting a massive range of microorganisms about which there is still so much for us to learn. They're also the largest store of fresh or carbon, and so have a role to play in climate mitigation as well in relation to climate adaptation. And so essentially kind of the healthier the soil is, the more likely it is to be storing as much carbon as it's able to at in any given location.

But soils have been massively impacted by our activities. Estimated that I think 1/3 of land globally is degraded and the rates of soil loss are absolutely massive. I think the estimate is around 24 billion tonnes of soil per year is lost globally and if you narrow that down into the context of the UK, it's estimated that the cost of soil degradation just in the UK is around £2 billion per year. So I think essentially to answer the question, soils are an absolutely critical part of our life support system alongside air, water and biodiversity. Essentially their potential and their ability to support us has been and continues to be degraded on a scale which we really can't sustain.

Doug

Building on from all of that, so what is World Soil Day all about then? The ethos of this day, then?

Bruce

I think in that context of the importance of soils and the fact that we have historically and we continue to damage them, World Soils Day, which is held on the 5th of December each year, is a means to focus attention on the importance of healthy soil and to advocate for the sustainable management of soil resources. It's a day that was recommended initially by an organisation called the International Union of Soil Sciences and it was under the leadership of the Kingdom of Thailand and within a framework of the Global Soil Partnership. That the FAO formally established World Soil Day as a global awareness raising platform. We can see the importance and how the importance of that has been grasped by many people in that that key role played by soils in addressing the major resource, environmental, health and social problems which humanity is currently facing, also prompted in 2015, the declaration of the International Decade of Soils to really try to ensure that the momentum at that time was maintained and increased over a much longer time period.

Jason



You mentioned there about sort of international perspective and I'm curious as to whether there are differing issues between the UK and Ireland and the rest of the world that we need to be aware of.

Bruce

To some extent, yes. And some extent no, and if I can explain that in a bit more detail, soils are hugely varied. In the UK alone, there are over 700 different soil types and within each of those soil types there'll be variations in the characteristics. Variations that are driven by a unique combination of factors, from geology, topography to climate and the habitats present at any given location. So in the UK context, soil space pressures on a number of fronts, from soil erosion, a concept of soil sealing, so creation of impermeable development on top of the soil and then sort of pollution, compaction, loss of soil, carbon and so on. These pressures will be the same globally, even though perhaps we may see different climates and different Land Management practises. The pressures are probably going to be very, very similar and so yeah, so soils may be different. The societal context may be different. But the pressures and the outcome may be the same. And really when I talk about outcome, I suppose on a global context as a fundamental that soils support our food system and our food system for many as a global one, and so we do need to be very conscious of the impact soils around the world as well as in our own backyard.

Doug

Coming on from that, I mean, what's really new in soil science then? Is there anything that CIEEM members and supporters should be aware of in terms of soils and some of these new researches.

Bruce

There's a lot we don't know about soils. I think soil scientists would agree with that. And I think that's in particular in relation to life in soils. And I think if I just focus on that firstly, that's a particularly important area, not least in light of the pandemic we've just faced. I'm sure there been other discoveries recently, but it was widely reported in 2018 that a new antibiotic had been discovered from soil microbes which was effective against superbugs, so you know, a really, really important discovery. I think given what we faced over the last few years and the prediction that there probably will be future pandemics, keeping our soils healthy so they can retain the potential even if we don't know what the potential is at the moment to provide future sources of treatment has to be critical. It's worth highlighting the work that the CIEEM Ecological Restoration and Habitat Creation Special interest group are doing around developing guidance in relation to rebuilding nature through habitat creation, restoration and translocation, and this work is going to include an overarching guidance document on soils as well as the wider physical environment that I'm leading on writing with Mark Nason, and others. So hopefully that will really sort of give the information and put the importance of getting the soils right, right at the heart of habitat creation, restoration and translocation projects.

Jason

Are there things that beyond those specific things that special Interest group is doing that CIEEM and perhaps ecologists and environmental managers could be doing around raising the profile of soil or better protecting soils?



Bruce

I think absolutely. Soil science has often been referred to as the Cinderella Science. You know, if you think of the focus and legislation that's been around air quality, water quality and biodiversity, soils have never had that level of engagement. So I think it really comes down to perhaps the fundamental of recognising and talking about the role of soil within our natural system and just how critical this is and I mentioned the word system there and I think system thinking, seeing the component parts of the system and their interrelationships needs to be really kind of a core element of the skill base across all those disciplines. I think in terms of what people can do, I think it's about ensuring that soil is part of the conversation. If all conversations around land use changed, use that phrase start with questions about what soils are present, how healthy they are and so on, absolutely great basis to start building the plans for biodiversity or landscape enhancement in a way that means that those projects can be sustainable and they can be future proofed as well in the context of climate change.

I think the other point maybe to mention is all these people can play is seeking opportunities to collaborate and in particular to gain knowledge through data. All too often we monitor and put a lot of effort into monitoring the above ground part of the system. We ignore the below ground aspects and I think that can play a part in why sometimes projects don't succeed. Particularly thinking then, about climate change, getting the soil conditions right to support a landscape and a habitat system in the future is going to be really important as well.

Doug

On that sort of that theme of collaboration and looking to the future as well, I saw that the title of this year's World Soil Days, is soil and water - a source of life. So why is that relationship, why is that so important? And why is that something that needs to be focused on?

Bruce

I think I've mentioned soil is a living ecosystem in its own right, and it has structure as well. Just as above ground ecosystems have structure and the niches that go along with that. That structure in soils enables them to absorb and to hold on to water, making it available to plants. It filters the water and importantly, it slows the path of that water that rainfall essentially back to the water courses. So it has these sort of multiple interrelationships and sort of fundamental linkages between the nature of the soil and the health of the soil and what happens to the water, and particularly moving through into a climate that's going to have more frequent and more extensive droughts, more intense rainfall, which is more likely to run off very quickly and cause flooding, etc. We need to ensure that our soils are healthy and the healthier they are, the closer to the natural state the better able they're going to be to hold on to water, making that water available to plants, minimising flood risk and all the things that go along with that, and maybe that brings me to one of those quotes from the start that you know despite all our compliments, we are our existence to a sections layer of topsoil, and the fact it rains, you know the two are very, very closely interlinked. And so I think if we come back to maybe the fundamental of our food system, irrespective of everything else, it's the soils, the water, the nutrients in the soils and the availability of those to plants to grow that are kind of that platform, that foundation that we fundamentally rely on.



Jason

Thanks. You talked there about the importance of healthy soils and earlier on you talked about some of the threats to them. Are there any particularly that stand out as threats to healthy soils in the UK and maybe Ireland that that we need to be aware of?

Bruce

Yeah, I think when you think about the threats to soils, essentially, you think about our activities. What are we doing, you know, across the land, but also we have to recognise that those threats and also and the impact of those threats are exacerbated by, have been and will be, exacerbated by climate change. So I think some of the key things to focus on are soil erosion and soil erosion is not a problem in the rest of the world where perhaps we see some of these pictures of water spilling, water, running off or Dust Bowl type scenario. Solar erosion happens extensively in the UK if the soils are losing, then we're losing nutrients. We're losing volume of soil, we're losing carbon. That thin layer that I talked about, that skin is being reduced and reduced and reduced and therefore the capacity for that to support us is being reduced. So soil erosion and sort of associated loss of carbon, loss of nutrients as a result and that I think is really important because we mustn't just think of the key nutrients like nitrogen, phosphorus, potassium, magnesium, etcetera. The nutrient quality of our soils affects the nutritional value of the crops we grow. And so the micronutrients are really important in that as well.

And I think again, then perhaps in the UK, sort of Ireland context, probably issues around soil compaction and soil sealing, they're kind of have the same result in that they reduce the capacity of the soil to absorb water, increase flood risk, reduce the potential for the microbial community to be as flourishing and diverse as it possibly can be as well. So I think those are perhaps the ones that I would pick out, but I think it's important coming back to that concept of system thinking to recognise soils as a system but also as part of the wider system. So if we damage one part of a soil system, it's likely that all of its functions are going to be affected, and if we damage the soils then the functions that we get from the wider environment are also going to be damaged as well.

Doug

And lastly, it's a bit of a sort of an amateur soil nerd myself and to any sort of budding soil scientists listening, what advice would you give them for getting into a career of soil science.

Bruce

There's lots you can learn, I suppose by reading, etcetera. But there's absolutely no substitute for looking at soils in situ. You know soils don't form and develop or exist in isolation, and therefore in turn they then influence what we see in those locations. So just maybe for a sort of general interest when out and about, notice the soil. It's interesting when you talk to people, so few people actually notice what is under their feet or what they see, so it may be a roadside cutting. It may be on a hillside where sheep have created scrapes where you can see the profile, but even have appear into excavations where there are repairs to services in the road outside your house and look at the urban soil. I think the first part is just to see the soils, to recognise them in their unique environment and the unique characteristics that gives them as well.



But then if you want to take that further, the British Society of Soil Science or BSS, as we call it, they do run a series of training courses, including the basics of describing and understanding soils. BSSS also have a number of regional groups who run sort of more local events, most of which include a field element. So going out to discuss soil compaction on agricultural land or looking at quarry restoration, these are all sorts of topics which will have relevance to ecologists as well. I was really lucky to go on a very pleasant one run by the southeast soil discussion group recently looking at the relationship between vineyards and soils and the importance of soil types of grape characteristics. So alongside of seeing the soils, I also got to taste the wines as well. Perhaps the other point to raise here is that soil science as a career can also be grounded in other disciplines as well. So you know soils we talked about are critical to the functioning of the natural environment. So maybe you think of natural flood management systems, for example, you may have a focus on an FM, but you could come at that from a very detailed understanding of the soils and how the soils support that as well. And the same could be said for habitat creation.

In summary, it's seeing the soils, looking at what's around you and then maybe looking to see if there's something local that's being run that you can get involved with to get into perhaps more details, conversations, discussions about what we were talking about, the role that soils play in so many aspects of our lives in the natural environment.

Sophie

Well, I think that's all of our questions for you, Bruce, today. Thank you so much for your time to come on the podcast. We really appreciate it. And yeah, that was a really insightful discussion. So thank you very much.

So next up, I think Doug is going to be talking about COP 28.

Doug

Yep, COP 28 started well, today on the day we're recording or sort of late last night/yesterday, with some chats and it will be running from the 30th of November till at least the 12th of December. So by the time this comes out, you know, we might sort of be in the midst of it. So who knows where we'll be at right then. But right now, so this is the sort of the 28th Conference of Parties meant to push forward a global response on the climate emergency.

The Conference this year is being hosted by the United Arab Emirates and Dubai. This is, you know, of course this a controversy. So they are one of the world's largest exporters of oil and gas. And the President of this year's summit, Sultan Al Jaber, is the UAE's Minister of Advanced Technologies and Chief of its national oil company ADNOC. There's been lots of controversy over both the UAE's position as host and this sort of conflict of interest from the president's role. For some campaigners, this seems to have damaged a lot of faith in the COP system. There's been lots of comments on how likely this year's COP is to bring real success for curbing emissions and keeping temperatures below 2°. Around that, I would like to sort of make a note that when COP's are held in places like France or when they're held in other countries which are massive fossil fuel producers and sort of, you know, all these sorts of things, this hasn't been as much of a discussion. But with the UAE it is. So I think that's just something to keep in mind that COP's in other countries despite also being sort of quite



big fossil fuel, either exporters or consumers, these sort of discussions haven't had the same maybe timber. So I think that's something to keep in mind on sort of the whole thing.

Despite these reservations, some experts and sort of veterans of the COP system think that has the potential to make a really big impact, particularly in terms of private financing and climate change. So the President of this year's COP, obviously, as an Executive, he's also been involved with lots of different private companies, some relating to inability and his big vision for this year's COP is really to bring the private sector into this. You know, he's getting lots of oil companies and Fossil fuel companies around the table. Obviously they don't have a vested interest in making the climate situation better. Their vested interest is in fossil fuels, but the ethos is that to make change, you need these companies at the table. You know, these are the overwhelming producers of fossil fuels in our atmosphere. They are the primary reason that climate change is where it is. So to make change you might need to get these people at the table, so that's sort of the big thing we might see out of this COP. So I think it'll be really interesting just to see where that develops, what lessons we can learn from this process in terms of getting people onto the table, getting them to talk and getting these discussions to happen because as we can see, the previous COP's, although you know incredibly important and really vital for where we are, haven't had the impact that maybe they needed to. You know, it looks like we're going to be smashing through the 1.5° C that was agreed at the Paris climate, which was one of the sort of the most famous, you know, the Paris climate towards a globally famous. They are sort of always held up as a massive achievement of the COP process. The system needs to advance, it needs to sort of evolve in terms of how we're going through it. As just came in today at this most recent COP, countries have agreed on the operationalism of the loss and damage fund. So this is a system to help poorer countries deal with the impacts of climate breakdown. This has been floated to previous COP's, particularly to do with historical fossil fuel producers, but also current fossil producers. You know, big polluters to pay for the damages and compensate countries who are not responsible for the climate crisis but are getting affected by it in a far larger capacity. So the creation of this fund has had a lot of stumbling blocks. It's been a really long process, but it looks like it's at least being tentatively agreed by delegates.

A lot of early reactions are saying this is a really big step. You know, this is a real big lifeline, particularly to things like island nations who don't produce lots of fossil fuels but are right now potentially a total risk of sea level rise, you know, sea level rise will wipe them off the map, so they really need this sort of support and they need the income from the countries who make their money from fossil fuels to pay for those losses and damages. So this is something that's come out today, who knows what we'll see? Yeah. I think it's just worth keeping in mind that whatever we see, there will be lessons learned that we can take forward at these conference parties because they are a really important process in us tackling climate change.

Sophie

Will we be writing a summary of what's to come out of COP28?

Doug



I'll be putting together a summary as it sort of goes on and then at the end of it, we'll do a little write up and a round up so that people can go on to our website and really easily see, you know what are the big takeaways and what can we learn from it.

Sophie

Perfect. Thanks, Doug, for now, we're moving on to the Scottish Biodiversity Strategy with Jason.

Jason

Thank you very much, Soph! Moving on to the Scottish Biodiversity Strategy consultation. So I wanted to cover this this month because by the time we get round to the next one that will come out probably end of January. This will all been submitted and we'll be moving on. So first of all, I have to say a huge thank you though to Annie, our Scottish project officer and the Scotland policy group and the Chair Julie and our Scotland vice President Caroline who have put a huge amount of work in to our consultation response that put together a really comprehensive response to this consultation that is just super key on biodiversity conservation and recovery going forward in Scotland.

So it will be Scotland's strategic framework for biodiversity. The deadline, as I was talking about is the 14th of December, so our full response probably won't quite have been published by the time the podcast comes out, but it hopefully will be very soon after that. The consultation is a critical step forward for how Scottish Government intends to take forward nature conservation, so I just want to share some of the key points from our response. Overall, we're just really pleased to see the ambition in this strategy and really welcome that. It's probably the most comprehensive, challenging and far reaching biodiversity strategy that Scotland has ever produced. And then to add on to that, Scottish Government have said that they will also be publishing statutory targets in the natural environment bill, which is due next year. So we've got this rolling programme of real ambition coming out of Scotland, so that's really great.

I think one of the key elements of it is this intent to mainstream and integrate biodiversity across government, but that's really critical, really like to see that mandated in some or other way so that there's a statutory underpinning for that to make sure it is delivered. Yeah, moving on to some of the key points that we want to highlight.

- So we'd have really liked to seen some of the actions from the framework being a bit more SMART so that they're actionable and measurable and we can quantify our success. But those are things that can be worked on.
- We would really have liked to have seen or would like to see some more clarity on responsibility into the action plan so that we know who is responsible but also so that resources can be allocated appropriately so that we can make sure that they've got the funding, the expertise, the delivery we'd really like to see
- And this is a bugbear across all sectors, I think is that clear monitoring is critical and that needs to be scientific evidence based and really transparent. There needs to be accountability on actual delivery and there needs to be the funding for that monitoring following on from that



- We would really love to see some kind of clarity on sanctions for non-compliance or failure to deliver action plans. We'd really like to see Environmental Standards Scotland being made the appropriate body for reporting on government progress. For this, we don't think it's necessary to set up a new body. ES could do this quite well. They would need the resources to do it, though.
- We're also curious as to the process going. Or would Scottish governments have stated that they'd like to align with EU standards or exceed them actually? So it's going to be interesting as EU develops its own nature restoration law and how that progresses, the ecosystem restoration process, how Scotland moves along with that, and how this plan can align with it,
- we'll keep a watching brief on that one critical I think to the delivery of any biodiversity Framework is having the expertise and understanding of the natural environment to underpin that. We go on about green jobs for nature. That's what we call the sector, I suppose. But we need to make sure that there's the support in place for future generations who come through, because this isn't something that's going to happen in the next two or three years. This is a process that's going to continue for decades, supporting the next generation coming through is just really critical.
- We're really keen to see the realisation of a national nature network to ensure that nature networks designated at local level, which is already in the plan, are linked across local authority boundaries, regional boundaries, and that are ecologically functional as well. So we're making sure we have that landscape scale approach to the framework.
- And then lastly, I suppose just an add on some of things I've already mentioned. In passing the new biodiversity framework will place some major and potentially novel demands on NatureScot, the agency for Nature Conservation in Scotland and local authorities. So it's a real plea to make sure that Scottish Government makes sure that there are the appropriate resources, both in funding and in expertise, to deliver this new plan. But it's hugely ambitious, hugely challenging as well, but really looking forward to this coming through in the coming years.

Sophie

Thanks, Jason for that summary. Finally, just quickly, what is the latest on BNG or Biodiversity Net Gain?

Jason

So, sneakily, and perhaps a little bit cheekily, I wasn't going to do an actual update, but just to mention that in the week that we're publishing or sorry recording this podcast, there's been a whole slew of new announcements from Defra, Natural England on Biodiversity Net gain. But I just wanted to do a little plug that we're going to be upgrading and revamping our web pages on Biodiversity Net Gain on the CIEEM website. We will be linking them through from the homepage, so we will keep adding that information as it comes out so there will be a resource there. Hopefully everything you need for Biodiversity Net Gain, there's either some information there or some sign posting to where you can find it so just a little plug for our new BNG web page.

Sophie



We all know that the UK is one of the world's most nature-depleted nations, but things are looking more hopeful for UK ecology as seabird numbers are reported to be soaring on Lundy island in the Bristol Channel. Populations of puffins, Manx shearwaters and storm petrels have soared on the island thanks to efforts to eradicate rats, which arrived there as stowaways on ships. The rats had been preying on the eggs and chicks of the seabirds, but population numbers of the birds have been growing since the island was declared rat-free in 2006. The RSPB say that shearwater population has soared from about 600 in 2001 to more than 25,000 today. And there are more seabirds nesting on Lundy island than at any time since the 1930s! This is a really positive story to share and gives a bit of hope that it's entirely possible to come together to restore nature across the whole of the UK and Ireland.

Thanks for listening to another episode of Nature In a Nutshell. Please don't forget to go ahead and rate and review the podcast. We will be back in early January for another episode, but this one will sound a little bit different. We'll be joined by CIEEM's CEO Sally Hayns for a round up of the top stories affecting people and nature in 2023 will also be looking ahead to what we expect to see in 2024. So a nice summary to sort of start the New Year off with. But yeah, we'll see you next month.