The Joint Committee met at 2 p.m.

Comhaltai a bhí i láthai /Members present:

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<th>Jack Chambers,</th>
<th>Alice-Mary Higgins,</th>
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<td>Marcella Corcoran Kennedy,</td>
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<td>Pat Deering,</td>
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<td>Brian Stanley.</td>
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I láthai /In attendance: Deputies Thomas P. Broughan, Michael Fitzmaurice and Danny Healy-Rae.

Teachta/Deputy Hildegardh Naughton sa Chathaoir/in the Chair
Chairman: Apologies have been received from Deputies Bríd Smith and Martin Heydon. I propose that we go into private session to deal with some housekeeping matters. Is that agreed? Agreed.

The joint committee went into private session at 2.12 p.m. and resumed in public session at 2.28 p.m.

Peatlands Restoration and Rehabilitation: Discussion

Chairman: I welcome members and I also welcome viewers who may be watching our proceedings on Oireachtas TV. I ask that members and visitors ensure that, for the duration of the meeting, their mobile phones are turned off completely or switched to flight mode.

On behalf of the committee I extend a very warm welcome to Mr. Brian Lucas from the Department of Culture, Heritage and the Gaeltacht, and to Dr. Florence Renou-Wilson of UCD.

Before beginning, I advise witnesses that by virtue of section 17(2)(l) of the Defamation Act 2009, witnesses are protected by absolute privilege in respect of their evidence to the committee. If they are directed by the committee to cease giving evidence on a particular matter and they continue to do so, they are entitled thereafter only to a qualified privilege in respect of that evidence. They are directed that only evidence connected to the subject matter of these proceedings is to be given. They are asked to respect the parliamentary practice to the effect that, where possible, they should not criticise or make charges against any person, persons or entity by name or in such a way as to make him, her or it identifiable.

Members are reminded of the long-standing ruling of the Chairman that they should not comment on, criticise or make charges against a person outside of these Houses, or an official either by name or in such a way as to make him or her identifiable.

I now invite Mr. Lucas to make his opening statement.

Mr. Brian Lucas: I thank the Chairman and the committee for inviting me to make this presentation on behalf of the Department of Culture, Heritage and the Gaeltacht. I shall first give the committee a little background to the policy framework on peatlands and then I will speak about the national peatlands strategy and peatlands restoration.

Peatlands cover approximately 20% of the State’s land area and their use has implications across a wide spectrum of public policy. Ireland’s peatlands, occurring as raised bogs, blankets bogs or fens are unique on a national and global scale. Ireland recognised the importance of these peatlands and took steps to protect these sites through designation as special areas of conservation, SACs, and natural heritage areas, NHAs.

The national peatlands strategy has run since 2015 and has as its vision statement “to provide a long-term framework within which all of the peatlands within the State can be managed
responsibly in order to optimise their social, environmental and economic contribution to the well-being of this and future generations”.

The strategy sets out a cross-governmental approach to managing issues that relate to peatlands, including compliance with national and EU environmental law, climate change, forestry, flood control, energy, nature conservation, planning and agriculture. It is underlined by 25 key principles and commits to the undertaking of 32 actions across various sectors and themes, including research, tourism, agriculture, forestry, conservation, restoration, peat extraction, energy, water quality and climate change.

As I have said, there are 32 actions in the strategy and I will give a flavour of progress on some of the actions. Among the progress to be reported is action No. 3 where the Department of Agriculture, Food and the Marine’s European innovation partnerships, EIPs, programme has awarded a total of €59 million to 24 projects. Many of these are within Natura 2000 areas such as the hen harrier project and the pearl mussel project.

Action No. 5 is a key issues paper for public consultation on a review of the use of peat in the horticultural industry that has recently been published. Submissions are invited on the key issues paper during the three month period closing on 20 January 2020. A copy of the paper has been sent to the Chairman of this committee and that of the Oireachtas Joint Committee on Culture, Heritage and the Gaeltacht.

Action No. 8 is Bord na Móna’s announcement that all Bord na Móna lands used for peat production will be rehabilitated in the long term in accordance with draft plans supplied to the Environmental Protection Agency. It also recently announced an accelerated exit strategy for peat production and its intention for an enhanced rehabilitation programme.

With regard to action No. 13, currently two eddy covariance towers have been established in the midlands on peatland sites with a further tower to be installed next year as part of the accelerated bog restoration programme. These flux towers are used as a tool for evaluating net CO2 or other gases exchange from terrestrial ecosystems to the atmosphere.

With action No. 14 the Department of Culture, Heritage and the Gaeltacht and the Environmental Protection Agency has agreed to jointly fund a two-year research project titled: “The vulnerability of peatland ecosystems to a changing climate and increases in the frequency and severity of droughts.” The project is scheduled to begin next year.

For action No. 27, in July 2019, the Minister for Culture, Heritage and the Gaeltacht, Deputy Madigan, approved grant funding of just under €131,000 under the peatlands community engagement scheme, to 13 local community groups and organisations, with €16,245 in pre-funding to be provided to seven of these groups as start-up funding.

I shall conclude by referring to the Irish and international experience of wetland restoration. As recognised in the Government’s Climate Action Plan 2019, restored peatlands are important carbon sinks, absorbing and storing large amounts of carbon as well as supporting improved biodiversity across Ireland. In December 2017, the Department of Culture, Heritage and the Gaeltacht published the National Raised Bog Special Areas of Conservation Management Plan 2017-2022. The management plan sets out how the raised bog special areas of conservation are to be managed, conserved and restored and how the needs of turf cutters are to be addressed. This restoration programme links with the peatland actions contained in the Government’s Climate Action Plan 2019 and actions contained in the national peatlands strategy.
I thank the committee for inviting the Department to make this presentation and I am willing to answer any questions that members may have for the Department.

**Chairman:** I thank Mr. Lucas very much.

**Dr. Florence Renou-Wilson:** I thank the Chairman, Deputies and Senators, ladies and gentlemen. Peatlands are unique ecosystems in the context of the global carbon cycle. This is because in addition to being home to rare biodiversity, peatlands are the largest and most concentrated global store of carbon of all terrestrial ecosystems, containing twice the carbon of the forest biomass. The accumulation of vast quantities of carbon occurred over many thousands of years is thanks to the permanently waterlogged conditions that prevent the complete decomposition of organic matter. In Ireland, peat soils are the largest carbon store containing an estimated 1.5 billion tonnes of carbon. Total global carbon dioxide CO2 emissions from degraded peatlands currently amount to a third of the total emissions from the land use, land use change and forestry, LULUCF, sector and is equivalent to 5% of the total global anthropogenic CO2 emissions. In Ireland, peatland drainage for either domestic turf cutting, energy, horticulture, agriculture and forestry releases carbon that under normal conditions would have remained in storage within the peatlands. Burning peat is a source of air pollution and drained cut bogs no longer function as a refuge for rare species nor as a repository for historical artefacts, for example.

Natural peatlands have acted, and continue to act, as carbon sinks but drained peatlands and related activities account for emissions of some 11 million tonnes of CO2 per year in Ireland. This equates to total emissions from the energy sector in 2018. The total emissions from the 11 million tonnes is composed of power station peat burning, domestic turf cutting, horticultural peat and, most important, from the drained peat bogs. A key figure to bear in mind is that 1 ha of drained bog, whether cutover or cutaway, emits six tonnes of CO2 per year for each year that it remains dry. Less than 50,000 ha of the original 310,000 ha of raised bog in Ireland remains uncut. More critically, only 1% is in an active condition, meaning it is sequestering carbon by accumulating peat. There are more green parks in Dublin city than there are active, peat forming raised bogs in the country. The same threats have also decimated the original 774,000 ha of blanket bog, with now less than 28% likely to be in conservation value, barely holding on to their carbon stores. The proportion of active areas is still unknown in those blanket bogs but it is likely to be critically low and decreasing each year as a national management plan for the network of blanket bogs SACs has not yet been established.

The protection, restoration and rewetting of peatlands is in line with national and EU obligations. Undrained and uncut bogs are amongst those that are accorded priority habitat status in recognition of the extent of historical destruction of such habitats across Europe. It is a legal requirement to preserve all peatlands that are still mostly uncut and undrained and to aim to restore the high bog or uncut part. The network of 53 SAC raised bogs is only the tip of the iceberg when it comes to the carbon store of peatlands. While the proper restoration of this network will lock in 28 million tonnes of carbon, the high bog within the NHA network also requires action. What about the blanket bogs? Members should recall that the area of blanket bog is three times greater than the area of raised bog. As such, Ireland could lock in ten times more carbon in the designated blanket bog network if only the management plan required by law under the habitats directive could be implemented for these rare ecosystems.

I turn to restoration and rewetting. When rewetted, degraded peatlands stop emitting and instead lock in their carbon store. Better still, when they are restored, peatlands can even return to acting as natural carbon capture systems. To clarify, even if peat cutting were to cease and
no efforts were made to block the drains, peat will continue to decompose and release carbon to the atmosphere until rewetted. The minimum intervention is therefore to rewet. Before I go further, I will clarify a few terms, namely, “restoration”, “rewetting” and “rehabilitation”, as there is confusion about them. The following definitions come from the Intergovernmental Panel on Climate Change’s wetlands supplement for 2014. The supplement states that peatland restoration aims to permanently re-establish the ecosystem that existed before disturbance or land-use change. The restoration of drained peats almost always requires rewetting. The latter is the deliberate action of raising the water table on drained soils to re-establish water saturated conditions. Rewetting can be accomplished by blocking drainage ditches or disabling pumping facilities and managing the water table so that it remains close to the surface. Rewetting can have several objectives, such as wetland restoration, and may allow other management practices on saturated peat soils, such as paludiculture, or wet agriculture. Rehabilitation can involve a large variety of practices which may or may not include rewetting.

Restoration of our protected peatlands and rewetting of drained bogs are considered by the UN as low-hanging fruit and among the most cost-effective options for mitigating climate change. In both restoration and rewetting, the water table must be managed. Abandoning or re-flooding drained peat soils under the heading “rehabilitation” is not a climate-friendly action as both approaches release huge amounts of greenhouse gases. The feasibility of peatland restoration has been demonstrated in a number of countries, including Ireland. We have found that cutover bogs can be fully restored to return their carbon sequestration and storage function, as well as their unique biodiversity. In Canada, scientists and those in the peat industry have worked together to licence peat extraction but that has come hand in hand with a commitment to fully restore the site after the short period of extraction has ceased. The Irish industry must be regulated and look to such international standard. Industrial cutaways have been drained and have emitted CO2 for as many as 70 years and cutover bogs have done the same for centuries. Restoration should be supported where conditions are adequate but where that is not possible, the minimum required intervention should be rewetting.

Peatlands and future climate change are important aspects of this topic. Drained peatlands are extremely vulnerable to even modest climate change impacts and are projected to become even greater hotspots of greenhouse gases as the peat dries out, cracks or burns. Rewetting of these degraded bogs has been shown to be a climate-proof, effective mitigation strategy, provided that extreme drying events like summer drought do not become a more frequent occurrence. Importantly, the longer a rewetted bog is established, the more resilient it will be to climate change.

Our recommendations are as follows. The restoration of active bog habitats within all raised and blanket bogs SACs must be implemented rapidly in order to be climate-resilient. Rewetting is a low-hanging-fruit mitigation measure that must be applied to all publicly owned peatlands, wherever feasible. It is not sufficient to stop peat extraction or ban unsustainable uses of peatlands. Rewetting is a mitigation measure that should also be included in the range of governmental climate adaptation tool kits to help landowners to farm carbon. This action is critical to safeguard the future of the massive amount of carbon locked in all peat soils and which will bring associated ecosystem services, including water quality and regulation and biodiversity. Regulatory frameworks and legislation across governmental agencies must be put in place to ensure the sustainable management of peatlands and to support voluntary mechanisms, for example, funds, certification, payments for ecosystem services. Local communities should be supported by adequate funding to help them participate in the rewetting and restoration of their local bogs which are part of our social fabric and cultural heritage. The rewetting of in-
dustrial cutaway and large cutover bogs is a low-cost intervention approach that would support immediate and effective climate change mitigation measures. Such mitigation measures should be integrated as requirements in association with other sustainable after-use options to avoid exacerbating global warming. Given the policy vacuum in this area, I recommend that a task force be establish to oversee the after-use of cutaway peatlands in accordance with climate and sustainability objectives.

Our wet living bogs are crucial weapons in our efforts to avoid climate catastrophe. I thank the committee for inviting me to make this presentation.

**Deputy Jack Chambers:** I thank our guests for their presentations. Will Mr. Lucas indicate whether the Department has considered the recent proposed Seanad amendment to the Wildlife Act to allow for the de-designation of bog habitats for sporting projects and golf courses? Is the Department aware of that and is it concerned about it? Is a contradiction in Government policy occurring?

**Mr. Brian Lucas:** I am a little reluctant to speak on a Bill that is currently before the Oireachtas. This is the Wildlife (Amendment) Bill 2016, which is on Report Stage in the Seanad. It was before the Seanad last week and the debate is due to resume. I do not know how far I can go in talking about legislation that is currently before the Oireachtas.

**Deputy Jack Chambers:** Does Mr. Lucas have a view? Surely, Mr. Lucas can respond to that.

**Senator Alice-Mary Higgins:** It was requested that the Bill would not be moved while the committee was due to discuss this matter.

**Chairman:** We will let Deputy Jack Chambers finish. Is there anything that Mr. Lucas can say?

**Mr. Brian Lucas:** I can say factually what the Bill is about and I can say factually what happened in the Oireachtas, but I cannot really say what the next steps may be. It is the Minister that is bringing the Bill before the Oireachtas whereas I am a civil servant in the Department. As such, it would not be appropriate for me to go any further.

**Deputy Jack Chambers:** I might switch to Dr. Renou-Wilson. I do not know whether she has examined the most recent draft of the Wildlife (Amendment) Bill, which relates to the de-designation of natural heritage sites. What is her view on the amendments tabled by Fine Gael in the Seanad?

**Dr. Florence Renou-Wilson:** We should remind ourselves why this situation occurred because it is important to consider. We started with a review of the raised bog natural heritage areas, NHAs, network because we realised that the very ecosystems that were supposed to be protected by the Wildlife Act had not been protected. It was reviewed and it was found that the network was decimated. We need to focus on that. The Wildlife Act was supposed to protect those habitats but did not. They are now dried up and will continue to emit six tonnes of CO2 per ha each year because those habitats will be dry. The Government decided to continue on the same trajectory and let those habitats go because it was too expensive to restore them all.

The problem with blanket bogs is far greater because there are more areas involved and far less knowledge available. We do not know how much land is concerned, active, cut or uncut. We do not know how large an area is still there. We discussed raised bog NHAs within the
Peatlands Council and that was agreed but the decision about blanket bogs was pushing it. It was shooting ourselves in the feet because we do not know what is going to happen. That is my understanding.

Deputy Jack Chambers: I refer to the Government’s climate action plan. Dr. Renou-Wilson mentioned that rewetting is low-hanging fruit and a mitigation measure that must be applied to all publicly-owned peatlands wherever feasible but it is not sufficient to stop peat extraction or ban unsustainable use of peatlands. Does she think the Government’s plan goes far enough in this area?

Dr. Florence Renou-Wilson: We have to differentiate between cutaway and cutover and I am not sure that we know what we are talking about. Industry will cut away and that will be done mostly by large companies such as Bord na Móna or Klasmann-Deilmann whereas cutovers are done by small farmers. One thing that must be done quickly, which is a low-cost intervention because we have done a cost-benefit analysis, is the rewetting of industry or cutaway bogs. That action should be removed from Born na Móna, for example, and put into a task force using the expertise of people who have worked, or are working, for Bord na Móna and other people in this country who have expertise to see those cutaway peatlands being rendered at least carbon neutral. I want to see the rewetting of cutaway bogs.

Deputy Jack Chambers: Deputy Lahart is going to take the final minute of my time. Could the Chairman remind me when I have one minute left?

Chairman: I will do that.

Deputy Jack Chambers: What changes are necessary right now in the context of the Wildlife (Amendment) Bill?

Dr. Florence Renou-Wilson: Are we returning to the question the Deputy asked previously?

Deputy Jack Chambers: Yes. Dr. Renou-Wilson has given her opinion on the amendment that was made but I am asking about the broad base of the Bill.

Dr. Florence Renou-Wilson: I do not have enough information. I will not have enough time to mention all of the provisions that need to be changed in this Bill because there are many. I would like to ensure we know what we are doing about blanket bog NHAs before we pass this Bill. We do not know the status of those blanket bog NHAs.

Deputy Jack Chambers: One of the significant issues that has been presented to the committee in recent weeks has been the fragmented response from Departments and the siloed approach to this issue. Is Mr. Lucas responsible for this area? What is his role within the Department of Culture, Heritage and the Gaeltacht? Is it specifically about what we are talking about today or has he a broader role in respect of climate change?

Mr. Brian Lucas: I am head of the peatlands issues and land designation section in the Department. My role primarily relates to raised bogs and all issues around them. As I said earlier, we have a national raised bogs SAC management plan, which is focused on the restoration and conservation of the raised bogs and addressing the needs of turf cutters. For example, we have a turf compensation scheme that provides an annual payment for those who require it and I am responsible for the administration of that scheme. We are also trying to relocate turf cutters to non-designated bogs, which also falls under my responsibility. We are trying to restore the
designated raised bogs, NHAs and SACs, and that also falls under my remit.

The focus of our Department and Minister is on the designated sites network. We have 52 raised bog SACs and 75 raised bog NHAs. The Minister’s focus is very much on the site that had been designated under national and EU law. My section is focused on that.

There is also the national peatlands strategy to which I referred earlier. An implementation group for that strategy brings together representatives from a number of departmental and State agencies and has an independent chair. The Departments of Culture, Heritage and the Gaeltacht, Agriculture, Food and the Marine and Communications, Climate Action and Environment are represented on that group.

**Deputy Jack Chambers:** How often has that group met?

**Mr. Brian Lucas:** It is responsible for monitoring the implementation of the actions in the national peatlands strategy.

**Deputy Jack Chambers:** I know it is. How often has it met?

**Mr. Brian Lucas:** Since the strategy was adopted, it has met on six occasions. There has also been correspondence by way of email. It has produced its first progress report on the implementation of the national peatlands strategy and its second will be published towards the end of this year or early next year subject to the approval of the Government.

**Deputy Jack Chambers:** What has been the extent of the engagement from the Department of Culture, Heritage and the Gaeltacht about CAP reform and the active management of our ecosystems including the rewetting of agricultural peatlands?

**Mr. Brian Lucas:** I am a little bit at a loss to answer that because I am not involved with CAP matters in the Department. As I mentioned earlier, we have a national raised bog restoration programme.

**Deputy Jack Chambers:** There will be a role for Mr. Lucas and his Department in CAP reform.

**Mr. Brian Lucas:** I was about to say that our colleagues in the Department of Agriculture, Food and the Marine are looking at the restoration of lands on the margins of the designated raised bog sites. We have had some discussions with the Department as to how we might be able to assist them. I expect those discussions will continue. That Department was allocated money in budget 2020 to move this forward. We had our first meeting last week and both Departments will continue to engage.

**Deputy John Lahart:** I thank my colleague for the opportunity to ask questions. What is the difference between flooding and rewetting?

**Dr. Florence Renou-Wilson:** The definitions are in this document. It is simple and does not matter if the surface of the peat is vegetated or not. For flooding, the water goes at least 20 cm above the surface of the peatlands for long periods. Rewetting is managed so that the water stays just below the surface of the peatlands 80% of the time. There are flooding events during the winter and lands could be used as a flooding plain for the winter if needed, but the peat is not flooded permanently. That is the difference. Rewetting is not flooding.

**Deputy John Lahart:** Can Dr. Renou-Wilson elaborate on farming carbon?
**Dr. Florence Renou-Wilson:** I have said a lot about farming carbon.

**Deputy John Lahart:** Dr. Renou-Wilson said that landowners should be encouraged to farm carbon.

**Dr. Florence Renou-Wilson:** That is happening in Germany, Canada, Finland and other areas of degraded peat soils. That needs to be farmed. We should invest to ensure landowners with a considerable store of carbon keep it in the ground. We do not want bogs to dry up and emit all the time. Basically, a normal farmer would be paid to have a crop or harvest. In this case, people would be paid to keep the carbon in their soil and manage whatever they want above. That was what I was introducing here. Paludiculture seems to have been ignored so far. This is wet agriculture. Farmers who are really keen on having a sustainable economic outcome could do that. This is happening in Germany where farmers can grow a crop-----

**Deputy John Lahart:** Such as.

**Dr. Florence Renou-Wilson:** We call them wet crops. I could go through the species but perhaps the Deputy is more interested in knowing what we can do with them. The crops that are currently used are ones that can be burned in a local biomass thermal power station. The farmers feed this biomass into their heat power station. It could be cattail or reeds - things that grow everywhere in wet bogs. Farmers harvest these crops in a way that is sustainable. The peat is never impacted. Carbon is still accumulating in the roots of the plants. It has never been ploughed or cut dry. The farmer just cuts the biomass, which grows again each year, and uses that to achieve an economic outcome. Obviously, one can just re-wet and let the bog return to nature, which also has significant benefits. Farmers should be paid to bring about those benefits.

**Deputy John Lahart:** Theoretically, the midlands bogs could to be used to farm carbon in this way and provide energy for the local community from those crops.

**Dr. Florence Renou-Wilson:** That is just one example. One could have longer crops such as alder. These trees produce a wood that is really good for many outputs. In short, the answer is “Yes”.

**Deputy Marcella Corcoran Kennedy:** I thank the witnesses for their presentations. The plan to restore the 1,800 ha of protected raised bogs in 2020 was referred to in connection with an additional budget allocation of €5 million. How much carbon is envisaged being stored over that five-year period? Does the Department use any other agencies to support its planting or the work it does on rehabilitation, restoration or whatever is required? Do any other State agencies tender for that work and, if so, do they get it? I am thinking in particular of Bord na Móna and the potential for it to maintain its workforce through retraining and accessing the tender. Has this happened in the past or could it happen in the future?

I welcome the review of the use of peat in the horticulture industry because we are very keen on a just transition for everybody involved. A number of companies are using their own boglands for horticulture. I welcome that a public consultation has been opened with regard to that because we focused on bogs in State ownership rather than private bogs being used in an industrial fashion. It is right that there should be a just transition for them as well.

My other question concerns Dr. Renou-Wilson’s presentation. It concerns the re-wetting of degraded peatlands. How long will it take for these peatlands to stop emitting carbon and instead lock in their carbon when they are re-wetted? Does Dr. Renou-Wilson believe the plan by Coillte and Bord na Móna to plant trees on some suitable bogs is a good approach? I note
that she referred to alder in terms of paludiculture. Could she give me a good example of paludiculture elsewhere in the world from which we could learn?

Mr. Brian Lucas: On budget 2020, as I said in my presentation, the allocation for next year is €5 million. The idea behind the programme is to restore 32 bogs. We hope to begin restoring nine bogs next year. When the 32 bogs have been restored, it will result in the storage of around 28 megatonnes of carbon. The nine bogs earmarked for restoration next year will help maintain a store of approximately six megatonnes of carbon, which will result in a reduction in CO2 emissions of around 5,000 tonnes.

Deputy Corcoran Kennedy asked how the programme is managed at the moment. There are two sides to it. As I mentioned, we have EU LIFE programme funding. We are getting funding from the European Commission and the Department is making a financial contribution. This is managed by a LIFE project team that is under contract to the Department for five years. It would go to tender for the restoration work being done in 12 special areas of conservation sites. Dr. Renou-Wilson spoke about restoration and re-wetting. In the raised bog sites - the designated sites - we are trying to maintain the active raised bog and restore degraded to active. This would largely involve drain blocking with peat or plastic dams. When the project team for the LIFE project goes out for that work, it tenders for that work. It might tender for a block of bogs together, perhaps in a particular area. Bogs are mainly found in the midlands and east Galway.

As I mentioned, separate from the LIFE project, the Department is moving ahead with the restoration of State-owned land in other raised bogs in special areas of conservation and natural heritage areas. A lot of engineering and surveying skills are involved in that along with the physical restoration works. We went to tender for that project a number of years ago. Bord na Móna project manages that project for the Department.

I also mentioned that we are trying relocate turf cutters to non-designated bogs. There will be a certain amount of work in terms of land purchase and infrastructure works on the non-designated sites. Again, Bord na Móna project managed that for the Department as a result of a tender process. If it is useful to the committee, I can go into more detail about the restoration work that has already been undertaken but perhaps for now, it would be better to hand over to Dr. Renou-Wilson.

Dr. Florence Renou-Wilson: I would like to correct a comment about the budget because the 28 million tonnes of carbon were not for the 1,800 ha. That equates to the high bog - the uncut bog - which covers 16,000 ha.

The next question concerned how long it takes to re-wet. It is magical. If one wets a basket of peat, it stops emitting immediately. There is no trick involved and nothing else is necessary. It could not be cheaper. It simply involves preventing rainwater from draining away and leaving it in the bog. If the peat is wet, it will stop emitting because that is what it has been doing for the past 10,000 years since the last Ice Age. There is no trickery involved and no money is needed to do that.

The Deputy asked for a good example of paludiculture. There are several examples. It depends on location. Even though we are a small island, location is important because it depends on how wet the climate is. The west of Mayo is much wetter than the midlands. It will also depend on how wet and cold winters are. Countries like Canada, Germany and Finland have been trying everything that grows. If it grows well in a given climate, it should be used. In Ireland, reeds, including cattails and phragmites, grow well and could have good biomass to
The other question related to the announcement about Bord na Móna and Coillte planting bogs. I was involved in such a project 20 years ago and, therefore, I know all about planting trees on bogs. It is not easy and it causes many other environmental issues. I was wary when I heard the announcement. I hope both organisations will learn from what we have learned. Some 250 ha of peat has been afforested in the midlands and one hopes they will return to that. We need to be careful because if the peat is not rewetted and the trees do not grow satisfactorily, carbon will be emitted constantly from the dried peat. Nevertheless, there are areas, especially in the midlands, that, perhaps due to their location in the topography, such as in a sloping area or a raised position, have been cut all around. There is no way they could be rewet before everything else is rewet. In such areas, a way will have to be found to sequester at least some carbon through afforestation, but we must assess every area for re-wetting potential before we do that rather than just deciding on what is easiest for everyone, which has been the *modus operandi* thus far.

**Deputy Marcella Corcoran Kennedy:** To clarify, certain trees are suitable for rewetting bogs.

**Dr. Florence Renou-Wilson:** Yes.

**Deputy Marcella Corcoran Kennedy:** It is an idea that could work if the correct bogs are selected and rewetted.

**Dr. Florence Renou-Wilson:** And the correct species of trees.

**Deputy Marcella Corcoran Kennedy:** Yes, to match. It can work if it is done properly.

**Dr. Florence Renou-Wilson:** Yes. We have such habitats. There are wet bog woods, which are protected habitats, although there are very few left in the country because they have been decimated. Bog woodland is a precious, rare habitat that can be managed to promote both biodiversity and carbon as an after use.

**Deputy Marcella Corcoran Kennedy:** Mr. Lucas stated some bogs are managed under the Living Bog programme. During Heritage Week in County Offaly, I visited a number of bogs in the programme. Six of the 12 bogs are in the county. It was a fascinating and informative afternoon. I do not know whether the committee has the time to visit, given all the work we have to do, but it would be interesting to visit some of the bogs. Mr. Lucas indicated he would like to go into a little more detail about the type of work the Department is doing to manage the bogs. I would be delighted to hear from him.

**Mr. Brian Lucas:** There are 12 project sites in the Living Bog project and thus far, restoration works have been completed on six live project sites since last year. Following a recent procurement process, works are contracted for the remaining sites, with works due to commence on the first site in late October. The six done comprise Mongan bog SAC in County Offaly, Ardgullion bog SAC in County Longford, Garriskil bog in County Westmeath, Carrownagappul bog in County Galway, and Fertane and Moyclare bogs in County Offaly. Of those we have recently contracted out, we hope to start with Carrowbehy bog in County Roscommon, Clara bog and Sharavogue bog in County Offaly.

Under the project thus far, restoration measures have been undertaken on approximately 1,420 ha of raised bogs, installing approximately 7,500 peat dams.
The Deputy also mentioned amenity development. Through the project and engagement with local communities, we have plans for the development of amenity proposals at Ferbane in County Offaly and Mountbellew in County Galway, both of which will be subject to the granting of planning permission.

The National Parks and Wildlife Service has undertaken restoration works on State-owned land. Last year, we completed restoration works on two SAC sites, namely, Kilsallagh bog in County Galway and Drumalough bog in County Roscommon. We have done work this year on Shankill West bog in County Galway and we hope to work on an NHA site before the end of the year. The Department published a guidance document, which outlines best practice not just for the Department but for anyone involved in raised bog restoration in Ireland, in 2017 and it is available on our website.

**Deputy Marcella Corcoran Kennedy:** What kinds of amenities has the Department in mind? Are they in line with the level of access to Clara bog?

**Mr. Brian Lucas:** I have visited the site at Carrownagappul, where the local community has some good ideas. There is a centre at Mountbellew that the community would like to develop in order that school or tour groups could visit it, hear a talk about the history of the bog, its flora and fauna and the tradition of turf-cutting there, and then arrange a visit to the bog. There is an area in the bog that seems very suitable for a boardwalk. As I saw when I visited, there is not peat underneath for some reason. Somebody once lived there and had some vegetables growing there. While it will have to be subject to planning permission, it appears that it will not interfere with the integrity of the site. If there was a boardwalk, the view across the bog would be amazing. The local community is highly involved in developing the project.

It is not just a boardwalk. There would also be a tour and some demonstration of turf cutting, perhaps provided by the local community, during which there would be some discussion of the history of turf cutting. I am less familiar with the project at Ferbane but I believe it is some kind of a bridge walkway, possibly building on a facility that is in place, but I am happy to convey details on the project to the committee.

**Deputy Marcella Corcoran Kennedy:** I put my hands up and declare a conflict of interest. I am from Ferbane and was interested in hearing what Mr. Lucas had to say on the matter.

**Deputy Brian Stanley:** I welcome Dr. Renou-Wilson and Mr. Lucas. Dr. Renou-Wilson stated abandoning or rewetting drained peat soils under the heading of rehabilitation is not a climate-friendly action because both approaches release large volumes of greenhouse gases. My understanding was that once drained peat has been rewetted, it will stop releasing carbon, but Dr. Renou-Wilson seemed to contradict that.

**Dr. Florence Renou-Wilson:** No, as I explained, reflooding is not the same as rewetting. The big difference is where the water table is. Rewetting stops just below the surface of the soil. In events of high precipitation, for example, it might allow a bit of temporary flooding, for a short period-----

**Deputy Brian Stanley:** I understand that Dr. Renou-Wilson is talking about raising the water table to just under the top of the bog------

**Dr. Florence Renou-Wilson:** Yes, managing the water table. Flooding is just letting the water go wherever it wants, as high as it wants, and then we end up with flooded areas we cannot manage. A flooded area cannot take more water because it has been flooded. A flooded area
emits a large volume of methane and does not do anything else.

**Deputy Brian Stanley:** Large parts of the bogs are covered with water in winter, as one can see if one walks across them.

**Dr. Florence Renou-Wilson:** Yes, covered but not flooded. We have to use the correct term.

**Deputy Brian Stanley:** I mean that they are flooded.

**Dr. Florence Renou-Wilson:** No, “flooded” means that water is 20 cm above the surface. If it is constantly above that, it is flooded. None of the normal living bogs is flooded because they would not be bogs.

**Deputy Brian Stanley:** In the part of the world I come from, bogs would be used to attenuate drainage. They capture a lot of water from surrounding lands. The bog is used to attenuate that over the winter.

**Dr. Florence Renou-Wilson:** Yes, the living bogs.

**Deputy Brian Stanley:** The question I wish to ask is about flood alleviation. Obviously, the more bogs are drained, the more flooding there will be because water can be released more quickly and we know the damage that is doing. To reverse that, many of those bogs have the capacity to hold water and to raise it to ground level or it can fluctuate up or down around that. It would be very difficult to control. I have never walked across the bog in the winter because one part of it would be flooded and another would not. Is there potential for some flood control or flood alleviation in terms of maintaining those water tables?

Dr. Renou-Wilson also referred to cutaway and cutover bogs. She mentioned that cutaway was typically what happened with State companies, the large companies.

**Dr. Florence Renou-Wilson:** Or private.

**Deputy Brian Stanley:** Yes. She said cutover was typically for domestic turf cutting. I have engaged in domestic turf cutting and I worked for a State company that was extracting peat. The State company was cutting over; it was taking off 1 m to 2 m. As regards cutaway, when turf cutting for ourselves, we went straight down to the gravel or the white sand at the bottom. That is cutaway. There is some confusion with those two terms. I can take Dr. Renou-Wilson to a number of bogs where Bord na Móna has used cutover techniques and taken 1 m to 2 m from the top of the bog. I know this has caused damage, but that is not the argument I am making. I am simply referring to the terms as there is confusion on those two points.

**Dr. Florence Renou-Wilson:** I will start with the last point because there is confusion. That is why the definitions are in the peatland strategy. People call it whatever they like, and that is fine, but when we must make a decision we should all call things the same name. The definitions I gave are in the peatland strategy. I will explain the biggest difference and perhaps the Deputy can then apply the definition afterwards. A cutaway has no vegetation left. It is a bare, brown field. Big horticulture companies such as Bord na Móna and Klasmann-Deilmann would have removed all the vegetation in long fields, with drains every 15 m to drain the site. It is just brown. It is cutaway because they come back to it every year over the full plain of the bog.

What we call cutover is all the bogs that have just been cut on the edges right down to the level the Deputy mentioned. One might or might not have reached the subsoil, but the vegeta-
tion in the middle is still there. In most of the bogs the Deputy spoke about, one can see the middle of the bog. It has vegetation on it. That is what we call a cutover, and that is the definition in the strategy. I understand that the Deputy might use-----

Deputy Brian Stanley: That is the remaining raised bog. The vegetation is on the remaining raised bog.

Dr. Florence Renou-Wilson: Yes, the cutover.

Deputy Brian Stanley: No.

Dr. Florence Renou-Wilson: It is not a raised bog any longer.

Deputy Brian Stanley: No, it is the remaining raised bog if one is cutting on the edge of the bog. I do not wish to make too fine a point of this.

Dr. Florence Renou-Wilson: I understand.

Chairman: Dr. Renou-Wilson was not finished. The Deputy should allow her to conclude and I will then let him back in.

Dr. Florence Renou-Wilson: The cutover, which is what the Deputy would be familiar with cutting, is where the bog is being cut at its edges. The degraded raised bog is in the middle. Ecologists now know that cutting the edges of the bog is impacting its centre. The bog is not raised anymore, incidentally. It has lost its dome because it has been drained for so many years. It is now just flat as a pancake. It should be a raised bog. We call the whole area a cutover. Within a site, there would be a cutover area that may or may not still be cut and in the middle there is the degraded raised bog. In some instances, it is still there and not cut. It is degraded because it has been drained.

Deputy Brian Stanley: What we would refer to as cutaway is where the peat has been taken away completely at the edges, while the cutover I am referring to in Bord na Móna is where up to 3 m of peat is still left in the bog. Bord na Móna has taken 1 m or 1.5 m. from it.

Deputy Eamon Ryan took the Chair.

Deputy Brian Stanley: I have a question for Mr. Lucas. Given the importance of restoring the peatlands, has the Department set out a verifiable pathway for the rehabilitation recommended by the committee? There is a division between Departments and I realise civil servants cannot do much about this. However, there is a problem here. The Department of Communications, Climate Action and Environment and the Department of Culture, Heritage and the Gaeltacht are dealing with this. Is that causing a problem and giving rise to an unco-ordinated approach?

I also have a couple of questions for Dr. Renou-Wilson regarding the uses for cutaway bog in terms of biomass on the cutaway section on the edges. It is hard to grow anything on top of a raised bog. I have not seen many people being successful with that. The only things that grow on it are heather and sphagnum. We have to get them growing again when the bogs are rewetted to regenerate them and keep them as growing bogs. That is why they are raised in the first place. As regards the cutaway areas where all the peat has been extracted on the edges, there is a large amount of that in Laois, Offaly and other midland counties. In terms of growing biomass, what is most suitable there? Willow has been tried and I understand it has not been successful. She mentioned wet crops. There are three power stations located in areas where
there is large amount of bog. They were located there for that reason. Is there an opportunity to grow biomass there to fire those power stations? In terms of trees on cutaway bogs, if willow did not work, what is the potential for small trees? Silver birch is growing really well on the cutaway bogs. It is growing naturally all over the place. Is there potential to use silver birch or small fast-growing, broadleaf trees for biomass?

On the nationally designated NHAs and the SACs, will Mr. Lucas outline the difference between those? Will he provide a synopsis of what is proposed for each of them and which ones are being given priority in terms of rehabilitation?

Mr. Brian Lucas: The national restoration programme for raised bogs is for both the SACs and the NHAs. As stated earlier, we have 53 raised bog SACs and 75 raised bog NHAs. There is a proposal to reconfigure the NHA network arising from a 2014 review. The Bill to give effect to that, the Wildlife (Amendment) Bill 2016, is going through the Oireachtas at present. The proposal is that we would keep 36 of the current raised bog NHAs, including parts of seven sites, and there is provision for the de-designation of 46 NHAs, including parts of seven sites. These are ones which have little or no restoration potential. It is also proposed to propose 25 new sites for designation as NHAs. The restoration programme is for both the raised bog special areas of conservation and natural heritage areas.

Deputy Stanley asked what the difference is. The main difference is that the special areas of conservation are designated under the habitats directive, which is transposed into national law under the European Communities (Birds and Natural Habitats) Regulations 2011, whereas the natural heritage areas are designated under national law, the Wildlife (Amendment) Act 2000. However, both designations are part of the national conservation target area for raised bog that has been set. The NHA has contributed to that target. Even though they are designated under national law, they are part of Ireland’s overall target to maintain or restore raised bogs. As I said, the framing for this has been set out in the national raised bog special areas of conservation management plan, published in December 2017. The name causes a bit of confusion but it covers the NHAs as well as the SACs. Previously, until the budget announcement of €5 million, the intention had been to restore all the designated raised bog sites within three cycles, with the first cycle operating for the duration of the management plan. Now that we have the extra funding in the budget, we will see if we can accelerate that programme’s timeframe. I have already gone through the programme and where the funding will go. I will not go into the detail of this but, as I said, we are already providing funding. We started with the living bog project, which is a €5.4 million EU LIFE project, to which the Department is contributing €1.352 million plus the restoration work on State-owned lands. As far as the Department and the National Parks and Wildlife Service are concerned, bog restoration has been ongoing for a long time but we did a major study on Ireland’s raised bog resource in 2013. From that we have developed a new restoration programme. We have restoration plans for all the raised bog special areas of conservation. We are also developing those plans for the raised bog NHAs.

Deputy Stanley also asked about co-ordination between Departments. When I listed the Departments and agencies on the peatlands strategy implementation group earlier, I missed one or two of them. I was speaking from memory. As well as those I mentioned, we have the Department of Housing, Planning and Local Government, the Office of Public Works, the Environmental Protection Agency, Bord na Móna and Coillte. In the past year, since the publication of the Government’s climate action plan in June, I have found there has been a focus in what the Department is doing on raised bog restoration. This links into the peatlands action in the climate action plan. There is a comprehensive structure in place in reporting that. So far, in
my experience, it has worked very well and it has helped co-ordination. In the Department we report to the climate action delivery board, which, as far as I know, is chaired by the Secretaries General of the Departments of the Taoiseach, and Communications, Climate Action and Environment. We report on our progress and the restoration programme to the climate action delivery board. Our Secretary General is represented on the board and, as I said, the Department of Communications, Climate Action and Environment is on it as well. That system is working very well. The focus of our Department is on the designated sites. As I said, we have 53 raised bog SACs and 75 raised bog NHAs, and the restoration of those, as well as addressing the needs of turf cutters, is a big programme of work for us.

I am not too sure if I missed anything.

Deputy Hildegarde Naughton resumed the Chair:

Chairman: We will have to move on.

Deputy Brian Stanley: I asked Dr. Renou-Wilson a question about crops on cutaway bog that are suitable for biomass.

Chairman: I ask Dr. Renou-Wilson to be brief if she can. We are out of time on this section.

Deputy Brian Stanley: It is a very important question.

Dr. Florence Renou-Wilson: The Deputy is talking about areas where the peat has been removed-----

Deputy Brian Stanley: Extracted.

Dr. Florence Renou-Wilson: -----from the edges of a bog.

Deputy Brian Stanley: Yes.

Dr. Florence Renou-Wilson: Is the Deputy talking about a bog that is protected or one that is not protected? That is important. If it is protected, there is-----

Deputy Brian Stanley: Most of these are not protected because-----

Dr. Florence Renou-Wilson: If it is protected, there is not much option but to keep it really wet and not impact its protected status. As the Deputy said, however, there are loads of areas that are not protected where the bog has been cut. Such bogs can be rewetted to keep the carbon in them and some biomass can be planted. The opportunity to do that is considerable. In fact, we have a huge wealth of experience in that. Unfortunately, this was all funded by Bord na Móna, which has all the reports. I have been working with Bord na Móna for the past 20 years on how to grow anything on peat. We have tried everything. The Deputy mentioned silver birch. Silver birch grows naturally on cutover bog because it is dry. As the Deputy said, as soon as peat is wetted, the birch will look very sad, unfortunately. One could plant other species such as alder, which grows much better in wet soil without releasing carbon from the peat. What I am trying to say is that a comprehensive amount of work has already been done and considerable experience has been gained. Bord na Móna thought at the time that this was not economically viable, but now there is the issue of climate change. At the time, 20 years ago, nobody talked about the carbon, but now, with climate change in mind, we could see many potential options. We should be supported at the beginning in order that we can at least get farmers revenue from these areas. That way they could farm carbon and get a crop out of it.
Chairman: I must move on to Deputy Eamon Ryan. We are way over time on this section.

Deputy Eamon Ryan: My first question is to Mr. Lucas. Why has the national management plan for the network of blanket bog SACs not been established, as indicated in the national peatlands strategy?

Mr. Brian Lucas: Is Deputy Ryan talking about blanket bogs or raised bogs?

Deputy Eamon Ryan: Blanket bog SACs.

Mr. Brian Lucas: For blanket bog SACs, the proposal in the national peatlands strategy is, as the Deputy said, to bring forward a management system for the blanket bog SACs.

Deputy Eamon Ryan: My question to Mr. Lucas is why that has not happened.

Mr. Brian Lucas: It has not happened at this stage but it is still under consideration within the Department. The first thing that would have to be done would be detailed field surveys of all the blanket bog SACs, of which there are 50. One would have to implement-----

Deputy Eamon Ryan: When does the Department intend to start?

Mr. Brian Lucas: I do not have a start date here. Before undertaking the fieldwork, one would have to engage in a public consultation process and a consultation process with the landowners. When the results of the fieldwork were received, the Department would then be in a position to devise a draft management system for the blanket bog SACs. That could then be moved on from there.

Deputy Eamon Ryan: Does Mr. Lucas agree with Dr. Renou-Wilson’s statement that “Ireland could lock in ten times more carbon in the designated blanket bog network if only the management plan required by law under the habitats directive could be implemented for these rare ecosystems”? Why have we not implemented the habitats directive to provide for such a plan?

Mr. Brian Lucas: As I said, the national peatlands strategy states: “Ireland will devise and implement a system of management that will ensure that [domestic] turf-cutting on blanket bogs SACs continues in such a way that will not threaten the [ecological] integrity of the sites.” The strategy also indicates that peat extraction on blanket bog NHAs is to be addressed in tandem with the elaboration of the approach to the future regulation of such activities on the SACs.

Deputy Eamon Ryan: Does Mr. Lucas believe we are in breach of the habitats directive in this regard?

Mr. Brian Lucas: I am not in a position to answer that question. As it says in the national peatland strategy, there is a need to devise and implement a system of management for the SAC sites. Any system of management for blanket bogs must be drawn up in consultation with local communities to ensure that important peatlands are managed in a suitable way for the benefit of the community and in compliance with EU law. I do not think one could develop that management system until detailed fieldwork is carried out. I do not think that system could be brought in on the basis of a desktop study alone. Detailed fieldwork would have to be carried out on all those sites. As I said, that would have to be done in consultation with local communities.

Deputy Eamon Ryan: It seems to me that Mr. Lucas’s Department has a lot of work to do. The presentation Dr. Renou-Wilson gave was the most inspiring, insightful, important and,
at the same time, frightening I have heard given before the committee. I find her evidence absolutely incredible, in both senses of the word, in terms of the scale of both the problem we face and the opportunity we have. The problem and the truly frightening part is her closing section, where she noted the susceptibility of our depleted boglands to become a real problem in the event of climate change, where we will see them drying out and subject to fire and further degradation. The inspiring parts are the sense of opportunity, as I understand it, and the scale of emissions abatement, or the stopping of emissions, we could achieve if Mr. Lucas and his colleagues were to get their skates on and take some action. I note that Dr. Renou-Wilson is a lead author of the Intergovernmental Panel on Climate Change’s 2006 guidelines on wetlands. I am very much interested in hearing her answer to the following question. The degradation of our boglands accounts for 11 million tonnes of carbon per year, which is equivalent to the entirety of emissions from our energy sector. If we were to give Mr. Lucas 100 assistants and colleagues, make budget a non-issue and provide every resource possible to rewet, rewild and rehabilitate, how many of those 11 tonnes of emissions could be removed from the equation by the end of the next decade?

**Dr. Florence Renou-Wilson:** The simple answer is “quite a lot”. I do not know exactly how much, but a lot of that emissions total comes from the burning of peat and horticulture peat. We could easily move that use to zero. I am not talking just about domestic turf. We do not know how much domestic turf cutting there is in Ireland and what are the associated emissions. We have a vague estimate, but it could be reduced directly. What Deputy Eamon Ryan is talking about really is the drained peat source and whether we can stop those peat soils emitting carbon. If we put in a real effort, we can do so. It is not rocket science. We have the experience and expertise and can do it. Not all of that will be visible because we are into issues relating to managing the water table. It takes a great deal of engineering and work to manage the water table. One cannot just walk away and switch off pumps. That is not managing the water table. Managing the water table takes a great deal of resources; perhaps more than we think.

**Deputy Eamon Ryan:** I agree. I am speaking from memory when I say that extraction accounts for a little under half, or 5 million, of those 11 million tonnes. The remainder is from the drained bogs.

**Dr. Florence Renou-Wilson:** Correct.

**Deputy Eamon Ryan:** Dr Renou-Wilson stated earlier it is not sufficient to stop peat extraction or to ban unsustainable use of peatlands. I assume from that statement that her best scientific advice and her experience on the international panel is that we should immediately cease all extraction of peat. That would be one way to immediately save 5 million tonnes per annum.

**Dr. Florence Renou-Wilson:** That is what we are discussing at international level. The FAO, UNFCCC and the IPCC all agree that we should stay away from peat soils. Peat soils should be wet and that is it.

**Deputy Eamon Ryan:** Again, Dr. Renou-Wilson has international science on this. If were able to save 5 million of the remaining 6 million tonnes, as a certain amount is very difficult, that would be a total of 10 million tonnes a year. I assume that the price of carbon will be approximately €80 per tonne by 2030. That is what we will have as a carbon price in Ireland. Who knows what the international carbon markets will set it at, but it would not be an excessive figure. Under LULUCF rules, could that 10 million tonne saving be accredited to us within our own international accounting provisions as to how we meet our Paris climate obligations?
Dr. Florence Renou-Wilson: The simple answer is “Yes”. The activity under the UNFCCC and the LULUCF is to account for all our drained and rewetted bogs. To clarify, we can only account for rewetted bog when we have accounted for all our drained bog in the first place. We must know where all our drained bogs are and how much is there so that we can start to account for the good guys. Only when one has the bad guys can one have the good guys.

Deputy Eamon Ryan: It is a reasonable assumption that if we were to really go for this, restore nature, improve flood protection and prevent against further climate damage, we could save our country approximately €800 million per year in fines or credits we would have to purchase under our Paris climate obligations.

Dr. Florence Renou-Wilson: Yes. This is not an “if” and “but”. In 2026, Ireland will have to report all its drained bogs in any event. We will be in trouble by then.

Deputy Eamon Ryan: One of the recommendations of this committee was the creation of a national land-use plan. While the Government did not include that in its all-of-Government climate action plan, it advocated a mapping exercise. Whether that is a land-use plan is a question of semantics. What Dr. Renou-Wilson has said today makes the case again for a land-use plan to recognise, as she says, that certain areas might be suitable for particular things. For example, a certain area might be suitable for alder or reeds while other areas should be left untouched or restored as raised bogs. Does Dr. Renou-Wilson believe a national land-use plan would be useful in that context? In her discussions with the peatlands council and so on, has such an approach been considered?

Dr. Florence Renou-Wilson: I am glad the Deputy has raised this issue. It is critical and I am glad it has been picked up now because it had not been over the past two years. One of the Government’s missions is to map peatlands first and foremost. I wish to acknowledge that is happening and is critical.

Deputy Eamon Ryan: This has been a very significant session. We have spent weeks and months talking about savings that might give us 50 tonnes there or a couple of hundred thousand tonnes there. Here we have 11 million tonnes that would provide the country with a gain of €800 million. I hate to say, however, that from what we heard from the Department, nothing is happening at any scale. That is of real concern to me.

Chairman: I do not think Mr. Lucas would concur with that as he outlined the programme. Whether Deputy Eamon Ryan agrees is a different story.

Deputy Thomas Pringle: I thank the contributors. Unfortunately, I was not here for the opening statements as I had to speak in the Dáil. Some of my questions may have been covered already. Our guests will forgive me if that is the case. Can Dr. Renou-Wilson tell the committee more about the impact of the Government’s proposed afforestation plan on peaty soils? Can she explain how the current policies of the Department of Agriculture, Food and the Marine work to protect or destroy peaty soils? What can we change and what should any new policies look like?

Dr. Florence Renou-Wilson: The restoration plan was critical. It was a lot of work to take on and this is the first step. It has to be done the right way. Mr. Lucas was right to mention that it has to be done in consultation with people, which takes time. They do not have the resources for that. It will be critical because Ireland has the very last intact or natural raised bogs and blanket bog. The last resources in Europe are in Ireland. As such, we need that. This is critical.
and it will have a huge impact because it concentrates on those SACs that are the jewel of the bogs.

I must say something about CAP. Speaking as a soil scientist, out of all the bad guys out there - and cutover bogs were mentioned - peat used for agriculture is the worst emitter. It is the top out of all land-use forms over the whole planet. If one takes the list of all possible land uses, this is up there. This is as bad as planting for palm oil in Indonesia. Anything that involves supporting agriculture on dry peat soils is nonsense from a climate perspective as these are the really bad guys. One needs to start there. There is quite a bit in this country that we could address very quickly. Because these soils have been fertilised, they emit not only carbon but nitrous oxides. They are double enemies of the climate.

**Chairman:** Does Deputy Pringle have a question for Mr. Lucas?

**Deputy Thomas Pringle:** Just a couple of questions. A meeting on climate policy was organised by the ICMSA recently. A scientist who attended stated unequivocally that Ireland was likely to be a net emitter by 2030 under LULUCF regulations as we are losing carbon through deforestation and the continued destruction of peatlands. Does Mr. Lucas agree with this assessment? What steps is the Department taking as part of the peatlands strategy to reverse carbon losses? That is probably to outline the peatland plan already referred to. Dr. Renou-Wilson stated that Ireland could lock in ten times more carbon if the habitats directive were properly implemented to protect blanket bogs. Does Mr. Lucas agree and what would that mean in terms of work?

**Mr. Brian Lucas:** I have already stated that the Department has done a great deal of work in the context of the restoration of raised bogs. I stated what is set out in the national plan to restore raised bogs in three cycles of six years. I mentioned the €5.4 million Living Bog project, which has been in operation since 2016. I also mentioned the work of the Department separately on State-owned lands within the raised bog SAC and NHA networks. In addition, I stated that, with the extra budget allocation for 2020 of €5 million, we hope to accelerate that programme. I gave some figures and there is potential, as I mentioned, in that we hope to work next year on nine bogs under the restoration programme. That would maintain a store of approximately six megatonnes of carbon and result in a reduction of CO2 emissions of approximately 5,000 tonnes per year.

**Deputy Thomas Pringle:** What does that mean in overall percentages or amounts of land? We have spoken about 11 million tonnes of carbon here, then 5,500 tonnes there. It is a fair difference. I want a picture of the total cost rather than just the existing programmes. Has Mr. Lucas any idea of that?

**Mr. Brian Lucas:** I can speak about the programme with which we engage. The restoration programme for next year is €5 million, and subject to the known budgetary process, we are hopeful that funding will continue after 2020. We have earmarked 32 raised bogs for restoration as a priority, beginning with nine bogs next year. We hope the 32 bogs will store 28 megatonnes of carbon. That is in the raised bogs.

**Deputy Thomas Pringle:** Does the 28 megatonne figure refer to 28,000 tonnes?

**Mr. Brian Lucas:** I always get mixed up with “mega”.

**Deputy Thomas Pringle:** There was mention of 11 million tonnes.
Mr. Brian Lucas: We can only restore what is there. We are trying to maintain the active raised bog and get back the degraded bog. We hope the programme will result in the storage of 28 megatonnes of carbon.

Deputy Thomas Pringle: The programme is matched to the budget, which is fair enough, but if the budget was not a constraint, how much would it cost to do what needs to be done with the lot?

Mr. Brian Lucas: If we can do nine bogs next year with €5 million and this could be repeated over three years, we could do approximately 27 bogs at the end of the third year. They may be a little different from each other.

Deputy Thomas Pringle: Would those 27 bogs equate to 100,000 tonnes of carbon, which is still short of 11 million tonnes of carbon?

Mr. Brian Lucas: Yes.

Deputy Thomas Pringle: I am not trying to give the witness a hard time or catch him out. I am just wondering what it would take to deal with the extent of the problem. It seems we are tinkering with this. There is no doubt this is very worthwhile work.

Chairman: Is the Deputy looking for the figure from the finances?

Dr. Florence Renou-Wilson: There is a major misunderstanding about what can be done under the protected network, which is what the Department is concentrated upon. That is right and it is the first thing we need. We must remember the protected designated network is only 20% of the peatlands. We are not even talking about the rest because it is owned by landowners. It is why we must move on to farming carbon. It is different from what the Government can do with its protected designated sites that must be done anyway under the habitats directive. The work should have been done a long time ago, but we are now catching up. That will lock in and, I hope, sequester more carbon. I am pretty sure I will see that network safe before I leave the planet and I would be happy with that. The rest is a problem and we need a policy to manage the peatlands not in this protected network.

Deputy Thomas Pringle: Whose job is to look at that? Is anybody looking at it? What is happening in the special areas of conservation is grand, but overall it will do nothing in terms of what we must do.

Dr. Florence Renou-Wilson: It is a land use policy so an intergovernmental approach is required.

Chairman: I am really sorry but I must move on.

Senator Alice-Mary Higgins: I am struck by the same issue raised by Deputy Pringle, namely, the mismatch in terms of scale of ambition. I thank Mr. Lucas and Dr. Renou-Wilson for their presentations. Dr. Renou-Wilson spoke about 16,000 ha that make up the 53 special areas of conservation that together would store 28 million tonnes of carbon. Mr. Lucas spoke about 1,800 ha being worked on in 2020 and 28,000 tonnes of carbon. I agree it is crucial to move to the wider issue of our peatlands strategy. If we properly resourced and scaled up our interventions, simply looking at only raised bog areas, we could potentially look at 28 million tonnes of storage versus 28,000 tonnes of storage. It is quite a difference.

I apologise but I will focus on protected areas because I am concerned that they may not
continue to be protected areas. It was interesting to hear the specific numbers indicated by Mr. Lucas. The intention is to redesignate 46 of the currently recognised natural heritage areas. Am I correct in saying that 46 of the raised bog natural heritage areas, which are currently recognised as areas of natural heritage, are a tiny fraction of the peatland in this country with national protected status? Is it correct to say that 46 of 75, or more than half, are due for redesignation under the Wildlife (Amendment) Bill 2016? I raise this because Mr. Lucas raised the issue of the legislation. I suggested it may have been appropriate to wait to deal with that Bill until these hearings were completed, but this relates to policy.

Is it not the case that even a simple re-wetting of all the current natural heritage areas would have a benefit in terms of carbon sequestration nationally? I am talking about the 46 affected by the proposal for redesignation. Would it be better to re-wet them and keep that network in play, regardless of whether we add new natural heritage areas? I refer to the process around this. Leaving aside any amendments - it is not what we will discuss today, although I agree with others in the Houses who saw them as troubling - we can look at the Government proposal, which is that the conservation value of a raised bog takes into account a comparison made between the area, range, habitat structure, function and ecological features of the bog and those of one or more other raised bogs. My specific concern is the way the Department will decide which bogs are to be redesignated and where protection will be removed. It is through comparison with others, so what will they be compared with? Will they be compared with the full network of natural heritage areas or special area of conservation bogs? Will they be compared with the 12 bogs focused on this year? Will they be used as a tool to justify the redesignation of other natural heritage areas?

**Mr. Brian Lucas:** I raised the matter of the natural heritage area network because I was asked a question by a Deputy. I responded to the question. In 2014, the Department published a review of the raised bog natural heritage area network and it has been in the public domain since that time. This is nothing new. The most comprehensive analysis ever done was completed of Ireland’s raised bog resource, considering the 52 raised bog special areas of conservation, the 75 natural heritage areas, and 100 non-designated sites. This study was done on a scientific basis across the network, including special areas of conservation and non-designated sites. It was not a bog-by-bog comparison, and I cannot emphasise that strongly enough. It took in the entirety of Ireland’s raised bog resource. That was looked at to see whether it would be possible to get a better network in terms of restoration potential, a better network that could be restored and a better network in terms of meeting Ireland’s national conservation target for raised bog. In terms of the review and the proposal for designation, I emphasise that what has come out of that review is only for the raised bog NHAs; it is not for SACs. I reiterate that it was not a bog-by-bog comparison-----

**Senator Alice-Mary Higgins:** I am not-----

**Chairman:** Could the Senator allow Mr. Lucas to finish?

**Senator Alice-Mary Higgins:** I am saying that a bog-by-bog comparison is the mechanism for determining environmental criteria under the Wildlife Act. That is why it is relevant. I am not asking about something in the past but something proposed for the future.

**Chairman:** The Senator should allow Mr. Lucas to finish.

**Mr. Brian Lucas:** The 2014 review is ongoing, as provided for in the Bill. The result of the first phase of the review were published in 2014. The review must be completed. Hopefully,
it will be completed when the Bill is passed by the Houses of the Oireachtas. The review concluded, on the basis of sound scientific evidence, that there should be a refigured network that would involve the cessation of turf cutting in 36 NHAs, which would remain designated. Those who have had to cease domestic turf cutting on those sites have been provided with compensation by the Department since that time. As stated, seven sites were to be divided with one part to be conserved and another part to be designated. The de-designation of the 46 sites includes the parts of the seven sites to be preserved. They are sites that have been judged on the basis that their conservation potential is expected to be marginal or restoration is considered to be prohibitively expensive relative to the conservation benefits it would achieve. There is still a loss even though the conservation potential these sites is marginal. It is proposed to designate 25 new raised bog sites in public ownership or where there is reduced turf cutting pressure. We will end up with a better network in terms of the area of active and degraded bog and with less cost in terms of paying compensation to turf cutters.

Senator Alice-Mary Higgins: Can I ask a specific question?

Chairman: Very briefly. The Senator is nearly out of time.

Senator Alice-Mary Higgins: I apologise but I was not getting the answers I sought.

Chairman: The Senator should just list her questions.

Senator Alice-Mary Higgins: I will stick to my questions and list them three or four in a row. The mechanism now for determining which will be included in the list of 46 is a bog-by-bog comparison. Mr. Lucas mentioned restoration potential but rewetting potential and the benefits of potential rewetting were not considered. In response to my colleague, who asked about the SACs, Mr. Lucas was very clear because this Bill also allows for a similar bog versus bog comparator regarding the de-designation of blanket bogs. Mr. Lucas outlined a very lengthy process in respect of raised bogs. There has been no equivalent process for blanket bogs. Mr. Lucas said that the Department would not want to look for any system of management. In fact, it does not even want to move ahead with the management of SACs blanket bogs, which is mandatorily required by the habitats directive, without consultation and directives. However, it is proposing a mechanism that can allow for the de-designation of blanket bogs in advance of having had such a consultation so it seems that it is ready to run ahead on the legislation in terms of natural heritage area blanket bogs even though it has not delivered on its requirements in terms of special area of conservation blanket bogs. I note that it is not in the gift of the Department to de-designate SACs so it probably cannot be claimed as a virtue.

Chairman: Does the Senator have another question?

Senator Alice-Mary Higgins: My final question was addressed to Dr. Renou-Wilson. Can we afford steps backwards with regard to bogs? How do we ensure that we are consistently moving forward? Should we be looking to an expansion of our natural heritage network and perhaps the connectivity with that? Dr. Renou-Wilson mentioned farming. I have heard bee-keeping discussed as a potential ecological restoration mechanism regarding boglands. Does Dr. Renou-Wilson wish to comment on that? Could she comment on the environmental impact of conversion of peatland to golf green.

Dr. Florence Renou-Wilson: The review of raised bogs in NHAs was done in conjunction with the SACs. The SACs were the best things as a whole. If we look at raised bogs in Ireland as a resource, the SACs were the best. NHAs were turned into SACs when the habitats direc-
tive came into play in the right places. Meanwhile, it was a case of “out of sight, out of mind” with regard to the NHAs that did not change and kept being degraded. Why was this? It was because they were being cut. When it came to looking at them again, they were so badly damaged, I would not even consider wasting any water on them. In some cases, they are bad. This is a fact. There was a scientific review to assess those. In some cases, they were not reviewed with the objective of re-wetting them. That was never done. They were reviewed with the objective of saying that their status as bogs was not of conservation value and that if turf cutting was going to continue on them, it would not impact any other good potential protected sites. That is how it happened. Meanwhile we found that other sites that had never been designated had potential so we have a protected areas network as a resource. We must hold on to that. We can manage to restore this area of roughly 3,000 ha, which is 1% of the raised bogs we originally had. We could get back to it by including those new national heritage areas and new SACs. We will have new SACs. There is no stepping back. We cannot go back. It is damaged. Those NHAs are wrecked.

Mr. Brian Lucas: I am not quite sure what question I was asked but I will try to answer as best I can. Can I clarify that at no time did I say that the Minister had any proposals to de-designate SACs? I never said that at any point in my presentation.

Senator Alice-Mary Higgins: I never suggested that. I said that it is not a virtue that they will not be de-designated.

Mr. Brian Lucas: To make it clear, there is no proposal to de-designate SACs. The Bill was amended in the Dáil to provide that a Minister for Culture, Heritage and the Gaeltacht could at some point in the future undertake a review or reviews of blanket bog NHAs. This in no way means that the Minister would de-designate NHAs. It could even mean that the Minister might decide to designate new NHAs. I do not want people running out the door thinking that the Minister would do that tomorrow. In my view, based on what is in the Bill and on what was done for the 2014 review, the first thing that would need to happen would be a comprehensive scientific review of the whole blanket bog network encompassing the blanket bog SACs, the blanket bog NHAs and undesignated blanket bog sites. This would take quite an amount of time on its own so I do no think any Minister could de-designate NHAs next week or when the Bill is passed in the new year. The first thing that would have to be done is a comprehensive scientific review of the blanket bog network. I do not think it would be possible to carry out a proper review without undertaking those steps. There are criteria and checks and balances in the Bill as well but the first thing that would have to be done would be a very comprehensive and wide-ranging scientific review. One could not undertake a review of the blanket bog NHAs without doing that, as was done for the raised bog NHAs. If the Department and the Minister were to undertake a similar review, they would have to follow a similar approach.

Senator Alice-Mary Higgins: It does allow for that.

Chairman: Sorry, Senator, we have to move on. I call Deputy Danny Healy-Rae.

Deputy Danny Healy-Rae: I welcome all the witnesses. Every witness is always welcome. I regret, however, and resent the fact that Dr. Florence Renou-Wilson has called people with bad black ground, or whatever, the bad guys.

Dr. Florence Renou-Wilson: No, I referred to soils.

Chairman: She referred to bad soils.
Dr. Florence Renou-Wilson: I am a soil scientist. I was talking about soils. The way one manages it can improve or disimprove the quality of the water or the air. Some soils are better than others. It is the same way that somebody has a soil that is better at growing grass and another that is not. There are some bad soils. I am a farmer as well and I have bad soils. I will not be able to grow a good crop of barley on a bad soil where there is *Juncus* because it is wet. Those wet soils are good for the climate. If one drains them, the soils become bad for the climate.

Deputy Danny Healy-Rae: I want to introduce some clarify for Dr. Florence Renou-Wilson because she might not know what has been going on in this country for many years. Farmers with that type of ground got grants from the Government to drain said land. This was to help them to derive a living from the land they were given or they bought. That is all what they had to put food on the table. They got grants and were advised by bodies such as ACOT and Teagasc to drain their land to keep more stock. Now, people are saying they cannot keep their cattle and must drown these lands because they are a big problem and to go to hell after that. That is not fair.

I note the deliberate action of raising the water table. People worked hard to lower the water table to dry their lands. To be told all of a sudden that they must change their tactics, block drains, flood the land, have ducks and wild birds and not to keep their animals is absolutely ridiculous.

The witnesses are, by and large, referring to the midlands. We know what happened in the budget. I do not regret the people in the midlands getting money to compensate them for being unable to work in Bord na Móna. However, the fact is that the people in rural Ireland who must have a car, tractor and a lorry will pay the carbon tax to foot the Government’s decision to close these bogs that are creating energy. The policy is all electric. However, in the finish, if we close down all the power stations, where are we going to get the electricity? I do not think anybody has answered that question.

I live in and represent Kerry. People from the midlands have been on to me, however, about Bord na Móna blocking drains and stopping pumping water from the bogs. They are concerned such action will flood adjacent lands and that they will not be able to cut turf or farm their lands. If the water from these State-owned lands cannot reach the main drainage course, it will create difficulties for people around those places.

There is a big question as to the legality of what is proposed. The witnesses need to get ready to answer those people. They have used these watercourses for generations. Blocking watercourses willy-nilly like this cannot be done without consulting and coming to an agreement with neighbouring landowners. Some of those affected will never again be able to cut turf.

Dr. Florence Renou-Wilson: The Department has a lot of experience in dealing with farmers. Every time there is a re-wetting or restoration plan, the Department consults all the landowners and everybody is consulted before any of those plans proceed. What I have proposed is to support farmers who have peat soils that need to be re-wetted. They must be paid instead to farm carbon. I know in the past they had to drain these lands. Now we realise, that was a bad idea for the climate. They will need to do something else and pay those farmers. I know it sounds funny.

Deputy Danny Healy-Rae: It is not a bit funny.
**Dr. Florence Renou-Wilson**: No, it is not. However, if one is paid for it, then I am sure one will be happy for it.

**Mr. Brian Lucas**: Following up on what Dr. Florence Renou-Wilson said, the restoration plans have been developed and have been drafted for the 53 raised bog SACs. They have to be developed further in partnership with stakeholders, including landowners and local communities. The idea behind this plan is to ensure the impact of the restoration work to surrounding agricultural land - blocking the drains on the bog with peat dams and sometimes with plastic dams - is kept to a minimum. By raising the water level, it is not intended to flood the land but rather to ensure it remains wet enough to encourage the growth of sphagnum moss within a protected site. In some cases, it might be decided to block some drains while leaving others open.

To allay concerns about the potential impacts of restoration on areas of land adjacent to the designated bogs, we are in the process of developing drainage management plans for the raised bog SACs network as part of the restoration programme. The live sites will be dealt with separately. We have been engaging with landowners and turf cutters on the development of those drainage management plans. It is a legitimate concern and one we have to address.

**Chairman**: It is one that comes up often. I call Deputy Michael Fitzmaurice.

**Deputy Michael Fitzmaurice**: The witnesses need to put several matters into context. Dr. Florence Renou-Wilson talked about blanket bogs. She has to get one thing clear in her head. It is private property. Has she a right to go on to somebody’s private property?

In fairness to Mr. Brian Lucas and the NPWS, they have drawn up a management plan on re-wet ting. When people heard about re-wetting, they thought the water would be run down. It is not. They have consulted in various areas. I had many a row with them but they consulted people in affected areas. If there are any problems, they have addressed them.

What are the 53 raised bog SACs? They were brought in under the habitats directive. They were brought in to save an amount of bog because the rest of Europe had cut theirs. It was not brought in for the climate or saving tonnes of anything. There is no part of climate written into it. Am I correct in that?

**Dr. Florence Renou-Wilson**: The Deputy is correct.

**Deputy Michael Fitzmaurice**: We have gone into another world now about the 53 raised bog SACs and how we will save Ireland with them. That is not what the habitats directive was about.

It is not helpful when the likes of the NPWS are trying to resolve issues on the 53 raised bog SACs. The National Parks and Wildlife Services, NPWS, has called them the best bogs in the country. When one has a bog that is functioning and has been rewetted, and the active raised bog is beginning to work back again, what is the carbon sequestration per acre on that bog? What is the tonnage per year, per acre? I have been at a conference, but I would like to know the position on a raised bog. I know that blanket bog is totally different. Blanket bog regenerates itself much more quickly than the raised bog.

The other point made by Dr. Renou-Wilson was that she said that if one cuts on the outside of the bog, that the middle of it is destroyed. I have been with Ray Flynn from Queen’s University Belfast, who I am sure Dr. Renou-Wilson knows well, and with RPS and have been on complexes of 3,000 acres. They can prove that maybe for 200 m or 250 m, such a cutting would
have an effect, but the bog will remain intact inside of that. One has to be able to show, under the habitats directive, that one does not have an adverse effect, which is the wording of the directive. Dr. Renou-Wilson’s statement earlier that the middle of the bog would get degraded is not correct.

As to the ongoing de-designating bogs debacle, there are category 1 and 2 bogs, degraded bogs, and ones that were not worthwhile regenerating. When the scientists such as RPS went out and studied this - people do not want to look into this - it was completely useless to try to put these bogs back. Consequently, it decided to go around the country to look for other bogs that would help it in its overall plan of reaching the required targets. It reached these numbers, in order to make the new plan, which was a sensible thing to do, rather than at Raheenmore Bog - our witnesses may be familiar with this bog - which was taken over and given to the National Parks and Wildlife Service in 1979 by Bord na Móna. Liners were put into it that blew out of the way. Efforts were being made to restore the bog. To this day, this is a bog that it is virtually impossible to regenerate or to have re-function. This can be compared with bogs where I am from in the west of Ireland and where people cut domestic turf in which the base of the bog is still there and will always be there; it is like biting at the toes of an elephant. Those bogs are able to regenerate, can be rewetted and one can work with them so much better.

I listened earlier where the National Parks and Wildlife Service, NPWS, was getting stick in respect of this 28 million tonnes, or 11 billion or whatever was the figure. In fairness, I cannot say that I am going to go into anyone’s house and say that I am taking it over, no more than I can say that I am going to go into a person’s private property in a bog. The NPWS cannot do that. On top of that, it has rewetted some bogs and will have difficulty for the simple reason that there are private landowners with whom it would not be familiar because there are turbary and fee simple rights. In fact, there are eight different types of rights involved with bogs. Those people will shove their heads above the parapet shortly and they can ask for their drains to be reopened where rewetting was done because the NPWS went in on private property. Either we are going to be communists in this country and are going to take over the world or we are we going to sit down, talk, and work with people in a proper fashion.

I seek an answer to those questions about the sequestration in respect of what the NPWS call those charm bogs in the 53 raised bogs SACs, that is, the tonnage of sequestration. Mr. Lucas has had people dealing with an issue in the past few years with the regeneration of bogs whereby a machine has to be brought in on it with low ground pressure. Is the estimate of €5 million equal to about 17 diggers for 240 days, which is 17 people for the same period? Is that a fair assessment what Mr. Lucas’s Department has done so far around the country? We have seen the Bord na Móna side of this, which would be a more intensive approach to regenerate a bog because the bogs the NPWS are working in have vegetation and very little drainage on them in comparison, because the drainage done would have been done at the time of the council work. Domestic turf cutters do not need drainage on a bog to cut it, which we need to be clear about. I am aware that the Department is going to some bogs at the moment, Carrowbehy Bog, for example. That is the work that €5 million does on bogs that are fairly intact. If one looks at the Bord na Móna bogs, as was pointed out earlier, there are drains every 12 m, this work would be much more intense for the machines. Would Mr. Lucas consider that there will be less work will get done because of that?

Chairman: Can we have short answers, please, even though there are many questions there? Can we try to be as succinct as possible?

Mr. Brian Lucas: I will start. For the €5 million earmarked in budget 2020, that overall
programme involves 36 bogs, which are the designated raised bog sites. That is what I will focus on. This will begin with nine bogs next year. Over the whole programme, it is hoped to be able to store is 28 megatons of carbon. In the bogs next year, it would be hoped to store 6 megatonnes of carbon, which would result in reduction in CO2 emissions of approximately 5,000 tonnes per year. I have looked at the figures and I have been on bogs and have seen the drains that have been successfully blocked. That has been done, as Deputy Fitzmaurice has said, with a digger where one inserts the peat or plastic dams. I can send on the figures we have. We have done some estimates on how many machines one would need over a bog but off the top of my head, I cannot remember the figures.

Deputy Michael Fitzmaurice: My understanding is that 19 machines for 240 days is the value of work of €5 million.

Chairman: Can Mr. Lucas send on that information to the committee, that would be good?

Mr. Brian Lucas: It would be best for me to send it on, rather than me trying to recall it here.

Deputy Michael Fitzmaurice: Bord na Móna will need to get many machines if it is going to do this work.

Chairman: We can get this information in writing and have it sent to the Deputy and to members.

Mr. Brian Lucas: Sure, that is no problem.

Chairman: I called Dr. Renou-Wilson.

Dr. Florence Renou-Wilson: I wish to clarify a point. Peatlands have two functions when it comes to carbon. It stores the carbon that is already in there, which is the biggest issue at the moment. This is the carbon that has taken thousands of years to accumulate in the peat. Peat is roughly 50 kg of carbon per cu. m. To rewet it is just to keep that carbon in and to stop the emissions, which is critical for the future and for Ireland, otherwise it will have to pay for this carbon. When the bog is restored in this programme, only restored sites will be able to sequester more carbon. The figures are in the strategy, which I cannot find right now.

Deputy Michael Fitzmaurice: How many tonnes per acre?

Dr. Florence Renou-Wilson: I believe it is roughly 7 tonnes but I will have to check that again.

Deputy Michael Fitzmaurice: I was at a conference in Dublin Castle and a man from Holland, I believe, said it was 40 tonnes.

Dr. Florence Renou-Wilson: It depends. That is the problem. Is the Deputy talking about an annual figure?

Deputy Michael Fitzmaurice: Yes, I am asking about an annual figure.

Dr. Florence Renou-Wilson: Is the Deputy talking about an average figure?

Deputy Michael Fitzmaurice: I am asking about an average annual figure.

Dr. Florence Renou-Wilson: The thing one has to remember is that one has peat for a
reason, which is because it has sequestered carbon. If one wants the proof, it is in the pudding. One has a bog because carbon has been sequestered.

**Deputy Michael Fitzmaurice:** I am aware that forestry can deliver 10 tonnes per acre.

**Dr. Florence Renou-Wilson:** That, however, is not for ever.

**Deputy Michael Fitzmaurice:** Is Dr. Renou-Wilson telling me that peat delivers less sequestration?

**Dr. Florence Renou-Wilson:** The forestry is just a once-off carbon sink. Peat is an annual constant carbon sink, which is what is important about it. Unlike forestry, it has a huge amount of carbon already there, which once drained is released into the atmosphere. That is why the rewetting is important.

The second question was on blanket bogs. I appreciate the point about private properties. My recommendation is to start first with publicly-owned blanket bogs. Believe me, there are publicly owned blanket bogs. Coillte owns many blanket bogs. We have to start with those, I agree, and show how it is done and then we will move on to help the farmers who want to rewet their land in a way that is feasible to support them to farm carbon. This is the way that it is done in Wales and in Scotland, where farmers are now being paid to rewet a vast area of blanket bog. Farmers are very happy to do that.

**Deputy Michael Fitzmaurice:** What about my question on the middle of the bog, which Dr. Renou-Wilson said would be drained, when I asked about Ray Flynn and RPS?

**Dr. Florence Renou-Wilson:** I believe the Deputy was on a site where there is confusion about why the study was done. The scientists were on the ground trying to understand whether cutting in a particular place, which we call the handle of the pan because the bog is here and the handle is there, is not impacting there. That has been shown. I agree with that.

**Deputy Michael Fitzmaurice:** So it needs to be clarified to people that not every bog is affected by cutting.

**Dr. Florence Renou-Wilson:** I totally agree. I said that clearly; not every bog is affected and will damage the base bog.

**Deputy Michael Fitzmaurice:** Based on what I have heard from the scientists I met, am I also correct in saying that where turf cutting takes place for domestic purposes on what we call the cut-away bog, that its regeneration is much faster than on high bog?

**Dr. Florence Renou-Wilson:** I agree. This is a really good example where we should support the regeneration of cut-away areas because it is lower in elevation so we can re-wet that first and foremost. That is the first thing we need to do to help the rest of the bog.

**Deputy Michael Fitzmaurice:** I am not talking about peat, which is in the air, but is it not the case that following domestic turf cutting, where it has been tested by scientists the regeneration of bog has been phenomenal?

**Dr. Florence Renou-Wilson:** Does Deputy Fitzmaurice mean if one stops cutting?

**Deputy Michael Fitzmaurice:** No, there was still cutting at the face bank but out on the-
Dr. Florence Renou-Wilson: Every site is different. Again, if one is still cutting turf then that will not help, only if it is protected. In a site that is not protected, a typical blanket bog could still have ongoing turf cutting in areas without damaging the main part of the blanket bog, but it must be clear where and to know where to stop and not go on further into the blanket bog. It should be wet then, because one cannot have re-wetting and cutting.

Deputy Michael Fitzmaurice: One thing needs to be made clear by the committee. The National Parks and Wildlife Service is trying to resolve an issue in conjunction with ecologists and scientists and they are trying to find alternatives for people to make sure that those 53 bogs are as far as possible preserved and that we can get re-wetting done. We must also ensure that minerals from land do not come in. We must ensure the drain between the bog and the land is kept clear because minerals from land are not good for the bog. Objections are coming in. If environmentalists keep objecting, because it is private property people will keep doing what they were doing until an alternative is put in front of them.

Deputy Jack Chambers: Dr. Renou-Wilson stated that the use of drainage based peatland caused the loss of flood control and increased the risk of fires. That would be a nightmare scenario. Could she elaborate more on those risks?

Dr. Florence Renou-Wilson: Is Deputy Chambers talking about the future?

Deputy Jack Chambers: Yes.

Dr. Florence Renou-Wilson: The worrying bit is that the surface of a bog that has been drained due to turf cutting or horticulture is pure carbon so obviously it can catch fire very quickly and the fire will spread, leading to a significant amount of carbon being released. We have seen it on television. The smog in Indonesia is old peat burning. Once a fire starts it burns for a long time. Bord na Móna knows that very well, as it has to stabilise the peat stacks so they do not catch fire. We are dealing with a fuel. It is like a fossil fuel; it is very dangerous. Did I answer the question?

Deputy Jack Chambers: Yes. If Dr. Renou-Wilson is happy to do so, it would be worthwhile for her to submit her view on the Wildlife (Amendment) Bill and the amendments that have been submitted on it. She could give an overall-----

Dr. Florence Renou-Wilson: I responded to that question already.

Deputy Jack Chambers: I mean a broader written submission to the committee in the context of what she stated today.

Dr. Florence Renou-Wilson: Yes, I will do that.

Deputy Jack Chambers: I also think the committee should send a letter to the Department of Communications, Climate Change and Environment and the Department of Agriculture, Food and the Marine because we have had a limited presentation but it is pertinent to the broader discussion. The committee should engage with those two Departments. In fairness to Mr. Lucas, he has mentioned his own area of responsibility but it is clearly-----

Chairman: Is Deputy Chambers suggesting we liaise with the Department of Agriculture, Food and the Marine and the Department of Communications, Climate Change and Environment?

Deputy Jack Chambers: Yes.
Chairman: We can try to fit that into our work programme.

Senator Alice-Mary Higgins: The regulation of turf cutting on smaller sites is something that comes under the remit of the Department of Agriculture, Food and the Marine.

Chairman: We can talk about that ourselves. I thank the witnesses for coming before us. We very much appreciate it. I thank the committee members and others who were present who are not members of the committee. It was a very good meeting.

The joint committee adjourned at 4.35 p.m. until 2 p.m. on Wednesday, 6 November 2019.