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Pàrlamaid na h-Alba

Official Report

RURAL AFFAIRS, CLIMATE CHANGE AND ENVIRONMENT COMMITTEE

Wednesday 18 March 2015

Session 4

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RURAL AFFAIRS, CLIMATE CHANGE AND ENVIRONMENT COMMITTEE
11th Meeting 2015, Session 4

CONVENER

*Rob Gibson (Caithness, Sutherland and Ross) (SNP)

DEPUTY CONVENER

*Graeme Dey (Angus South) (SNP)

COMMITTEE MEMBERS

Claudia Beamish (South Scotland) (Lab)
*Sarah Boyack (Lothian) (Lab)
*Alex Fergusson (Galloway and West Dumfries) (Con)
*Jim Hume (South Scotland) (LD)
*Angus MacDonald (Falkirk East) (SNP)
*Michael Russell (Argyll and Bute) (SNP)
*Dave Thompson (Skye, Lochaber and Badenoch) (SNP)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Rob Brooker (James Hutton Institute)
James Davidson (Aberdeenshire Council)
Simon Jones (Scottish Wildlife Trust)
Richard Lochhead (Cabinet Secretary for Rural Affairs, Food and Environment)
Sue Marrs (Scottish Natural Heritage)
Grant Moir (Cairngorms National Park Authority)
Chris Nixon (Forest Enterprise Scotland)
Dr Derek Robeson (Tweed Forum)
Peter Stapleton (Scottish Government)

CLERK TO THE COMMITTEE

Lynn Tullis

LOCATION

The Robert Burns Room (CR1)

Scottish Parliament

Rural Affairs, Climate Change and Environment Committee

Wednesday 18 March 2015

[The Convener opened the meeting at 09:34]

Decision on Taking Business in Private

The Convener (Rob Gibson): Good morning and welcome to the 11th meeting in 2015 of the Rural Affairs, Climate Change and Environment Committee. I remind everyone that we should all switch off our mobile phones, as they affect the broadcasting system. Committee members may consult their tablets to access committee papers in digital format. We have received apologies from Claudia Beamish.

Agenda item 1 is to decide whether to take two items in private. The first is a committee paper on our proposed meeting in Orkney as part of the Parliament day in Kirkwall in June. Are we agreed that we will take that item in private?

Members *indicated agreement.*

The Convener: The second item is a letter to the Scottish Government on the wild fisheries review. Are we agreed that we will take that item in private?

Members *indicated agreement.*

The Convener: I also seek the committee's agreement to consider those items in private at future meetings if need be.

Members *indicated agreement.*

Subordinate Legislation

Single Use Carrier Bags Charge (Fixed Penalty Notices and Amendment) (Scotland) Regulations 2015 [Draft]

09:35

The Convener: Agenda item 2 is subordinate legislation. The instrument has been laid under affirmative procedure, which means that Parliament must approve the regulations before their provisions may come into force. Following this evidence session, the committee will under agenda item 3 be invited to consider the motion to approve the instrument.

I welcome the Cabinet Secretary for Rural Affairs, Food and Environment, Richard Lochhead, and Peter Stapleton, who is the policy manager for waste prevention in the Scottish Government. Good morning. Do you wish to speak to the instrument, cabinet secretary?

The Cabinet Secretary for Rural Affairs, Food and Environment (Richard Lochhead): Thank you, convener. I wish a good morning to the committee.

It is now about five months since we introduced carrier-bag charging with the aims of tackling Scotland's addiction to single-use carrier bags, hundreds of millions of which have been used in recent times, and of cutting litter in our society. The committee supported the regulations originally and it seems that the policy is working well. Some of our larger retailers are already, after a matter of a few months, reporting reductions of up to 90 per cent in use of the bags in their stores. I hope that the committee agrees that that is a good sign. We welcome the fact that shoppers around Scotland have embraced and welcomed the new policy—which has been my experience of speaking to consumers in shops in Elgin, in my constituency.

The regulations that are before the committee today address two issues to support the aims of the charge. First, they set the level and time limit of fixed penalties for breaches of the regulations. The fixed penalties are intended to complement the existing criminal sanctions by offering proportionate enforcement options for minor infractions. Although the Regulatory Reform (Scotland) Act 2014 established the principle of fixed penalties, the regulations will set the fine level at £200, as we advised the committee last year. The regulations also provide the other outstanding details that are needed: the discounted amount for early payment and the time limit for the issuing of penalty notices. I expect that very few retailers will deliberately breach the rules and that enforcement officers will, in the first

instance, provide advice to retailers that do not comply.

The regulations will also amend the Single Use Carrier Bags Charge (Scotland) Regulations 2014 to exempt bags that are used for delivery of goods in prisons, when the bag is necessary for safety or security. The prisoners who use the service have no option but to accept the bag that is given to them, and the closed environment of a prison means that there is no litter issue. Applying the charge in prisons would, therefore, not support the purposes of reducing litter and encouraging behaviour change.

I therefore ask the committee to support the regulations.

The Convener: Thank you, cabinet secretary. Do members wish to ask any questions?

Jim Hume (South Scotland) (LD): Good morning, cabinet secretary. It has been brought to my attention that some retailers are selling bags at 6p, although 5p is the set charge, with the money going to charity. Do you have evidence that retailers are selling bags at 6p, or even 10p? If so, is all that extra money going to the retailer? We know that when the charge is 5p the money goes to charity.

Richard Lochhead: We advise all retailers that funds that are raised as a result of the legislation should be devoted to good causes. Many retailers are signed up to the carrier bag commitment, whereby they report openly where the money is going. As you may have seen in the news over the past few months, many retailers have publicised the charities and other good causes that will benefit.

Our retailers apply different charges because different types of bag are being sold by the various retailers. For instance, Sainsbury's sells only bags for life, so people get multi-use rather than single-use bags. I guess that the decision about what bags to sell is ultimately for the retailers, and consumers will no doubt have their say at the shops in question.

Jim Hume: To clarify that further, where there is no option to take a 5p bag, for example, and there is only the option to take a 6p bag, does all of that 6p go to the retailer or does 5p of it, as the legislation sets out, go to the designated charity or good cause?

Richard Lochhead: It is up to the retailer to calculate what it wants to give to the good causes, within the regulations. As you may recall, under the regulations VAT can be paid and the costs of administrating the scheme can be deducted. If retailers that are charging more than 5p are major retailers, which I suspect they are, the likelihood is that they have signed up to the carrier bag commitment, which means that they will make all that information transparent at the end of the first reporting period, which is within six months of the charge coming into force. That information will be in the public domain on the website. I hope that retailers will report transparently on the breakdown of where the 6p, 10p or whatever goes.

Jim Hume: That is useful.

Graeme Dey (Angus South) (SNP): I would like clarification of two small points. Local authorities will enforce the regulations. Are they being paid to carry out that duty? To whom do fines go?

Richard Lochhead: The agreement that we have with local government, with which we have worked closely on the regulations, is that it is responsible for compliance and is not specifically paid for that—it is one of the duties of local government. In most cases, trading standards officers will carry out the function and will enforce as they see fit. As far as I am aware, local authorities have embraced the legislation to a large extent. As I said in my opening remarks, for the early months of the new charge a light-touch approach is being taken, with advice being given to retailers—especially smaller retailers, because they are more likely to have not been charging. If they come across such retailers, local authorities will give advice and a reminder of the regulations that say that they are supposed to be charging. We are clearly taking a light-touch approach as people get used to the regulations.

My understanding is that the fixed fines will stay within the local authority.

Peter Stapleton (Scottish Government): That is right.

Richard Lochhead: With the criminal sanctions, the fines will stay within the courts and the wider justice system, as with all such fines.

Dave Thompson (Skye, Lochaber and Badenoch) (SNP): I have a wee follow-up question on that general point about the fixed penalties and the discount scheme. As a past director of trading standards, I certainly agree that the light-touch approach is always best. Officers advise, help and cajole, and only if somebody digs in their heels and will not do what is asked of them do they take that person to court or fine them. That is the right way, because small retailers in particular have huge burdens and we need to help them as much as we can.

On fixed penalties, there is a big difference between a small corner shop and a big supermarket with all the legal and other resources that it will have. Although a fixed penalty is useful, because it is standard and everybody is hit the same if they refuse to comply, the effect of £100

on a major supermarket is obviously less than the effect of a gnat bite on an elephant whereas, to a small corner-shop trader, £100 is proportionally much more. Has any thought been given to variable fixed penalties? If a large retailer is found to be deliberately flouting the regulations and cannot be persuaded to comply, a larger fixed penalty could be applied, perhaps based on something like the turnover of the business or its floor area. Has that been considered, given that, to a major retailer, £100 is not really a disincentive?

09:45

Richard Lochhead: Dave Thompson has made a fair point, and I respect his experience. As a former head of trading standards, he will know a lot more about these things than the rest of us around the table.

I will answer the questions, but the first point to make clear is that all the indications are that most retailers of all sizes, but particularly the bigger retailers, are on board and see ensuring that they are abiding by the regulations and implementing the policy as being responsible. That is all the evidence that we have so far. The prospect of a major retailer with a reputation to protect in the high street flouting the regulations is rather remote, but Dave Thompson asked a genuine question, so I will address a couple of his points.

The figure of £200 was agreed, in particular with local government, as a proportionate level of fine. As you said, the fine can be £100 if it is paid early. The fine is also in line with the fixed penalties related to tobacco and fly tipping, which is why that figure was pushed as the best option by local government in particular.

If a large retailer—which may have a turnover of millions of pounds—were to flout the regulations and break the law, local authorities have other options. We expect that they would explore those other options rather than serve a £200 fine on a large retail chain. Those options include criminal sanctions—they can include a fine of up to £20,000 or unlimited fines through the indictment process. That caters for all eventualities.

Nevertheless, as I said, the indications are that major retailers in particular—which are the ones that Dave Thompson highlighted—are abiding by the regulations.

Michael Russell (Argyll and Bute) (SNP): Cabinet secretary, you were absolutely right to point out at the start of your comments the extraordinary success of the policy. I know that you have long believed in the policy, and you are entitled to feel vindicated by its success. Nevertheless, it is a policy of behaviour change, and although I fully appreciate the need for enforcement from time to time, I agree with Dave Thompson's comment that it is the light touch that has made the difference.

A clear behaviour change is taking place, and most people are now embarrassed when they have to ask for a plastic bag. That was not the case before. I am in that position myself when I am foolish enough to go into a shop without a bag. I therefore seek an assurance that the Government's view is still that the best policy is a light touch, that you are seeking behaviour change and that local authorities will be encouraged to be restrained in their use of the legislation. Sometimes, the further you get from Government, the more confusing the message becomes. I do not want local authorities to feel that they are obliged to implement the penalties in an enthusiastic way. If they do so in a restrained way, the behaviour change is more likely to be long lasting.

Richard Lochhead: I welcome Michael Russell's comments about behaviour change, which is the main thrust of the regulations. More of us are now embarrassed when we forget to take our bags to the supermarkets and shops. You spoke of your own experience—believe me, what you described applies even more to the minister who was responsible for bringing the legislation to Parliament. I sometimes feel like wearing a disguise when I realise that I have forgotten to take my bags to the shops, but I am thankful that it is rare that I forget them these days. The legislation is about behaviour change and making a difference.

You are quite right to say, as others have, that the light-touch approach is the best way forward, especially in the early stages of the policy. If local authorities receive complaints from members of the public who feel strongly about visiting a shop that is not charging for bags, the local authorities will act on those complaints, investigate the evidence and give advice: that is the approach. If, as Dave Thompson said, advice is ignored over and over again, a local authority may have no option but to take action. Nevertheless, as Michael Russell suggested, the best long-term solution is to continue in that vein. This is not a money-making exercise, although it is about raising cash for good causes when bags are sold by retailers. The money does not come to the Government. Likewise, local authorities will want to adopt a light touch.

Michael Russell: I hope that you will make that clear to each local authority in a gentle but forceful way.

Richard Lochhead: Yes. We will continue to work with our local authorities on taking a sensible and proportionate approach. However, we expect that if people continually flout the regulations and ignore advice, local authorities will act on that.

Alex Fergusson (Galloway and West Dumfries) (Con): The cabinet secretary will recall that I opposed the measure when it first came in, but in mitigation expressed the hope that I would be proved wrong at the end of the day.

It does not surprise me that there has been a huge drop in demand, because that has been the case in other countries where the measure has been introduced. In some countries—I am thinking of Ireland in particular—demand levels rose considerably again over two or three years.

I have no problem with what the instrument seeks to do, and I absolutely agree with the continuation of the light-touch approach as the right way forward. However, if demand started to rise again—I think that we all hope that it does not—how would we use the light-touch approach to try to stop that increase?

Richard Lochhead: The previous conversation about the light-touch approach was to do with compliance, whereas your question is more to do with what happens if the behaviour change over time is not as positive as it is in the early stages of policy implementation. One hopes that that will not be the case. I said to the committee previously that we will keep the matter under review as the years go by. There are options for revisiting the legislation with regard to implementing a minimum charge in the first place—whether it should be raised above 5p in the future—and what kind of materials the bags are made of.

There are other ways in which the policy objectives can be pursued if, over time, it turns out that we are not achieving, under the existing regulations, what we want to achieve. Thankfully, there is no sign of that happening just now.

You mentioned the experience in Ireland. Many countries have put such a measure in place, and I am aware of only positive stories, but we will keep the matter under review.

The Convener: It is good to know that all of us, from humble back benchers to cabinet secretaries, keep in touch with the realities of life by doing the shopping—or the messages, depending on which part of Scotland we come from.

Do you have any thoughts about the designated charities that supermarkets have chosen. The committee has raised the question whether the charities should be linked to environmental work. It seems that some of them are not.

Richard Lochhead: Many of the charities that are chosen have environmental roles to play in our society and communities. The committee may recall that we debated the issue of some retailers having existing relationships that we did not want to disturb. We felt that if a retailer wants to give to its existing recipients a donation resulting from the charge, the regulations should not exclude that possibility.

We indicated clearly in the regulations that good causes could include environmental causes. As I said, many retailers support environmental causes—for instance, Tesco supports Keep Scotland Beautiful. We hope that millions of pounds that were not previously being provided will go towards good environmental causes.

The Convener: Thank you for that. As there are no further comments, we move seamlessly to item 3, which is to consider motion S4M-12647.

There is an opportunity for formal debate. As you all know, only the politicians on the committee and the cabinet secretary can speak—officials cannot. I invite the cabinet secretary to speak to and move the motion.

Richard Lochhead: I thank the committee for the questions, which were all very relevant. I think that it is fair to say that we warmly welcome the progress that has been made so far.

I move,

That the Rural Affairs, Climate Change and Environment Committee recommends that the Single Use Carrier Bags Charge (Fixed Penalty Notices and Amendment) (Scotland) Regulations 2015 [draft] be approved.

The Convener: If no members wish to comment, I ask the cabinet secretary to wind up.

Richard Lochhead: I thank the committee for its co-operation.

Motion agreed to.

The Convener: The committee's report will confirm the outcome of the debate. I thank Richard Lochhead and his official.

Common Agricultural Policy (Direct Payments etc) (Scotland) Regulations 2015 (SSI 2015/58)

The Convener: Item 4 is consideration of a Scottish statutory instrument. The committee previously considered the instrument on 4 March and elected to write to the Scottish Government. We have now received the response. I refer members to the paper and invite comments from the committee.

Alex Fergusson: Again, I thank the cabinet secretary and the Government—[*Interruption*.]

I am too late—they have gone.

I commend the cabinet secretary for the steps that he has taken, in particular to reassure us that in introducing a further statutory instrument to correct the error, if I can put it that way, no farmers who have taken action so far will be disadvantaged or penalised in any way. We were

all hoping for that assurance, so I am very happy with the action that has been proposed.

The Convener: No other members want to comment. Does the committee agree to make no further recommendations on the instrument?

Members *indicated agreement.*

09:56

Meeting suspended.

10:00

On resuming—

Biodiversity Strategy

The Convener: Our fifth item is an opportunity for the committee to take oral evidence on the implementation of the Scottish Government's biodiversity strategy. We are joined by a panel of stakeholders, and I welcome everyone to the meeting.

I ask everyone to introduce themselves. You should just say who you are rather than make a statement about your interests. We will then move straight to questions. You will all be able to come in easily by indicating to me, and I will keep a list of those who want to speak. That does not mean that you all have to speak on every point—there are only 24 hours in the day.

James Davidson (Aberdeenshire Council): I am the project officer for the Aberdeenshire land use strategy pilot, and I work for Aberdeenshire Council.

Sarah Boyack (Lothian) (Lab): I am an MSP for Lothian.

Rob Brooker (James Hutton Institute): I am a plant ecologist at the James Hutton Institute.

Dave Thompson: I am the MSP for Skye, Lochaber and Badenoch—it is pronounced Bade-noch or Bad-enoch, depending on where you come from.

Simon Jones (Scottish Wildlife Trust): I am the director of conservation at the Scottish Wildlife Trust.

Grant Moir (Cairngorms National Park Authority): I am the chief executive of the Cairngorms National Park Authority.

Michael Russell: I am the MSP for Argyll and Bute.

Alex Fergusson: I am the MSP for Galloway and West Dumfries.

Dr Derek Robeson (Tweed Forum): I am from the Tweed Forum, and I work on integrated land and water management projects.

Jim Hume: I am an MSP for South Scotland.

Sue Marrs (Scottish Natural Heritage): I am from Scottish Natural Heritage, and I work in trends and indicators advice.

Angus MacDonald (Falkirk East) (SNP): I am the MSP for Falkirk East.

Chris Nixon (Forest Enterprise Scotland): I am the environment manager with Forest Enterprise Scotland.

Graeme Dey: I am the MSP for Angus South.

The Convener: I am the convener and the MSP for Caithness, Sutherland and Ross.

I will kick off with a general question. There is a degree of concern—I should not say "gloom"—in the tenor of discussions about the ability to reach targets and so on by 2020. I would like to know what the panel thinks about the current work on the biodiversity targets and the challenge that Scotland faces in meeting them. Are we on course to meet our targets? If not, why not?

Dr Robeson: We are probably not on target to meet our biodiversity challenges for a number of reasons. We work a lot with farmers and landowners in the Borders countryside, and we see real willingness to meet the biodiversity challenges and targets ahead. However, they all feel that the incentives are not necessarily there, and the process needs to be driven by incentivisation as much as anything else. They are willing and keen to do the biodiversity work, but the incentives need to be there and they need to work in collaboration. The collaboration element of the delivery of biodiversity targets in the wider countryside needs to be brought more to the fore, and that depends on having a healthy, efficient and workable advisory service. We feel that facilitation to help those farmers and land managers to deliver on those targets would be a real boost. Incentivisation and advice would be a real boost to delivery.

The Convener: Do you accept that the greening proposals in the common agricultural policy, for example, are a major incentive that is funded?

Dr Robeson: The proposals are good as far as they go, but, in truth, they do not go far enough. Most people would recognise that they will probably not deliver the step change on biodiversity that we are looking for. They are good, but we need more choice.

The Convener: We will get some views from other parts of Scotland, but Michael Russell has a supplementary question.

Michael Russell: What we just heard from Derek Robeson gets immediately to the nub of the matter. Incentivisation is all very well, but surely there is an imperative for everybody who is involved in working in the environment to ensure that it continues to exist in the most healthy way possible. That is a core part of anybody's business or activity. The fact that people expect to be paid—and to be paid always—to do the things that they have to do to allow them to continue their activity strikes me as quite an important part of the issue. The state will not always be able to pay for those things to be done, but it is important that they continue to be done. When do we ingest those things as part of our core activity instead of expecting them to be added on with something extra being given for them? That is a key question.

Rob Brooker: During Scottish environment week, there was a very interesting lunchtime seminar in the Parliament on agro-ecology and the benefits that biodiversity can bring to food production systems. We are starting to see the opportunities that might come from reintegrating biodiversity into the system.

A lot of intensive management systems maintain food production while soil biodiversity, for example, declines. However, if we are looking at a more variable climate, moving through time, or at the loss of pollinators from the system, which we are seeing in many places at present, we can start to look at the broader benefits from biodiversity in agricultural systems. From there, we can start to calculate how to offset the potential costs of switching to a more sustainable management opportunity.

A lot of work is being done in that area at present. One of the big challenges lies in linking up the people who need to know the information with the people who are doing research in those areas and are trying to implement it. That is a major challenge at the moment.

Michael Russell: If we were starting afresh on the matter—if we were starting from nowhere—there would be at least an argument that we could fine people for not operating in an environmentally sustainable way. I am not saying that we should do that, but we could turn the question on its head and say that people arriving from another planet would think it rather odd that we are paying people to save the planet when, in fact, we should be trying to stop them destroying the planet.

Rob Brooker: Well, yes, one might say that. It is not unreasonable. That brings us back to the incentive structures that are in place. Historically, the systems that have been promoted have been highly productive in achieving the single outcome of food production and we have not looked more widely at the other benefits that farming can bring. The change that is needed will involve switching from one way of incentivising people to another and looking at the broader benefits.

Grant Moir: I am not sure that the issue is just about Government incentives, agri-environment payments and things like that. It is a question of what our priorities are. For example, there is a pay-off from peatland restoration in the uplands, as Scottish Water might have to do less to clean the water further downstream. There are flood prevention benefits and a range of other things. The question is about where we are putting money to do what and why. Do we build things to clean water downstream or do we pay for that in the

uplands? There are choices that we have to make as a country about where we put our money.

The issue is not so much the incentive regime that we have through the CAP and all the rest of it but whether we want to put some of our infrastructure money and other funding into things that we would probably place on the softer side rather than the harder side of engineering. We could do an awful lot more work in the uplands. Looking at other countries around the world, we see some fantastic examples of natural flood management systems in which huge amounts of money were put into the uplands for certain things that have led to great benefits for cities further downstream. There is more work to be done on that in Scotland given where we currently are.

Simon Jones: I agree that incentives are not the only tool in the armoury. Regulation has a role to play, too, although it should ideally be as light touch as possible.

Going back to Mike Russell's original question, I agree with Derek Robeson that we are currently not on track to hit all the targets. We have taken steps in the right direction and a lot of good work has been focused on the process of the biodiversity strategy and the challenge, but we are now starting to question whether the implementation is right.

Underlying the implementation, as well as incentive and regulation, is a clear and compelling vision. We need everybody to be crystal clear on where we want to go, which means illustrating where Scotland wants to be with regard to its biodiversity. We have good messages in that regard, but providing clarity for landowners, local authorities and stakeholders should involve giving them good illustrations and comparisons to show them where we want to move to by 2020.

The Convener: We have heard about vision. Does anyone else wish to speak? We will come back to Derek Robeson in a minute, because he bravely kicked off a good debate.

Chris Nixon: I will pick up the points about the focus of work on biodiversity and the integration of different land uses and neighbours to focus effort. There are occasions when work is undertaken for biodiversity in a way that is perhaps not as well integrated as it could be, which leads to inefficiency. It is important to encourage integration in the structures that support the achievement of the goals.

James Davidson: Considerable progress is being made towards the achievement of biodiversity targets and a number of sectors are well engaged. The public sector is well engaged, and land managers and farmers, for example, are engaged through incentives, rules and regulations. The public are perhaps becoming increasingly engaged, too, although there is still quite a way to go.

However, there are actors who are missing from the debate. There are many private business good-news stories, but there is quite a gap in private business and private enterprise, beyond the land management and primary production sectors, being involved and being aware of their impacts on biodiversity and what they can do to improve biodiversity's lot. We need to consider undertaking further targeted effort to engage private businesses in the process and unlock the good work that they could do for biodiversity.

Sue Marrs: In our 2010 report on the state of biodiversity, we acknowledged that we have made good progress, but nobody hit the 2010 target of halting biodiversity loss, which is very challenging.

We need to move away from looking at individual species and habitats and towards a joined-up ecosystems approach to how we manage our whole countryside. We can see such an approach coming through in the Aberdeen pilot, the land use strategy and that type of work. Scotland is doing really good work in that direction and I would like that to continue.

We are making progress, but there is still a lot to do.

The Convener: That is a good start. We have the context of a vision and how we articulate that, but we must also recognise that there is a wider approach to systems and ecosystems.

We will dig into some of the questions now. Before I ask what was going to be our second question, Graeme Dey will ask question 10, which follows on from what has been said.

Graeme Dey: Is there a clear enough understanding of where the responsibility for delivery on biodiversity lies? Is the mainstreaming of biodiversity throughout Scottish Government departments, local authorities and other public bodies happening to a sufficient degree?

Grant Moir: I can speak about the Cairngorms. In the Cairngorms national park, there is a wide partnership behind Cairngorms nature, which covers the whole range of people in the public sector, the private sector, non-governmental organisations and so on who are involved. We have taken the targets from the 2020 strategy and have asked what the targets are in the Cairngorms and how we will deliver them. What we have to do is pretty clear, but we must ask how we will do it. We have targets of 2,000 hectares of peatland restoration and 5,000 hectares of native woodland expansion. It is a case of going out, talking with people and making things happen on the ground at a landscape scale.

I think that the approach works in parts of Scotland where we have good spatially defined priorities. The land use strategy pilots show that. Where we have taken stuff at a national level, focused down and said, "This is what we've got to do here," that has worked. It gets a little tricky where it is more about just implementing the national targets. I can talk only about the Cairngorms specifically and Loch Lomond a bit, but there is a good way of bringing everyone together in those places and that model could potentially be used in other places—it is not applicable only to the national parks.

The Convener: Is the Tweed Forum a bit like that?

10:15

Dr Robeson: We are. We work at a local level in a partnership.

The promotion of biodiversity must run on three levels. There is the ethical and moral argument that we should all do it because it is the right thing to do, and there is the cross-compliance argument—the regulatory argument. However, money is often a key objective, and if money is tight we need to start targeting. Like Aberdeenshire Council, we in the Scottish Borders are working on the land use strategy pilot. We have target maps that are indicative of where work could be done. The best way to go is probably in trying to work with partners in those areas to deliver the objectives.

We need to target resources, work in partnerships, use local forums to provide for those partnerships and ring fence budgets regionally so that local priorities can be set. National targets need to come down to local targets that are addressed locally. That model would probably work better.

Grant Moir: Across the Cairngorms nature partnership, we have done a lot of work on native woodland expansion in the Cairngorms national park. On the back of that, we have produced targeting maps that the Forestry Commission has used to develop incentives of an extra 10 per cent on the payment rates for the places in the park where we want native woodlands to be expanded. That is a way of using the information that we have collected across the partnership to influence the incentives, and it is a good example of the public sector joining up to try to achieve the biodiversity targets.

Simon Jones: It is easy to say that achieving the targets is down to everybody and that it is everyone's responsibility. That is true, of course, but the Government and its agencies must lead by example.

On the way here this morning, I talked with Chris Nixon about the importance of big data and remote sensing and how, in the future, if we are talking about biodiversity and natural resources on a landscape scale, we will really need an eagle's-eye view—a view from above. Continued investment in big data and remote sensing can help us to lead the way and can provide the data on which to make the decisions.

On the ground, delivery and responsibility rest rightly at the catchment scale—that is the effective planning unit. We can examine water quality at a catchment scale, and a lot has been achieved on that basis. Could deer management groups evolve to be land and water management groups operating at catchment level? That would enable us to involve whoever we need to involve from among local stakeholders, agencies and Government at an appropriate scale.

The grass roots are very important, but let us not lose the emphasis on the need for the Government and agencies to lead the approach.

Rob Brooker: In the Scottish biodiversity strategy, "2020 Challenge for Scotland's Biodiversity", a lot of the focus was on picking priority areas for action and co-ordinating work across agencies. That is why the system health indicators have been developed, and they are explicitly downscalable so that it is possible to focus activities collectively in certain areas.

A large part of the research that is proposed under the next strategic research programme is to develop better indicators for focusing action and mechanisms for bringing people together to work collectively. Therefore, the idea of focusing resources and effort on priority areas is a key part of both the existing documentation and the work that will be done in the future.

James Davidson: In the Cairngorms, there is Cairngorms nature; in north-east Scotland, we have the north-east Scotland biodiversity partnership—in essence, our local biodiversity action planning process—which does a tremendous amount of good work. However, there is a bit of a disconnect between the national biodiversity process and local biodiversity action plans. That relationship needs to be strengthened and a bit more direction needs to come from the national process down to the local biodiversity action planning process.

Sue Marrs: Many of the reporting mechanisms that we have used up to now have been at the national level because that is the level at which we have the best data set. However, that makes it difficult to lead into action on the ground, as James Davidson says. That is why we are developing smaller-resolution indicators—the national ecosystem health indicators and others—

that will enable us to look at things at a local level and see what is actually happening in specific areas. We can then move away from looking at a more general picture of Scotland, which is a hugely diverse country, and see what we can actually do on the ground and where we can focus effort.

The Convener: Are we close to being able to provide river catchment area indicators, for example?

Sue Marrs: There is still quite a lot of work to do, I am afraid.

The Convener: Is that possibly years ahead?

Sue Marrs: We are possibly a distance away from producing indicators. However, there are a lot of initiatives around Scotland where people know what needs to be done—for example, the land use strategy trials in the national parks. People know what needs to be done there.

Chris Nixon: Regarding the need to have a good understanding of sites and priorities, on the national forest estate we have undertaken quite large survey programmes that look at such things as open habitats. We also recently had the native woodland survey of Scotland, which produced quite significant data sets and information that is extremely valuable and useful for our targeting efforts. There needs to be a fair degree of focus on gathering the information that will enable us to target our efforts effectively.

The Convener: That is a lot of information. I am going to leave Mike Russell's question until a little later, when we have time to follow up.

The next question is about the landscape-scale projects, their impact on ecological health and the lessons that can be learned from them. Is there evidence that such projects are making a real difference to biodiversity in Scotland? I know from the Coigach-Assynt living landscape project in my constituency, which is in its infancy, that there is a 50-year time horizon. Will such projects be capable of both delivering targets and actually making a difference to biodiversity at the same time? Who wants to kick off on landscape-scale projects?

Simon Jones: I will, since the Scottish Wildlife Trust is a main partner in the Coigach-Assynt living landscape project.

To go back to the data issue, I think that we need to be better at data, although there is a lot out there already. What the local scale gives us is an understanding of how local people's lives are directly affected and how they see the delivery of the 2020 challenge at the local level—although the 2020 challenge means nothing to the residents of Coigach and Assynt; they do not particularly give a stuff about it. What they want to know is how, through woodland expansion, they might be able to still make a living off the land economically while not continuing to degrade the ecosystems in the area.

The point is that it is a slow burner. With the right level of support—woodland expansion is a good example in the north-west and in Coigach and Assynt—a targeted resource can make a big difference in quite a short time. The process of getting everybody together and building up respect among the various stakeholders is what takes the longest period of time.

In terms of action on the ground, there are some quick wins if we deal with some of the key threats. I believe that the 2020 challenge needs to be clearer in its messaging about the key threats that we need to overcome if we are to start making significant catchment-level biodiversity improvements.

The Convener: That is just one area, but the involvement of the human element in the whole process is what attracts me to the living landscape: it is a landscape in which humans are needed in order for there to be any proper biodiversity. If the communities are fragile, the way in which we use the resources of nature has to be targeted in order to make sure that there will be humans there in the next 50 years to take these things forward.

You say that initially people are perhaps not looking at what might happen in that timeframe. Is the idea of people being able to continue to make a living in that landscape being built in enough to how we see biodiversity at that landscape scale, so that people feel ownership of it?

Simon Jones: We perhaps need to challenge some of our wide-scale management and land use cultures. A successful future, particularly in the uplands and on the coast, is built on successful communities. There are resources in those areas that need to be used. We would like more sympathetic management. Rather than monocultural approaches to forestry, agriculture, fishery and farming, we need more integration so that there is still a healthy hunting industry and a healthy farming industry, for example, but there is much more integration between them. The Scotland rural development programme, through a process of evolution, needs to reflect that different management approach through incentives, which we have talked about.

If we want to see the landscape change while still supporting people and bringing ecosystem benefits, we need to incentivise a shift in the management approach. The SRDP has an important role to play in that shift because people will always look for the pound sign connected to any reason why they should change their current

activity. Trawler fishermen, creel fishermen, foresters and hunters are good examples.

Sue Marrs: As the convener said, one of the advantages of the ecosystems approach is that it has people very much as part of the environment rather than treating humans and the environment as separate entities. That approach acknowledges that we are part of the process. When we are working on landscape-scale projects, we really need to bring members of the public on board. We need to communicate why it is important that the number of farmland waders is going down and why that should matter to individuals.

To go back to the discussion about polythene bags, it is about bringing about behavioural change and getting people to take the time to acknowledge that, by looking after their environment, they are also looking after themselves and their future.

Graeme Dey: Of course, the thing about carrier bags is that people are now being charged for them, which perhaps goes back to Mike Russell's earlier point about fining people. Simon Jones mentioned the pound sign coming into play. Would it not come into play in the form of penalties for people who did not do the right things in relation to biodiversity?

Simon Jones: Personally, I still think that regulation should be light touch. We can reach a point where penalties are useful but, in some respects, we have lost the argument at that point. If people do not understand the real value of natural capital—if they have still not got it—we are not doing a good enough job of telling them about how important it is. Penalties come after the education process.

Sue Marrs makes a good point. The sensible unit for engaging with local people on why biodiversity matters to them is still the local catchment, whether that is the deer management group, the village or the living landscape, because that really matters to those people, who might not be interested in Government strategy.

Grant Moir: That is fairly crucial to all of this. My general feeling is that, over the past 20 years, we have reached a point where we have got a lot of the low-hanging fruit that is associated with biodiversity and we have done a lot of good work on the fringes of a lot of the big issues.

If we are going to meet the targets that are set for us in the 2020 challenge—and beyond, into the long-term 50-year time horizons—we get into the really tricky issues that we have all talked about for many years but have not quite nailed, such as deer management, upland grouse management, where development should go and so on. There is a whole range of things. For example, how do we integrate agriculture and forestry? We continue to talk about that and we all think that integration is a good idea, but we continue to struggle to do it.

The real big gains will happen when we tackle some of the really big, tricky issues—at the landscape scale, and by involving people, too. When we look at the priorities and at where people have their businesses and how they are set up, that will mean change that people will not necessarily want to make. How do we make things happen if people do not want to do them and if the change is not being led by incentives? There are some pretty tricky questions for Government, non-governmental organisations and us all about the things that we have to put in place. I agree that it is about convincing people to change, but there is a point at which we have to ask how we move on if they are not changing.

10:30

The Convener: We are moving from a voluntary carbon audit of farms to a compulsory one—that has been agreed in the current CAP round. We are saying that we have to move in that direction to deal with carbon output. We also need to move in that direction with landscape use, whether for farming or forestry. Incentives are one side of it, but there are imperatives for the climate and biodiversity. We need to take into account those objective factors.

Dr Robeson: On the point about bringing people along in the process, biodiversity is about habitat and species management, but it is also about people management. People have to come along on the journey.

Through the land use strategy that we have been working on with the University of Dundee and Scottish Borders Council, we have been going into the sub-catchments and up the valleys of the River Tweed, and we have been sitting down with the farmers and stakeholders in the wider community. We speak to them about their problems and issues, and about the challenges and opportunities for future land use in those valleys, and we have been really encouraged.

Getting people on board with biodiversity is fundamental. The solutions will come from the ground up and from the people who live and work in the valleys and have to deal with land use there. Everyone involved in forestry, farming, conservation and all the other challenges and drivers all need to find and work on local solutions. The incentives and mechanisms have to come from above, but delivery has to come from the local areas. The solutions are there, but the incentives also have to be there if the solutions are going to be followed through.

Chris Nixon: I support that point. I want to raise the co-ordination and timing of action in engaging

people. An example that we are heavily involved in on the national forest estate is the control of rhododendron, which is an invasive species. We have a large programme on the national forest estate and there are large programmes happening elsewhere, but if they are not co-ordinated and timed in a way that avoids re-invasion of rhododendron, a lot of the effort will be lost. Engaging people at a landscape level, and co-ordinating effort and its timing can be important.

The Convener: It would be interesting to ask who is monitoring the fires at the rhododendron clearance in some parts of my west coast constituency.

Rob Brooker: From the research perspective, we are in a much better place than we were four or five years ago in relation to how we handle some of the issues. The focus on the ecosystem approach has brought together a range of different research areas, with ecologists working with environmental economists and social scientists.

We have a much better understanding of the breadth of benefits that we get from capital in the environment and the challenges around managing things. We are starting to view systems that ecologists would see as collections of organisms but which we now talk about as joined socio-ecological systems. People are part of the environment, and that is key to management discussions.

Our challenge now is to continue those discussions. Land use pilots have been brilliant in bringing together a whole suite of people, including researchers, to talk to land managers and look for ways forward. I chair the science and technical group for the SPS and we run a biodiversity science conference. Some of the feedback about that is that it is one of the few fora for land managers, policy people and researchers. It is almost less about the presentations and more about the networking opportunities. That is where we could benefit. A centre of expertise on these systems could be a forum for bringing people together.

We are developing conservation conflict resolution techniques, for example—techniques to get everybody together in a room to speak to one another and find a way to manage the environment in a way that benefits the people who have to live in it.

From a research point of view, we are in a good place. The key thing now is to make the links between different people who need help and information.

The Convener: How does that relate to community planning partnerships?

Rob Brooker: Ecologists need to make better connections with the planners. The land use pilots have provided a great opportunity to do that and to test that out.

Part of the work that is proposed for the next strategic research programme involves biodiversity offsetting, and that will clearly have to link through to the planning system. That is an area where we need to develop better communications and understand the problems better.

The Convener: James Davidson is perhaps involved in Aberdeenshire.

James Davidson: You are right. I observe that the harder-to-reach fruit that Grant Moir outlined—renewables, upland management and the integration of forestry and farming—were the work of pilots in many ways, and they are challenging rural land management issues.

I will not pretend that we have come up with all the answers, and I do not think that Derek Robeson would either, but we have found that there is a really strong and genuine appetite for integration. People assume that there is hostility between different sectoral interests, but I say again that there is genuinely an appetite for integration. We have found that there can be real benefits in pursuing that.

There are also real benefits in being more spatially explicit about where we expect things to happen—about where things can happen to deliver maximum benefit and about certain areas where they would deliver disbenefits. We have started to do that in both land use strategy pilot areas. That is a direction that we need to pursue.

You mentioned community planning, convener, and I will move on to that. We have had a little bit of involvement in it through the pilot. We note that people do not have as close an eye on the environment as they might. The indicators that are used in community planning are social and economic; there is not quite such a focus on environmental indicators. There is an open door there, and we are starting to pursue things in Aberdeenshire so that we get people to have a closer eye on environmental issues, alongside the very important social and economic indicators that they have to deal with.

The Convener: That is interesting. Viewed in a historical sense, it is understandable why that went off-beam, given how community planning partnerships were set up. I will not go into that just now, however; I will do so another time—at great length.

Sarah Boyack: A few things have been said about local involvement, getting the scale right and getting people to network and commit to delivering

biodiversity, or to understanding what we need to do to deliver it. Most, but not all, local authorities have biodiversity action plans—25 of them do, I think. Two pilots have been carried out, and they have come up with good ideas. There are also local authority development plans.

We have lots of different tools that could address some of the problems that have been identified, such as habitat loss and inappropriate development. Who should be the key player to lead on this? My question goes back to identifying who is meant to be pushing the strategy. Do the pilots tell us what you need to do to make it work? How much will that cost?

James Davidson: As you say, we have ideas. The interesting thing is that involvement in the pilot has encompassed a really broad church. In many ways, it is quite difficult for us to push a single idea forward, as we represent such a diverse range of views.

We have mechanisms in place. You mentioned local development planning, but there is also strategic development planning on a wider scale, and there are local biodiversity action plans. Our focus has been explicitly on rural land management.

I still believe that there is an oversight gap across the rural land management piece. I am thinking of a forum where people can come together to discuss the issues, and where some sort of direction could be given. We could create something very high level. The process is like local development planning, local biodiversity action planning, catchment management planning, natural flood management planning and forestry planning, so we could grab hold of an issue and say that it looks like a priority or we could say that it looks undesirable, and we could move forward from there. There is still a gap where there could be something overarching.

The Convener: We will hear from Simon Jones next, before Dave Thompson moves the questions forward.

Simon Jones: Thanks, convener. Apologies; I feel like have been talking a lot. You asked us in to talk and you probably regret it already.

We have hit the nail on the head by talking about the local level. What is the cost of making the changes? How should we transition to the different situation that we want? We are not going to make big steps in ecosystem restoration unless we address some of the big key threats, as Grant Moir said. We are talking about muirburn, grouse management, as it currently exists, and the threat of deer. If we do not find a fundamental way of dealing with those big threats, certainly in the uplands, we will not make big changes in ecosystems.

To go back to the compelling vision, if we decide what we want in those areas, through policy, natural capital valuation and regulation we can transition from where we are to where we want to be. The pilots—the living landscapes and futurescapes—have been useful, but we must drive forward the message that the status quo will not keep our ecosystems and biodiversity in a good enough state. We need to transition to a different way in many areas.

Sue Marrs: As others were speaking, I was reflecting on the fact that although we can ask how much it costs to put processes in place, we must ask how much it will cost us not to do that kind of work. That might be a more challenging question. If land management is not integrated, lowland flooding can occur because the uplands are not in good condition, for example. There is a cost of doing stuff, but there is also a cost of not doing stuff, which is an important nettle to grasp.

The Convener: We will move the discussion forward a bit. We will look at some of the details of upland management and so on later, but Dave Thompson wants to take up a point that Rob Brooker raised.

Dave Thompson: The discussion has been very interesting. We do want to hear you talk, Simon Jones, and the more you talk, the better.

Simon Jones mentioned local action on biodiversity, but what we have been talking about up until now are crofts, farms and estates. We should look at the really local level when we consider how we deal with biodiversity.

If you look at the natural capital asset index graph, you see that back in 1950, one year after I was born, the score was very high and by 2010 it had halved. I would be interested to know whether it has improved since 2010, because that was five years ago; I do not know whether Rob Brooker or anyone else can help us with that.

My second point is perhaps more important. I was born in a house in Moray Street in Lossiemouth that had a bit of ground behind it. That had been planned by the burghers of Elgin when they built that new part of Lossiemouth. The piece of land was 60 feet wide and 180 feet back to the next street. Every house in that area had a piece of land that was exactly the same. That was put in place quite deliberately, to allow people to grow their own food, keep chickens and all the rest of it.

Our garden was full. My father was a baker, and he would start work at 3 in the morning, come home at midday, when he would have a wee snooze, and then he would go out to work his garden in the afternoon and evening. He grew lots of stuff, as did many of our neighbours.

That would have added considerably to the high natural capital value in 1950, because lots of people were doing that, not just farmers, crofters and estate owners. We need to get back to having that kind of effect again. The way to do it, which I would value comment on, is to get youngsters interested in gardening and horticulture at an early age.

That is a real problem at the moment. There is a fantastic little unit out at Aonach Mòr, the Lochaber Rural Education Trust, which is run by Isabel and Linda Campbell. They take youngsters and school groups out and get them interested in growing things and animals and so on. That charitable organisation struggles to get any kind of funding. We have been trying to help, but we just cannot source any funding. If they cannot get funding, they will have to close down. There is lots of money out there under the SRDP. Maybe it is not as much as everyone would like and there are big cuts, but why are we not diverting some of the funds down to the Lochaber Rural Education Trust and to schools that encourage youngsters to grow? If we can get people back to growing their own, even if it is only a hobby to get a better quality of vegetables, we would have a massive army of people across the country, and they would add to our natural capital asset.

10:45

I would like to know the panel's views on that. Perhaps you are at a different level and have not thought about the micro level, but I would appreciate hearing your views. Have things improved or got worse since 2010?

Rob Brooker: The natural capital asset index—I am looking at the graph—comes down from 118 to 100, which means that it dropped by about a fifth between 1950 and 2010. My understanding is that the situation has been relatively stable since that calculation was made, although there will be a revised version of the NCAI out this year, which will pull in new data and so be more robust.

On the issue of connecting kids with their environment, through gardening, for example, what we are seeing with the expansion of our thinking by taking the ecosystem approach is the importance of urban areas for a range of things. For example, the evidence is that, in some systems, it is the urban system that supports pollinator populations for crops, which is amazing. It is the pollinators that come out of the city into the surrounding countryside that keep those crops pollinated, which is because of the impact that we have had. It is partly about the benefits for the people living in those areas but also about the benefits for the wider environment.

There is more that we could do in getting biodiversity into green space. Green space work is often just about green space, but it could be about biodiversity as well. We are learning more about the health benefits of having green space and biodiversity in our cities. We know now that cultural ecosystem services are delivered by the interaction of people and their environment. They are so important around big urban areas, so it is critical that we start making the link. That may ultimately lead to wider support for biodiversity conservation throughout the Scottish environment.

I completely agree that we should be talking to kids and enthusing them.

Dave Thompson: Would you be in favour of some of the finance being pushed down to that lower level? I know that it is limited at the moment, but would that be a good thing for the Government to consider?

Rob Brooker: It is not really my area of expertise. Personally, I think that it would be great if we were to support things that gave kids a chance to connect to their environment and care about it. Gardening is a great way of doing that.

This week is science week, so I am going into a primary school on Friday to talk to the kids about how we measure ecology and the environment and to try to get some enthusiasm. It is all around them, but some of them just do not see it, which amazes me.

The Convener: I hope that, nowadays, we get a different attitude to certain of the chemicals that people used in their gardens in 1950. [*Laughter*.]

Dave Thompson: I saw Derek Robeson nodding his head. Do you agree with that, Derek?

Dr Robeson: I would back up Dave Thompson's point. It is fundamental. I cannot say what has happened since 2010 but, over the past two generations, the urban community and children have lost touch with the environment. In the Borders, we are finding that, even in the schools in the small towns, the children are beginning to lose touch with the countryside—even the country kids are losing touch with the countryside.

We have to start investing in our children and their education on how the land functions and how land use and wildlife is involved in that. There is a huge need for an educational role. I echo Dave Thompson's point and would welcome funding for that.

Grant Moir: I often hear people talk about the disconnect between young people and the environment and it sometimes feels as if everything is doom and gloom, but there are also an awful lot of young folk who are incredibly

connected to the environment and an awful lot of good work is being done.

The Cairngorms National Park Authority runs the John Muir award scheme. This year, we will put our 25,000th child through that scheme, which accounts for a quarter of all the awards in Scotland. I know that the Forestry Commission is involved in schools, and every school in the national park is visited and is given access to educational programmes. We do lots of outreach work. A huge amount is going on. Is it as well co-ordinated as it should be? There is possibly work to be done to ensure that we get that spread across Scotland. Are urban areas important? Absolutely.

Saying that children are disconnected and that we need to do something about it is a classic line to take, but I think that an awful lot of folk are incredibly connected and have opinions about climate change and so on that would probably put a lot of us to shame. I think that young people in schools have a greater understanding of biodiversity than we might think.

Sue Marrs: One thing that we find challenging is being able to assess the quality of green space in our cities and towns. It is important that we have green space, and we have some good maps of the extent of the green space area, but it is hard to assess the quality of that green space in terms of biodiversity. That is quite a tricky nut to crack and I would like to get more information on that.

If we can get people to produce gardens of flowers rather than gravel and to have proper grass instead of manicured lawns, that would be helpful. I am in danger of getting on my hobby horse here, but we need to get people to accept that nature is messy. Those green spaces are the way in which most people get their first contact with nature as children. It is where we get most of our contact with nature in our daily lives. The urban green space environment is a critical thing for us to think about.

Simon Jones: I agree with that. The issue of the quality of urban green space relates to the need to roll out the ecosystem health indicators. At an urban level, that is challenging, but we need to crack on with this because the issue has been floating around for a couple of years now. We need to have a unit so that we can understand issues such as the catchment scale and whether that will be at a city level. That will enable us to understand what we are measuring and what change we want to make.

On education, I am mindful that Mike Russell and I have some previous experience in relation to beavers in education. I have two young daughters. One is at primary school and one is at high school. I agree with what Grant Moir said about young people. I do not need to worry about my daughters' enthusiasm and their general understanding of their impact on the planet, but I am constantly frustrated by an education system that locks them inside and does not let them get outside to get hands-on experience of nature and get dirty so that they have a real connection with nature. Like it or not, more of us now live in cities than in rural areas. Even bearing in mind things like allotments, it is going to become harder and harder for children to become practically engaged with land management if it is not sufficiently built into their everyday experience. Every day, they should be getting outside and learning something outside, ideally in a way that gets their hands dirty. I do not see that that would be a problem for my children. I think that it is more of a problem for the teachers, who do not want to go outside and get wet and dirty. I am speaking from very personal experience, though.

Michael Russell: I was struck by what Dave Thompson said. I suppose that if I were to have regression therapy, I would get to the stage at which I would remember watching the sycamore trees outside my house being cut down when I was a very young child. The council had decreed that they should go because they were unsafe for traffic management. I suppose that that inculcated in me a particular love of trees, which I have never got over. Happily, I became forestry minister at one stage.

The point about children's contact with the environment and biodiversity is important. The picture is not gloomy, really. I have been to a forest school in Townhead, in the centre of Glasgow, which undertakes wonderful forest school activity in the park there. We have a higher proportion of eco-schools in Scotland than almost any other country in Europe, and biodiversity is part of that. The experience is varied, but biodiversity is part of that. The question is whether it is becoming a mainstream part of our education. If it is not, how do we make that happen?

For example, there are outdoor nurseries in which the whole work of the nursery is outdoors. I have supported—and I continue to support—outdoor primaries, where primary 1 and 2 are delivered out of doors. The issue for the committee is whether a structure is in place that allows the environmental experience to be mainstreamed and whether that includes biodiversity. When we look at the Government's biodiversity plan, we might want to ensure that education and involvement of children are part of it.

Dave Thompson: I support what Mike Russell has just said.

One difficulty in the urban context is that we have created a situation in this country in which a

house is an asset that people gamble with and invest in, rather than a home. That has pushed up land values. Of course, that has happened for other reasons such as planning issues, land banking and people holding on to big bits of ground. There is no shortage of land in the Highlands, but land values are massive. Therefore, we have situations in which a builder gets a plot of land and shoves 20 houses on it with gardens the size of a postage stamp, so even if people want to grow their own, they cannot. The cost of land in relation to the cost of housing has been pushed up by the way in which our society has developed over the past 20 or 30 years, in which a house is an investment and not a home. That does not help.

Obviously, there are ways in which that could be dealt with, but it is probably not within the committee's remit to delve into that. These days, people do not get a house such as the one that I was born in with a 60-foot by 180-foot bit of ground to allow them to grow their own, unless they buy a croft. The planning system prevents farmers in places such as Glen Urquhart from giving a bit of land to a youngster to build a house, because the planners want all the houses to be clumped together down in Drumnadrochit. There are lots of things that militate against better use of land from an environmental and biodiversity point of view.

The Convener: We have been talking about those issues in relation to the Community Empowerment (Scotland) Bill and will continue to do so in relation to the consultation on land reform and the forthcoming bill on that. Those issues are very much a part of the discussion.

Talking about land at great prices owned by few people, we move on to invasive non-native species.

Michael Russell: I am not quite sure what the link is, convener.

I want to ask about non-native species and disease. Although they are part of the gloomy story that we have talked about, they are important issues. I am aware of the work that has been done on the Tweed in relation to non-native species and of the fact that considerable work still requires to be done on Loch Ken and its surrounding waters. Many of us who have struggled with that issue for years believe that the time has come for fairly dramatic action.

I ask the witnesses to address two issues. First, is the issue of non-native species still a priority, or should we be more relaxed about it because those species are here to stay, there is not much that we can do about them and some of the definitions are curious? Secondly, how can we cope with climate change and the importation of disease? There is probably more experience of that in forestry than elsewhere. What might lie ahead?

Chris Nixon: On invasive species, I mentioned our work on rhododendron. It is a good example, as we have now identified a huge area—almost 30,000 hectares—of rhododendron-dominated woodland on the national forest estate. Obviously, that has a huge impact on biodiversity and particularly the condition of native woodlands. We have a large programme of treatment, and we have now treated slightly more than 10,000 hectares, which is just over a third. It is a large programme and a lot of effort is going into it. Its sheer scale indicates the seriousness of the issue. Were we to retract from it, there would be serious implications not just for the biodiversity and the status of designated sites but for biodiversity in general. We must maintain a strong focus on the issue.

11:00

On forest or tree health, being able to monitor and react to new and emerging threats is key. That requires a focus not only on import controls and ensuring that there is effective hygiene at ports but on maintaining vigilance in the forest and being able to assess and act when new or emerging threats come about.

Michael Russell: A new Edinburgh company called Global Surface Intelligence is doing forest-scale mapping and surveying activities by satellite. That would seem to provide some solutions for at least monitoring the spread of disease. I do not think that the commission is using those tools, but are they under consideration?

Chris Nixon: That is being pursued. There are questions about access to sufficient data and the resources to put in place a programme for light detection and ranging—LIDAR—data, for example. That would potentially allow forest and other habitat condition to be monitored over time on a broad scale. Investment in the programme of remote sensing is an issue.

Michael Russell: There are satellite passes that give publicly available information on a weekly or 10-day basis. Therefore, we can quite quickly build up an interesting picture of change, although the data processing is enormous. Some of that pioneering work is being done in Edinburgh. The commission should probably show an interest in it.

Chris Nixon: We are showing an interest in it in relation to the development of the national forest inventory.

Michael Russell: Good.

Chris Nixon: I agree that it is certainly an area in which the potential use of such data should continue to be investigated.

Michael Russell: I wonder about the Tweed experience, Dr Robeson, because you had a successful experience in what appeared to be a hopeless case.

Dr Robeson: Yes, indeed. Over the past 15 years, the Tweed Forum has been working with landowners and farmers to tackle and control giant hogweed and Japanese knotweed. Those weeds were rife in the whole river system 15 years ago; now, you would be hard pressed to find a decent patch anywhere—the weeds are there, but only in small patches.

Now that we have made those gains, it is important to keep the control going and to keep on top of the situation. That requires a co-ordinated approach. The only realistic way of doing that is to encourage farmers and landowners to do it on their patches of land and to put in collaborative bids to the Scottish rural development programme for funding to tackle the matter across the wider catchment. Tackling the weeds requires on-going funding, maintenance, co-ordination and facilitation. That is fundamental because, having made huge gains, were we to take the foot off the pedal, the weeds would come back again.

Chris Nixon: I strongly agree with Derek Robeson. Considerable effort and expense is put in to controlling some of the invasive species. That co-ordinated effort is absolutely crucial in order to avoid circumstances in which that effort is negated by spread from neighbouring land where such operations are not being undertaken.

Rob Brooker: I have a couple of brief points. Invasive non-native species are a priority and need to be tackled in some areas. For example, mink are having an impact on water vole populations in the Highlands. However, the mink control programme is a great example of how a co-ordinated approach involving land managers, researchers and the general public can have a positive benefit. It is a great example of citizen science—people have learned so much about ecology from participating in that programme.

The diseases and pests that are coming into the system emphasise the need to keep a flexible research base. I was recently involved in a piece of work for the Joint Nature Conservation Committee in which we looked at the potential consequences of ash dieback. Because we had a team of researchers in place at that time, we could quickly get out a response on the likely ecological consequences. That is important.

Another piece of research work that is related to disease influx is that on integrated pest management. We are starting to learn about the importance of maintaining biodiversity in production systems, whether they are forestry or crop systems, and of keeping diversity not just in the kinds of crop but in the genetic diversity of the crops. That can have major benefits in controlling disease spread through systems. We are starting to understand that a lot better.

We have new knowledge that will help us to cope with the diseases that are coming through climate change, but maintaining a flexible research base that can respond quickly and help with monitoring is critical.

Grant Moir: Invasive non-native species are an incredibly important issue. The trickiest bit is the on-going funding. Scaling up what the Tweed Forum is doing and looking at all the non-native species that we have to deal with across a huge range of areas, how much funding would we need to keep on going? People might be able to get money to start things, but the bill for on-going work to ensure that something does not come back or is kept in check will keep on going; it will not disappear in the future. How can we afford that? That is a pretty tricky question, and we have not quite cracked how to do that. We must have a good think about that before we continue.

I suppose that it is a bit of a triage system. There are some things that we will live with and just accept in the system, some things that we will want to keep where they are, so we will have to invest money to try to do that, and some things that we will have to try to eradicate because they have just arrived and doing that is worth while. We have to be pretty practical about the matter.

The issue is one of the things in biodiversity that are relatively easy to get communities and volunteers involved in. People genuinely want to get rid of invasive species in their local communities, and that has worked well in some places—there have been some really good volunteer programmes to eradicate stuff. However, there is an issue about on-going funding to do that in the long term. We cannot just keep on putting money into the system.

Michael Russell: Sometimes something can be turned into an advantage or a business for a community. Alex Fergusson and I made a great effort on crayfish at one stage. They could have been a resource for the community, but it was rather difficult to persuade a number of people that they should be.

There are interesting projects in which rhododendron wood is being used for a variety of purposes, including to make biofuel. If that is a possibility, there will be a virtuous circle. I am not sure what can be done with giant hogweed, but I presume that the intelligence and inventiveness of man and woman will produce some result at some stage. It is a matter of trying to take that approach in some way.

I entirely agree with Mr Moir. It is not sustainable in any sense of the word to go on culling rhododendrons in Argyll and Bute. People could spend their entire life doing that and they would not succeed. That would be the task of Sisyphus.

Simon Jones: I want to follow on from what Grant Moir said.

As somebody who oversees the saving Scotland's red squirrels project, I am aware of what an on-going battle that can be and of how important that is to the people and the business of Scotland.

I will go out on a limb. Undoubtedly, certain invasive species are key threats, and it is still best decided at a catchment level where we should put in our resources, but I would not prioritise that above things that I think are more important, such as national ecological networks. If there are hard decisions to be made about money, although invasive non-native species are very important at local levels, we should think about our overall resource, the restoration of ecosystems on a much bigger scale and more connection. In some instances, an invasive non-native problem can spread but, ultimately, if we increase habitat and ecosystem health, we will have a greater ability to dilute problems if we target action. Maybe I slightly differ from other witnesses on that but, if we have to make hard decisions, I think that there are other things in the challenge that are probably more important than invasive non-native species.

I am sure that my members will thank me for saying that.

Sue Marrs: I want to make a comment on reporting progress in tackling invasive non-native species to keep them under control, which we at SNH think is important.

One of the ecosystem health indicators that we are looking at is data on the distribution of various species. We want to be able to chart that over time and make the information available on the Scotland's environment website so that people have an interactive display of the change in the number and type of non-native species. That could help with situations in which people in one area focus their effort on eradicating a species and the guys round the corner do not. That is not a good way to spend money because, by their very nature, the invasive species just come back. By using that approach, we hope to be able to identify which areas we need to target and encourage people to get on board in getting rid of some invasive non-native species. We hope that that will give us the tools that we need to do such work.

It is also important that we are aware of new species on the horizon and of what makes an invasive non-native species invasive. We need to watch out and see what is there.

The Convener: Alex Fergusson has been waiting to comment for a while.

Alex Fergusson: Mike Russell mentioned Loch Ken. No one can mention Loch Ken without my wishing to say something about it, because it is right next door to where I live, never mind being right in the middle of my constituency.

We have a particular issue there with American signal crayfish. To follow on from what Simon Jones said about national priorities as opposed to local priorities, in Loch Ken, the ecosystem has been totally destroyed. There is no ecosystem left—it has been eaten and bored into by that invasive species. If I can simplify matters and parody the situation slightly, the response of SNH, which is the overarching body that can do something about the problem, has been to issue leaflets to visiting coarse fishermen that ask them to make sure that they wash their gear before they go home. That will not work, because fewer and fewer coarse fishermen are coming to Loch Ken because there are fewer and fewer coarse fish to catch because the ecosystem that sustains them has been destroyed.

That problem is going to get worse and worse. Eventually, if the current approach continues to be pursued, there will come a day when American signal crayfish cannot be called invasive or alien any more, because they will be in every waterway in Scotland and they will have become a natural species, as I believe they are south of the border.

I understand that there are all sorts of reasons for not issuing commercial licences, but the communities around the loch have a 100 per cent desire to get rid of these things. There could have been some sort of commercialisation. When Mike Russell was Minister for Environment, he very bravely explored some of those possibilities. I seem to remember that one or two of his civil servants acted even more bravely in questioning some of his decisions. That was extremely interesting.

I mention the Loch Ken situation as an example of the conflicts and dilemmas that we have in this area. There are huge local issues. I accept that, currently, that is not a national priority, but I argue that, unless we address the local issues and nip some of the problems in the bud, we will end up with a national problem.

Sarah Boyack: I want to follow up on the comments about the relationship between local and national priorities. Sue Marrs mentioned the SNH biodiversity report card. Can you say a bit more about how you see that being rolled out? You say that it will be on the web. I want to get a sense of whether it will be national or local. I would also like to get some feedback from the other

participants on how useful they think that report card could be.

Sue Marrs: The bit of work that I referred to was a set of ecosystem health indicators that will be rolled out on the web on a national scale. The biodiversity report card is a slightly different thing, but the health indicators and the report card are related.

As far as the report card is concerned, in the lead-up to 2020, we plan to report annually on our progress against each of the 20 Aichi targets to see how well we are getting on. We plan to produce that in November each year. We are thinking of providing that as a two-to-four-page summary document that will say where we are doing well and where we could do better. That will be backed up by a more robust referenced report so that people can see where we get the information from. It will not be based on opinion; it will be based on evidence from scientific literature, SNH-commissioned research reports and work that is going on around Scotland.

Each year, we will build up our evidence base. We hope that the report will allow us to target the action that we need to take and that, when we come to report for 2020, we will have a very good understanding of what we have been doing to reach the 20 Aichi targets.

The work is being done with the support of the science and technical group for the Scottish biodiversity strategy.

11:15

Sarah Boyack: How does that fit in with ecosystem health indicators?

Sue Marrs: We will draw on the information that the ecosystem health indicators contain to inform the report.

Sarah Boyack: One thing that has come out as being really important is the need not only to have the headline biodiversity ambition but to make it work at an ecosystem level so that people can see how they relate to each other.

Chris Nixon: To an extent, we are all wrestling with the terminology for the concepts of natural capital and ecosystems services and with how biodiversity fits into that broader consideration. There is a task for us all to try to work on those concepts and inject clarity into the way that achievements or the condition of the environment are reported on in future. Often, we see different interpretations of natural capital and ecosystem services. There is a job to do to create a common recognised language on those concepts that will lead to more clarity in reporting.

James Davidson: It is great to hear about the development of the indicators for ecosystem health and further development of the biodiversity indicators.

I will reflect on the experience of the Aberdeenshire pilot. We had to rapidly build up a picture of the state of our area. Admittedly, we did it with extensive help from the James Hutton Institute, but we had to muddle through. There was nothing readily available that we could grab to allow us to say what state ecosystems and biodiversity in Aberdeenshire were in.

There are a number of national measures and I realise that we are a bit away from having such information available, but I make a plea for it to be made available and disaggregateable into regions, catchments or whatever scale we want to do the monitoring at. How are we meant to assess the priorities, the key issues and where we should target effort and measures without that information? If it had been available, Derek Robeson's and my jobs would have been quite a bit easier.

Rob Brooker: A lot of thinking has been done about the terminology of ecosystem services and natural capital over the past few years. Some good documents are available that try to set out all the uses of the terminology and, perhaps, the most useful ones. However, it comes down to making sure that the right information gets to the right people. We need to have some kind of forum where we all work together using the same terminology. That would make life much easier.

Having clarified in many cases what we mean by those terms, we are now in a position to start developing indicators that are relevant to them. Three or four years ago, cultural services were a bit of mystery for many of us, but they are a key part of what people get from their environment. Now, we have a much better idea of how we might be able to measure them and, from that, we can start to develop indicators.

That comes back to the ecosystem health indicators. One of the key reasons for including new data sets in them is that they can be downscaled to a catchment level. We are always thinking about how we can get targeted work in there. We are in a good place. We just need to ensure that the information moves around to the right people.

Grant Moir: I agree that indicators, data, monitoring and the language that we use are all important, but I sometimes worry that those are the things that we end up concentrating on. There is a lot of data out there. If you ask most people what the main issues are in their area, they will be able to tell you pretty quickly. If I was asked to say what the main issues are in the Cairngorms, I

could list them in two seconds flat, and I am sure that everyone can do that for their areas, too. We need to get on with the action.

Yes, we need to measure the implementation, and we need to have the right indicators, but we tend to have an industry around that, whereas I am interested in taking practical action on the ground. I want to ensure that we are meeting the targets by 2020. We should measure everything, but that does not mean that we measure everything and ask, "Have we done anything yet?" and find that it is already 2020. That is my way of looking at the situation.

Sue Marrs: I return to Rob Brooker's observation about scalability. The very fact that, for the ecosystem health indicators, we are looking to scale from the national down to the local means that we have a very limited number of data sets to play with. That is unfortunate. However, I entirely support Grant Moir's point that the ambition on data sets should not stop us taking action on the ground.

The Convener: We will be coming on to that.

Simon Jones: There is a lot of data out there, and it is complex. Importantly, we are now realising that what might have been put aside as biodiversity data at one point is economically and socially important. The cross-referencing is important, particularly when we are trying to pick things apart at a local level. We now know that the reduction in ecosystem health is having an economic consequence.

Speaking of action, just last week, I found out that the French Government is tabling

"a new biodiversity law that will introduce priority zones to protect areas where species are at risk, as well as ecological corridors"

to a national extent, including in France's international territories. That is apparently due to the formation of a new agency.

That is the kind of action and the kind of statement that I am thinking of, to pick up on Grant Moir's point. Having been involved in red squirrels for a long time, I know that, every 10 years, we count how many red squirrels are left. The fundamental legislation incentives that drive the strategy forward are still some of the big elephants in the room.

The Convener: I will try to move us into a couple of areas that involve tackling things. The first aspect is the human level. What do you think about the obvious benefits of improved health and quality of life that come from having a healthier environment? Are such benefits seen across society as a whole or are they limited to particular social groups? Is that being measured and is it something that you are aware of?

People who live in the area of a national park are much more familiar with the countryside. The vast majority of kids are in an urban environment, and there are different aspects to the extent to which they become involved with the environment. Are the social classes and groups pretty mixed when it comes to the uptake of the benefits of a healthier environment?

Grant Moir: That is a key question. The John Muir conference, which the national parks organised, was held last year in Perth. At it, Jason Leitch spoke about the national health service side of things. He put up a picture of a family in Perth and told a story around that family. He asked, "What are you doing for that person?" and asked how they get out of their house in Perth to enjoy the country. Whether that means the countryside close to where people live or the national parks, that is a big challenge for all of us.

I know that a lot of work is going on. We try to reach out around the Cairngorms national park to Inverness, Aberdeen, Dundee and Perth. On the education side, that is where we are focusing—not necessarily on the people who live in the park. We still do a lot in the park, too, but we tend to use other organisations that are more engaged in the area. We do a lot of work with Backbone, an organisation that trains community leaders to get people to come out of their own accord, so that they have the confidence to come out to places such as the Cairngorms, rather than needing rangers or guides.

It is a big issue. Do we still preach too much to the converted? Probably. Do we need to get the message out more widely? Absolutely. What are the mechanisms to do that? We have some, but we could probably do things better if we co-ordinated across not just the public agencies but the NGOs to see who is doing what and who is targeting who. We might find that we are all targeting the same place and that no one is targeting over there. There is more work to do on that.

A lot of decent stuff is going on across many organisations. Biodiversity or conservation is still seen as being something for white bearded men—I am sitting here as a white bearded man. That is what people have in their heads and we need to get away from that. [*Laughter*.] I am sorry—I am not saying anything about anyone else's beards.

Simon Jones: You mean ginger bearded men.

Grant Moir: Yes—ginger bearded men.

The Convener: I agree that there is something in what you say. I am not going to prolong this, as we have almost summed things up, but Angus MacDonald has another question.

Angus MacDonald: In the 2020 challenge, we are all aware that strategic outcome 4 is:

"The special value and international importance of Scotland's nature and geodiversity is assured, wildlife is faring well, and we have a highly effective network of protected places."

Forgive me for being slightly parochial, convener, but I happen to have the biodiversity duty report from Falkirk Council, which was recently submitted to the Scottish Government. It highlights a prime example of partnership working. The inner Forth landscape initiative is delivering many projects—about 30 or so—around the inner Forth from 2014 to 2019. The initiative was launched in this very committee room by the previous environment minister and I was pleased to host that event.

Are the panel members aware of any other initiatives to improve plant, habitat and species diversity in Scotland? Are those initiatives underpinned by a

"highly effective network of protected places",

as stated in outcome 4? I am thinking of deer management practices or initiatives. Any other examples would be welcome.

Grant Moir: There are some very good examples. There are lots of examples across Scotland and I can give you one that brings the socioeconomic and environmental sides together. The Tomintoul and Glenlivet landscape partnership, which is being led by the local community, covers a huge range of things from cultural heritage to access and riparian woodlands. There are many good examples where protected areas come into that.

Almost 50 per cent of the Cairngorms comes under Natura, and a large proportion of that is sites of special scientific interest. There are also national nature reserves—the designations are all there. Making those work as a collective within bigger landscapes will be the big gain for us over the next while. Instead of looking at them as individual protected areas, we are asking how they work as a collective.

In Strathspey, for example, there are seven or eight special protection areas for capercaillie—that is a metapopulation and we should look at it collectively. The Cairngorms National Park Authority has put together the capercaillie framework, which looks across the whole woodland and across recreation, development, conservation and habitat expansion.

There are lots of good examples of such an approach. Protected areas provide a good base, but there is a case for asking how they could work better as a network and how the bits in between work, too. We cannot have just islands; protected areas are helpful, but we need to join them all up as a network. That goes back to what Simon Jones said about the national ecological network—the areas would be a key part of that, but we still need to have a good think about all the links and where we put the extra effort.

11:30

Simon Jones: The national ecological network is the next big step. If we take a snapshot of protected areas, we get only one part of the picture. The latest state-of-the-environment report from the European Environment Agency makes it clear that the long-term trends are still very threatening, even if we have made good progress in some habitats with some species. It is the bits outside the protected areas that will really get us there when it comes to things such as the 2020 challenge.

On good things, the Scottish Government should be commended for the marine protected area designation. That has been a great step forward in protecting habitats and species. The trick is how well the management of that will work in practice; we have worries about that.

The more we look, the more we find. From the marine perspective, the committee might be aware that Scottish Natural Heritage and the Wildlife Trust got together last year to work with local scallop fishermen to investigate maerl beds in the Wester Ross MPA. Nobody knew that they were there until we looked, and then they were protected.

That makes us think that the onus is on us to identify a marine feature for protection before it can be protected and taken account of, rather than taking the different perspective of asking what an industry's impact would be on the ecosystem if the industry took from it. We have to find those features rather than, for example, elements of the fishing community not having to act.

Scotland has generally made some really good progress in the area. We understand more about our protected areas, but we need to think outside the box and grapple with big issues such as large-scale ecological networks, as the French appear to be about to do.

Dr Robeson: I will back up Grant Moir's point and go back to how we integrate designated sites with the non-designated landscapes. We are working on a project in Eddleston Water to slow down the flood waters coming into the valley so that they do not flood Peebles as badly. At the head of the catchment, there will be designated peatland sites, and we can block the hill drains in those designated sites as part of designated site management. In other parts, we can fence off and plant native woodlands and, further down the flood plain, we can re-meander the parts of the river that

were formerly canalised. That is about bringing designated management sites into line with the non-designated sites in the valley, so that we can bring the whole-catchment approach together and work at the catchment scale. That is one good example of bringing habitats together.

Chris Nixon: We are fortunate in that more than 90 per cent of the woodland protected areas on the national forest estate are now in favourable condition. A lot of work has gone into focusing on those areas and improving the condition of the habitats, which is great.

However, as Simon Jones and others have said, there is a broader question about connectivity and other non-protected sites. That is where the focus needs to be, as much as on the protected areas, in ensuring that the condition of the broader landscape is improved. The native woodland survey of Scotland showed that around 50 per cent of the broader semi-natural woodlands needed work to improve their condition, so there is quite a significant task at the landscape scale to build on the benefits that have accrued from having protected areas, to broaden that and to see wider improvements in condition.

Dave Thompson: I will pick up on Simon Jones's point about maerl beds. He said that maerl beds were found that nobody knew were there, which is interesting. Such things do not spring up overnight—they develop over a long period—so the fact that they were there although fishermen had been fishing that ground for hundreds of years is interesting. The maerl beds have obviously developed and survived despite other use.

We need to be really careful when we are looking at MPAs that we do not say, "Ah! A maerl bed. We had better protect that from the fishermen's creels or other fishing methods," while forgetting that it has obviously been protected for many years, or it would not be there. We need to allow for that and get a sensible agreement that economic activity can continue—perhaps directed in a different way—rather than what has happened sometimes in the past, which is a blanket exclusion as soon as something is found. A lot of people on the west coast fear that and we must avoid it at all costs.

I am involved in discussions about the different MPAs, and there is an interesting MPA around the small isles. I think that there is a way in which we can allow continued fishing that uses different methods, while protecting the environment. I just wanted to comment on the idea that, if maerl beds have just been discovered, they must have sprung up overnight, when obviously, they did not.

Rob Brooker: What Mr Thompson has said comes back to the issue of monitoring. A lot of the trends that we have talked about come from the few good data sets that we have. We have great data sets for certain groups of organisms—birds are brilliant, because people like monitoring birds; vascular plants are pretty good; and we monitor deer well, too.

However, for many of the important groups of organisms in Scotland—lower plants, for example—we do not have the monitoring data to detect trends, so in some cases we are struggling to know what our natural capital is. Some areas are highlighted as being important for particular species, but we might not know the full extent of that species in Scotland. A collembolan was found on top of the Cairngorms—that is the only record of one in Scotland. Is that the only place in Scotland where it lives or is that the only place in Scotland where a collembolan expert has gone on holiday? That is a key issue.

There is a monitoring issue for many of the groups of important lower plants in particular—plants such as the rusty bog-moss. We are really lacking effort in that area and standardised knowledge across the country.

Alex Fergusson: I have a brief point to add to Dave Thompson's point, which I have great sympathy with. Not only do we need to look carefully at whether to introduce a total exclusion zone in some areas, but we need to consider the potential for a knock-on negative impact in other areas that are not covered by protective measures.

I am thinking of Wigtown Bay in my constituency, which is a special protection area but is not designated as a marine protected area. The area in the bay that is open to dredging is to be widened considerably. There are maerl beds in Wigtown Bay as well, but one can only put that change down to increasing pressure to have fishable areas in place of areas that will be total exclusion zones. We need to be a bit careful and keep an eye on the knock-on impact of some of the measures that are being taken, which might well have a detrimental impact on other areas' biodiversity.

Graeme Dey: Are we seeing any improvement in practices to protect designated sites and improve biodiversity generally in relation to the impact of deer? What is the direction of travel, given that the clock is ticking on potentially being more prescriptive with management measures?

Grant Moir: Deer are an interesting issue in the Cairngorms. We have some very large estates where deer are a major issue in the economics of the area. People are coming together and we are working with them on new deer management plans in the Cairngorms—I know that SNH is working on that in the Monadhliath as well.

Work is under way on deer management. The question is whether that work has led to any changes on the ground yet. I am unsure of that, to tell you the truth. I could not say, "Yes, there have definitely been changes for the better," or that we are still where we are. There is still an awful lot of discussion of boundaries between different types of management. That is our main issue in the Cairngorms—management objectives can vary and they can sometimes be diametrically opposed. When the boundaries between two estates meet, it is quite tricky for everyone involved to reconcile some of those things voluntarily.

We are deeply involved in deer management in the Cairngorms. A lot of work is being done on that and there is a lot of good will and desire to make it work. I cannot say at present whether that is leading to the right changes for biodiversity or a range of other things. However, we are certainly keeping a close eye on the issue.

Simon Jones: I agree with Grant Moir. I sense a supertanker slowly starting to turn a bit on the issue. The trust is a member of the Association of Deer Management Groups, which recently had its annual general meeting. One of my team who was at that said that he sensed that the conversations were markedly different from those a few years ago and that there was less polarisation.

The approach of having voluntary deer management plans with the threat of mandatory ones is focusing people's minds. It is a start. There is relationship and respect building. There is more acceptance of the concept that uplands and deer should not be looked at only from an economic perspective, along with a realisation of the other benefits that could come from larger-scale deer management.

It is early days, however, and I am not aware of any evidence on the ground. Other than in the areas where there is exclusion or on the estates that have been heavily culling deer and can therefore show radical vegetation changes, we are a long way from people voluntarily doing something about large numbers of deer, certainly in the uplands.

Chris Nixon: Deer management is a big issue on the national forest estate. My colleagues who operate and manage that side of the house aim to demonstrate best practice and be seen as exemplars. They work hard within the deer management group structure to influence others to adopt best practice. I agree with others that, in some respects, it still feels as if we are at an early stage in influencing others across the board to undertake the kind of management that we would like to improve the condition of many habitats.

James Davidson: I do not have any particular expertise on the matter, but I observe that the Aberdeenshire land use pilot was seen as a vehicle to give more of a focus on lowland deer management in our area. That was principally to do with roe deer—we have talked about upland management of deer, which I presume is mainly to do with red deer. The feeling that I got was that there was a gap in lowland deer management in our area and that more targeting was needed, and people were casting round for something to hang that on. We could not pick that up, but there might be an issue. As I said, I am not an expert on the matter, but that issue was highlighted to us.

The Convener: The deer management group plans have to be in place and working by 2016, and we have a 2020 target for biodiversity. Is it possible that we will get deer in hand by 2020? There must be a heck of a lot of work for gamekeepers to do, because, to get the ecosystem back in balance, we need to deal with a massive number of extra deer that do not need to be there. Will taking a tough line on deer management plans by 2016, if need be, allow enough time to show a difference by 2020?

Simon Jones: There will possibly be a small difference. If there is a mandatory requirement for deer management plans and for action on the ground, we will begin to see a positive impact in certain places by 2020. Obviously, there is a long timescale on the issue, and it is conflated with that of sheep numbers on the hill; the trend in sheep numbers influences the trend in deer. The Scottish Wildlife Trust supports a mandatory requirement in the longer term. If we are serious about driving change, we need to be prepared to do that.

11:45

Grant Moir: It will be interesting to see what the groups' plans say in 2016. Will they lead to changes, even beyond 2020? It is difficult to say at the moment, because what people are proposing to do has not even been agreed. We cannot say right now whether the plans will help us in 2020.

The deer management plans will need some fairly tightly targeted work. I agree that there is a question about capacity in certain places and whether things can be done within the 2020 timeframe. However, if we at least know the game plan, we will know whether the groups will be in the game, even if it could take until 2022 or 2023 to meet the targets. It is crucial that, in 2016, you take a good look at the deer management plans to find out whether they add up and will deliver on the targets. If not, you will need to have another conversation.

You will have to go through all the deer management plans and look at all the different things that people are proposing to do. I suspect that, on certain estates and in certain areas,

people might meet the targets while in other places, people might be quite far away from them. The picture across Scotland will be quite mixed, because, as you know, there are some very good deer management groups and there are also some places were deer management groups do not exist at all.

In 2016, there will be a mixed picture of what is working and what is not, but it is crucial that a decision is made at that point on how we take things forward. We need to say, "Okay, this is what's going to have to happen if we're to meet the 2020 targets." There will be quite a lot of differing opinions on that.

The Convener: The signals from here—and I have to say that I do not see too much demurring—are that action has to be taken on this. We know what the problem is; it is exemplified by the fact that the Forestry Commission is doing about 30 per cent of the culling on only about 9 per cent of the land. A whole lot of people are not doing their bit for biodiversity. They do not need to wait until 2016 to get started.

Grant Moir: Absolutely. Where I was climbing the other day—I will not say which estate I was on—there was a large amount of feeding of wild deer going on. Is that what we will be looking for, come 2020?

Simon Jones: I come back to one of my first points, which was about the need for a clear vision. We need to be mindful that deer management is part of the cultural heritage in some rural communities. That is critical, and we want a vision in which the hunting of deer is still integral to the cultural heritage and economies of those communities. However, we want to see that happening in a slightly different landscape, with probably more of the kind of woodland and woodland edge stalking that happens in Scandinavia. I do not want to take on the deer management world; I want to take on how we currently do deer management itself. We can have deer management with biodiversity benefits, and people can still earn a living from it, but that needs to happen in a landscape that is not made up of the bald hillsides that we have managed to create.

The Convener: That has been a useful addition to the biodiversity discussion. We need to move on to money again.

Jim Hume: Outcome 5 relates to sustainable land and water management. Two years ago, the committee wrote to the minister to note that CAP reform would help drive changes in land management, and there was a commitment in that respect in the draft biodiversity strategy. We now know what the CAP reform is; indeed, it was mentioned earlier. What are witnesses' views on CAP pillars 1 and 2? Is CAP fit for the purpose of encouraging land managers to develop and retain biodiversity?

The Convener: Who wants to kick off?

Jim Hume: Nobody? That is fine, then. [*Laughter*.]

Dr Robeson: This is a thorny issue. In a way, the CAP dictates how the countryside looks, because the system is subsidised, and the land is farmed and managed. It has been like that for 50-odd years, and it is an issue. The system has slowly been evolving and developing—and, in the current iteration, it is doing so through greening.

I think that the conservation bodies will agree that the current CAP has been a missed opportunity to take a leap forward in conservation. I think that a lot of people, especially those from the environmental NGOs, will recognise that although it is a small step forward, it is not a leap and it is not the step change that we need. We do not necessarily have the answer to that, but the change probably does not go as far as the conservation bodies would like it to have gone.

Rob Brooker: I am not an expert on the CAP but, just by chance, we have in the past couple of weeks been doing a bit of work on the biodiversity benefits of greening in pillar 1, and what we are seeing supports what Derek Robeson has said. There might be some benefits, but in some cases that will depend entirely on certain factors. For example, if someone changes the crop that they grow and moves to growing two or three crops, it might depend on the different crops that they move to. The issue is partly the guidance that is put in place. If the guidance focuses on supporting biodiversity, some actions might be beneficial, whereas some of the other things that people might do, such as switching from spring to winter barley, might not have such big consequences. As I have said, there might be some benefits to biodiversity, but that will depend on the choices that are made in land management, which in turn will depend on people getting helpful guidance.

James Davidson: I will not give the committee a deep analysis of CAP, because I am by no means an expert either, but I can speak from my experience of the Aberdeenshire pilot. One fairly consistent comment from many of our stakeholders was about the option for more local targeting of the funds, and we welcome the SRDP's local targeting measures, not only in the agricultural options but in the forestry options. The Cairngorms National Park Authority has some good examples of local targeting for forestry options in that area. That approach needs to be progressed and developed to ensure that there are more local targeted measures that take account of local wants, needs and circumstances. Work has been done on comparison processes

such as the pilot projects; in that way, funding can be directed more locally.

Grant Moir: I should perhaps put up my hand and say that I was the CAP policy officer back in 2005, so I have been involved in this area for a long time.

The Convener: Is it your fault, then?

Grant Moir: Now there is a question.

With the pillar 1 stuff, there is a bit of wait and see with regard to how it will pan out in terms of what people actually do, the ecological focus areas and so on. Given where we are with this programme in comparison with where we were previously, pillar 2 is a big step forward, because there is more targeting in it and it is more prioritised as a result of our use of data.

Is there more to do? Absolutely. We need to continue to use the best data to ensure that we can target the programme. Whichever way we look at it, the pot is limited, and it will always be limited, so we have to use it wisely and ensure that we do not get anything coming through the system that we are not too sure about. We want to ensure that the right things are in the right place at the right scale.

A big issue for me is the collaborative pot—in other words, the £10 million to help with collaborative applications. It is the most crucial thing in the entire SRDP. If we can use that money wisely to get people coming forward—if, for example, we can get 10 estates or 10 farmers working together on big-scale applications—that will make a difference to the biodiversity targets and we will deliver on the 2020 target. If we rely only on individual farmers making individual applications, we will get nowhere. The collaborative pot needs to be used cleverly; we must ensure that it is targeted at the right places; and I am keeping my eye on how we are using it.

Rob Brooker: As a quick follow-on, I know that work on SRDP targeting is proposed in the next recess programme. We have talked about the new data layers that we are getting and the new information systems in which we can put those layers together, and part of the aim is to bring together those new data sets to start focused SRDP targeting. That brings us back to the point that we discussed earlier about targeting the work and getting the best action at a local level.

Sarah Boyack: I have a quick follow-up question about where biodiversity fits with regard to spending money on farming. If we are saying that how we spend the money is really important, who should lead on identifying the value for money that we get from that spend?

The Convener: We will take that point on board, unless anyone wants to comment on it.

Jim Hume: Ultimately it is the minister's responsibility.

Sarah Boyack: I am asking only because earlier this morning we passed a statutory instrument after some discussion about what kind of grass was included in one part of the requirement and what kind was included in another. We have a chance to pull together some of the biodiversity information that we have received today and feed it back to the ministers.

Grant Moir: Under the formal reporting mechanisms in the SRDP and the CAP, there must be evaluations of what the money has been spent on and what the impacts have been. That tends to happen, and recess helps with that. Quite a lot of information should come through the SRDP side of things with regard to what the money has been spent on and its impact.

I am not sure whether the evaluation for the previous programme has finished; we tend to get the information after the programme. I am not an expert on the matter, but there is definitely a monitoring programme that goes along with the SRDP and the information is reported back to the European Commission and so on.

Sarah Boyack: I suppose that it would be worth checking whether biodiversity features in that process so that it can be tracked through.

The Convener: We should do that. I thank Sarah Boyack for making that point.

Jim Hume: It is perhaps slightly too early for that, because the CAP is not really happening yet; as we have heard, a wait-and-see approach is being taken. The integrated administration and control system maps are going out now, and I think that they will be finished and back with the Government by the middle of May—or they should be, anyway. That is probably when we will start to see the data coming in, and we can look then at whether there have been any changes, positive or not.

The Convener: That is certainly an important source.

Alex Fergusson: I have a question that follows on from the conversation that we have just had and links back to the opening discussion. Does conflict—or the potential for conflict—exist between the land management sector and the conservation sector? I noted with interest James Davidson's comment about a real willingness to co-operate and buy in to the various priorities that were being discussed, and I am glad to hear that that is the case.

However, in advance of today's meeting, I had a very interesting email from someone who is very involved in this world—and who had better remain nameless. He told me that he recently attended

the state of nature conference, and the day after that he attended the farming Scotland conference. He said that it was like existing in two parallel universes. For a start, the language was completely different; he said that the conservationists were talking about the ecosystem approach and ecosystem services, and the farmers were talking about markets and forward selling to try to avoid risks.

We have discussed the use of incentivisation to try to ensure that the land managers are playing their part. I have some sympathy with the need for incentivisation, because—and perhaps I am speaking here as a former farmer—I think that if someone introduces conservation measures on their farm, they tend to reduce its productivity level. That is a bit of a generalisation, but on the whole it is probably true. The farmer is therefore reducing their income and they want some incentivisation to be able to do that. My real question is: do current land management policy objectives have an adverse effect on biodiversity? If so, what can we do about it?

Dr Robeson: I would say that some do. It comes down to individuals. Not every landowner or farmer is the same; people farm, own and manage land for different reasons.

What we have noticed is that the harder-pressed tenant farmers in agri-environment schemes will, by and large, go for management options that give them a regular income, whereas landowners tend to go for capital options that allow them to invest in their farm. There is a split in the options that those groups go for. As I have said, people manage land for different reasons. The mechanisms are in place, but we need to think more cleverly about how to move forward with them, how we get people to implement biodiversity on farms and within catchments and how we get people working together.

No farm is an island. Farmers want to do this, but the incentives have to be there, and they have to work across farm and catchment boundaries. We are struggling with the bigger picture and with how we get people to do that work if the willingness is there.

12:00

Grant Moir: There should be no inherent reason why the conservation and land management sides cannot come together. I also think that looking at strategies and trying to find where they do not entirely fit together could probably work.

When we get down beneath some of the debates that are held at a national level and look at the practicalities on a regional, local or catchment level, a lot of the issues begin to disappear. NGOs, land managers and tenants can have good conversations across the piece, and a way forward can be found on most of the issues. I am relatively positive that if you get out to talk to folk, sit around the table and batter out what the really important things are from a business point of view and from a conservation point of view, and how they can fit together, you will usually find a way.

I do not mean to say that we should not have national debates, but we sometimes get into the theoretical approach of having an argument that works only if we look at the issue from that level. If we actually get out and talk to people, the issue can usually be resolved. Overall, we should not try to drive a wedge between conservation and land management.

I agree that language can definitely be an issue. For me, “ecosystems services” and “natural capital” are not phrases that I would necessarily say out loud. I think that the language can put people off pretty quickly. I like the concepts, but when it comes to what we talk about with people I think that we need to use simpler language. While we are doing that, the language of the farming community needs to come towards the other side, too.

A bit more simplification, talking with people, working at practical levels and working on practical things can resolve a lot of the issues.

Alex Fergusson: I had no intention of driving a wedge between conservation and land management.

I was interested in the mention of the natural capital agenda. I was quite taken with the submission that we received from Scottish Land & Estates, which said:

> “The natural capital agenda offers a potential mechanism to bridge the gulf between land managers and conservationists because it could provide a way of aligning the desired outcomes of both.”

Can anybody say what they thought of that statement?

Rob Brooker: Yes, I agree that the natural capital agenda could do that.

Alex Fergusson: Is it worth pursuing?

Rob Brooker: Yes, absolutely. It is not an either/or: it is not a question of having either food production and a reasonable income or biodiversity on farms. There are ways of integrating biodiversity into crop systems that have production benefits for agricultural yield—intercropping or genetic mixtures for barley, for example.

In an increasingly unstable climate, I think that there are opportunities to look at alternative

cropping mechanisms. They might not bring the same yield year on year, but they will provide a sort of stability through time. We need a wider perspective on what we are getting out of the land and how the land can support farmers.

The issue is that reduced production equates to reduced income, so are there ways in which the natural capital that the farmers provide can be recognised through rewards for them in their income?

Alex Fergusson: Absolutely.

Rob Brooker: That is what payment for ecosystem services mechanisms do. Sue Marrs mentioned downstream benefits for freshwater and flood management. The payment needs to move back up to those people who provide the benefit. A mechanism that does that needs to be put in place.

I have talked to some of the people who work on environmental economies. They say that the key thing is to get away from Government subsidies, so that the economy is not dependent on there being a subsidy mechanism. It has to work in its own right, so that the people who get the benefit pay those who provide the benefit.

There are great opportunities to start having those discussions.

Alex Fergusson: That is very interesting. We have been talking a lot, in a different context, about creating a Scottish brand, particularly when it comes to food and drink in this year of food and drink. Is there a potential to link a Scottish brand with the environmental credentials of the product that we are talking about? Doing that could produce a market premium that would reward the producer in exactly the way that you are talking about. Is that the desired outcome? Is that doable?

Rob Brooker: There are two ways in which it is doable. First, you can charge a premium for something that has an environmental association—people will pay more for that.

Another way concerns something that came up in discussions with Nourish Scotland during Scottish environment week. One of its aims is to shorten the chain from food producer to food seller, with the aim of having producers not only grow the food but convert it into a marketable product themselves, so that they maximise the benefit from the premium.

Both of those things—thinking about the supply and production chain as well as the underlying level of production—could have benefits in terms of promoting biodiversity in a wider environment.

James Davidson: I want to build on what I said earlier about willingness, which you picked up on. I do not want to downplay in any way the economic side of farming and the importance of regulations and incentives, but something that came back strongly to us in the pilot was the strong moral dimension that land managers have, which will not be news to anyone around this table. We found that concepts such as stewardship and succession were extremely important to them.

That is obviously a key route in for the environmental agenda. Land managers see themselves as stewards of the land. They obviously want to provide food, but their view is broader than that. Derek Robeson mentioned the different types of land managers. We saw that as a route in to engaging with them on the issues related to natural capital and the benefits from nature—it is definitely route in.

Grant Moir: Obviously, a lot of work has been done on the potential for markets around carbon, and we now have to work on how to get that to scale so that people who are looking after their deep peats and the other carbon that they have on their land can translate that work into payments that are not to do with the subsidy regime. I agree that that is crucial.

I absolutely agree with the statement that natural capital is something that we can use as a bridge. However, I would not sit down with my local farmers group and say, "Let's have a discussion about natural capital"; I would try to couch it in some other language. That is the bit that we have to work on.

Simon Jones: I echo those points. I agree that the issue is worth exploring and I suggest that the Scottish forum on natural capital is probably the best group to engage with in order to think about how that might roll out. That is the mechanism by which we are starting to engage with business. We are starting to talk the language of business, including farming and forestry.

The Convener: Jim Hume, that might lead nicely on to your questions.

Jim Hume: Absolutely. What concerns do members of the panel have about any skills gap that we might have with regard to biodiversity? Where might the skills gaps be, and what might we do about them?

Rob Brooker: Gaps are almost inevitable, and the question comes back to the issue of monitoring taxonomists.

There was a good Plantlife report on the issue recently. In some cases, there are fewer individuals who are experts on species than there are individuals of that species left. Stoneworts are an example of that: there is only one person in this country who does stoneworts, but they are a key species, especially in the outer isles. We are

losing taxonomic expertise in some of the unloved species groups such as lower plants, including lichens, mosses and stoneworts. We are losing that expertise in a steady drip, drip, drip, and one reason for that is the fact that it is not an income generator. It does not make a lot of money, but it is fundamentally important to know what we have and what is happening to it.

Sue Marrs: I was once involved in a consultation with industry in which we asked companies what skills biologists would need in the future. We were given a very clear steer that we needed an increase in taxonomic strength, but I do not think there has been any improvement. That is a risk, as our taxonomists are getting old and frail. It is not so much the fact there are fewer of them; it is that some of them are really quite old and cannot do the job as well any more.

Jim Hume: We will not ask you to name names.

Sue Marrs: No, absolutely not. [*Laughter*.]

The Convener: The ageing scientific population.

Sue Marrs: Laughing apart, it is a real problem.

Simon Jones: I agree that taxonomy skills are lacking, but there are young people out there who want to do these things; what we need is a mechanism that will allow them to do so.

At the Wildlife Trust, we had a developing ecological survey skills team that was full of young, talented people with incredible expertise in lichens, bryophytes and all sorts of things, but then they had to go and get jobs, which many of them struggled to do. I am not aware of any schemes like that anywhere in Scotland to bring through young talent. The scheme was completely funded by the Heritage Lottery Fund, and the course stopped when the funding stopped.

Unless a person has an opportunity and a real passion and is lucky enough to live next door to the old guy who is an expert on lichens or wood ants, for example, there is next to nowhere to find a way of getting through and making a living out of such knowledge.

There is a desire out there for an apprenticeship scheme, which does not have to be a big-scale one. Scotland is well known for producing such people who go on to do other things, but we have hit a gap in the market now because no one is currently training them.

Graeme Dey: I want to go back to something that Simon Jones said earlier. If we do not have teachers taking kids out into the countryside and lighting a fire, we will have a huge problem in the long term. I understand that the cost of hiring coaches for school trips to more remote areas is the real prohibition. We have a short-term and medium-term problem, but we could have an even bigger problem in the long term.

Rob Brooker: That goes back to the issue of getting biodiversity into urban areas, small gardens and schools. It is great to get kids out to places such as the Cairngorms—that is fantastic—but biodiversity should be brought to them. We have space: there are hospital grounds and urban green spaces. We should make spaces biodiverse as well as green.

Grant Moir: Even from the Cairngorms, I agree with that.

On the question of travel, there is a travel grant scheme in the Cairngorms exactly for that reason. Travel issue is still a big issue, so we still subsidise it.

Core skills were talked about. The other issue is the role that the Farming and Wildlife Advisory Group used to play in skills and the practicalities of turning conservation things into practical things that can be done on the land management side. There are still lots of people who do that, but the skills and numbers of people are probably not what they were 10 years ago. We probably need to look at that area, as well.

Sarah Boyack: I want to pick up on two points.

First, when we draw our thoughts together, we might reflect on whether eco-schools are the model and we want to bolt things on to them, or whether something else is needed.

The second point is about having jobs for people with taxonomy skills to go to. It is clear that it is not enough to encourage young people to get interested; there must be long-term careers. Is that a matter for SNH or the James Hutton Institute? I think that the James Hutton Institute suggested that we need a totally new research organisation to deal with ecosystems. Is it a matter of building on what we have? Where will the jobs be? Who will be responsible for ensuring that we have a natural resource of people with those skills?

The Convener: I want to wind up the discussion, so people should be brief.

Simon Jones: What Mike Russell said about eco-schools earlier was interesting. There are some good examples, but 90 per cent of eco-schools are primary schools. At high school level, the number drops away. That is where there is a big gap and where things start to stop.

The Convener: Skills have to be a continuous issue from cradle to grave. I certainly hope that more than one person is looking after the rusty bog moss and the other particular items for which we are species champions.

We have had a very good discussion that has involved you all. There is a huge amount of food

for thought, and we will certainly explore ways to turn what has been said into practical means for us to begin to take steps forward. People have said that there has been enough theory. We have the theory; we need the language right and we also need the actions. In a time of limited money, the actions will, in some cases, involve a lot of being fleet of foot.

I thank everybody for giving us an overall view. We will certainly try to ensure that the 2020 vision looks like the practical arguments that you have made.

In the next meeting of the committee, the Minister for Environment, Climate Change and Land Reform will give evidence on the Scottish Government's biodiversity strategy. We will also take evidence on the review of agricultural holdings legislation from a panel of stakeholders.

Meeting closed at 12:15.

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