**INT:** It should just for your consent, I think.

**DEU34:** Yes, that’s fine. I’ve clicked “Continue”.

**INT:** Brilliant. So, just to start of with maybe if you give me a bit more about your background: the name of the organisation that you work for and your role within that.

**DEU34:** Yes, sure. At the moment, I’m working for [construction services], which is a large, multidisciplinary, international engineering consultancy. I am based in the Leeds office and I specifically work within the ecology team, so I am a consultant ecologist, full-time. I started there about four years ago as a graduate. Then I progressed up to be a consultant and that’s been my first role in ecology, since uni really, since my master’s degree.

I did a short stint at the [Environmental Records Centre]. I was on a temporary contract there for four months, working on some project work there. That’s how I got to know Simon and the team there, and then I went straight from there to Acon.

**INT:** Brilliant. What does your role now currently involve, on a daily basis?

**DEU34:** At the moment, I split my time seasonally. During the survey season, I spend quite a lot of time out onsite, doing ecology. So, it would be phase 1, habitat mapping and protected-species surveys of various types – GCN, and bats, and badgers and all the rest of it.

A lot of my time between March and October will be out in the field but then I also, during that time and during the winter months, we do a lot of report writing: we write up the results of our surveys; we have input into environmental impact assessments and the planning process. That is basically what we provide to our clients. We go out and do these surveys and then, as a result of that, we write up reports which then feed into the planning process, or DCO applications, all that sort of thing. We ultimately advise on potential legal implications of doing these developments and we usually work on bigger projects, so we do power stations, road and rail – things like that. It’s quite large-scale stuff, as opposed to smaller things like loft conversions and individual property stuff.

**INT:** Brilliant. Would you say that a lot of your work, there is a priority to protected and rare species?

**DEU34:** Yes, definitely. As I say, we map all habitats present and we get an overview of what the site is like, but there is a very large focus on protected species and mitigation, and more recently on biodiversity net-gain and things like that as well, so still a heavy focus on legislative species.

**INT:** With biodiversity net-gain, has that changed the way you do reporting at all?

**DEU34:** Yes, in a way, I suppose. A lot of our report formats are still quite similar, so we ultimately are looking at whether there is any legislative impact of what developers want to do. But now, there is a much bigger pressure on, right at the start of the process, doing habitat condition assessments and feeding in to our existing reports. So, we will often add a section at the end looking at the potential for biodiversity net-gain. Whereas before it may have just been focused on minimising species impacts, now we are expected to be looking at offsetting, and creation of habitat, and things like that, right from the off. But yes, our reporting is more focused towards biodiversity net-gain and no net-loss stuff than it was three or four years ago.

**INT:** That’s brilliant. So, obviously we talked about protected and rare species you focus on. Do you focus on that single species, or groups of species?

**DEU34:** It is groups of species, so it will be Wildlife and Countryside Act species, but basically anything that is protected or notable within the UK. We do have specialists within the organisation, who will lead on surveys for different things. So, we’ve got specialist ornithologists who will do… if they’ve got a barn-owl licence they’ll go out and do those surveys. We have botanists who will go and map habitats and they’ll be able to identify rare and red-list species, plant species. But in general, most of our ecologists are generalists, and I am a generalist, so we’ll go out and we’ll be expected to do species lists of the plants that are present and look at the potential in habitats for everything you know, bats, water vole, all that sort of stuff.

**INT:** And in terms of spatial extent, I know you talked about how you talked about how you are in the [city]… you are based in [city]. Do you look at national scale or just Yorkshire, or West Yorkshire?

**DEU34:** We do national scale. We do have offices with ecologists in 12-plus offices dotted around the UK, but any one ecologist is expected to go anywhere in the country. We do have international projects as well. Some of our guys have done some work in the Middle East and places like that as well, but me personally, I tend to work in the North. I’ve done some work on [TRANSPORT NETWORK] – I’ve gone down to [City] and places like that, but at the moment the bulk of my project work is in East and North Yorkshire. But we do go nationally.

**INT:** Brilliant. Obviously, I think we’ve alluded to it already, but in terms of the species data you use, what decisions does that inform?

**DEU34:** We collect our own species data and habitat data when we go to site and we feed those back in to local record centres, depending on the client wishes. Sometimes they might get locked up, but we do data requests as part of our desk studies. Before we go to site, we’ll contact the local record centres and we’ll get protected-species data from them, and then that data will go into our assessment.

For example, if we go to site, we will look beforehand to see if there are any records in the local area of water vole, GCN, anything like that… bats. And then, when we go to site, we’ll look at the habitats in combination with the data, so we’ll know, okay, there are water-vole records in the area, so we need to be aware that there are ditches on-site that may have potential for water vole. Then that will all be included in the report we send to the client and that will feed in to our assessment. So, we may say, for example, that we didn’t see any signs of water vole, however there are recent records in the area. So, it may be worth, if this portion of this ditch is being lost, it may be worth having mitigation habitat put in place for water vole, or something similar.

So, we do rely quite often on the study data, when we are doing our scoping, to know the level of survey effort that we need to put in on any given site.

**INT:** In terms of the frequency in which you do these site visits, how often is it?

**DEU34:** For any given project, we’ll normally go and do one set of surveys, to inform what we are doing. Then, the lifespan of that is typically a year and a half to two years maybe. So, we may go back and update the data. Quite often, if the project changes, we might go and do the first set of surveys… It’ll sit dormant, not really go anywhere with the planning process and then we’ll have to update our surveys again, perhaps two years later.

There’s no set-in-stone figure, but we as a company tend to say that if it’s been any more than two years, then we go back and redo the surveys, to get up-to-date data. We’ll also do another desk study. So, we’ll apply to the record centres again to see if there are any more recent records, since our first go a year and a half, two years before.

**INT:** Brilliant, that’s great. In terms of obtaining the data, you talk about how you collect it yourself; do you gain data from anywhere else?

**DEU34:** Yes, the record centres is one of the main ones where we get the species records. We do also look at MAGIC, the Defra mapping tool. We will usually use that for habitats and protected designated sites, and we also look at the European protected-species licence returns, which are on there now.

As well as those, depending on the project, and the habitats that are present on the site, we will also apply to local enthusiast groups, like mammal groups, and amphibian and reptile groups. We will potentially also apply to them, who may charge a fee to us, obviously, but we’ll apply to them and ask if they have any back records for this area. We’ll also take those.

Normally our first port of call is MAGIC, followed by the local record centre, and we will also use aerial mapping, and Ordnance Survey mapping, and things like that.

**INT:** You talk about how you go to MAGICfirst, in terms of where you collect your data, is that to do with the completeness of the data, the accuracy, the trust?

**DEU34:** Yes, it’s a bit of those, I suppose. It is accurate, but it’s mainly just the data that we need. It’s the one-stop shop of the priority habitats, which is one of the main things we look at as well as ancient woodlands and things. It’s sort of all in one place quite nicely.

**[00:10:09]**

We obviously don’t get very much species data from that, because it’s not the ideal tool for that. We tend to just rely on the record centres for most of that. We tend not to use NBN Gateway. We may have a look at it, in order to get a rough idea of the species that are present, but because of all the data-licensing terms and all the rest of it, we tend not to use NBN data, or we don’t quote NBN data when we look at it. We are expected to go to the record centres and just rely on that data.

**INT:** Sure.And in terms of the relationship with the record centre, is that a data exchange?

**DEU34:** We are a commercial client, so we pay a fee to them commercially and they provide us. So, we’ll normally give them a point, or a line, or a polygon, or whatever, and do a two-kilometre or one-kilometre buffer, and they charge us for the data.

**INT:** Of course. And in terms of the format of the data, is this raw data or has it been processed in any way at all?

**DEU34:** It depends on the data centre, I suppose. Normally when we request it, we request a filtered Excel spreadsheet with the species data on, which we will then just basically look at, and we may then process it ourselves, so we’ll plug it into a GIS programme, or something and map it out.

**INT:** Okay.

**DEU34:** Normally when we request it, we request a filtered Excel spreadsheet with the species data on, which we will then just look at, and we may process it ourselves, so we will plug it into a GIS programme, or something, and map it out. Sometimes a data centre will provide it to us on a PDF map, which again is fine. We can look at that and get the data that we need from it. It really depends on the project and the data centre itself. We quite frequently use NEYEDC, or West Yorkshire Ecology Services and, even within data centres, between individual data centres, they provide different products at different prices.

What we tend to get, though is… We want a map showing the designated sites and a spreadsheet showing all the species data, because that’s normally cheapest. Then, if we need to do anything more to the data, we’ll do it ourselves inhouse and just pull out the data we are interested in.

We tend to only go for records within the last 20 years, just because they are seen as being the most accurate.

**INT:** Brilliant. You just mentioned there about how you collect the data in that spreadsheet form, but then you do analysis yourself. Is that right?

**DEU34:** Yes, so it’s not so much complex analysis. We just filter it down to the species and groups we are really interested in. We will probably plug it into our grid-reference finder, or a GIS programme, or something, so that we can see it on an aerial map overlay and combine the habitats with the species data. So, we’ll look at GCN records, or find the nearest pond to those GCN records, and that sort of stuff.

**INT:** The resolution of data, I guess, depends o what you’re looking at, and obviously where the data’s come from.

**DEU34:** Yes.

**INT:** Do you require a specific type at all?

**DEU34:** We want the data to be as specific as possible. When we do our reporting, we tend to exclude any data that hasn’t been verified, if that information is actually in the data we get. Some record centres have a column that says whether the record has been verified or not, in which case we’ll exclude any non-verified data. And we tend to exclude any data that is less than… Sometimes you get it in one kilometre accuracy. We tend to exclude anything greater than that, really.

**INT:** Okay.

**DEU34:** Often our sites are one or two square kilometres, so we are only really interested in things that have a relatively high [SL res 0:13:59].

**INT:** That’s brilliant. So, in terms of the interpretation of the data, how would you deal with data-gaps?

*[Silence 0:14:19−0:14:24]*

Can you hear me?

*[Silence 0:14:27−0:15:36]*

Can you hear me?

**DEU34:** Hello, Hello, sorry, I died there. My internet went…

**INT:** No, you’re absolutely fine.

**DEU34:** But anyway, data-gaps. So, it is a problem. We often have data that comes through and we think there’s no recent data for a species, or it’s really high resolution, or whatever and basically, we have to just go and do the surveys and we will say in our reporting there was very little data from the data centre that was relevant, so we just went to site and we have to rely on the data that we collect then.

**INT:** Of course, brilliant. And how do you consider confidence, accuracy and precision. I think we’ve already alluded to this.

**DEU34:** Yes, so basically, we have to use data that’s accurate. We can allude to it in our survey reporting we may say “There was this record. However, the resolution is really poor,” or “It was non-verifiable, or something like that. We tend to just exclude it.

So yes, we do rely on it a lot and our client… If we put something in a report and we basically say [that] this is a no-verified record, then often the client won’t accept it. So, we normally just filter all that stuff out at the start.

**INT:** So, in terms of… alongside the data collection, do you provide contextual information at all?

**DEU34:** Yes. In our reporting we always, obviously, put all the sources of our data and where we get it from, but we will always take the raw data and we won’t just regurgitate it back to a client. We will always take the data and we’ll combine it with our survey data, and we’ll put it in context like a landscape-scale context. So, for example, we’ll have a cluster of new records maybe and we’ll say “These records are closely associated with these water bodies and they are this distance from the site boundary. And there’s a good habitat matrix between the site boundary and these records. So, there may be movement of individuals onto the site, etc….”

We always take the data and contextualise it for the client, and try to make it as concise and brief as possible, because that’s what the client is interested in. They just want to get to the end, where they can view the main constraints, really.

**INT:** In that sense, would you provide a summary of the key strategies that they would have to take?

**DEU34:** Yes, we always provide a technical summary. So, we will always say: “These are the main things you need to be aware of, and these are the main mitigations that we think you may need.” So, if there are water-vole records onsite and we can clearly see that they are quite recent and they are associated with a water body, we’ll often use that, combined with our survey data, to say “We think you will need to dig a ditch and provide mitigation habitat,” or something similar.

**INT:** You’ve talked about how you produce reports. Do you produce any other deliverables, for any other audiences?

**DEU34:** It’s mainly reporting. It’s a very wide range of reports, so sometimes it’s specific to EIAs; sometimes it will be mitigation plans; or method-statements of how to work safely onsite, that sort of stuff. We very rarely provide data in any other form. However, we are moving, within the industry, towards doing it digitally. We do digital delivery now. So, rather than literally producing Word documents and handing them over, we are trying to combine the whole environmental-impact assessment process into an online platform on a website. We are looking internally towards having maps that you can scroll around, and zoom in on, and click on to get information about species data and key habitats. It will sit on this web-page alongside the text you would normally have in a Word document, or something similar. It’s called integrated digital delivery. So, we are trying to do that more, going into the future. We are trialling it on a couple of projects at the moment.

**INT:** Yes, of course. Is that easier, to engage with your clients, or…?

**[00:20:02]**

**DEU34:** Oh, absolutely, yes. The clients really like it because, rather than having a Word document that they then have to go all the way through, they have got a lot more tools at their disposal, rather than reading a Word document and saying “Where exactly is this?” they’ll be able to zoom in on a map and click on a point that says “GCN” and they’ll be able to see some survey information or some photos of what we’ve found and that sort of stuff. They love it really. They really like that sort of approach.

**INT:** That’s great. And looking at data aspirations, how could the data be used to help in your decision-making?

**DEU34:** Really, it’s an improvement in quality, I suppose, from the data centre is one of the main things. So, definitely trying to make sure that all the data centres are delivering data to a similar quality and a similar sort of format would be a lot easier for us, because we spend a lot of time requesting data from individual data centres. So having, for example, shapefile data by default is always useful, because then we can just plug it straight in to GIS software, pre-filtered options. So, for example we only really want things that are legally protected species, or notable species. We’re not really interested in random…like rabbits from 1970, or whatever. That’ll save us a lot of time in the long run.

Things like licensing and usage as well, making it obvious what data we can actually use commercially and providing updates if they get data that comes in halfway through a project. So, for example, if we tell the data centre that we’ve got a project that’s going to be lasting for 18 months, it would be useful if we could get some sort of system in place where they can provide us with only the updated records, a year down the line, rather than us having to repeat the whole process and sift out what’s new and what’s not.

So, it’s just basically improving the quality, but I suppose one of the ways that could happen is, it’d be really useful if data centres had an online platform, I suppose. We’ve talked about it a little bit, where we as end-users can log in. We may pay a payment, either a monthly payment or one-off payments, to log in to an online platform and basically allow us to scroll around and see the records similar to the NBN Gateway.

So, yes, we don’t have to do quite so much processing. We can just visualise that data, and take it, and provide it to a client, really. That would be really useful.

**INT:** Collecting data from the records centre, how does that work now?

**DEU34:** Basically, they send it to us. We put in this data request; they fill in a form; we go to them and they provide us with a quote of how much it is; we say “Yes, go ahead. We’ll have the data please,” and they will send us normally a zip file. That’ll have a spreadsheet [and] some PDF documents, maybe with some maps on. Then, if you want some data centres, you can pay them extra and they’ll do a bit more analysis. So, they may provide you a shape file, or a map of the species data by taxa, or something similar, but normally we don’t go in for that. We just want the spreadsheet or the PDF

**INT:** Of course, and I guess what you were talking about before, where if you were able to go in and look for what you want, that would be so much easier, because you know exactly what you want. It would skip the step of requesting it and then coming back.

**DEU34:** Yes, exactly. We could just go straight to a data centre and say “Here’s our site, could you give us the usual please,” and then we could potentially log in to this platform and either we could take the information we wanted, or they could provide us the information that they know 90 per cent of ecology consultancies are interested in really, just that sort of protected-species data; habitats that are key; you know, all that sort of stuff. It will save us time and it will save our clients money, because we charge them for the time we take: half a day; or a couple of hours; or whatever. Just taking that data and putting it on a graph, or whatever. I am sure the clients would appreciate it, because they are not paying quite as much.

**INT:** Yes, definitely. And just a quick note on real-time data. I guess that would be important in your work?

**DEU34:** Absolutely. It’s one thing that we really aspire to because, like I said before, data goes out of date – we get new records being submitted all the time, and it can potentially impact a project in a large way. If we are six months into a project and we are working off of the data we got at the start of it, and then we get a notification that says that someone’s gone out and done a newt survey, and found some newts really close to your site. That may change a lot. We may not necessarily pick that up until another 12 months down the line, when we come to redo our data search, or our surveys, or whatever. So, yes, real-time data is something that we are aspiring to, but we don’t really know if it’s going to happen. But if we can, that’d be fantastic.

**INT:** So, just finally, I just want to talk about model data a bit more. Do you currently use model data at all, and how would you feel about using it if you don’t?

**DEU34:** At the moment, we don’t really use it commercially, because like I say, our main inputs at the moment, and outputs, are these reports and location data for species where they have actually been found, and where we’ve got presence and absence data. Unfortunately, it’s all tied up in the legislation, Wildlife and Countryside Act, all the sort of stuff that we… the legislative powers. They all are based on presence and absence of species, and that sort of hard data. Where we’re moving more into model data is… I suppose it’s most often used with this district-licensing scheme for newts. We use that system on some projects, so we are relying on data that has been modelled by an outside party, like the Nature Space people and things like that.

However, internally we don’t really do any of our own modelling. I personally have, before. I did my Master’s thesis, where I did distribution modelling for newts, but we can’t use it commercially, because there’s no sort of set guidance out there. You know, from Natural England, that says “Here’s a model, use this.” We are relying on research that’s been done quite a while ago so, for example, our habitat suitability index for newts that we use was done nearly thirty years ago now and we haven’t had any updated guidance or research that says “Oh, we’ve updated this now, so you can use this model instead.”

I’d be all for it personally. I think it’s really important. I think that’s really important, to try and get into the ecology industry some real-time modelling. We should be able to do species-distribution models, and provide that to a client, and say “Look, here’s this heat map of your site and this is the likelihood of there being newts in various areas of your site,” but unfortunately, I don’t think it’s going to happen in the near future because we need the sort of legislative backup. Because a client is not going to take that map and go “Oh yes, it looks like there’s going to be loads of newts, so we are going to put millions of pounds into creating all this habitat,” if the Government doesn’t tell them they have to. I think if we can get that in the future, it’ll be fantastic, because I really see the value of it. But at the moment it’s not really there, I don’t think.

**INT:** I guess, like you said, you are sort of restricted by that legislative guidance, or not so much guidance… law.

**DEU34:** Exactly, yes.

**INT:** And I guess that the model data in that sense doesn’t really inform decisions?

**DEU34:** Yes, that’s correct, yes. It informs us, I suppose, as ecologists. So, for example, we would be able to say “Ah! There’s this really good habitat mapping,” but I think there would be scepticism from a client, because they would say “Where has this information come from? I don’t understand the modelling side of it. How do we know there are bats there? All you’ve done is… You’ve got a few presence points and a few absence points. Now you’ve told us that we have to create all this habitat.” I think there would be a bit of scepticism there, unless it led to saving money, I suppose. If it was cheaper to do that than go out and do surveys that had a high level of accuracy then yes, they’d probably be all for it, unfortunately.

It’s one of those things that I really want to happen, but there just needs to be a better framework. I think we’re starting to get there because of, for example, the district licensing. That’s come from Natural England. We’ve got this modelling done, and we’ve got these maps, and clients are buying into it again because it is saving them money and all the rest of it, and they like it. But I think for that to go into other uses, it needs to be a bit more developed, with a bit more backing from the Government to say “Yes, we agree with this modelling approach, and that’s how we’re going to do it.”

**INT:** You’ve touched upon it already, but hypothetically speaking, how would model data affect the type of decisions that you would make?

**DEU34:** I think that, as ecologists, if we had this model data, accurate model data and we could see where it’s come from, then that would impact our decision-making as ecologists.

**[00:30:01]**

Because, rather than just relying on going out and doing presence/absence-type surveys, or looking at the suitability of habitats on the ground, we’d be able to have this note, or heat-map, or whatever, some species-distribution model to back up what we are saying, so we can say “The habitat looks quite good. We’ve got this model that shows the hotspots.”

I think the real benefit to us would be again when it comes to biodiversity net gain and mitigation, because we could use those maps and species distribution models to target habitat creation and improvement. I think that is where it’s really going to come into play with our decision-making, and also to influence the client’s decision-making. Because if we can present that information to them and say “This is where the best habitat onsite is going to be. I think you should target your improvements here,” then it’s another tool, really for the client to use and it should help us with our influencing the clients, I suppose.

**INT:** Brilliant. So just finally, I’m going to show you some examples of model data a part of the team has created. I’ll just ask if you can interpret them and then whether you’d find them useful. Obviously, as you’ve described in your current work probably not, but I think just as a general insight as to whether you find them useful. So, hopefully this works. I’ve had a few troubles: every time I share my screen the internet just seems to go. But we’ll give this a go.

*[Short silence]*

So, hopefully that should come up.

**DEU34:** Yes.

**INT:** I’ll zoom in for you. I’ll just focus on the top maps first. This is for a five-spot burnet moth and if we focus on the one on the left (I don’t know if you can see my map) …

**DEU34:** Yes.

**INT:** But this is on a national scale. It’s raw a probability distribution model. Are you able to interpret that?

**DEU34:** Yes. That looks very similar to what I’ve produced for my…

**INT:** Brilliant. So, just a quick explanation maybe.

**DEU34:** Yes, basically it looks to me from this that the South West and South Wales you’ve got a higher probability of finding five-spot burnet moth in those areas.

**INT:** That’s brilliant, and so this, again, is a raw-probability distribution, but on a localised scale, around a five-kilometre point in Wallingford, Oxfordshire. Again, similar concept. Are you able to interpret this?

**DEU34:** Yes, it’s the same thing. You’ve obviously got an area there and the greener areas are the areas where there’s a higher distribution of this species.

**INT:** Brilliant! Now moving on to the one on the right. This is a variation model. This sort of works together with the raw probability, again for the same species. Is this easy to interpret?

**DEU34:** Yes. It’s probably harder for me and my colleagues than the left-hand one, but I am assuming that you’re more likely… (just move your head out of the way) In the greener areas you’ve got a higher variation of whether you are likely to find that species there or not, I’m assuming.

**INT:** Yes, that’s basically it, so follow on that. Essentially, what the model’s trying to show I, you have less confidence in the species being there in the darker areas, because there’s creative variation, as you said.

And again, on a localised scale, around Wallingford, the same sort of concept?

**DEU34:** Yes. Same thing, yes. So, as we said, you have less confidence as to whether the species is there, due to a higher variation in the green areas. And that’s similar to in similar areas, that sort of South East area as the distribution. So, a higher chance of finding them but less confidence and higher variation.

**INT:** So, we are sort of trying to address gaps in the data. Brilliant. So, just two quick questions on both these models. Would you find them useful, or *do* you find them useful and is there anything you would add to them to improve their usefulness?

**DEU34:** Yes, I do find them both useful. I think the left-hand one people are obviously going to be drawn to, because it shows the probability. I think you need the right-hand ones for the variation, because I know from my modelling background that obviously you need some error in these models, and I think we, as a business, would need to present that to a client…

**INT:** Of course.

**DEU34:** …even if they don’t understand it, we would have to explain it to them because, in terms of fair use, we would have to say that there is a certain error associated with the data. I think to improve it we would probably want some sort of presence dots, presence/absence, because especially on the local level. The national-scale maps we probably wouldn’t be as interested in because we’d be looking at this on a sort of regional level, for biodiversity net gain, or even a site level if you can get such high-resolution data.

I think the clients would be interested in any presence data that we have to be represented on the same map, so that they can see where we 100 per cent know where this species is, rather just looking at the map and assuming that they can’t see very obviously where we know the species are. They may think “Well, how do you know there’s species in any of these places?”. I think that’s definitely one thing that they would want in order to improve it.

**INT:** Was there anything else that you had at all?

**DEU34:** I don’t think so. Obviously, we’d put a red-line boundary, or something, on for the site they were interested in, to show the very specific area we were interested in. Maybe we would also have features added to it, so things like water bodies and water courses; buildings; habitats, maybe overlaid over the top of it. I don’t really think so, not for these maps and what they are trying to achieve on a species-specific level.

**INT:** Would you find it more useful say, to have, rather than just for a single species, a group of species?

**DEU34:** Yes, I think so. We would, for example have maybe bats all combined onto one, because they all have a similar status, legislatively. I probably wouldn’t put every single species we are interested in on one map – obviously far too complicated. But I think we would probably look at having the main protected species on a map each, and then maybe bats all combined together. We’d probably have water vole on a map. We’d have great crested newts on a map, all that sort of stuff − sort of the way that we report in our reports at the moment. So, unless it’s a very rare species of bat, like a lesser horseshoe, or a barbastelle, or something like that, we’d tend to combine some of the more common bat species that have similar habitat requirements, together for our reporting.

**INT:** Brilliant. And just finally, obviously we talked about the legislative restrictions that you’ve got, but would this be useful in your work, navigating your decisions?

**DEU34:** Yes, I think so. I think even if we don’t show this to a client in all cases, I think we as ecologists would really appreciate having this, alongside the background of how the modelling was done, just in case, obviously, we wanted to present it.

**INT:** Of course.

**DEU34:** It’s definitely something that we would use in our decision-making process, rather than just looking at oblique habitats and aerial views and that sort of stuff. I think this is another layer of information that would help us, not only in ascertaining where the species might be, but where the habitats for the species are that could be improved and created. Because often, we may find field-signs of vole, for example, that are really closely associated to water courses, but it may be more difficult for us, as ecologists, to visualise the best terrestrial habitat that could be improved. If we don’t find any field-signs, if they are all really tightly constrained to the water course, we just basically use our professional judgement to say “Well, there’s an area that there’s currently amenity grassland, so we could improve that.” But if we know, using these models, we’ve got a good idea that the species is using other areas, or may have other areas of suitable habitat nearby, we can target our approach to improving those habitats more.

So, yes, I definitely think this sort of thing is useful, not only to us, but possibly also the clients as well.

**INT:** That’s great. Is there anything else at all you wanted to comment on these?

**DEU34:** No, I don’t think so. I am excited that this sort of thing is being looked at, really, because I did my thesis five years ago now and I feel like in the consultancy, apart from the district-licensing sort of stuff, it hasn’t progressed very far and I think it’s a wasted opportunity to be using some of this data better, rather than just being regurgitated by data centres, and we just take the presence/absence data and combine it into a report. I think there is a lot of potential for this species-distribution modelling stuff and I think, with biodiversity net gain coming in and making it really compulsory, as of next year and the year after, we need to be looking at a more holistic approach to doing this sort of work, and having this data is only going to improve our problem-solving really.

**[0:40:10]**

**INT:** Brilliant. I’ll just stop sharing my screen now. I’ve asked everything I wanted to, which is great. Was there anything you wanted to ask me, or anything that you thought I should have asked you?

**DEU34:** No, I don’t think so, no. Thanks very much for getting in touch…

**INT:** Thank you for speaking to me.

**DEU34:** That’s alright.

**INT:** I appreciate it. So, the next… just as my sort of wrap-up question to you: the next stage will involve working with people like yourself to co-design these outputs. Would this be something you’d be interested in at all?

**DEU34:** Yes, definitely.

**INT:** Yes? Brilliant. That’s brilliant. Well, if there isn’t anything else on your end, thank you very much for speaking to me…

**DEU34:** You’re welcome.

**INT:** And I’ll keep in touch with you in terms of developments of the project, as well.

**DEU34:** Of course, that’s great.

**INT:** Brilliant.

**DEU34:** Thanks very much.

**INT:** Thanks very much.

**DEU34:** Cheers then… Take care. Bye, bye.

**Audio ends: [0:41:13]**