INT: So, it should just ask for your consent on your screen if you just click continue. So, and if we sort of focus on the species records data that you potentially do collect, then, and what are the types that you focus on, or is it just whatever occurs or happens in that year.

DEU38: My wife's a botanist and we together have been through the wood at intervals at different times and added to a species list, which is recorded on an excel sheet, so we can look at it, either under English names or Latin names that's probably the most formal. It's not a species list, but we have got runs of data for going back 15 years now about what species have nested in the nest boxes we've put up. And we just had one evening when two entomologists put up a mercury rake lamp in the garden adjacent to the wood and the next morning we came back and they identified, most of them and we've got that list but it's only one point in time, September time. I don't think we've got much else [DEU37] have we.

DEU37: No. No, many years back, I did some bat watching. We happen to have a fairly large nuptial batcolony eternity roost. But it was only very informal sort of records that I kept of that as to how many bats were roosting in particular roosts. And I don't think any of that actually made it onto the species list that we keep in terms of numbers. We've had very informal bird surveys which have been linked with the RSPB their garden birdwatch some of our members have got involved with that and have done a bird count but again sort of outside of the lists, that we keep apart from that I can't think of anything else. I think, from my point of view because I’m not a botanist or an entomologist or whatever I like coppicing trees, so I find without guidance unless we have an expert as such to guide us in species recognition and how to actually conduct surveys, then we're pretty much just you know doing things on our own, and not necessarily doing things the right way, the way they ought to be done so, from my point of view, the thing that's lacking is assistance from experts in order to gather good reliable records. I don't know if you sort of would agree with that [DEU38].

DEU38: No, I think, very definitely at one time we did talk to someone who talked about bioblitzing, trying to get a whole group of people each expert in their own field that. Identifying species in a in a location, but we never follow that out and I’m a bit like [DEU37] in that sort of side of things isn't top of my priority list either I’m afraid.

DEU37: I mean it is a shame in a way, because you know what we're doing in the in the COPS is to improve biodiversity, we're not measuring it in a way, where we can you know compare one year to another to another, so okay, the Bluebells look good this year but is that because of the work we've been doing, or what. So it will be good to have help with that sort of thing, and I would imagine most other volunteer groups are pretty much the same. They do it because they like doing the manual work and yeah and the recording a species is a sort of a side thing if someone can help them out with how to do it.

INT: And where would that help come from? Where would you like it to come from?

DEU37: Well, we have had helped in the past, I think, from the local countryside service, the [Town] has a countryside service that initially got us up and running 20 years ago.

DEU38: We ought to be able to make contact with [BRITISH ENTOMOLOGICAL SOCIETY], which is what the [British entomological society] because their main office is in a flooded gravel pit area just about three miles away from our wood at a place called [place]. And they do have quite a lot of high-powered meetings in that office and one of the two people that came along and helped us with them off survey is a member and so I feel that would be the direction to go in if we decided to go along that route, I don't know about any other experts in other areas of biology, but that would be where to get into entomological help from I think.

DEU37: Yes, I mean it doesn't seem to be a reach out from these recording organizations it doesn't seem to be a reach out to volunteer groups to actually help out with these things, and I think a lot of volunteer groups, would love to help get involved with this sort of thing because they're interested in the environment and ecology and they always seem to be keen to get involved and learn new things. And if these groups sort of reached out to us, we could have people willing to help out and learn and produce the records, but there seems to be a bit of a gap there.

INT: Of course, no that's very interesting and with that sort of engagement, would volunteers, like some feedback as well, in terms of the progress, as well as sort of engaging in sort of work.

DEU37: Feedback in terms of what.

INT: In terms of like so if you were involved in this work any reports trends to see how you're doing.

DEU37: Oh definitely. Definitely yes. I mean, the group as a whole would like to see that as I say, because what we're doing is intended to you know, improve biodiversity, yet we're doing it, maybe we are maybe we aren't and to have some proof, the members would definitely be interested.

DEU38: I can't add anything to that. We'd be interested and it's somehow getting started that's the problem, making contact and finding people that actually want to help us, as well as us wanting to do anything ourselves. If you had a leader, we'd follow them.

INT: Do you get involved with the Council at all?

DEU38: When we were first set up the person from the countryside service gave us quite a lot of practical advice and gave us ideas about how to produce a management plan. And we maintain contact with them on and off more frequently in the first five to 10 years of the group's life. Of late, we've really not had any contact with them at all because, rightly or wrongly, we feel we know what we're doing and don't feel we probably want to change a lot.

DEU37: It's quite a limited scope the sort of work we're doing is basic woodland coppicing management, so, after a few years of working out how to do it, we think we've got the hang of this we don't have much contact with the countryside service. Occasionally they do come along you know, maybe, five years ago, is probably the last time they came along and had a tour of the COPS and basically said yep doing a great job, keep it up.

DEU38: If I’m perfectly honest, I think they just wanted the day and afternoon off, out of the office.

DEU37: And the land itself is owned by the borough council or countryside service, the land itself is owned by the town council and they support us financially to manage their land basically.

INT: Great Thank you. Does the data that you do collect does that inform any decisions as a voluntary group going forward or now.

DEU38: I don't think it does, to be quite honest. The nest boxes are in position, and all we do is clean them out and record, whether they were used or not. We don't do anything more with them, sometimes we do very simple observational tests, I mean. We stuck bits of wool into the nest and recorded how far we found bits of wool in nests and found, that we would find bits we did find some bits about 120 meters away. And we wanted to put some red wool and some black wool up and we found that the birds very definitely like red, but they just didn't touch the black but apart from that and adding to this plant species list if we see something we haven't seen in the wood before I don't think we're doing much else.

DEU37: No, I don't think at the moment we're particular users of data. But that being said, as I say, if the data was completer and more usable, then maybe we would track flora over the years, things that have got better or got worse. We would use that sort of data, you know, maybe to modify our management techniques.

INT: So, a more complete data set.

DEU37: Yes, yes, but to some extent there's nothing to stop us doing that now, apart from having the a bit of guidance as to how to go about doing it properly.

DEU38: The thing I would like to do more with really would be, as an applied entomologist I feel really guilty that I don't take the initiative, but there's a big difference between an applied entomologist and a taxonomic one is to know more about the, not just insects, but other all invertebrates within the wood. Partly because of course there's more invertebrates and plants than any other group of animals. And it would be useful to know what's there because it's a very mixed habitat with young trees that we've planted mature trees that are in the full bloom of life and a lot of deadwood so there should be insects that live in all three environments there, and that is something that would be quite nice to have but when I spoke to the guy who put up light trap and who is a member of [BRITISH ENTOMOLOGICAL SOCIETY] he didn't offer to help us any further I’m afraid we didn't push it either.

INT: That's great. So, we're talking about some improved guidance from people and more information about insects and botany.

DEU37: It's one of these things that once you're sort of shown how to do things properly, how to survey properly. Then it's something that we can then become autonomous and do these things once a year, or whatever, but it's initially sort of knowing how to go about it.

INT: And presumably this engagement has to happen in person, you don't want someone to just send you some documents and then you go through that.

DEU37: It's always better in person isn't it, someone on the ground, showing you how to do something.

DEU38: I’m enough of an entomologist to know how difficult it is to identify, a fairly wide range of the non-economic species that you get. There are so many closely related beetles that just to record them as even families of beetles wouldn't be of any value and to be able to go down to species level, you need to be a specialist.

INT: That's brilliant and if you had a large data set would you do analysis of that data yourself would that be something that you would do if you had the data set.

DEU37: I don't think so I can only think any analysis would only be very rudimentary in terms of are things getting better that's probably all we'd be doing.

DEU38: yeah. I've got quite a lot of irons in the fire and wouldn't want to get much more involved along that line myself either, and I don't think many of our members would either, to be honest, one or two might but I don't think many of our group would really want to.

DEU37: I think as with a lot of voluntary organizations it's very difficult to get people to sort of volunteer past the sort of initial turning up on a Saturday, going to work and the organization behind that. Unless someone you know became particularly interested in following up on the record taking probably be left to us and [DEU38]'s got a lot on his plate, he's involved in all sorts of organizations.

INT: Brilliant. I would ask just quickly so maybe on a personal level, do you have interest in data sets nationally or on regional scales as well.

DEU37: No, not really. Only as a passing interest but no not for the work that we're doing now.

INT: Okay yeah.

DEU38: I don’t anymore but when I was working for [ENVIRONMENTAL CONSULTANCY]. It was the government advisory service and the one aspect that was of interest was the movement and distribution of new pests and diseases that were forever coming into the country either things that are endemic to the southern part of the country, moving upwards, as the climate got more mild or foreign imports imported on usually on timber, wood or plant material from abroad and how the spread and that was of great interest to me, and the plant health authorities but that's about all and, of course, now I’m retired that's nothing to do with me.

DEU38: Ash die back, for example of new things that are going to affect us every day.

DEU37: It’d be useful to know the sort of progress of those sort of headline issues across the country so that you know we can be prepared so that would be useful.

INT: In terms of your data aspirations, is there anything else that you'd like to add.

DEU37: Well do we have aspirations [DEU38].

DEU38: I’ve forgotten what they were. No, I don't think Joel we have no, you know we're quite happy muddling along doing what we are doing, you know, the main role is making the place as attractive as useful as amenity asset to the public and hopefully, encouraging wildlife generally and educating youngsters really about what the simple obvious wildlife is there the macro floor macro insects in mammals and birds and trees matt about all of us in that direction than I feel we are.

INT: Of course, no that's brilliant. I'm just going to show you some examples of some modelled data now and I don't know if you've used modelled data before at all. I'll show you these and I'll ask if you can interpret them from face value, and then, if you want a bit more information about how they’re processed, I can give you that and then we'll just go from there. So, I’ll just share my screen. Hopefully that should come up, are you able to say that. Brilliant. So, this is for a five-spot burnet moth. And this one on the left here is a raw probability distribution model and are you able to interpret this model.

DEU37: Yes.

DEU38: Yes, yeah.

DEU37: The West Country is doing better than the north and the east.

INT: yeah brilliant.

DEU38: Probably temperature or moisture dependent probably.

INT: yeah absolutely so located mainly in the southwest and so on damp meadows marshes and sea cliffs.

DEU38: And warm. That must be the biggest factor.

INT: Brilliant so that was nice and simple. This again is a raw probability distribution model on a localized scale so five kilometres around a point in Wallingford, which is in Oxfordshire. Again, are you able to interpret this at face value.

DEU37: Yes.

DEU38: I wouldn't be at all surprised if those are high ground or if it's something to do but there's obviously far more in the bottom right hand side at 20 past, what if, for some reason or other and patches when there's very little and whether those are box of hills at a folder I don't know.

DEU37: I'm a little bit unclear as to the point of the two charts the probability distribution on the left and variation.

INT: I’ll come to the variation later. They sort of work together. And the variation one can be a bit more confusing.

DEU37: yeah Okay, I was confused with that.

INT: The left one, and so, in terms of the process of the model. It uses 21 land cover variables and 19 climatic variables, along with an understanding of the conditions in which a particular species is found, and the available literature. And this sets the probability of the species being found in a particular location and it uses a scale of 100 meters.

DEU37: Right. very interesting.

INT: For those and so that is both for the localized scale and at the national scale as well. And in terms of the variation model. So, this one works in conjunction with the raw probability distribution, so they work together and I'm guessing that at face value, these are probably hard to interpret.

DEU37: yeah.

INT: So, essentially the variation model is showing you the amount of confidence that you have in the raw probability distribution model. So the darker the area, the greater the variation in that species distribution, therefore, the less confidence that you have in it being there For example, if we look at the southwest region and on the raw probability distribution is dark green. And then we are confident in that because it's a paler colour on the variation model yeah whereas if we look at Wales, it might be dark green there's a high likelihood of that species being there, but there is also a great variation. So we have less confidence, so this is essentially trying to fill those gaps in so where we are less confident that would encourage recorder effort essentially.

DEU37: Okay, yes.

DEU38: Because the topography in that part of Wales, the middle part is is high ground and low ground, very close together. Whereas, you know far Pembrokeshire is much flatter and much more uniform and therefore your probability of things being as you expect them.

INT: yeah absolutely and I think it, it can also come down to the point of accessibility, as well, in terms of recording.

DEU38: Yes. The distribution of entomologists in the world, definitely reflect the or nematodes in the world, reflect the distribution of nematodes you know that's one of the classic things that's quoted in the literature.

DEU37: Yes, you only find things if you got people looking for them, yes.

INT: I think yeah that's a thing to sort of point out with these models, those that they're only as good as the data that goes into them. And so, just to let you know, the data is from the NBN atlas.

DEU37: But these are presumably purely theoretical models of what, as you say what the probability of the distribution is so there's no feed back into this model as to actual records.

INT: Well, the data that they've used to create these models is from the NBN atlas.

DEU37: Right, it means nothing to me what's.

INT: The national biodiversity network. It's sort of the public recording sort of hub.

DEU38: A lot of the maps, you see our own you know presence or absence on 10 kilometre grid scale, it was I mean the what you're talking about it's a lot more accurate than that.

INT: yeah So these are 100 meters.

DEU38: 100 meters hundred square meters.

INT: 100 meters by 100 meters. So just quickly again a variation model on the localized scale. And so yeah again showing you the confidence that you have. Again, in the role probability distribution model as well. Do you find these interesting and would you find them useful.

DEU38: Not sure we would because we're only interested in this seven hectare wood.

DEU37: But then again it would be useful in an area, you know five-kilometre area around Wallingford, it would be interesting to see where pockets of species could probably be found, that might be interesting. But again, I am confused the part of this, this is based on sort of topological and climate and things, so this is a theoretical model of the probability of finding that, in a particular spot.

INT: yeah of course yeah.

DEU37: yeah okay right Okay, I do understand it and yeah.

INT: yeah, so it is yeah, it is a theoretical model and partially based on data, but then also using the topography and climatic variables as well. Is there anything that you would add to these maps to make them is to understand.

DEU37: I sort of initially found in some say difficult to understand the variation map. It seemed to be the opposite of the probability. The darker the colour that's good. Whereas the variation maps the darker colour not so good.

INT: That is something that has come up a lot.

DEU38: The main thing that comes to mind is when I look at these is why the distribution varies and what I would like to sort of super impose on those maps would be something like the physical geography and on a broader scale rainfall or temperature. So you can see which of these factors is perhaps the more dominant one governing the distribution of the species concerned.

INT: yeah absolutely that's brilliant so with the APP that they are going to create, which would be available online, you will be able to highlight the variables that you what you're interested in and that would be imposed on the map that you want.

DEU38: That would be interesting, but the maps as they are don't mean that much. I would want to know why they are like they are.

INT: yeah of course yeah absolutely so now, these were just sort of maps as starting points to sort of show people and then to gain input from yourselves as to what you would want. And what you would find useful.

DEU37: Would it be of use to show, I mean it could even be done to show actual records of species to say, rather than just probability so, then you know highlight pinpoints of where protect this particular species, as has actually been recorded is that.

INT: Of course, I think that obviously you don't have 100% confidence and that's if species being there, even though it's perhaps being recorded.

DEU37: Is that, because of the reliability of the records.

INT: So these yeah, as you say, are theoretical, but they're intended to give you a pretty confident feel of where the species is likely to be. In that sense, but yeah.

DEU38: As an ex applied entomologist these distributions per se of species, itself isn't of interest to me. It's what matters from the economic point of view, is the numbers of insect in a certain place because very small levels don't matter. But once levels reach economic proportions then they do and so just presence or absence don't mean very much that's my reservation about the distribution on 10-kilometre squares. If you find one in a 10-kilometre square, that doesn't mean anything, what I really want to know is whether there are one or two quite a lot or masses.

INT: Okay. that's great. Was there anything else that you wanted to add any more comments on these models at all.

DEU38: These are all the same species are they.

INT: Yeah. All the same species. So, they have done a few more. But at the moment they are just concentrating on moths.

DEU38: That’s interesting because I was born and bred in Anglesey and I can remember seeing spotted burnet’s as a youngster quite frequently and I lived down in Devon for a time and again, it was quite a common sight.

INT: That's brilliant so yeah, they're just concentrating on the moths at the moment. And then, once they get the application up and ready, and I think they'll be able to branch out more.

DEU38: Again, as applied entomologist I would find these data far more important if you are dealing with economic species, perhaps rare ones, I mean economic species are everywhere, but some of those that tend to be infrequent in their attacks or vary in different parts of the world, I would like the data on economic importance.

INT: that's great yeah.

DEU38: Leek moth is a classic example, and large Narcissus fly when I joined the service both were limited to Devon and Cornwall. And now, they are virtually throughout the country where, when the relevant crop to grow, you know there's just too many large notice fly now in Lincolnshire.

INT: I guess there’s a close link between or very close link between habitat and species. So that would be important in your models as well.

DEU38: Well, I think we've helped oversimplifying it, but we put it down simply to you know temperature rise.

INT: That's great and was there anything else at all or shall I stop sharing screen.

DEU38: I don't feel we're really going to be a lot of help.

DEU37: This is sort of way above our pay grade.

INT: It's been interesting to get your insight into how you feel about these models.

DEU38: How many interviews, have you done.

INT: I’ve done 38.

DEU38: How have most people compared with us.

INT: Very similar to be honest and, obviously, these maps do raise lots of questions and it's very interesting to hear those and obviously we will take everything on board and, yes, similar queries to yourselves and in terms of the people that we've interview so we've interviewed conservation groups, statutory buddies, consultancies and volunteers like yourself so that's been good so we've got quite a range and it's been very interesting to see sort of the perspectives of people. I mean they do differ, but not majorly and obviously people, people will use these models differently depending on the focus of that organization which is understandable and depending large scale or small scale but in terms of queries issues comments they have been very similar but very interesting, at the same time.

DEU37: Good good.

INT: So I’ll just stop sharing my screen now and so that I mean that's everything that I sort of wanted to ask and was there anything else that you wanted to ask me at all or any comments or queries that you had.

DEU37: I mean only about where does it all go from here. Do you need our involvement anymore, in the future. I've got this form here that you wanted sent back.

INT: That's brilliant. I’ll check my check my email after this. So, in terms of the project itself so it's a two year project and we're in the first six months already and in terms of speaking to people like yourself that sort of comes to an end this week. And that will be fed into the process and development of the application and the tool. And then, so that you don't need to do anything else there's no more work that you need to do, but if you are interested in sort of being kept in the loop. With the projects and then I can send you a link and that will give you some information about the projects progress.

DEU37: Okay.

DEU38: yeah yeah that'd be good.

INT: But, of course, if you would like to get involved, then you're more than welcome to as well, but by no means you have to.

DEU37: I think we've probably offered everything that we can offer you at the moment in terms of how we go about things. But yeah it would be interesting to keep an eye on how it's how it's going.

INT: Thank you very much, both of you [DEU38] and colin, it's been very interesting talking to you and thanks for giving up your time to speak to me this morning.

DEU38: Good to meet you and best of luck with the remaining months of the project.

INT: Thank you very much. Okay, take care.