INT: So, I know you work for the [ecology information service] but could you tell me a bit more about your role.

DEU11 My job title is senior ecologist. Essentially I’m the most senior ecological person in the organization we're part of [ecology information service] so we're effectively a department of a governmental body. And my immediate manager is an archaeologist and his manager who's above him is an archivist manager, so we have different those different disciplines within the same organization. [ecology information service]is a bit of a peculiar body it's not a local authority it's something like a second-tier governmental body it's something like that, but. It may be better if you didn't quote, that you may not have to anyway. We are funded by the five district councils in [public service]are quickly rattle those off, they are [five districts] and we hold an ecological records database for those districts. We would refer to ourselves as an ecological records Centre. We aren't a formal ecological record Center in national terminology because we don't fully comply with the ALERC requirements. The reason we haven't done, that is, is mainly to do with time and actually having the staff time to comply with their requirements so that gives us a slight problem. we are at least small organization for the area that we deal with although I suspect most the ecological record centers are. My role within that organization is partly to actually try and manage the ecology team, although I’m not formally a manager I’m a supervisor so that's my grade. The team that I have who work for me are one full time ecological records officer who deals with data searches and putting data on to the database that we've got and she's doing that job at the moment, three days a week, and two days a week she's actually working on a project which is an update of the ancient woodland inventory which is being done across Yorkshire at the moment, so our colleagues in North and East Yorkshire data Center are also doing that, so I know you know, Simon Pickles. And so that's one full time members, a member of staff, and we also have a an ecological surveyor who works three days a week and she was primarily doing local wildlife site information so local niche conservation sites there'll be sinks in North Yorkshire, we use the term local wildlife site in West Yorkshire. And at the moment she's actually also doing the ancient wouldn't inventory project. And she's working on a second project or we will be working on a second project for Calderdale district on a natural flood management project. So vols going out and visiting landowners who wish to do something for natural flood management schemes and assessing the London, they want to do project work on so they might want to put in small water bodies, plum trees or possibly even putting hedgerows to actually break the flow of water in the upper colder environment so that's effectively what the team is doing.

DEU11: The other work that I do personally is I do a mixture of stuff to do with development control work. I do, that mainly for [place] council, which is the only one of the five districts, who don't actually have their own in-house ecologist. And I spent far too much of my time actually doing development control work for [place]. I recognize that actually I spend too much of my time doing that and she'll be spending more time actually working the other districts that's by the by. And the other thing I’ve been involved in quite heavily is strategic planning work.

DEU11: And in particular we've been using our database to develop a strategic planning work. We've been doing a pre public consultation exercise with a lot of the district planning bodies as they're producing calls for sites for local development frameworks to prepare their strategic plans. In the same way as they do with people like the highways team. And all the departments within their own local authorities effectively they before they go out to public they consult a number of different departments within the body within their organizations and doors and asked if we have any reasons why we don't want these particular sites to be considered to be preferred options. When they go out to public consultation, so we get a first bite of the cherry. It's very handy and I’ve spent a lot of time doing that there is an awful lot of housing sites come up particularly across West Yorkshire, or which I have to say when you see every single piece of land that somebody wishes to put forward for housing get a tab depressing. And because your brain is thinking good God if all of this land is going to go for housing what's going to be left for anything else and of course it's not all going forward, it may well be the only a third of the sites that you look at eventually end up in the local. One thing I have tried to do with that, in the spirit of the national planning policy framework is something which doesn't come easily to me, which is to try and be as positive as possible about development and look at the sites and think Okay, so if I put in a hat, which is looking favourably upon this. What do I think really needs to actually be cut out of the proposed site areas to make them actually more acceptable from a sustainable development point of view, and I use the term sustainable development in the in the what I would call the traditional sense of the word, as opposed to the language, which I think has been adopted by many developers. Ecologically sustainable is really I suppose or environmentally sustainable might be a better way. But I’m not really interested in whether it makes a profit margin is adequate for sustaining the requirements of shareholders.

DEU11: Can I just explain a little bit about my background to you because I think it is relevant to you. My degree is in mining geology, so I understand about mineral exploitation. And what that means I understand enough about geology to know that that's the building block for ecology. And the next thing I did with my life I sort of fell out of university with a fairly crappy degree, it was a 2:2 decided I didn't want to travel the world doing geology and I fell into accountancy, which was the soak for university graduates who haven't got a clue what they wanted to do with your life and wanted a profession behind them, so I spent four years training to be a chartered accountant with one of the big accountancy firms. And whilst I’m not qualified, I am a qualified chartered accountant but I’m not fully qualified one and eventually decided to change direction again and I went into the well, I became a volunteer because I’ve worked out that I wanted to do, nature conservation, but nobody in their right mind would employ somebody had been a chartered accountant for four years, to be a niche conservationist. And it was obviously hard enough to get a job in nature conservation anywhere without having this sort of thing hanging cloud hanging over you that you were some sort of accountant’s same time. As a chartered accountant you learn an awful lot about economics about how to do financial planning, legal stuff, and how to interpret the law, an actual fact as a background it actually stood me in much better stead than you might possibly imagine. So when I’m now trying to put together quotes for doing work for projects and things like that the idea of trying to work out what sort of income and expenditure associated with project is and how to account for different things, within that doesn't feel me full of fear. Then time when it came to being faced with things like reading pieces of legislation. If you've been brought up on the finance acts which change every year and tax legislation which is how I learned my law interpretation something like the wildlife and countryside act doesn't fit the full of fear at all. And you will understand, a little bit more about when big elections fitting with act of Parliament, and these sorts of things so primary and secondary legislation, so it has actually given me a good background, if you like.

INT: I guess that transition was not so difficult then?

DEU11: Well, it took me two years and I started off, I mean I’m now a senior ecologist I actually don't consider myself really to be an ecologist at all I haven't got an ecologist training in the sense of my start in nature conservation started with [Volunteer organisation], working six days a week, as a volunteer. Basically, putting steps in and fences in and basically doing practical work. And I then ended up getting a placement, with a national trust for six months and that was on a training scheme, and I did interim NVQs to level three and then went to [city] university to do an environmental management practice certificate, which is the only thing I’ve got in terms of a type of qualification. And then ended up in [wildlife charity] as part of that placement and they gave me my first job in conservation after working for them as a reserves managing reserves officer. So I’ve got a background, then for four years of practical nature Conservation work on reserves and doing some habitat creation work as well, and at that stage and then move to Yorkshire and work for [wildlife charity] 10 years, but that was doing nature conservation and planning related work and then moved to [public service], where I’ve been for 14 years.

DEU11 : I’ve been involved in recruiting people to both Yorkshire [wildlife charity] and to [public service]. So I’ve seen quite a lot of different applicants coming forward for jobs, and that certainly is this is one of the things I’ve noticed, but I have to say, one of the best people I actually consider that I ever employed was a staff member at [wildlife charity]who didn't have a degree at all and he's actually turned out to be extremely good at what he does, and for the role that he was doing and never looked back without and I consider him, if you like, to be a kind of part of my what I would rather glibly call success stories.

INT: Well, I just wanted to draw upon something that you said, and you talked about [City] not having an ecologist. Is there a reason why? Is that just to do with funding?

DEU11 : To be quite honest, I don't really know, but when I worked for [wildlife charity] [city] was the only district that didn't have any Ecologists, then what they did have was they had the natural England office in [City] itself. Now that's closed down subsequently and has been moved to Leeds. At the time, there was not a couple of natural England staff, who seemed to spend an awful lot of time working doing development control work at [City], so I think [City] recognize that they could piggyback on the back of natural England and they've been doing the same thing with [public service]ecology when I’ve been there, so I think they're basically pushing their resources into other areas within the Council of being short changing everybody else in the process. They have talked about getting a district ecologist, but I don't know where it's got to at the moment.

INT: that's great so I’ll just talk about the purposes of using species records data, so what species record data, do you use so that's including species groups and spatial extent.

DEU11 : I use our own database our own database has approximately 500,000 records in it. Those records are predominantly from about the MID 80s through to the current day. They are an uneven distribution of stuff they're biased towards what I would call notable species so that's protected species and species which are on things like the red list of bird conservation concern and nationally notable species, so that can include nationally notable invertebrates, for instance, UK by diversity action plans species. Anything which is in a local biodiversity action plan within [public service]wouldn't to the notable layer and we've also added invasive alien species into that so it tends to be the sort of that tends to be the cream of information that you require for decision making purposes. Until relatively recently, which has been poorly represented in there is actually botanical species because there isn't that many species which would fall within those sorts of categories bluebell is one of the exceptions native bluebell which is on scheduled five of the wildlife and countryside act. And therefore falls into our notable species layer, but there is very little else other than stuff that's on the associate your father man shaggy late sorry there's a few shetty late species. Things like fissile broom rape or a donkey ready to kill outer, which is a nationally scare species and that occurs within the magnesium limestone and so that's on that list. Essentially, when we're collecting information we do quite a lot of what we record our own survey information onto the database all of wildlife site stuff is all got on there, most of that's been done in the last 10 years so that's quite decent up to date information on. We've done all the space species related surveys some stuff on great crested newts some stuff on waterfalls but what we also mine data from funding application ecological surveys, which isn't something that some of the data centers do. But we use volunteers over the last 10 years to actually go through funding applications, we do a lot of work on recording BAT roosts, for instance from ecological survey reports that have been submitted with funding applications and plotting those on our GIs database. And I haven't mentioned it, so far, but I will do, one of the things that we developed in West Yorkshire, which I developed in [public service]is something called the caterpillar layer, and we also developed something called the minimum standards for that surveys in [public service]which has been adopted in various other places and other districts, we took the national standards for BAT surveys, which are done by the back Conservation Trust which basically were well meaning but very difficult to interpret and with the information that you typically have to work with and also didn't take enough account of the political reality of the world that we live in and I’ll go into that in more detail. The national guidance talked about things like an increased probability of a bathroom. A distance of 200 to 400 meters from a water coughs well, is it 200 meters, or is it 400 meters Okay, the reality, from a scientific point of view, is it could be variable but in the real world where you're dealing with an inexperienced planning officer. And we used to make a decision about whether it needs a bad survey or not, and that was essentially what we were trying to do get a planning officer early in the process to say this needs about survey, or it doesn't need about survey black or white. And we both know the world isn't black and white so grazing it book they have if they if the thing was going to be effective, they the planning officers were being forced to have shorter and shorter timescales to turn planning applications round by central government they needed to get a decision made in the process as soon as possible at the time we were facing a situation where we would come in to a planning application process late in the day. And at the end of the hour, we would say this needs a bat survey. And everybody would raise their hands up in the air and say well that's going to delay things by sort of two months, three months, six months. So what we were trying to do was actually get the planning officers to have a system whereby they could make that decision themselves which earlier in the process and say actually before we validate your planning application, it will have to come with a bat survey stop taking until the application is validated and therefore you don't have that problem with the planning or authority consistently failing to meet its targets in terms of turn things around. So it's a political decision is that as much as a nature conservation one we then have to take the national guidance and actually say, well, there are various things within the national guidance that you wouldn't have a clue about. All the time when you're looking at things, for instance, how old is the building if it's an older building, then it has a bigger chance, apparently, of having about roost in it which, having done that work as a BAT roost visitor for natural England. BATs are quite happy with modern buildings, especially if they've got central heating and what they don't like very much is upvc in terms of windows. And they aren't necessarily just associated with old buildings but anyway that's by the by so we got rid of that out of the process and basically looked at defining what. The two main things will was what is a significant distance from a water to a distance from us significant water costs or woodland was and what actually constituted significant water body or significant woodland. We basically looked at various factors and came up with some figures and created a what's called a battle layer which basically. Is a buffer zone round significant water bodies and significant hooligans and that helped to trigger a different course within this within a flow diagram for planning offices to follow. So, it works reasonably well. I didn't find something like 80% of all pipistrelle roosts and it might be nothing that I've been at 65% of pipistrelle roosts and 80% of all the other about species roofs. In the in the trial that we did.

INT: It was quite effective then.

DEU11 : It was quite effective and, as I say, that's that's been widely adopted as part of that think I was talking about harvesting records. As far as we're concerned we work for the planning authority the planning or authority needs to have information and for each planning offices to make decisions and under the CAP, I think it is stand to be corrected on that one but they're supposed to collect information which is relevant to decision making sorry environmental information which is relevant to decision making within the running authority area as far as we're concerned what we're collecting through the planning system about protected species is part of that process. We consider that to trump the comments on the planning websites which basically say this information is used for the planning system only or whatever it says on that. Some of the other record centers don't necessarily agree with that they feel that we should actually be approaching each of the consultants and their clients and asking them whether they're happy for the information to be passed over and putting the records, we are in a slightly different position from, for instance, often a structured Data Center they're not linked to a local planning authority they're an independent body. And they don't have a specific planning function as far as I’m aware. Whereas we do, and it is part of our remit and we are part of the government body which hardly by planning departments to actually be there in the first place.

INT: So, in essence is that almost like a contract that you've got with them.

DEU11 : We we get 50% of our funding from district councils and we have, at some point in the distant past come up with service level agreements with them so, I must admit we've not looked at those for quite some time so that probably about eight to 10 years out of date but if you asked about records we don't we do have a lot of or a disproportionate amount of notable species records on the system, but when we get ecological surveys through the planning system, we also stick those on the on the database and. With our volunteers, we haven't said to them just pick out the juicy bits just pick out the notable species and get those on and ignore the rest we've always considered that it was useful to actually try and record everything that's actually in a report.

And we also keep digital copies of the reports on the system, so if somebody comes back to us and says you found a brimstone butterfly in this location in the middle of December that seems to us to be really odd Can you just can you explain that Just we can go back to the original record, which is part of our GIs data which we can really access go back to the original report and we can say, well, the ecologist recorded that there. But we know that the date of the survey was incorrectly recorded by our staff or our volunteer at the time and the butterfly transept survey was actually done. In the end of March or April or something, and that that actually is the correct date that should have been attributed to a record, so we, we have a record of checking stuff if necessary.

INT: So, do you collect your own data? Do you obtain your data from anywhere else, or is it just primarily through that?

DEU11 : We have been legitimately, I think, taking records from I record and actually transposing those onto our own database. So, we've not chosen in that particular case to record everything that's on my record we try and only think of records which actually you've been validated by somebody. And or probably also species, which is so ubiquitous that it's highly likely that they're actually recorded correctly. And, but if stuff is seemingly a bit off the beaten track. And that that can be anything if it's not been validated by somebody who appears doors to be reasonable, we've actually added to the database. I'm not entirely sure quite how that's going at the moment, but we've been doing that for about four years so it's not a huge amount of data and we were trying to one stage go back. A couple of years, every three months, when we updated our database, so I should probably point out that our main ecological databases on record or six that's our database Program. And every three months we actually transfer this to from recorder six in a fairly manual operation through to map infill GIs. So, the operational side of what I do and what the data search processes all revolves around what's on map info. But we keep the recorded database, separate from that and we've never tried to link the two together an automated. Okay, because i'm paranoid that record a six will fall behind updates in lab info which it will and and partly because I prefer to actually keep the integrity of the recorder six database a bit more secure, so that people can't hack into it quite so easily. And particularly enjoy it, although we will have a backup of its own and so.

INT: What resolution of data, do you use and does this differ for different purposes?

DEU11 : We have tried to record things. At the highest resolution, we can buy it, it depends, to some extent on the nature of the record and we haven't taken a particular particularly scientific approach to how we do that. I suppose the most difficult thing is, if you get a survey and you've got a map in front of you, and you think what am I going where, am I going to put these down the line records the obvious thing is, is that they're all over the area of survey and you pick a site centroid and You probably stick that down as something like a six figure grid reference site centroid and you might stick up all of the sort of general data for that particular survey down at that particular location. If we are doing, for example, a local wildlife site survey we do that it's primarily a habitat survey and we use what I described as a scribe national vegetation classification. So rather than actually doing quadrant analysis which we don't have the resources to do we use an experienced surveyor who can walk around and reach a conclusion about the habitat compartments and produce a species list for that compartment and map that compartment and that would go down after an approximate centroid for that compartment probably again at six figure resolution. If we get that stuff from anybody reports. We will put that down as 12 figure read references 12, 10 figure good references 10 whenever possible and we will look at photographs and maps which are included in the report and see how the building relates to stuff on master map GIs base maps. And we will try and position the roofs as close as possible over the top of weather roost has been shown to be by the ecological the ecologists who's actually done the survey. And we sure that the the doctor she lies within the building so so that you can at least tell which building within a complex and buildings, the roost is in. We put a note on the end of the records in that particular case, and this is the only thing the only time we really do this to say that the the record has been corrected to attend figure grid reference. Because you know the address that the rats you have diagrams and plans produced by the ecologists and it's possible to do that so it's not an unreasonable thing to do to correct those sorts of greed references with something like great cresting newts. We would tend to try and put in grid references largely which relates to the water body that the great crested newts have been found in. And that often means that we're using something like an eight-figure grid reference to make sure it identifies the water body and. I have to confess that my interest is primarily in using the information for properly planning, decision making system decision many am less interested in somebody, for example, doing what your project, I think, might be trying to do, which is using the data. For ecological modelling work, I think that I think that that's actually, what you're using so it depends, to some extent on what resolution you're interested in trying some of that stuff that we've picked up over the years, particularly invertebrate stuff you're talking about stuff that's a 10 kilometre resolution so to figure grid references. And a lot of the earlier data that we had particularly botanical stuff, which was done back in the 1970s, we produced the [public service] plant atlas. A previous incarnation, as the [public service] ecological advisory service learning to [public service] ecology and then into [ecology information service] with a very expensive change of logo or each. And the contactless was done at one kilometer resolution, so I have a load of species information which isn't actually included in our main data searches, which is at one kilometer resolution. it's great in some respects and the fairly comprehensive lists, I think, for each kilometer square there was an awful lot of people back then working on the manpower services Commission, which is one of these can't find the money to pay people, but will drug drugs dredge some people off the dole and give them an extra 10 of them and they can gain some useful experience sort of jobs, back in the 1980s, and so you get people who are wandering around ticking off one kilometer squares and recording every botanical species that we can find in that. As part of that same process, we were also back in the early 90s. We were involved in producing phase one habitat surveys with target notes and all that inflammation one stage got processed into our databases. But there was a problem when [public service] moved from being based at Leeds Council to being based at [ecology information service]and I have this horrible feeling that an awful lot of that data which have been put in electronically was actually last electronically.

But we stopped the paper records, but we don't actually have it all on the database and nice quite frustrating. If somebody wanted to research into the history of the site and they have the time to actually come and look through the paper records then it's still there and it's quite useful. And it's something that I have used periodically over time. If, for instance, you wanted to know about a site and he gave me a great reference for it either look on our GIs map. We have the geo referenced version of the phase one survey from site 1990 we tend to refer to them as but 1990 phase one survey maps. There, a target notes marked on those maps the rest of maps so they're effective we just have an image, I can see the target note asterisk in read on the map. In the days when I was in my office. If I could see there was nothing more up to date over that in terms of the full list, which includes all the notable species and everything else for that patch that's on the computer, there is something like for filing cabinet drawers of target notes from the 1990 phase one survey which order all filing cabinets full of target know inflammation and I will pull that stuff out because it's very easy to sort of, say, well, the world's changed an awful lot in 10 years, yes, your House, but not everywhere it's changed, and if you look at an aerial photograph and you see there's a target know and you think that area on the aerial photograph still looks quite interesting. I wonder what it says in the target note you go to the target know and these people who were working for 10 quid a week. What pretty shit hot botanists know them and the records that they were producing were very good. You can get an interesting species list from that and what's the might does not call myself an ecologist you do develop quite a lot of feel for ecology I’ve been doing for far too long now. And you do gain the feeling for what's. And I’m very opinionated here good bad or indifferent ecologically speaking and you can pick those sorts of things up from those sorts of phase one records, so I still think they're useful information, and I would really like to have the time to actually see all of that information put onto the satellite. The older it gets the less valuable, it seems to be except in terms of trying to make comparisons between the past and the present. Okay, we have quite a lot of paper surveys in our office which fall into that category, we were doing local wildlife site surveys which we called saggy sites of ecological geological importance in the past. And we had quite detailed surveys from 1997 2001 and now we've got another batch which has been done in the last 10 years same sites that's quite a decent continuum of data and we've got some earlier surveys, for some of the sites from 1990 so this information is there in the office it's not being pinned or anything like that, and I suppose it's part of the job as a local record sentence try and maintain.

INT: Is the data that goes back to the 1990s, is that used very sporadically for planning application say?

DEU11 : It would be very rarely used for planning applications these days. What even what it's used for is it, it is that informs me of what is potentially still there, so if there was something there that that told me, there was a I mean this maybe sounds a bit crass but some of the stuff that the little tony's there's a badger set there or budget on that mobile I mean they walk around over quite large territories, but once you've got sets in a particular location they'll tend to stick with them because that set was recorded 30 years ago doesn't mean there isn't still a set there. So I wouldn't turn around and say, well, Mr ecological consultant, I know there's a budget set there I would look at our current more up to date records, we have a badger layer, and I would say. To myself well there isn't any budget records on the budget layer. But if I happened to talk on the fact there was a target note there and had gone and looked at all because it's partly a matter of time and. I just said there, I would say to the ecological consultant, there is a historical budget set record on a set this location when those target notes, generally speaking, when reasonably accurate in weather will put we also have another set of data which is six filing cabinets full of stores, which are. Rather glibly called the pink square sites that's because when I started 14 years ago there were two of us started at the same time. There was me and the other officer who worked for. [public service], who was taken on, because the GIs skills. The two of us run the data Center together, he found this filing cabinets full of information and he rather sensibly came up with the idea that. It could actually summarize where all our information was on the GIs layer by creating a 100-meter pink Square, which represented where that particular site was. OK, rather than trying to digitize a map and it's boundary he put on the square and it put on a put on the code number of the square So if you wanted to know more about what was. In the pink Square you could look at the number go to the filing cabinet and quickly access a watch of information, some of it was crap and sorry when I say crowd was rather crude way of putting it but. Some of it was less than useful. In the past, when they were recording the size, they were often recording things which aren't necessarily useful in the current to make current decisions about. The back in the 1980s, there was a lot of employee in the 70s, as well, there was a lot of emphasis within joint within [public service]. To work on land reclamation projects, so you might find there's a pink square that sits over a calorie restoration site, and it would talk about within the file, it might talk about the pH of the soil. Soil depths that have been put down for particular tree species and have various records of some of the seed mixes that have been put down well. These days, if you're looking at the same site you're more interested in what's actually there now 30 years down the line Hello it's interesting to have that good current information for making decisions about yeah and another potential source of information it's one thing that that some I see as being important, but I think this is perhaps it's an age related thing. I suspect, you probably also see this to some extent with a degree of continuity with people in jobs. That there are there are sort of two aspects of it, one is if somebody's been doing a job for a long time they become stale in the job and can be a sort of stick in the modern a bit of a pain in the ass. But on the other hand, some people in jobs who've been doing the same thing for a long time actually have a degree of knowledge, which is embedded in their head, which you really find would be difficult to replicate most of the time it's not it's not impossible, I suspect, in the future to actually see that every bit of information goes into a central database and that it's much more readily accessible than in some old farts head. That is partly the role, I consider that I have at the moment I’ve been sitting in that same role for 14 years and I now have a fair idea what's actually around I may not know what's in the thing, but I know where to find it. And one of the things I find most difficult to deal with now is that people like [Name] who is one of the staff, who was responsible for writing the plant artless died about three years ago, aged about 85 still doing practical botanical consultancy work more or less up till the time he died. It was really useful to be able to just bring him up and sort of say I’ve just found I don't know particular plant or something it in a record or in a field Is this something that you recall, finding yourself here it's good and [Name] was capable of dredging through his brain and actually coming up with this stuff he's one of these blokes who refuse to lie down and he got really pissed off with people. Considering that he was too old to actually be taken on to do botanical survey work is most of the time these terms like fitter than, certainly when I feel at the moment.

INT: It's very interesting, but I am a little bit conscious of time but just quickly, I think you've alluded to it, but the data that you collect or obtain and is that raw data or is it processed in one way or another?

DEU11 : It's both. And it depends what you mean by process, some of it is raw data, because our own ecologists have collected the information and have put it directly into the computer system through map info. I'll say now, they are not collecting it using GPS coordinates we don't do that. So, there is a degree of error associated with that and that's something you probably need to know. It depends on what you consider an acceptable area to me, but that depends on what people are using the data for but. In terms of processed information. The next step down or open terms of processing, I suppose, would be that an ecologists paid for by somebody else is collecting the information, putting it in a report and we are then gleaning information from the report or in certain situations we get protected species information sent through to us by people who have naturally been licenses and as part of their annual returns, they are submitting it quite correctly to local record Center which in some cases, could be all sorry it could be. Talking about the name of the thing is running out of steam.

I'll go back to processing What else Oh, something I record As opposed all the processing is kind of done by the I record people and also the validation stuff and we would actually tend to rely quite heavily on that. Can I just say about validation we don't have a formal validation process for our records that's highly relevant to what you're trying to achieve. If we were part of a look, I think we would have to send a sample of our records off to local recorders to try and get them to validate the records that we're putting on our system. Most of what we're putting on our system. For from our own records or from ecological consultant records, we are taking a degree of assurance as far as validation is concerned, from the fact that they are. There is a professional ecologist. And at some stage I’ll give you my opinion of the word, professional. I'm not saying that those records are inaccurate in any way he'll be using accurate, as the person the person's competence who's doing it. We're keeping details of who the recorders are all the way through, and if it transpires that somebody doesn't know the difference in a great Christian you and this movement. And there's a consistent problem, or we have a suspicion that they don't know what they're talking about, we have the ability to remove stuff from the record. But we haven't found that sort of problems so far.

INT: And that gives you the option?

DEU11 : It does give us the option yeah instead of Incidentally, we don't when we're doing data searches for other ecologists, we don't give out routinely the names of the people who actually recorded the species. If you if you wanted data search done you'll get the date of the record the species record, both in terms of scientific name and common name if there is one you'll get the tax on group it's in, you will get a count details which might be deaf or scale.

For plants or it might be the number of great christy needs or whatever that's been recorded in a particular pond. You will get the distance from the site centroid or the boundary of the site that you've asked about what you won't get as the name of the person who recorded it. Have a questionable record or a record that you want to know more detail about we can't give it to you directly, we can talk to the person who recorded it and ask them if we can send you their details. That is it's partly. Well it's mainly from the fact that where the like this or not, and more interested in people actually giving us records, good quality records, whether they've actually been trespassing on somebody's land or not. And I’m not interested in basically dropping people in been collecting useful information and supplying it in good faith to the record Center. That is me and if I was working for somebody like natural England, I suspect that will probably be frowned upon. As far as I’m concerned if the species is there on somebody's land it's there that's a fact if that person has to be in trespassing to collect that information. Then I’m not sanctioning what they're doing but I’m quite happy to the record. And I think that's in the public interest to actually have that information I don't like the idea of people hiding behind prophecy of the ownership of land and I speak as a London or I mean I’ve got five acres of land out the back here. I have to say I’m not terribly happy if somebody goes plugging around on it that's because i'm too faced but. When you find somebody sticking various down holes, on top of the badge assess the field, it does make you kind of them ask them a few pertinent questions but. That kind of lost the plot I talked to him to your questions.

INT: More you talk, the more you answer most of them anyway, to be honest, so it's good.

DEU11 : you've got this job of having to go back to the recording and work out what the hell he's saying.

INT: I would ask how do you deal with data gaps?

DEU11 : 14 years ago my manager, said to me. I think it's really important that you actually look through the records that you've got identify the gaps and try and target plugging those gaps. In terms of tax on groups failed miserably or that. But in terms of identifying data gaps within locally designated sites. I consider that to be again, one of the greatest successes that there's been over the last 14 years. So, we recognize that there were two tiers of local designated. Sites within West Yorkshire. An opportunity which rather confusingly is called the second-tier sites and lower tier, which is the 30th site I think first tier sites with triple A size, so the national site. For the second-tier sites which were the sights of ecological geological importance, sometimes referred to as ciggies. There was very good surveys of those there was nvc. Information for those that were surveyed in 97 and surveyed in 2001. We will re surveying them in the last 10 years great data and if somebody had said to you. We want you to stand up a public inquiry and defend this site you'd have gone back to the records and you would have felt reasonably comfortable at least you had a good baseline for trying to defend the site. I was faced with some of the third-tier sites in [City], for instance, when the local development framework was being done and. The only information that we had on some of the 30th sites was a boundary. Totally nothing whatsoever about what was actually the site have been designated for all the sites, you had what can only be described as a one sentence description. So I found myself trying to defend a one sentence description [City] nature area, one of the third tier sites. In a public inquiry where the owner had actually taken a bulldozer to the site and thought that trashed it to such an extent that there's no way it could have any value. Rather, fortunately, the one sentence that I had said that it was with railway sightings site so railway seemed to bed communities, which was a post industrial site. Actually only done was reversed the successful process from the railway cinder beds. And disturb the site quite a lot, which is probably exactly what the site needed periodically. And so I was able to say this, that the public inquiry and they the site was refused to be included within the local development framework so that was one example of limited information, but to be honest. It would have been far better if you've actually had some more information about what species, it was every to be designated for. So, part of the process that we've been going through with in terms of identifying holes in the data was all of the third-tier sites, most of which had very little information. We were going through and actually doing a first tranche of survey work associated with those as part of the process, we rewrote the local wildlife site selection criteria and the expectation, there was that we would set thresholds and criteria for why sites had been selected. And the threshold levels were set so that we were expecting that most if not all of the saggy sites would be included. Provided they were still reasonably intact and probably about half of the 30th sites will be selected. And at the same time we also devise the system, what we describe as a look as a wildlife habitat and network, a district level and we basically worked our way through aerial photographs and information on the database on the GIs layer and plotted out connecting habitat between all of the designated sites across the area, so any of the third tier sites which cease to become local wildlife sites actually fell still within the wildlife habitat network unless they've been trashed turned into some sort of housing estate or something like that. That seemed to me to be a sort of reasonable way forward as far as other data is concerned. We have gone back and try to reserve I reserve a great question news sites in the past doing a kind of quick and dirty survey. We had a project officer was taken on for a period of time and basically his job was to was to look at all of the records that we got for great Christian nudes and get round, as many of those sites, as he could. He wasn't trying to do surveys to full natural England guidance, he was just trying to establish whether there was still great Christian news on the site or not that many men generally a single visit torching the sites doing a rough count and then moving on as soon as he actually found great Christian news on a site, he was looking for another site to look at so he was covering probably three or four sites in a night and he went out for a full season doing that. And that, essentially, I suppose, was kind of what you're talking about that, but what he wasn't doing maybe it wasn't quite what you're talking about he wasn't going to every single person within the vicinity and trying to work out whether they were great christy Newton or the ponds in the area. So that was very much protected species orientated vaguely similar for waterfalls about 10 years ago that. Not anything like as extensively. So, generally speaking, we've we've failed a little bit in that sense, and probably a lot of nonsense, but.

INT: Anything that can help you achieving that perhaps or is it to do with it's not a focus on this time consuming.

DEU11 : It does raise an interesting question, I mean the first thing I think would be quite useful is to actually set priorities for which species will be most important to try and get a better idea of spatial distribution, and I think it's particularly relevant where you're looking at computer modelling, and this is happening with district licensing with great Christian newts at the moment and having operational areas I think cold so some of the stuff that's come out of that from [wildlife charity] I’ve been rather skeptical about but they've been using quite complicated computer modeling to try and actually produce geographical areas where they think that creating additional great Christian new habitat in advance of developments of sites which have no new to populations would be best targeted and having looked at some of those draft maps I’ve been rather skeptical about that.

And when we were asked by natural England what we could do to help the process, I said, you can have all of our great Christie new records. You can stick them into your program as an extra layer to try and help with the modelling process I'm really pleased that I did that, because you know it's one thing to be critical of something, but if you didn't do everything that was within your power to actually make it better in the first place. It really weakens your position and I feel that some of the stuff that was coming out of the of the plan didn't actually make much sense it didn't make much sense to me as somebody who knows a little bit of reasonable amount about great Christian news and distributions. The things which the model was not picking upon which would seem to me to be patently obvious. You don't tend to find that a good place to stick a mitigation palm tree great crested newt is in the middle of a block of terrorist housing, for instance. And so, you would think that if you were doing modelling one of the things to do would be to actually make sure that you exclude anything of that nature, either by doing what I did manually effectively going around across [City] district. I had already had a an urban map, which was a bit out of date and went round and just manually digitized over the top of it blocks of new development and added to that layer that was crude and it didn't involve computer modelling but at the same time, it was more use some extent in excluding some areas which should be using the computer modelling anyway it's more difficult, I mean these things are all new on something I mean I’d rather have obvious example there with terraced housing you'll notice as a terrorist, housing and it's a housing and you don't know that that an area with big Victorian gardens doesn't have. A half a dozen ponds in it says it springs to mind in [district] district says it has lots of gardens with lots of great Christian new problems in. I know this because they also had a test goes development nearby. Every single resident in the area suddenly discovered [species] in their in their garden ponds which might well have been the case. It just shows that you can't necessarily exclude everything on not. Just because he actually fits in with a garden look, but on the other hand, you could exclude everything that's a house or a road from that area and say we definitely won't build on a house or a road because that's not the right place to try and build upon or a factory unit or any sort of structure bit, but you might include gardens. You can do that, Mr clean good that sort of thing I’m sure you know.

INT: I get the impression that ecologists and planning authorities are your main audiences, would you share your data with anyone else?

DEU11 : Well I’ve already mentioned, one which is, which is the natural LinkedIn for the greatest new the other people we've been sharing data with recently we've been sharing it with [forest community]or object and with the wood we're going to with the woodland trust. Because there is an enormous dash for shooting trees in in lots of inappropriate places. If there's a space, you should have a tree in it so don't lie down on the beach. Again, we will talk again we were getting through so many consultations about sites which local tree hugging groups actually identified as potential places that these groups go out basically. God forbid talk to local landowners and say we're trying to plant trees have you got any land, we could stick some trees under local landowners. The ones who are feeling particularly generous and cooperative say we're going to land is not not worth very much if our grazing is concerned, you can stick some trees in over there. And they will speak come from southwest of England, but then. And so you get a group going back to their funding body and saying, well, we found your site landowners willing to plant a third of an acre of trees here and. [forest community] typically are equally obsessive about planting trees and targets in white rose forest and local government bodies all have. Targets associated with carbon sequestration and increasing trade cover and none of them care, but digging up old grassland might actually be releasing more carbon into the atmosphere than planting the trees.

And we were facing and we still are, to some extent facing problems with people trying to stick trees in all over the place. So, to try and stem that a little bit I did something which i've never really done before, which was, I gave to the white rose forest GIs officer. All of our notable species information and all of our local wildlife site information to stick on their computer for them to have immediate access to. And I’m going to do the same thing with the woodland trust because they're often funding tree planting I don't have a problem with tree planting in the right place. What I particularly want to avoid was planting up areas of species which grassland of fan or anything which was a PG site so blanket Bob type areas are marginal blanket book he decides.

And it's not just the local government and local societies that are doing it [forestry department] and justice bad. They have officers who think that it's fantastic to plant trees all over areas of lower than teeth. I’ve heard that from their own mouths and from an ecologist point of view, generally speaking, that's not the sort of thing that you're trying to do. And so, so those organizations I’ve passed on all of our data when you consider that as an organization, we wouldn't survive. In terms of fine finances if we didn't get money from doing data searches charge for data searches. We charge something like 160 pounds or think it's just gonna be might be 172 as of tomorrow or whenever the first of April is. For a two kilometer data search for notable species locally designated sites, we also include nationally designated site boundaries.

We include all the all of the citations for locally designated sites nationally designated sites, people can find them on the Internet so that's not a problem yeah so that gives us about. Rather, this didn't go in a report but it’s probably something about 50 55,000 pounds per year, I think. And that's about half of our annual budget. Without that, we would really struggle to actually survive. Our budgets in terms of core funding from the district has gone down over the last 10 years. And we've been increasing the expected to bring in money from other sources.

INT: So less pressure than on that side aspect.

DEU11 : But it's also one reason why we've been reluctant tohand over all of our our data to the national by diversity network and the wasn't a movement to onstage spearheaded by any way DC to try and encourage all the data centers within West within Yorkshire to actually join up with the nbn and put all the data out there in in a format, where people could could access it. And, as I understand it, having sort of started off down that road, and bn changed their policies without reference necessarily to the people who supplied the data in the first place. I think any way DC have actually backed away from them now because they're concerned that their data is being used in a way which they hadn't originally agreed to. We never passed our data over to the nba and in the same way, because we recognize that without the money that we were able to generate using that data we wouldn't be there any longer. All the data centers in the country might well have experienced the same thing when natural England pulled out their funding for local record centers. We never had any natural England funding in the first place, so they didn't have anything that we could they could pull out from when you.

INT: So would you say there are a number of records centers that are perhaps in a similar position to you now or not quite so much to the same degree.

DEU11 : They might well be yes I don't really want to speak for lots of other records. Because I'm not particularly well connected and I spend too much time with my head in my own planning lists I’m actually integrating with other people. We have a sort of six monthly meeting with all the record centers within Yorkshire so South Yorkshire North Yorkshire [public service]and I presume that you're aware that each of the South Yorkshire districts, more or less as its own ecological records and I don't think all of them do anymore, but some sort of [City] [City] and [City]. Possibly I’m not quite sure it may be that Sheffield actually look after rather than [City] as excel and all the other way around, but so we talked to each other and we understand, to some extent what goes on. I'm speaking to you because [Name] said that you guys were doing this project and thing good me for talking to you and asked me if I wanted to do it and thought it might be interesting. I also I'm involved in amateur naturalist sort of stuff to North Yorkshire. Sorry, not North [wildlife study organisation]my wife's the field office for [information company]. I'm afraid she hasn't agreed to talk to you at the moment. [Name] also suggested that she might do but if there's anything that you want to know about that side of things it's an interesting moment it's interesting isn't it could be of interest to know that I’m not just paid to do, ecology, I do collect ecological records myself. I collect mainly mammal records, but I collect all the stuff as well, and whenever I get that sort of stuff together, I try and pass it over to ecological records centers or in the case of the mammal group I pass it over to the medical record the mumble at the novel group. I encouraged [wildlife study organisation]to actually pass over all of its medical records to. The record centers within the district so being on the committee, if you like, that group. Give me some sort of influence and obviously I declared an interest because I was also working for one of the record centers, but that was agreed in the past. So I see things, both from a professional or hate using that word ecologist a paid ecologists perspective. And what it's like collecting records as an amateur and, because of course some amateur naturalist so quite protective about the records they collect and feel that there is a degree of profiteering going on using the records which they've collected in their time. I feel like I can see those sorts of things from two different perspectives I don't claim to be independent minded, in that sense it just me see it from both sides. I have a person at the moment, who wrote to me two days ago with a freedom of information, request something I’ve never had before work and set out he's in detail his interest in a particular site and his own credentials and how he'd been collecting information on this particular site for at least a decade. And one of the things that's immediately in my mind is if you've been collecting stuff on that site for a decade and now you're wondering about it and asking me for a freedom of information, request and wanting all the information we've got. Within the next 20 days, which is a very sort of in your face kind of way of doing things. Why haven't we seen any of your records at the records and if you're so keen on protecting this site why haven't you been feeding the information through to somebody who advisors consultants who might be interested in development might be interested local authorities, you might be interested in site management work. Why haven't you been feeding that information in you can't expect people to know about it, if you will, bloody tell them. I mean, I still haven't finished with that particular person I’m still not entirely sure what's making them tick. Apart from getting my backup with a freedom of information, request and I emailed him back and said. If you if you want to feed with information request, we can do that. I need to work out how much it's going to cost you for my time to do it because you won't want it done immediately if you'd actually just asked me for the data either given you the data anywhere and I didn't give me it for nothing. That the influence in the initial approach was that somehow we were likely to or had tried to hold out on supplying them with the information. Would you wanted for good reason, as far as I can work out he's concerned about the site he's concerned that we might have been making decisions about the site. Without access to the best available information well what might well be the case, but if the best available information is in his hands. we be expected to make decisions based on what he sees as being the best information. it's a very specific point, but if I use the way I run the data Center is if people want to do the right thing by wildlife I try and do something for nothing. that's my choice, generally speaking, I have that delegated authority to do that. If people wish to do something for development purposes. And then I will supply them with the information, because for development purposes they need as much information as they possibly can to do the minimum amount of damage. To the wildlife interest that I know about, so I don't hold out on people I don't say I’m going to tell you the last minute that there is a bathroom in this building and hope that that will actually somehow sway the development decision at the last minute. The only difference between the concerned person and the person who's paid by a developer to do stuff is that I would quite like a slice of money off the people who are getting paid by developer do it and that seems to be a reasonably what's expected and we have a fairly flat charge you read for doing these sorts of things. If somebody was going on a bit now surprise me, but if somebody wants a one kilometer search or 500 meter search I’ll still charging the same amount. Because the CIA in guidance basically says, you should have a two kilometer search if the if the consultant, which is to try and evade having noticed notification of species from a slightly wider radius. Then i'm not put that in their report. I feel that doesn't meet professional standards, and I will send them a two kilometre search and i'll tell them that we've also provided them with a distance from. Out of the site central site boundary and, if they wish to cut that down to a 500 meter search that's very easy for them to do they have the information in front of them. If they want us to do that also, if I will be down to 500 meters will still cost you 172 pounds because effectively takes the same amount of time to do it.

INT: Despite me asking a few questions you've answered most of the planned ones that I had which is great.

DEU11 : The same questions again, or you think I might have answered them that would like to ask the question anyway, I don't mind doing that. Make sure everything or you can come back to me if you want, and say actually this question, we didn't quite.

INT: From what I can see and hear you have answered most of it, but that would be great if I went through the transcripts and went back found something I would just I think I’m just going to focus on model data, a bit now. As the final section yeah so, how would you feel about using model data.

DEU11 : I would have to say I’m ignorant about what its capabilities might be so let's start by saying that my instinct is to be skeptical because I’m 54 years old and I’ve been doing this for quite a long time and dare I say it's partly what happens when you get older you start becoming skeptical about what's new and different i'm a realist i'd like to think and I recognize that that depends on what you're going to use the stuff for. If you're trying to use it for making decisions, then it obviously depends on what the decision is that you're trying to do with the with the data. There is possibly not enough thought put into whether something whether that sort of data is appropriate for the decision which has been taken and I think that it's a little bit of a slippery slope if you, for instance let's take the the district licensing thing because i've had some sort of experience with that and I know something about great Christian news. You generating model tells tells you or tells me what the probability of Great crested newts being present in a water body is and you tell me what the criteria are that you've used to define what those water bodies are on. And you say you've used aerial photograph analysis looking for any signs of just for example fishing stands around ponds or trackways and car parking areas which might suggest that something is being used as a fishing like and you've excluded all those poems because they're likely to be full of fish okay that sounds good. You have limited it to ponds below a certain size because the great Christian Huge suggests the ponds over 2000 square meters are less likely to have Great Crested Newts well if that comes from national guidance that's no different from what we're dealing with already that's that's great. And i'm already getting some sort of feel for the fact that there is some confidence to be gleaned by what you're doing if you then say well okay. We're looking to create networks of suitable habitat for great crested newts, so that we can try and enhance their ability to migrate across an area and we've overlaid a series of what we consider to be obstructions across that. Then I can see that being quite useful as well, and so the fact that you're sort of assuming that some of the pawns actually either well some of the plans are suitable for great crested newts, but may not actually have the linear. And you're combining that with information that you know about about data that says that that that can be tested using existing data about where known great crested newt populations have at least been recorded in the past in the recent past. And when I say recent that's a bit of a moveable feast in itself but again I would get confidence from that and for the purposes of coming up with a district licensing plan, I could see that that actually would be quite valuable if you were trying to tell me something like what the distribution of this broom rape is within west Yorkshire. I thought would be much more difficult thing to do but then that's probably because i've never really set my heart on trying to do that. If you came up with it with a map map which, for instance, said well all of the sub room rate records that we've got all of them magnesium lines of magnesium limestone so immediately, I want to know. Where the boundaries of magnesium limestone are and i'm not going to use the natural area for the southern magnesium limestone because that was a accrued area that was drawn up with a big fat marker pen on a rather. Low resolution map i'm actually going to use the geological mapping of the bts based geological survey so as my basis for this. And i'm going to exclude these various areas, and then a good going to look up the associated plants, which in this case will be thistle of this whole species saucers human species and look for. A sort of overlap between the two. You might start to end up with something that's vaguely relevant mobility of species is something different, I mean, how do you deal with the woods. Is that is that more difficult or less difficult I don't know. My favourite expression is my ignorance knows no bounds, and in this particular situation, I was have some balance but it it's not something I’ve really tried to put our mind to an awful lot and. It also depends, to some extent on the resolution you're trying to do to find to build a European model or a UK model that's rather different from trying to work out whether occupation lane Ls 24 nine and w is going to be a good place to look for hedgehogs, for instance that's rather different from saying, I wonder what the UK distribution of hedgehogs might be in. Five years’ time with the current rate of development that set out in local development frameworks across the UK and the latter, I would see has an awful lot of merit in it and the former is just pie in the sky and if you were trying to look at, for instance, the distribution of magnesium magnesium limestone grassland communities or woodland communities within [public service]using drone imagery or satellite imagery imagery and false color composite. From infrared visible spectrum light and that combined with information that you know from US soil mapping of the area I would see an awful lot of merit in doing that sort of thing. We haven't talked much about habitats and maybe that's deliberate from your point of view but obviously, the two are pretty much connected together and one of the things i'm quite interested in with the ancient wisdom project at the moment we're doing is there are some indicator species we've got a lot of species information and our system. My ecological records officer has basically been trying to see what sort of linkages we might be able to make between individual species records for long established woodlands, which is the first category of breakdown that we're looking at which is anything that's on the ordnance survey maps and seeing whether we've got information not on woodlands listed as Ancient woodland indicator species which actually color correlate with long established woodlands. That, then, helps us with targeting sites for doing survey work, it might be positive correlation negative so with some states, we might be saying it we're not going to go and look at that site we've already got a list as long as your arm of ancient wouldn't indicator species, we just take that one and say. The only thing we need to do is just have a quick look on on the most detailed aerial photographs, we can find and look at the boundary and see whether it looks like we can take that one off on the list.

INT: Well I’m going to test this ignorance and show you some examples of some other data part of the team has created. I'll just show you them and ask for your interpretation of them and some honest points about how you feel about them. I think what's best is just for you to tell me if you understand these firstly, and then, if you do just explain if it's helpful. So, if we start with the one on the left, perhaps for a six spot burnett.

DEU11 : I would expect that probability distribution is not telling you what is known it's telling you a prediction of where the animal is most likely to be found and I would expect that stuff in green has a higher likelihood of you actually turning off your six spotted burnet moth. Elsewhere, that I would say that it has a distribution, which is more southern orientated the northern with a rather strange. Increasing probability on the east coast of Scotland, which I found rather old. So that suggests that there is some sort of coastal climatic influence, potentially, as well as. As well as a climatic influence which might be in the south of England so i'm probably jumping to all sorts of conclusions there. But that would be sort of implying that I would say that it's telling you also that the oakland area is the pines and the Scottish Highlands and the hills in Northern Ireland are not places I would be looking to find it. The chances of finding this particular species vary between North and 20% chance of finding it also be 40%. So I’m looking at the Can you see my point to is going when I’m. Effectively percentages so from doubles naught point naught I would say there's no chance of finding it in terms of the model is 200% chance of finding it, which is the dark green at the top. And I wouldn't expect anything to be 100%. Not from a probability distribution, I suppose you could say that if you're looking at historical data. There's still no chance of 100% stuff along the bottom access there and.

INT: I’m just going to scroll down So these are the same or the one left as the same as the one you've just described, but around a five kilometer point around Wallingford and Oxfordshire. I'm able to explain the variation or understand like and I have been given a description.

DEU11 : Is this is this to do with the the fact that when you're you have a prediction model that you can't predict necessarily for all geographical areas what the species accuracy is to the same level, so it may well be just off the top of my head that, for instance, the the east coast of Scotland inflammation has a variation level which is what's going to say is higher, but it's higher than the stuff down in the south of England, so I would say that the level of assurance that you could get model was actually worse for northeast Scotland than it was for southern England. What you've called them, but when you when you're doing statistical stuff you end up with a sort of a blog with with legs on the go up and down. And i'm thinking in that sort of its its distance from the. i've done a little bit of that sort of stuff. This is where the difference between somebody like yourself who's gone through the MSc process and somebody like me who's sort of scraped through a BSC. Might actually have a difference because you probably did I would guess it a lot more statistical analysis type stuff in your msc the night, probably did in my PhD in unless it's just depends on what your background is.

INT: I mean weirdly I did more statistics in my BA than I did in my MSc. It was a BA in human geography.

DEU11 : [city] that sounds like we're flag would based nationally. My wife used to work for the farming and wildlife advisory group. Until it went bankrupt. So what's what's causing the variation problem there is that something do with urbanization down there I don't know the area, particularly well, but some.

INT: I’m unable to give you a definitive answer on that but I can absolutely find out for you.

DEU11 : Know it's all right, I have to say i'm not really that interested in the specifics of it, I don't know the area so.

INT: I would just ask one question this quickly. Is there anything that is not shown in the images that would you would find useful.

DEU11 : Depends on what I was trying to use the information for instance, if I was doing a study of something to do with pesticides, for instance, than actually having a distribution of intensive arable land or something like that associated with it might that might be interesting host plant distribution possibly i'm looking at that and thinking it looks like it's got something to do with meadow sweet. I didn't recognize what species, I was looking at, but fully pendula sort of springs to mind meadow sweet so when, if there is some sort of association between a particular invertebrates and some of the feet. Or, or perhaps if there was some sort of it was thought to be some sort of association, perhaps widely thought association, I could see that that might possibly help not quite sure how you would show that you could use you could use the three in three dimensions, I suppose. But it becomes more and more complicated. And I mean if you're using a third dimension, the question then is, would you actually put the variation on the top of the distribution map in the third dimension so effectively you could potentially have a computer model where you are able to rotate the thing through different dimensions and actually you could see perhaps more obviously the link between the variation problem problem variation sort of problem per se but. Effectively, is giving you a degree of accuracy prediction yeah be reasonable. And if you if you thought about flying over the UK not looking at physical height distribution, but actually looking at variations in the in the quality of. The results from the probability MAC that might actually tell you fairly obviously that there were some patches where you ought to be rather skeptical about the results yeah the the technology associated with that was probably fairly easy good at the same time it's. It might be hungry, as far as data manipulation is concerned, I don't know about these things very much but. I have to say i've been messing around with them 3D modeling for for doing an extension on the back of the House and being able to see stuff in three dimensions. I find quite useful I like pictures rather than words, i'm not terribly good at reading and that sounds a bit weird but some I can I can understand, but I don't scan text easily and i'm more likely to remember pictorial images that I am cross stuff so I do, like the maps here. The other thing that might be useful, is actually to sketch in the rest of the boundary of the island of Ireland, not with any detail and it just so you can see that Northern Ireland is not an island off the coast. I know that that's a 30 cream thing that some.

INT: Brilliant, I'll just stop sharing the screen now. Anything else you would like to tell me?

DEU11 : We haven't talked much about habitats and you've talked about species is that because your whole project is very much species focused

INT: yeah.

DEU11 : Because i'm quite interested in how species data can be used for modelling habitat distribution and that is, I think I probably took it on in some of the stuff I might send it through to you, but it's to do with local nature recovery area area maps which I haven't really got into it all and I don't know how to do it, but I suspect that our record Center is going to be expected to try and generate Distance distribution maps for habitats in particular. From a combination of the data that we've got and national. Land Use characterization maps, I think there is probably going to be a hugely unrealistic expectation, with the data that we've got is going to be good for the job. And that somehow it's going to give us a baseline or them a baseline of both of us, and then a baseline, whoever they are, national governments, principally from which to measure by diversity enhancement. And that the idea of biodiversity enhancement might be something that you might want to think quite heavily about. It doesn't happen either habitats. Biodiversity net gain process which is slightly separate but he's going to be involved in the environment act is something which we're already wrestling with, and that is all to do with habitats it's nothing to do with species. So we are looking for sort of 10% increase in By diversity unit, as measured in habitats, using the different metric if that means anything to you. And at the moment we're talking about the 2.2 beta version of the different metric there's a three point something 03 point zero version of it allegedly on the year on the horizons at the moment which should be better, one hopes. But again it's it's all to do with habitats so how you make links between by diversity enhancement. Because diversity, I think, is primarily about the number of different species. We also have to be thinking sort of heading off in slightly different tangents here all the time, but we have to look at now the bio mass of certain biotic groups or species groups and how they contribute towards the ecology of areas. And again, something that they do aware of, but Mr broaden shallow here or Mr ignorant tea or, if you prefer, I don't have a huge amount of knowledge about these things but it's something that I do appreciate, in the sense that I live in an area where I am an island, an island here of relatively rich habitat in a sea of arable prairie. I know that the bio mass of things, what birds in particular can eat. Within my patch here of five acres some mine but it's this patch of five acres. Which is a mixture of carries grassland and screw up and secondary woodland is way in excess of anything you're going to find in the field in front of me, which is been smashed to bits with a power Harrow for about the last week and. This morning was being liberally sewn with nitrogen fertilizer and probably in about three weeks time will get its first dose of pesticide sprayed on it so. Apart from apart from of things which will survive in those sorts of conditions, the number of species and the amount that there is for species to to utilize in their life cycles is greatly reduced. Now whistling even further anti but it's one of the things that that actually knowing about species distribution doesn't necessarily tell you about what's happening in the world. I'm not saying that one is important, and the other one isn't I’m just saying that they tell you what one is 10 the part of the story, and the other one is telling you part of the story. At some stage I think if you're not already you need to be thinking about how you actually join up that sort of data and that might be one of the things going back to your map of the UK. That you possibly could actually try and over print on that map which is whether you can actually predict. Biomass is that the right word of different species within particular areas, whether that actually tells you anything bad about the the health of the environment, I mean that the sort of data that you this anecdotal is things like rob cryptic things like how many things get squashed on people's windscreens when the driving down the road and. You know you, the number of times that you, you must come across in recent times of. Old fogies saying no when I used to drive down there you know you got to stop and wash your wind screen every 200 miles, because you couldn't see through it for the number of insects that was squashed on the window, and I can remember that now it's like it's sort of 40 years ago. And now you drive down the road, and you know you feel slightly perturbed by the fact that are bumblebees crushed into the wind screen or possibly when I’m driving down the line, there might be a butterfly leaps up in front of the car and you think Oh well, I hope I didn't hit that well 40 years ago you'd been happily driving down the one didn't give a shit about our money every month invertebrate splattered on the window, because there were so many of them. So there is a significant problem with the number of individuals, not just the number of different species and that's probably beyond the remit of your project but it is certainly worthy of a degree of consideration. How, you would fit that into your data modelling and data collection thing you might have to make too many assumptions about things. The thing that bothers me most is that that users of your system will not. They will use it, I mean i've described myself as ignorant in many, many sort of phases within this we're all ignorant, to some extent in situations where we've got to make decisions rapidly. And we're looking for something to use to make the decision and quite often we're not interested in the weaknesses in the. Quality of the information that we're using, especially if we can point the finger at it and say now well you know I I based my decision to accept that this particular palm was being destroyed for development.

Because the model showed me that the impact on the overall population of newts in my district wasn't going to be significant. At some stage, you might say, in the model this model has been designed for this particular purpose, and it is not intended to be used for destruction and because I don't actually have the time to actually read that or the inclination to read it I’m quite happy to point at it and say this is the information I base my thing on it's only when you end up in a public inquiry or something like that, and the people on the other side of actually said.

Well you've been predicting this based on on this data honey mustard mustard or new say or, yes, but it's widely recognized as being an authority on this and they turn around and say, well, actually, if you read this paragraph, what does it same as the machine and you say oh it's not to be used for this oh Okay, which one you your argument folds up and it's difficult to know how to phrase those sorts of caveats without rubbishing what you're doing. I’m not trying to get you to rubbish what you're doing I’m just trying to say that that it probably needs easy to follow sort of guidance. What it certainly doesn't need is 400 pages of guidance because nobody's going to be bothered reading that but. Equally I wouldn't want to say you have to express it in one side of a fall because that's that's just ignorant, as far as I can see. If it takes six sides of a four because that's complex nature of it and it takes six sides of equal.

INT: My final question and I feel like I know the answer to this already but the next stage of our project will involve working with people like yourself to co design these data model data outputs. Is this be something you'd be interested in.

DEU11 : I was slightly put off for want of a better expression by the species that you were illustrating in the stuff that you sent around because my knowledge of invertebrates and invertebrate distribution on afraid, is rubbish I might know something about cinnabar, because they used to be the field and the disappeared.

And the connection to rag worts because we've got read words have the feeling that hasn't disappeared, but that's as far as what you were showing me before about six months. I've heard of them, which is a sort of useful thing. Does it matter that I don't understand much about them, what matters more perhaps is that that, although I do care about them, I don't see them as being particularly useful in the decision making processes that I’m involved with I've tried to be honest about this it's not them. But if you're trying to make a planning, decision about anything there is high it's highly unlikely that invertebrates are going to feature at all in the decision-making process. The road very other occasions where you might have UK back post-industrial sites with particular diverse ranges of unusual uncommon invertebrate species, and in some situations, along with all the evidence that might actually help to sway the decision. If you've got an on common butterfly species I wouldn't see that as being something that planners would actually take notice of and a lot of what I do revolves around the planning process. Does that sort of answer your question?

[irrelevant content]

DEU11 : enjoy the rest of the evening.

INT: Thank you, you take care.

DEU11 : It further if you want to get back to me on any other any other points, then feel free to do so either by email or whatever you feel most convenient with that.