The Building Sustainably Podcast

Episode 6: Can Wind Power and Wildlife Thrive Together? With Martin Scott of RPS

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Guests: Martin Scott, Senior Director – Ornithology, RPS

Intro - 00:00:05:

Welcome to The Building Sustainably podcast by RPS. Sustainable, resilient development demands a new approach to how we plan, design, and build. We invite you to join us as we explore real-life case studies and offer practical guidance. Here's your host, Ben Stockdale.

Ben - 00:00:26:

Hi, and welcome to this episode of The Building Sustainably podcast. In this episode, we'll be focusing on ornithology, in particular British birds, and how they fit within the renewable energy sector. I'm Ben Stockdale, so I'm a director in the project and cost management team at RPS, and I'll be your host today. With me, I've got our RPS expert, ornithology expert, and senior director, Martin Scott. Welcome, Martin. Hello, nice to see you. And, would you be able to just give a bit of background on yourself first, and then we'll delve into the topic?

Martin - 00:00:59:

Hello, Ben. Thanks for that. I'm the RPS senior director for ornithology, based in Edinburgh, in Scotland, where renewables and birds are a hot topic. It's not just up here in Scotland, but national, across the UK and Ireland, and it's international as well. So, yeah, it's happening in every part of the world. So, it's a big factor that has been worked on in relation to climate change, and also how the birds interact with renewables projects. Myself, I have more than 25 years of experience in this topic. I actually did my first proper conservation work in 1995, which was doing work for the RSPB, Royal Society for Protection of Birds, and also did a long stint in Armenia, working to sort of map out the birds there. So, yeah, I've got a mixture of UK experience, conservation experience, and international experience. And more recently, I've been working a lot on offshore wind farm, which is a really big hot topic. So, Offshore wind farms have developed a lot this century, and have really kicked on, and we're on to now having very large arrays. Again, Europe's a key player, the North Sea's a main site, but the Irish Sea as well has seen a lot of development, and internationally. So, yeah, I have a lot of experience across all that, and also onshore wind, which has been around that a little bit longer. So, interactions between birds, such as Eagles, with turbines onshore, so I think it's given me a few grey hairs over the years, but yeah, I've been around the block with the topic, and yeah, I like to think I know it quite well these days.

Ben - 00:02:31:

So, ornithology and energy has evolved over the last, say, 10 to 15 years. How has industry responded to that?

Martin - 00:02:39:

Good question. It's evolved massively. It used to be very much a back of the fag packet, so to speak. A couple of sheets of AFO would be written, not a lot more about how one or two birds might interact with a turbine, but it was very much dismissed that easily. Then it came to fruition that in some places, particularly a site called Smøla in Norway, and also a place called Tarifa in southern Spain, that a lot of, in those cases, raptors, sort of Eagles, etc., were interacting with the turbines, and a lot were being killed. So suddenly there was a lot of negative press, and a lot of negative news around bird interactions with wind farms. So there was a lot of research commissioned, and it came to fruition that, yeah, one of the problems, these were poor sites for wind farms. They were unfortunately being put in places where there was a lot of bird activity. So,

there was undoubtedly going to be a lot more interaction between birds and turbines. Since then, we've learned our lesson, and are choosing much more improved sites, or sites that are less sensitive to birds. So it's been a journey. But now, though, it's still a very, very high risk for projects. Projects have been refused because of bird issues, both onshore and offshore. So it's very, very mindful in developers' heads that birds are very important as part of their environmental impact assessment process.

Ben - 00:03:58:

So was that a case of the assessments that were done historically, whilst there was an assessment done, maybe the accuracy or the level of detail that was gone into on those assessments just wasn't enough, and the technology and the way we do it has moved on?

Martin - 00:04:13:

I think it's partly that. I think people didn't really understand what was going to happen, and unfortunately some of the initial big schemes were quite small turbines, and the basis of those turbines were often sort of lattice towers, so birds would be attracted to them to perch. So as birds flew into perch, they'd get struck by the actual blades. So, nowadays you don't see turbines with lattice towers. They're sort of a vertical pole, basically, is the turbine tower. But locations that were picked were very, very high intensely used. So southern Spain has a good wind regime, but it also funnels down a lot of the raptors, which are huge numbers, tens of thousands, birds move between Europe and North Africa every year. So the birds were funnelled down through a point at Tarifa, crossing the Straits of Gibraltar into Africa, and yeah, wind farms got put up there, so that wasn't great. And again, the example from Norway was a site called Smøla, which was a big flat sort of moorland area, but it had really high numbers of white-tailed eagles, and they put a wind farm in the middle of it, so the white-tailed eagles were instantly reacting with the turbines and yet being killed. So there was a lot of negative pressure on that in the UK, instantly, guidance was sort of drawn up, so there would be a lot more work done, a lot more research, to try and plan developments that didn't have those impacts, and we would try and avoid the more sensitive sites.

Ben - 00:05:33:

That's the key challenge, isn't it, to make sure that as we progress more into renewable energy, and in particular wind, that we're doing it, and the positive impact that has on climate change, etc., is there, but it's not at the detriment of the sort of natural world and in particular birds.

Martin - 00:05:49:

It's about striking that balance. We need wind turbines, but we also need to conserve birds and wildlife. I mean, they're part of why we are developing renewable energy. So yeah, they're part of the equation and part of that balance. So yeah, we need to understand the interactions, but at the same time, there's an understanding of using the best scientific evidence and not being over-precautionary or paranoid, and yeah, we need to learn our lessons rather than living in fear that turbines are going to kill every single bird.

Ben - 00:06:18:

And I suppose as technology evolves, or has evolved, the ability to be more accurate in our modelling, I guess, has been, the opportunity for that is there, but there's still always the human nature of actually going out and seeing what's happening out there in nature.

Martin - 00:06:35:

Yeah, so with a wind farm site, we have to go and collect data first before we analyse it. So there's just the two parts. The data typically for wind farms is two years' worth is collected. So that's both onshore and offshore. Onshore, it's typically by humans in the field. So you go out and you do walkover surveys. So you'll sort of cover the site to record what's there, sort of get close to most points. You will also sit around, basically, do what are called vantage point surveys. So it sounds very relaxed, but yeah, you sit somewhere for two or three hours on the trot and just continually scanning and picking up birds in flight and marking down how long they're in flight, at what altitude they are, above ground level, etc. So all that data then gets taken forward to modelling. So there's now really highly complex models have been evolved which can then calculate and allow you to assess the risk factor that birds may actually collide with any turbines in the future.

With that as well, and offshore, historically it used to be guys in boats, kind of two men in a pea green boat would be out recording birds flying around, but that's not happening anymore. So there's been a shift from boats to doing aerial surveys. So it's aircraft, usually with a pilot and a camera operator in the aircraft, and a camera system is in the belly of the aircraft. So they fly out and record footage, and the photographs come back, the images come back, and they're reviewed in the comfort of an office by biological experts, by birders, who can then put names on it, and it gets mapped out that way. So that's become the safer way of doing it, rather than having people continually out in boats in poor weather.

Ben - 00:08:11:

And is that, obviously, the health and safety aspect, but is that also as a result of the sort of scale, or these wind farms now, that's becoming the most efficient way of doing it, because the scale and the location are further out in, I'd say?

Martin - 00:08:25:

Very much. I mean, there was a time when a lot of offshore sites were just offshore. There's ones at Blyth in Northeast England that are just offshore. Some of the ones off North Norfolk aren't that far out, really. But now we're looking at going 100 kilometers and more out into the North Sea. So, yeah, to go out and do that survey in a boat, even before you get to site, you're looking at five, six hours sailing time in a boat. Whereas an aircraft can nip out and sort of do these sites in a day, whereas from a boat, you're looking at three, four days at a time. So to find that weather window of three, four days' time of suitable weather is quite difficult, would I say. It's much easier to send an aircraft out for a single day.

Ben - 00:09:00:

And then I suppose that moves on to the second point I wanted to pick up on in terms of those more modern assessment approaches that are being taken. Obviously, you just outlined one there in particular, but are you seeing that that's changing the way in which we're assessing sites? Is changing as technology moves and also the type of development we're looking to roll out changes as well?

Martin - 00:09:21:

The whole assessment process has got more complicated, I think it's fair to say. We generate a huge amount of data, a huge amount of numbers. I've heard some developers referring to it as DRIP, which is data-rich, information-poor. So we produce lots of numbers, but we don't always analyze what those numbers say to the detail that they could be. On the other hand, Yeah, we have highly complex models. So when we put data into the models, yeah, a model is a tool. It gives you a result, but it doesn't give you an answer, so to speak. So you still have to interpret the numbers that come out. So you could throw numbers around as much as you like and actually play with different factors to come up with different results. But you have to be able to understand those numbers. And as good as mathematical modeling is or statistical modeling, one of the problems with modeling is it doesn't account for biology. So there's always a factor in there that bars do things differently and are incredibly hard to model. It's just basic biological behavior. So having an understanding of that and mixing that with the numbers and then mixing it with real life is the way forward and gives a very pragmatic and common-sense approach.

Ben - 00:10:27:

Yeah, because I suppose obviously even the best models are based on historic data and trying to forecast how that's going to impact what's going to happen in the future. But are you seeing changes in patterns of behavior from birds that may be caused by climate change or warmer environments? Obviously the models and the systems and the data don't effectively know about yet.

Martin - 00:10:49:

We definitely are. I mean, in my lifetime, gosh, 1995, I saw my first little egret in Scotland, which is a sort of white species of heron that you get in the Mediterranean. Now they're breeding in Scotland. And now you go out and see near Edinburgh, you can go and see five or six in a day. And you don't really bat an eyelid anymore. So there's been a massive change in status. And a lot of bird species have moved north with climate change. And their status has changed. But what we are finding with a lot of birds is that they're

learning to habituate or live with wind farms. Eagles, for instance, we found there was very high precautionary levels being flagged. So it's still a risk. So we're not saying it's all good. There is definitely still a risk there. But the evidence is showing us from wind farms that Eagles and wind farms can grow. The eagle population in Scotland in the last 20 years, golden eagles, has increased by 15%. And at the same time, that's been a massive rapid rise in development. Of onshore wind turbines. So the two have gone hand in hand. So yeah, it shouldn't always be fear and negativity. We have to actually look back and see where we were. A lot of the old predictions were massively precautionary. And we need to temper that a bit these days.

Ben - 00:11:58:

Yeah, and I suppose even from a human element, you know, that having onshore wind farms is becoming more natural. We're seeing, you know, perhaps 10 years ago when you saw the first few up here, it was in addition to the landscape that you were seeing. But now it's becoming almost the new norm that it is now becoming part of the landscape. What you see when you look out, and I suppose birds are adapting in a very similar way.

Martin - 00:12:21:

Yeah, no, it is. It's very true. They're now a regular daily occurrence for many people. I passed through Edinburgh Airport the other day, and there was adverts for a company and they had wind turbines in it. I think the Co-op recently have had adverts on their supermarkets, which have had wind turbines in the background. So yeah, the human perspective is definitely changing as well. I think it's generational as well. The sort of younger people, obviously everyone's aging a bit, but in the last 20 years people have become used to them and understood that there is a need for renewable energy. I think by the same token, birds are clearly adapting to wind farms. We find it's very broad brush, but we have found that, yeah, initially when a wind farm gets built, birds keep right out of it. They tend to be avoided through the construction phase. So there's a lot of noise, there's a lot of human activity. They tend to keep away. Then gradually, it can sometimes take two or three years, birds creep back in. They start to explore it a bit, but they're obviously aware there's turbines there. So their behaviours change. We've seen that offshore, for instance, the gannets, they don't like turbines, but they're obviously aware they're there because they keep a distance from them. Other birds we've found, such as kittiwakes, which are a small species of gull, they're using them. So they're moving in, they're perching on the walkways underneath, they're sitting around, because if you're a kittiwake at sea, this is a handy little stop-off point. Yeah, why not? A little rest point. Why fly all the way back to your cliffs for a rest when you can just sit around on the structure that's sitting there? So that's good. We've always known some of the things would happen offshore. So, we've seen that kittiwakes in particular would breed underneath oil platforms and gas structures. But they've always been incredibly difficult to count and sort of get a handle on that. And I suspect longer term, that's exactly what's going to happen with wind turbines and the walkways underneath, that the birds will start to utilise them even more.

Ben - 00:14:09:

Just wanted to jump back a little bit on when we were talking about technology. Obviously across every aspect of life, but in particular construction and development, AI is becoming more and more prevalent. Are you seeing that in your world as well?

Martin - 00:14:21:

Yeah, there's a definite move into that sphere. I suppose the bat people will be ahead of the game because of bat ecology. So they've been putting devices out for years to record bat activity. So similarly now, we're starting to put more devices out into the field to record bird calls and bird sounds. It's a little bit trickier than bat, because there's a lot more sounds to be filtered out due to different frequency levels, etc, with birds. But yeah, it works. And it's beyond being in its infancy. It's an emerging technology. There's other methods as well. There's putting cameras out. So again, camera trapping has been a way of recording mammals for years. But yeah, we can put cameras on turbines now when they're up, often either at the base of the turbines, pointing up, or at the sides. And yeah, RPS were heavily involved with the project in Aberdeen Bay with Bath and Fal. And THI, a Danish company. And with that, we ascertained that, yes, seabirds weren't having the interactions with turbines that had been expected. Again, it seemed that a lot of the issues that were being flagged up were not as severe as was being raised. And birds were avoiding them, again,

particularly gannets. But yeah, thousands of records of seabird movements around the turbines were made, but there was not one collision recorded. So that's good news, but at the same time, we need to take that forward into future development appraisals.

Ben - 00:15:42:

Yeah, so obviously it's very good news for the birds, if they're not being impacted as perhaps first thought, but also from a development point of view and expanding the opportunities within Onshore and Offshore wind farms. That level of knowledge and that level of data is also valuable because that can be used to demonstrate how future development can work and maybe making those assessments a little bit more accurate and maybe less pessimistic, as you said at the beginning.

Martin - 00:16:07:

Yeah. No, we definitely have to start taking an evidence-led approach. It's the only way. We need to learn from what's gone before. Always being precautionary does nobody any good. It delays the planning system. It delays development. It has negative impacts for investors. It has negative impacts for all of us users of energy and power. So yeah, we need to slicken things up in the planning system. And being less precautionary and being more realistic would go quite some way to helping that in the ornithological world, that's for sure.

Ben - 00:16:35:

And then you say in that planning process, obviously, as we said previously, as people are more and more used to seeing wind farms, are you seeing a change in when you're engaging with stakeholders through that planning process? Are you seeing that change in their approach and their view on it?

Martin - 00:16:52:

We are a bit, but it's not moving, I think, as fast as we would like. So there's an understanding, but when you bring evidence forward, you're often told that that evidence is site-specific. And maybe every kittiwake won't react like that. Maybe this was site-specific to this one site. And birds in Scotland may not react the same way in Yorkshire or in the Irish Sea. But you have to start making some reasonable assumptions and trying to understand the data a bit more and seeing what's coming up. I mean, birds have been hit very hard recently by HPAI, which was bird flu. So it was a big bird dial. And there's real fears that wind farms would add more pressure on to them. But yeah, we've seen a bounce back already, sort of a start of a bounce back of bird populations. So I think it's looking more and more like the two can go hand in hand and not just survive hand in hand, but start to benefit each other. Offshore wind farms, for instance, kind of have a reef effect offshore. And yeah, that may draw birds in. But if it draws birds in that are flying at lower heights and not flying high at blade height, it's almost ridiculous or preposterous now to think that birds don't understand that there are blades turning around. All the evidence shows that they know they're there. They are not daft, and it's a little bit of survival of the fittest in biology that, yeah, unfortunately, the really daft ones will hit the blades. But that seems to be a very, very rare occurrence.

Ben - 00:18:11:

Moving on to sort of the regulation within the industry and the regulators, are you seeing that element of the industry changing as well and being adaptive? Are they open to that collaborative approach from developers as well?

Martin - 00:18:23:

They're certainly open to discussions, and there's a lot of discussions going on. I think everybody understands that regulators have a job to do and that they are always going to be that bit more precautionary. But it's kind of trying to close that gap now. We need to start looking at post-construction evidence that's coming through. So there actually isn't that much post-construction data, but maybe just getting a little bit more to flow. Then we can look at it and actually see if the impacts that were raised in the environmental impact assessments that are done before construction and before operation, are they realistic? Did they happen? If before we were planning and planning saying that 200 geese were going to be killed within the first five years of a wind farm, can we go back in the first five years of a wind farm and see,

were 200 geese killed? Is there evidence of it? And yeah, if there isn't that evidence, we need to try and understand why. What's happened? What's changed? And how are the birds actually interacting with it? So yeah, it's overall, it's a very pragmatic approach.

Ben - 00:19:17:

Yeah, and bringing and comparing, as you say, the reality of what's actually happening out there versus what was modelled and assumed to be two, three, four, five years and looping that back round, I guess.

Martin - 00:19:29:

Yeah, it's having an open mind and an understanding that a model is a tool. So, it provides a number and you can hold onto that number so much and use that to sort of guide your thinking. But if you really, really hang onto it or are absolutely obsessed by 7.2 of a puffin or whatever it is, yeah, it's not really going to get you very far. You have to understand the realities of these things and their guidance is what it is. It's not set in stone. So there just needs to be that slight tempering of attitudes, I think.

Ben - 00:19:58:

Just, I suppose now, just looking at what's next, what's coming, the future outlook, in terms of our Ornithology and particularly within the energy sector, what are your thoughts on what is coming down the track and what trends do you think you'll be seeing coming?

Martin - 00:20:13:

Well, I think, yeah, as we've just touched on, there is a little bit of post-construction work done, but there could be a bit more. Totally understand that developers don't want to really invest in that. It's a burden for them. It's another expense, which ultimately gets passed on to us as the final users of electricity. But yeah, it may be that we have to start thinking, we need to do more post-construction monitoring and seeing how birds do interact with wind turbines. Long term, the next phase of planning applications that come along, that information can be fed into that. It may be that we take a slightly different approach and do different things so we can monitor through use of radars and, let's say, camera systems on turbines now. We can put tags on birds, some of them, to track where they actually move and how they interact with wind turbines, wind farms. Again, both of these apply to both onshore and offshore. So there's lots of knowledge. We've got great universities in this country. We're collecting lots of data. Yeah, developers spend often millions on collecting the data. But yeah, we maybe need to move on from this drip approach that we're data rich, information poor. There's massive data sets that universities could use. And we start to learn how birds are actually reacting and get some of that information out there. Scientific papers and knowledge. And there's a big consultancy world out here with people who have a lot of experience and take that experience and work together the industry more as a community than they ever have before and really band together and work with regulators. It shouldn't be a them and us situation that the regulators take one hard line and are polarized from the developers and consultants. The two sides need to move closer together and try and move things forward in a very common-sense approach.

Ben - 00:21:59:

Yeah, and I think when we spoke previously about it. Obviously, from your point of view, ornithology started out as a hobby and a keen interest and it now turned into a career. But at the heart of it is still that desire to, or that love of birds and that desire to protect them. And that's the same on the regulator side and everybody within the ornithology world. The main focus is protecting birds and doing right by them, I guess.

Martin - 00:22:26:

Exactly. I went to university in Aberdeen. I'm a quantity surveyor. I practice as a quantity surveyor. So I have a good knowledge of the construction side of things and that's helped me in good stead through this. So I have a real understanding how the infrastructures and turbines work. But with that, yeah, my hobby has always been birds. I've been interested in birds since I was a little kid, since I used to go out on my BMX along the cliffs at Arbroath to go and watch puffins. And even now, when I go to the footballs on a Saturday, yeah, I watch the gulls and watch how they come down onto the football pitch or start seeing migrant birds. They're passing along the coast when I'm at Arbroath. So yeah, I've always got an eye out for birds and I've

always had an interest. So I'm fortunate that, well, I think it's fortunate that my hobby, there's always a grey line between what's work and what's a hobby. But yeah, you develop all the time an understanding of how birds react with humans and where that goes.

Ben - 00:23:18:

I won't make the point that watching birds at the football is a reflection on the level of football that you're watching. I won't make that comment.

Martin - 00:23:26:

No, let's not go there.

Ben - 00:23:27:

I think we've covered a lot of ground there. Is there anything that you wanted to sort of just make the point and key takeaways or conclusion from the discussion that our listeners, you'd want our listeners to keep hold of?

Martin - 00:23:39:

I think the key take home is when farms and birds is all about location, location, location, there are risks. But we can work with those risks through mitigation and careful planning. We need to increase our understanding. But when we do collect data, we need to then use that data. Data shouldn't just be collected and put on a shelf and left in a corner. We need to use it and understand it and have a calm, rational, pragmatic approach. And all parties need to work together, developers and regulators. We're all aware that the regulators have been squeezed and it's a lot of pressure on them. But if we are to fight climate change, and we've seen recently some real sort of negative impacts in Spain from climate change we see gradual creep in climate change, as I say, through egrets and warmer species moving north into the UK. So there's continual change. There's no such thing as a set baseline. But yeah, we need to take a pragmatic approach and try and develop in harmony without being too much of a pun. But yeah, that's what we need to do. We need to move forward sensibly on that.

Ben - 00:24:42:

Yeah, and if onshore and offshore wind is going to be a key part of our energy strategy moving forward, which it is, then it's important that we do strike that balance between that need and that development and obviously keeping the whole of the natural world, but in particular birds, protected and having that developing stream of data available to us. As long as we analyse it correctly, that's invaluable in making sure that we can continue to move forward in the sector.

Martin - 00:25:07:

Yes, very much the case.

Ben - 00:25:09:

That was a really interesting discussion and I'd just like to obviously thank you for your time. And hopefully our listeners will take a lot away from that discussion. Thanks very much Martin. Enjoy the rest of your day.

Martin - 00:25:19:

Will do, thanks.

Outro - 00:25:21:

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