

Audio Transcript: Tales from the Decant: The Weird World of Ireland's Stinging Wasps

Video Length – 33:47

Time Stamp	Audio Transcript
00:09	<p>GERALDINE - Hello and a big warm welcome to you all. My name is Geraldine and I work in the Education Department at the National Museum of Ireland - Natural History. Thanks very much for joining us today as we explore the next topic in our online talk series Tales from the Decant. Today's broadcast is a closed YouTube live event, with a pre-recorded talk that will last about 20 minutes and then we will go live for a Q&A. The entire event will be posted online at a later stage. If you would like to ask any questions, please use the chat feature on YouTube and please be aware that to post a question you will need to have a YouTube account.</p>
00:49	<p>GERALDINE - Right, so I'm really looking forward to today's talk and I must admit that I've always been a fan of the misunderstood in the animal kingdom so I'm delighted to be learning more about the weird world of Ireland's stinging wasps, so without further delay I would like to introduce our speaker and my colleague Dr Aidan O'Hanlon, who is the curator of entomology, or insects, at the Museum. Hi Aidan, how's it going?</p>
01:14	<p>AIDAN - Hi Ger, all good, thanks. Broadcasting here from our Museum stores in the entomology collection.</p>
01:21	<p>GERALDINE - Brilliant, looks really cool. Fantastic. Well, I'm looking forward to your talk so I'll just hand straight over to you Aidan and if you can share your presentation now and I'll see you back here later when we're live.</p>
01:31	<p>AIDAN - Great, thanks Ger. So today I've set myself the difficult task of trying to convince people that wasps aren't evil and horrible, at least not all the time and at least not all of them, and in fact they're quite admirable little insects that I think are worthy of a better reputation. So that's my aim today, is to try and change some people's minds and convince you all that wasps are interesting and important.</p>
01:55	<p>AIDAN - And so what are wasps? They belong to a very large grouping of insects called the Hymenoptera which means that their front wings and their hind wings are connected by a series of little hooks and that's the feature that all of Hymenoptera shares. It includes the familiar wasps, bees and ants but</p>

	<p>also maybe the less familiar hymenopterans, such as wood wasps, or sawflies, and parasitic Hymenoptera and there are thousands and thousands of species of these around the world.</p>
<p>02:24</p>	<p>AIDAN - A key distinction between the stinging wasps and the other groups of wasps, or the other groups of hymenopterans, is that stinging wasps as you may have guessed sting whereas the other groups don't. So for instance, wood wasps like this Irish species, the giant wood wasp, it has a kind of intimidating looking stinger but it's functionally useless, as do most of our parasitic Hymenoptera. These aren't stingers, they possess no venom, they're not a functional sting and instead they're egg laying devices called an ovipositor which means egg positioner and one of the unique features of our stinging wasps is that over evolutionary time they've come up with an innovative and new use for these egg laying tubes which is that they've weaponized them and they use them now to put into prey animals while they sting.</p>
<p>03:10</p>	<p>AIDAN - So that's what the Aculeates are they're the stinging wasps generally and Aculeata comes from the Greek word aculea which is a barb or a thorn or a stinger. There's about 65,000 species of Aculeates, so the stinging Hymenoptera, worldwide. In Ireland, we've got over 220 species, give or take, and they're really a fascinating group.</p>
<p>03:32</p>	<p>AIDAN - So these are the group that includes the stinging wasps. In Ireland alone, our stinging wasp groups are really diverse. So this is a family tree, if you like, that shows the different families of wasps that we have in Ireland. They're as diverse from one another as you could imagine.</p>
<p>03:49</p>	<p>AIDAN - So for instance we have things that you may not consider wasps at all. There are crazy little insects like these dryinids they kind of look like ants and the females are wingless, they're almost microscopic and they have raptorial claws on their forelegs, so quite like a lobster or something like that. They use it to capture prey, aphids or plant hoppers or something which they feed to their babies. We've also got these beautiful ruby-tailed wasps or cuckoo wasps, we've a family of those. We've got weird little flat-headed wasps that we don't know a lot about. We've got other groups of wasps, these are digger wasps, or sand wasps, and they're solitary nesters, so the females go out and capture flies or crickets or something like that to feed to their babies and they're more closely related to bees than they are to the wasps that we think of as traditional wasps. And then we've got the other group which contains the traditional wasps that live in nests and they're quite scary and aggressive we think and we don't like them but even of those only half of them are our social nesters and the other half are things that we're not familiar with really at all in day-to-day life. Then we've got other even weirder groups like the spider wasps which as you might imagine only eat spiders and other crazy things like velvet ants and so on that are really quite mysterious.</p>

<p>05:01</p>	<p>AIDAN - It might interest people to know that ants and bees fall quite comfortably within this group, this overall group of stinging wasps. So bees essentially are fuzzy vegetarian wasps. So if you think you like bees but you don't like wasps you actually do like wasps but maybe not these ones! So this is the type of thing we think of when we think of a wasp, these yellow and black stripy insects that have kind of angry faces and an aggressive reputation. The word wasp comes from an old Germanic Saxon word, the root word 'webh' meaning to weave and this is in reference to the fact that these kind of wasps, they weave these beautiful paper mache nests out of wood fibres mixed with saliva. So they're the wasps that we're most familiar with probably but it's a great shame because they're the minority of wasps most of them are really bizarre creatures and we need to know more about them. So for instance there was a nice study that came out of the UK a couple of years ago and it asked people to write down a word that they associated with certain insect groups and what was interesting was for wasps so you can see on the top left here, the words were emotive and they were overwhelmingly negative so words like sting, annoying, aggressive, angry, scary and so on. Whereas honeybees, people used, or bees, generally people use more complementary words to describe them - honey, pollination, bumblebees, flowers and beautiful and so on.</p>
<p>06:25</p>	<p>AIDAN - So we know that we don't like wasps but it's a great shame because they're very important. It's been shown in a recent review paper just how important they are, the types of jobs that they do in the natural environment. So they're pollinators of course, but more importantly they're essential in pest control so in regulating the populations of insects that eat our crops and things like that, so caterpillars or green flies or things that might damage our crops or our garden plants and so on, so they have a role kind of as nature's bouncers, if you like, or private security force. And the reason that they make such great agents of biological control is that their larvae are carnivorous, so they feed on animal protein.</p>
<p>07:09</p>	<p>AIDAN - So for instance, this is a nest of a social wasp, this is a common wasp, and these ugly little maggot-like larvae and each one of these will be fed by a worker wasp bits of bits of insects, that they need the protein to help them develop and emerge later on as an adult. And then in the solitary wasps which are most - our wasps they're provisioned with a single insect or in this case a spider and it's up to the larva to figure out how to eat it itself, they don't have a cast of workers feeding them. So that's why they make such good agents of bio control is that half of their life is spent eating, eating dead animals, eating other insects, which is why they sting as well.</p>
<p>07:47</p>	<p>AIDAN - So we often think of wasp stings and bee stings as a being used for self-defence but in wasps it evolved primarily as a hunting weapon, so a venom delivering tool that they use to subdue prey so this is true of the social wasps. This is a social wasp sting on the left, the common wasp, and on the right this is a small little digger wasp called Tachysphex pompiliformis and unfortunately it doesn't have a common name but you can see that the venom</p>

	<p>is powerful enough to subdue something many times larger than the actual wasp itself. This is a cricket or grasshopper and brings it back to the nest to feed her young. So although the larvae are voracious little predators, the adults themselves don't eat meat and they are mostly nectar feeders. So for instance, adults will go and visit flowers usually flowers with a short corolla, like ragworts and most of our native wildflowers and they'll take nectar to drink from that and they'll visit fruiting bodies on trees on apples of course wasps love apples and cider and everything and they'll also feed on honeydew which is an excretion from aphids and other bugs that feed on plants and they excrete this sugary substance that wasps and other insects love. Metabolic costs of zipping around, lying around, hunting insects all the time and through obviously the adult feeding activities they contribute significantly to pollination, so as they visit one flower a lot of pollen will get trapped on the short hairs on their abdomen and little spikes on their legs and so on and they'll move on to the next flower and drop off some pollen there, so just the way bees do as well.</p>
<p>09:29</p>	<p>AIDAN - Another thing that all of our stinging wasps have in common is that they nest to some degree or other. So social wasps live in these familiar nests which can range in size from something like a golf ball sized nest, right the way up to something that's larger than a car tire or thereabouts. These are some nests from our Museum collection they come in all shapes and sizes. Just to show the kind of diversity of social wasp nests. And at the height of social wasps colony they can contain anywhere between five and seventeen thousand individual wasps depending on the species. So they really are remarkable feats of architecture in the insect world. But again the social wasps are in the minority in Ireland, we've only got six or so species that live in those kinds of nests, in social colonies.</p>
<p>10:19</p>	<p>AIDAN - The majority of our wasps are solitary nesters. And so, for instance, this is the nest of a species of digger wasp called <i>Crossocerus megacephalus</i>, again unfortunately no common name, and this shows a section of a preserved nest from this species that we have in our museum collection and you can see in the dead wood, the female wasp will dig her way through, through the wood, and then it terminates in the end as this little cell into which you'll stockpile prey animals. So in this case, it's flies. You can kind of see the tail end of a blue bottle and then the nest gets, the cell gets, sealed up and the larva will develop in here and eat the poor fly and later on will come out and emerge as the adult and fly around. So these wood nests and cavity nesting species are quite common. It's one of the reasons why our bee hotels and bug hotels secretly are just wasp hotels or they're mainly wasp hotels, but they'll nest anywhere. There's also species that nest in in the ground, typically in sandy areas and sand dunes and kind of peaty soils inland and things like that.</p>
<p>11:25</p>	<p>AIDAN - So this is one of our spider wasp species, it's called the red legged spider wasp one of the few that has a common name and you can see her emerging from her nest that's just dug in the soil and she'll go off and hunt the spider and bring it back to feed to her larvae.</p>

11:41	<p>AIDAN - So I'll just do a very, very quick tour of the types of, the diversity of the wasps that we do have in Ireland because they're really quite cool and I suspect most people don't think of wasps as being this diverse. So the biggest group we have, the biggest family of the digger wasps, or the square-headed wasps, are the crabronidae, we've got more than 40 species of these in Ireland. Again, they're quite difficult to identify those probably waiting to be discovered still here in this country. Most of them are small, blackish insects but a lot of them have the kind of traditional wasp colour too. What's interesting about these wasps within this family, is that males and females often look strikingly different, so it could be something quite subtle like they have different shaped antennae or it could be something quite striking, like this wasp here, it's a species called <i>Crabro peltarius</i>, it's a type of sand wasp, and this is a male specimen, and you can see it's got these quite funky, wavy antennae, but even weirder, it's got these large shield-like plates on its forearms and these are used in mating. So the male will land in front of a female and cover use plates to cover her eyes and they flicker light in, in a certain direction, so the way the light gets pulsed in and out the pattern of light flickering lets the female know that this is a male of the correct species. So they really are quite weird wasps. And again, most of our wasps are these sorts of odd creatures. They've also got a smart little moustaches, most of the species do, so they've either got silvery or sort of gold coloured moustaches and this helps the wasps determine whether they're talking to a male or a female and also helps us to be able to determine which species it is depending on what colour moustache it has, it's often one of the features. So here's a live specimen of an <i>ectemnius</i> wasp and you can see here the nice little gold moustache but also that they've got very large jaws, very large mandibles, which come in handy for carrying away prey items like flies. This is a different type of digger wasp, it's called <i>Mellinus arvensis</i>, it's quite common around Ireland, but another function of these large jaws is also to dig. It's what gives them their name. They dig into wood or sand or soil or even kind of mortary areas in between stone walls and that. They're quite cool species. So that's our biggest group of wasps.</p>
14:04	<p>AIDAN - Another one of our most common groups of species but maybe less frequently encountered by people would be the spider wasps. So there's about 14 or 15 species of spider wasp in Ireland and as the name suggests they eat spiders. They're completely reliant on spiders for their larval development. So like most other wasps the adults eat nectar or drink nectar from flower sources but the females go off and hunt just spiders because their larvae are quite picky and they'll only eat spiders. So on the typical life cycle of our most common spider wasp, this is a species called <i>Priocnemis exaltata</i>, again unfortunately it doesn't have a common name, she goes out and hunts for a spider and then captures the spider and stings it and the sting paralyzes the spider, the venom does. All the while she has to try and make sure that she's not going to get bitten by the spider which has its own venom. So she'll paralyze the spider, bring it back to her own nest and create a cell at the end of her nest where she lays an egg. The egg hatches and it has a paralyzed spider to eat, which it does and then it pupates and undergoes development,</p>

	<p>comes out the following summer as a wasp, so really weird life cycle. And this is the life cycle of most of our spider wasp species but there's one or two tricksters in there as well.</p>
<p>15:20</p>	<p>AIDAN - So for instance, there's this guy. This is a species called <i>Ceropales maculata</i> and quite common across Ireland and she's actually lost her ability to sting. So her ovipositor, which again is that egg-laying device that the ancestral wasps have, it's reverted back to just being an ovipositor, so they don't produce venom. And how she makes her living is she waits for one of her other spider wasp cousins to be in the process of transporting a paralyzed spider back to the nest and then she goes in and lays her own egg in the spider and the other spider wasp then buries the spider totally unaware that there's an egg of this <i>Ceropales</i> wasp developing inside it. The <i>Ceropales</i>'s egg hatches first and then it'll eat the larva of the spider wasp that caught the spider and then it'll eat the whole spider. So she's come up with a strategy to get a spider prey to her larvae without ever having to go out and actually capture the spider and sting it and all the rest of it itself. So quite sneaky and some of the other spider wasp species are so paranoid of this kind of behaviour that they've evolved strategies to conceal and hide the spiders and to survey the area around the nests, to make sure that other wasps aren't watching where they're going to dig their nest and where they're going to hide the spider. So really cool world of treachery and all sorts in the spider wasps.</p>
<p>16:35</p>	<p>AIDAN - Then we have the cuckoo wasps. This is another one of our big wasp groups, there's only seven or so species in Ireland but there could be many more. They all look quite similar but they're difficult to identify. So they're absolutely beautiful insects, they've got this green-y, blue metallic colour on the head and thorax and then this bright, red metallic abdomen and how they make their living, this is a museum specimen of a cuckoo wasp preserved with the wasp whose nest it infiltrated, so they sneak into the nest of the solitary wasp, in this case the potter wasp, but it could also be a solitary bee or a leaf cutter bee or something like that, and they lay their own eggs, as the name cuckoo suggests, in the nest and then those eggs get cared for or get fed by the wasp whose nest it is. Which makes it all the more mysterious that they have such beautiful, conspicuous colours because an animal that makes its living sneaking around the nests of things that could sting it to death, really shouldn't be this brightly coloured and it's still a mystery as to why they are so brightly colored, we're not quite sure. They do have one of my favourite self defences in the animal kingdom, which is when they get attacked they just curl up into a ball and wait it out. This species has a very hard exoskeleton and underneath their abdomen is kind of cup shaped so they can just flip themselves into a ball and wait out the worst of the attacks from the wasps and presumably when the wasp gives up she just leaves the nest all together. So this is another species that's lost its sting and it's reverted back to the ancestral ovipositor because it doesn't sting its own prey, it just takes advantage of prey captured by other wasp species, so they're very cool and they're quite common across Ireland.</p>

<p>18:15</p>	<p>AIDAN - Then we have the true wasps, the last group I'll talk about. So this is the family Vespidae and these are the wasps that we think of as being the traditional wasps that perhaps we don't like. So it includes the social wasps, but again, as I said, this only makes up about half of the vespids so there's only six or so species of social wasp. The remainder of our species are things that we might not encounter that often. The solitary nesters like a lot of the species I've talked about so far. Or one or two species of these treacherous little creatures. The family, the Vespidae, also contains hornets. We don't have hornets in Ireland. There's hornets in Britain and there's hornets across Europe, native ones of the European order. But we do have a specimen of the Asian hornet, which was discovered here a couple of months ago and it was just a once-off introduction we believe, it was only a single specimen that was found and this is the specimen in Museum here, it now is missing one leg because we've sent down a leg to researchers in UCC that are going to do genetic testing to try and figure out exactly where in the world this Asian hornet specimen came from, to make sure that it doesn't get introduced again.</p>
<p>19:23</p>	<p>AIDAN - So that's a quick tour of Ireland's stinging wasps. I'll just end by talking about their conservation status and we know that, for example, across the world insects have been in decline globally and we know that about half of Ireland's bee species are threatened, or endangered, with extinction to some degree or another. We don't have any kind of information like that about wasps or really for the vast majority of our insect species. So we know bees are doing pretty, pretty poorly. Some are doing okay but we don't have the same kind of data for wasps, which is a shame because we know that they're crucially important. They're important pollinators, they're crucially important for pest control. They also make good biological indicators. So just to briefly highlight, this is a study I helped out with field work for a couple of years in the west of Ireland. We compared Aculeate diversity in different types of fields and different types of farmland, so that's bees and wasps, and basically what was found was that extensive farms, so again on the left here, kind of extensively managed farms were great for wasp and bee diversity, whereas very intensively managed farms were quite poor and that was consistent. And we also found that hedgerows are very important habitats for wasps. Which was nice but we, to be honest it was lacking the baseline information required for some sort of conservation assessment because we don't know for instance where most of our wasps live, what times of the year they're active, we're lacking that kind of baseline information for Irish wasps, which is where I'll finish.</p>
<p>20:52</p>	<p>AIDAN - So this is where our Museum collections come in. Our Museum collections, this picture on the left here is the hall that I'm broadcasting from, so this is one small part of our insect collection and then this is our library, this is all moved off site now out of harm's way while we're under refurbishments in the Museum. And what this is is a data collection, it contains specimens from all over Ireland and indeed the world, going back in some cases 200 years. So there's a massive data set here just waiting to be used for important conservation work. And just to show you how this can work, this is again, that very common spider wasp and using museum</p>

	<p>collections you can map out the distributions and say actually this is pretty commonly found and it's found at these times a year. And then this, underneath it, would be, for instance, the red-legged spider wasp, that's a really paranoid one that hides its prey, and in fact we found out it's only restricted to sand dunes along the east coast which is kind of a surprise and that it's active at these times a year. So we can use our Museum collections to really fill in this sort of basic baseline distributional information on a bunch of our insect species which is important to know for future conservation assessment. So that's it that's all I want to say about wasps for the moment that I can fit in. If there are any questions that people might have...</p>
22:07	<p>GERALDINE - Hi everyone, welcome back. We are now live in the Museum for heritage week and we're looking forward to taking some of your questions so please pop more into the chat. We can see that there's a lot coming in so thank you so much. Aidan thank you so much for that really insightful talk about the weird lives of our stinging wasps. There's some really good feedback from the chat saying, 'wow didn't realize they were so important', so that's brilliant. And so we are delighted, also, guys just to say, that there has been such an interest in the talk, we had over 180 people sign up for today's event which is fantastic and it's a really encouraging thing to see that so many people are interested to learn more about wasps and our native species. But before we start taking questions, there was something that I wanted to share with everyone that we thought might amuse some of the people watching at the moment and it's a short story, basically we recorded Aidan's talk there a few weeks back and since the recording both myself and Aidan have been stung by a wasp, which is yeah a real funny yet painful coincidence and I mean what are the odds? I have no idea!</p>
23:24	<p>AIDAN - It's that time of year. I know a load of people that have been stung over the past week or two.</p>
23:29	<p>GERALDINE - Yeah it's yeah it's funny but yeah sore as I said. Right okay let's go straight into questions because time is running on. So the first one I wanted to ask was one coming in there about wasps in winter, where do they go, Aidan, and do they hibernate, what happens?</p>
23:47	<p>AIDAN - Yeah so the solitary wasps would stay in their cells, they'll either overwinter as as pupae, so it's the stage between when they're the kind of maggot-like larvae and adults or they'll overwinter as kind of emerged adults but they're dormant and then they'll fly out in spring. For the social wasps and they're the ones that we we like least, and it's a queen who will have mated in autumn, so around this time of year, and of the rest of the colony dies off, she'll go off and establish a new nest somewhere either up in a tree or under a tree or somewhere like that and yeah she stays hibernating and comes out in the following spring, lays all her eggs and then the colony starts up again. And as soon as she gets a new batch of workers in they kind of get to the work of feeding the rest of the colony and so on and she just lays eggs for the rest of her life. So it's a mix, about some of them hibernate, some of them kind of just stay dormant or inactive over the winter.</p>

24:41	GERALDINE - Okay good to know. Okay another one, so we all know the stinger is essential to the wasp but do both females and males have them?
24:52	AIDAN - No, it's only the females are capable of stinging. The males are totally harmless and their only job is to reproduce. It doesn't really, it's not that helpful if you, like if a wasp is flying around you, unless you've got a really sharp eye, it's not always easy to tell if it's a male or a female, so just kind of stay away or let them do their thing anyway. But it is, it's only the females that have evolved the ability to sting so it's, at the start when I was talking about the parasitic wasps that have these long kind of threatening looking ovipositors, they're egg laying tubes basically, and what's happened with the aculeate wasps and bees is that over evolutionary time they've kind of adapted that into a into a weapon. So yeah, it's only the females that can lay eggs and obviously the females that have co-opted their egg layer into a stinging weapon.
25:39	GERALDINE - Okay, okay so, only females. Alright there's a question here but also kind of a suggestion, which is I think quite interesting, so it's from Brian and he says, you know because you mentioned a few times that these wasps they don't have common names, and so he makes a point here that it's very hard to tell stories about wasps if they don't have a common name and to make it more accessible for kids and adults it would be good to have common names, so do you think there is a piece of work to be done here? Do you have any thoughts on that?
26:09	AIDAN - Yeah, it's interesting because on the one hand you know the whole system we have of scientifically naming species, you know with the binomial name with the genus and the species, the ugly Latin names, the whole point of that being invented was to get away from the problem of having common names. So for example you have, <i>Vespula vulgaris</i> , that's the common wasp. That's its scientific name. That's called a common wasp in English. Another language will have a different name for it, even different dialects of the same language will have totally different names for it but if you have the scientific name then that's what that species is and but I definitely do think it's a good point to have common names for these, if you could ever agree on them. I know there's a body of work being undertaken at the moment to give Irish names to things like solitary bees and I think that would be cool for wasps in particular.
26:58	GERALDINE - Yeah.
26:59	AIDAN - Because I was trying to find out what the Irish words for wasps were a while ago in kind of coming up with this talk and there's a few of them, like sometimes they're just called beach, b-e-a-c-h-, which is a bee, or they'll be called arc beach, which is like, I think it means reptile bee or venomous bee or something like that, so there's a lot of different Irish names for the same thing but it probably depends on what part of the country and all

	that sort of stuff as well so a project for Irish names, I think in particular, will be great.
27:28	GERALDINE - Yeah. Marissa makes a comment here, she says perhaps a contest for in schools with kids and so kids could put in suggestions of different names for wasps and that might encourage them to be more interested, which I think is a good idea.
27:42	AIDAN - Yeah. That'd be brilliant.
27:43	GERALDINE - It'd be fun wouldn't it? Now there's another question here which is about identifying wasps and is there like a mobile app that could help us out there to learn more about wasps names or you know the swatches that Biodiversity Ireland have, that they have like on bumblebees and stuff and butterflies, is there a swatch for wasps?
28:03	AIDAN - No, not that I know of. It would be probably difficult to get all of the species at the species level onto something like a swatch because, so, you've got 100 or so species of wasps in total including the solitary ones and to be honest a lot of the solitary wasps are small, they kind of just look like ants, until you look at them up close their with wings, they're fairly tricky and a lot of them you would need to get under a microscope and look at some really kind of intricate features to be able to tell which species it is so it doesn't lend itself to kind of an easy sort of swatch or something like that. But even for the main groups, you know, as a kind of a shortcut to get it, is it a spider wasp or a cuckoo wasp or whatever, it would be great.
28:44	GERALDINE - It would be really cool. There's a few more coming in here. So I'm just having a look, there's one here that says is there an easy way to know if you're looking at a solitary wasp or a solitary bee?
28:55	AIDAN - Yeah. Yeah bees are hairy, that's the main difference. Some bees aren't that hairy, there's look, there's one or two genera of bees that aren't completely covered in hairs but even they've got the kind of plumose hairs that come out in like a branch, even if it's just in a couple of little tufts, whereas the wasps, although some of the wasps can be hairy, but they tend to be just little single, sparse hairs so that's the main difference, is hairiness. Yeah.
29:23	GERALDINE - The hairiness. Good to know.
29:24	AIDAN - And the legs as well, the shape of the legs. So bees will have kind of thicker legs for carrying pollen around.
29:30	GERALDINE - Fantastic. So, oh yeah, the wasps, this is new to many people including myself, the spider wasps...
29:42	AIDAN - Yes.

29:42	GERALDINE - Yes, that was a revelation and how big are these spider wasps that you were telling us about?
29:49	AIDAN - Yeah some of them some of them are the biggest wasps on earth, none of the ones we have in Ireland are, so for example I can show you, they're actually right behind me here in the collection.
29:57	GERALDINE - Brilliant.
29:59	AIDAN - So our Irish spider wasps... Here we go. They don't tend to be massive so in this drawer we've got one of the more common spider wasps, so if you can look at, where is it here? This here, it's kind of blurry on the camera but that's a spider wasp that is preserved alongside with its spider prey, which is also pretty small, so that's kind of as big as they get in Ireland and that'll be one of our bigger species and our more common ones. We've got this one here as well, which is the spider wasp from Arizona. It's from a genus, Pepsis, it's this guy here and it's absolutely wonderful and this is the prey that was taken alongside the wasp specimen, so you can be thankful. I'm kind of jealous but most people would be thankful that we don't have anything that big here. They've also got among the most painful sting of any insect on the planet, reportedly, the spider wasps do so.
30:54	GERALDINE - And where did you say that was from again, Aidan?
30:56	AIDAN - That was from Arizona, yeah, the particular specimen was collected in Arizona in the USA in 1930.
31:02	GERALDINE - Wow, oh wow from 1930? Wow, that's so interesting! Okay cool, okay so, I think we have time just really for one more question and just thanks to everyone for, there's been loads of comments and loads of participation, which is really nice to see. Somebody did mention about the future plans of the museum, so we are closed currently at the moment, so Aidan it'd be great if you know if is there any information on maybe future plans for the insect collection the museum and one person mentioned that you know is there any plans for say like a pollinator exhibition in the museum in the future?
31:36	AIDAN - Yeah so we are currently closed as you mentioned, we're undergoing roof works so the whole place is a bit of a construction site for the time being. We should point out that on the ground floor, which is the Irish Room, that might be opening soon if we can facilitate it around the building works obviously. Down at the back of the Irish room, there's our kind of native Irish insect species are there and so most of our important kind of pollinators are in there anyway and there's some notes about the jobs they do in the in the environment but there's certainly scope to have sort of pollinator events upon reopening and things like that. It's something we're thinking about for the long term for reopening is you know what do the public want to see and things like that those sorts of exhibitions and events around kind of topical areas in entomology and all sorts of zoology would be

	great. So yeah, I could see that, I could see the potential for something like that.
32:28	GERALDINE - Brilliant and well, do you know what we're gonna have to finish there but Aidan thank you so much for today's presentation and I think you've done your job completely because we just got a lovely comment in here from a lady called Fiona who says 'thank you for a wonderful presentation' and she spent 40 plus years running screaming from wasps and spiders and becoming interested in them has completely wiped out the fear, so that's really great. We are doing our job. So thanks a million Aidan.
32:55	AIDAN -That's great, thanks for joining in everybody.
32:58	GERALDINE - Yeah so, we just would like to say, as well, a big thank you to you all and everyone who watched the event today and we hope you're having a good Heritage Week and I've just one small favour to ask, which is please take two minutes of your time to fill out the online feedback form that we will be sending to you via Eventbrite at the end of this event and because your feedback really helps to inform and improve our future events and so we really value that, thank you very much. And that's all folks so please check out our website museum.ie for upcoming events and also please subscribe to our YouTube channel as well so thanks a million and we'll see you again. Bye!