Pollinators podcast.mp3

Speaker1: [00:00:00] Welcome to the Inner West Library Speaker Series. Before we begin, I would like to acknowledge the traditional owners of a land, the Gadigal and Wangal people of the Eora nation and pay my respects to the elders past, present and emerging. Today in conversation is Caitlyn Forster, PhD, student from the University of Sydney, in conversation with Pilar Angon, Environment Officer, Urban Ecology, Planning and Policy from Inner West Council. They will speak about the Inner West pollinators and gardens. Caitlin's research focus is on combining work from behavioural economics and behavioural ecology to understand how insects pick flowers. Welcome, Caitlin. Welcome, Pilar.

Speaker2: [00:00:42] Caitlin, I would like to start by talking about what fascinates you about pollinators. Perhaps if you can share a nice story about them, if it's in the Inner West, maybe.

Speaker3: [00:00:54] Yeah. So I've been interested in pollinators for quite a while now. I've been working on ants, which are still technically pollinators, for a few years. But I really love our native bees. I love the Blue-banded Bees. I think they're adorable and the Neon Cuckoo Bees that are this bright blue colour. They tend to steal the nests of blue banded bees, so they're a really interesting species. I see a lot of them in the Inner West, which is one

of the reasons why I love working there. And this is all in the community gardens. I have to say the Inner West has absolutely amazing community gardens that people really commit to, and I think it's really fantastic that you have that available to the community.

Speaker2: [00:01:29] I've worked in community gardens before and I definitely have seen some of the native bees, which I didn't know were native until someone mentioned this is not a European bee. This is actually a native bee. They tend to be in smaller groups or solitary, which I find fascinating. But before we go into more details in relation to bees, I would like to know a little bit more about what you are, what you are studying, what is your research about and what's your main focus.

Speaker3: [00:02:03] So I actually research behavioural economics, which is kind of marketing techniques that we use on people. I'm seeing if we can transfer these marketing tricks into behaviour of bees. So I'm interested in how bees pick flowers, but how we can manipulate help bees pick flowers based on different attributes within the flowers. So we can do this by just changing the amount of nectar in a flower or changing the colour of a flower. Anything that might mess with its preferences a little bit, so it's a really interesting field to be in.

Speaker2: [00:02:31] Oh wow, I didn't know you could introduce economics into ecology. Wow, that's so fascinating. Although I have to say I have heard of that happening with other species, more mammals or other species, but not with insects. That's very interesting. Thank you very much for sharing that with us. So obviously, there are many types of pollinators, and perhaps as I mentioned before, I didn't know much of a difference between the native bees and the European bees. They tend to just look, you know, they're tiny. They have different colours, Maybe? So maybe we can, we can talk a little bit about the most commonly found pollinators, apart from the Blue-banded Bees, which are probably one of the most popular ones of the native bees. I don't know if you want to talk a little bit about that.

Speaker3: [00:03:27] Yeah, so we've got probably over 2000 native bees in Australia now. We're starting to find more and more species, and there's a range of really cool species that we can see from things like... the common ones, like the Blue-banded bees that I mentioned and the Teddy Bear bees, which are really popular because they're this large, quite loud bee that are really easy to pick out. But then we have other species like the stingless bees. So the stingless bees are similar to our honeybees in the sense that they live in colonies and can produce honey. But they also are stingless, so they're much safer to keep in your backyards, and they're also great pollinators of a range of plants as well. So they're probably my more

favoured of the bee groups, but there's a whole range, including things like the Carpenter Bees and the Leafcutter Bees, also pretty popular too, and pretty easy to see in the Inner West.

Speaker2: [00:04:18] So we have the stingless bees and the Carpenter Bees and Leafcutter bees. Are there more sort of bees or the different types of bees?

Speaker3: [00:04:27] Yeah. So there's a range of different types of bees. The majority of bees in Australia are actually solitary, so these bees can be bees that live in the ground or they live in reeds or they live in leaves like the Leafcutter bees. There's a huge amount that we can actually find in our native areas, but I think it's also important to mention beyond the bees, there are a whole bunch of other species as well, and things like Hover flies that look really similar to bees are also fantastic pollinators and they're out all year, unlike our native bees, which tend to only come out in spring. The Hoverflies, for example, come out in the middle of winter and we'll still see them foraging on plants and pollinating our plants.

Speaker2: [00:05:04] What's the difference between Hover flies like visually? How can people know the difference between Hover flies and native bees?

Speaker3: [00:05:12] Yeah. So this is actually really a great question because we find a lot of members of the public not being able to tell the difference between these two species because they do look really similar. They look really similar to the European honeybee in the sense that the yellow with the black stripes, but they've also got a few different features that make them different. So for example, instead of having two pairs of wings that bees have, flies actually only have one pair of wings. Now, this is pretty hard to see, unless you get really close up, so another way to tell is the antennae on fliers are really small and hover flies, they hover, so they have a really different kind of flying. They can sort of stop in the air, so it's usually pretty easy to tell you have a hover fly purely based on how they fly.

Speaker2: [00:05:53] Oh, wow. So they have a kind of Matrix kind of capacity to stop on the air and be a little bit slower.

Speaker3: [00:05:59] Yeah, yeah, that's definitely true. They do look really amazing when they're flying, and there's some great videos of them in slow motion.

Speaker2: [00:06:08] You mentioned other pollinators, what other pollinators we can find in places like the inner West.

Speaker3: [00:06:14] So we have a range of species that can act as pollinators beyond the flies and bees. We can consider butterflies and moths. So moths are more commonly seen at night, so they have a different vision system that makes it a bit easier for them to see things at night. And then we have things like beetles or Lady Beetle is a pretty good pollinator. Range of insects act as pollinators, even ants can as well.

Speaker2: [00:06:35] I actually kind of gather that the Lady, Lady Beetles were good pollinators, but you mentioned other ones that are very interesting. Do you know much about moths or nocturnal kind of pollinators? That is fascinating, and maybe some people would be interested on that. Some people may be a little bit scared of those sort of animals, and maybe that's something to explore a little bit more.

Speaker3: [00:06:59] Yeah. So I've only just started to get into nocturnal pollinators just because I think it's a really interesting story, largely because there's a lot less research on them because it's a lot harder to go out at night and work out what's pollinating things. So moths are really great at

pollinating a lot of these plants that specifically even open up at night. So we've got examples of plants like dragon fruit, which only open up for a day or two in the year, and it's at night when there's a full moon. And this is so that it'll attract moths. So we have these really cool species like that, but also one of the cool pollinators in Australia is a nocturnal pollinator are our bats. So this is more specifically the flying foxes. We know that they are pretty good at pollinating things like Eucalyptus and Grevillea, but once again they only come out at night. So we don't really think about them as pollinators and flower visitors because we just don't see them on flowers all that often.

Speaker2: [00:07:52] Well, I guess we think about pollinators in terms of our food production and, you know, pollinating flowers that we may use afterwards when they become fruit or vegetables that we will be eating. So maybe this is a good moment to introduce why are pollinators important, apart from just pollinating the food that... rather the flowers that will become our food?

Speaker3: [00:08:19] Pollinators are really important, obviously, for pollination of our food, and we know that about the third of our food needs insect pollinators in order to grow adequate fruit crops for us. And that's a really important thing. But there's also really important ecological roles

away from humans that pollinators play a role in. So we're talking about species that actually require a single species as a pollinator. So maybe an orchid that really needs a particular wasp to pollinate it and they've co-evolved together. So these species are really important for pollination because if one species goes extinct, so will the other, so the plant needs that insect. There's also really good examples of pollinators playing extra roles in our ecosystems. So we mentioned the Lady Beetles and the Hover flies. Both of these species are also really important as pest control, so Hover fly larvae, so the baby or flies actually feed on aphids. So not only are they amazing pollinators, but they're also a great form of pest control so that you don't have to use pesticide.

Speaker2: [00:09:15] Well, that's fascinating. So maybe people that are growing food or having some flowers or something, will consider some of those insects in a different way. After thinking about them as a pest control kind of natural way of doing it. We have talked about some species of bees and some of the other pollinators that are around in the Inner West. Are there any other ones, maybe something that fascinates people and I don't know how much you know about these butterflies. There is fascination with butterflies in terms of pollination. I don't know if you have any extra information about butterflies.

Speaker3: [00:09:54] Yeah. So there are a range of butterflies in Australia. A lot of the interesting stories about them, not so much come from their pollination benefits, but just their natural history. So if we think of the Monarch Butterflies, they can travel across continents over multiple generations. So they're one of the species that are known for migrating. And that's a really cool thing to just think that they're travelling similar distances to birds to get to mating places. And that's, that's really quite cool. I'm a big fan of the Monarch Butterflies and how they have these huge mating congregations. It's really interesting to see and definitely worth having a Google of. Butterflies are also quite cool because as adults, they're sort of an interesting group because a lot of them don't even feed. This means that particularly the ones that are offering, I guess, less of a pollination benefit aren't actually feeding on flowers and don't even have mouthparts, this is particularly common in moths, and so that's really interesting because we look at these pest caterpillars and then they grow into something that isn't even eating anything. And to me, that is amazing. And their life cycle is quite long when they're caterpillars, but also quite short when they're butterflies. So they have this really short lived flying period that's just there for mating and laying eggs. And I think that's really interesting.

Speaker2: [00:11:06] Oh, wow. Yeah, I didn't know that about some of the caterpillars. I did know about Monarch Butterflies, and I have to say they

are so beautiful. There is this place in Mexico, in the Pacific coast that the butterflies fly. You see trees totally covered with Monarch Butterflies, and it's like that copper kind of colour that is very, very beautiful.

Speaker3: [00:11:31] Yeah, that's definitely somewhere when I travel to, I'd love to see the ones in Mexico. You hear all about them on the news. Whenever there's the big congregations of butterflies, it would be so good.

Speaker2: [00:11:40] You mentioned that ants are also pollinators. How... How does that happen?

Speaker3: [00:11:44] So this is purely if they are feeding on nectar and pollen and they move pollen between plants, allowing for pollination to happen. They're not one of the usually not one of the main pollinators, but they often play other roles in gardens, so they can kind of be a little bit of a pest sometimes, in the sense that they all feed off honeydew of species that produce honeydew. So these are things like scale insects, and this can be a problem because they'll start trying to stop you from doing anything about these scale insects or other honeydew producing insects. So there's often a pest, sometimes a pollinator. It's often quite hard to tell as well which role

they're playing in your garden when you see them around to. So they're a bit of an iffy one sometimes.

Speaker2: [00:12:22] Yeah, well, that's interesting. I knew that a relationship between ants and aphids, and I think a lot of gardeners know that and are very much aware of how ants and aphids can get into some partnerships there, that may not be very good for your garden. But I think it's interesting. I mean, I guess I never thought about ants as pollinators, more than other species. Maybe I have thought about birds, and someone very recently told me that the East Coast of Australia has more insects than birds pollinating the trees, and I'm not sure if that's something related to native plants or it's like a general thing. Do you know anything about that?

Speaker3: [00:13:10] I'm going to be honest, I don't actually know much about this. I'm not super surprised that there's more insect pollinators than there are bird pollinators, purely because there are more insects around. So the amount of insects species in comparison to bird species is vastly different. We have lots of insect species, and there's also the species that have co-evolved with particular plants. And as I mentioned before, the orchids, there's actually a huge variation in orchids alone, which wouldn't surprise me that the species that are associated with these species of orchids means that there's just so many of those two groups alone. But we

also know that a lot of plants have been evolved to be shaped a certain way to be pollinated by a particular plant. So if we have a fairly long flower, often they are associated with, say, a bird. And if they're red, they might be a bird pollinated plant. If they're yellow, they might be a bee or insect pollinated plant just because of insect's preferences for yellow and blue. And this all plays a role in how many species there are of, say, bird pollinators or insect pollinators. And it just depends on how plants have co-evolved, really.

Speaker2: [00:14:18] You know, that's fascinating. Are the colours related to the insects and the birds, or is that just a random thing?

Speaker3: [00:14:25] So they are often related to the colours that the insects and birds prefer. So, there's some really interesting stuff, particularly with insects, because they can see in the UV range so they can see colours that we can't see. And it means that plants, particularly if there are white colour, will actually appear a different colour to bees in comparison to what they'll appear to us. It might actually attract the insect differently to how it would attract a bird, or even how a human would see it, and how they would prefer a flower that they bought at a florist. So these different colours of flowers can be really important in how insects and birds pick them.

Speaker2: [00:15:01] That is very interesting. So maybe people should actually take care of, of their insects around. Because it is, perhaps... I knew that there was a relationship between having blue flowers in, in your garden, in attracting bees, and that's something that is very common with people that are doing gardening. But lately I'm noticing more of the colours of the native plants, like if you look at all of the acacias in the east coast of Australia, they are yellow and you see all these golden colours in this time of year. And obviously, that attracts some of those insects. I have never made that connection. And that's something fascinating. Thank you very much for sharing that with us. Now that we were talking about gardens and plants, maybe we can use some of this time to talk about some ways how people in the Inner West can make it a better place for pollinators.

Speaker3: [00:15:58] So there's so many things that we can do, and most of them are actually really easy. If you're into gardening, it's it just makes sense to plant more plants. So the Inner West is obviously full of houses that have fairly small spaces, and we're talking things like balconies and small courtyards. But that doesn't mean that you can't have flowers. There's lots of potted plants that you can grow. A lot of the herbs grow quite well in balconies, so we always talk about how bees really like things like perennial basil and salvia and lavender. All of these plants are pretty hardy, too, so you can definitely grow them in small places without major problems. And I also reckon it's worth considering putting some native

plants in, if you can, to just because that's definitely going to be an easy way to attract native pollinators.

Speaker2: [00:16:41] Do you think there's other things that people can do, maybe specific things to protect them, organic pesticides or no pesticides at all? Or maybe something to make them come to their gardens to help pollinate their plants?

Speaker3: [00:16:58] Yep. So there is a range of things we can do. So you touched on pesticide, and it is really important to consider. At your house, there's probably not going to be a whole lot of insects that are causing problems, and there's probably not a lot of value in using pesticides. The sign of a healthy ecosystem is usually going to be having lots of insects, and that can mean both your beneficial insects and unfortunately, the ones that aren't so beneficial. But by having this huge ecosystem of species that include beneficials there's a pretty good chance that you'll gain the benefits of the beneficial species that will probably feed on the ones that you don't want there. So that's really important, minimal use of pesticides, but it's also important to create habitat that's good for these species. This can involve things like, consider how much mulch you use in your garden. Mulching is really popular because it does reduce weeds. There are definite benefits to mulch, but sometimes it's good to leave a

little bit of bare ground just to provide habitat for these ground nesting bees. They need some ground to make nests and lay their eggs. So it's a good opportunity to do that, and I also strongly encourage people to think about how much lawn they actually need. So if you've got a bit of lawn in your backyard, it might be worth transforming it into a garden. It will do great benefits for your wellbeing as well. We know that gardens are great for wellbeing in terms of making people mentally happy and having those kind of benefits, but they're also fantastic for things like physical wellbeing and being able to talk to your family while you're doing gardening. So think about how useful your lawn is and how useful a garden might be as well.

Speaker2: [00:18:29] Absolutely. I've never thought about the mowing, but there's a lot of gardens in the Inner West. Despite the fact that we have very little space in most houses, there's still a lot of grass that people have to garden. Are there any other ways that Inner West residents can do and learn about pollinators and their benefits and perhaps do something if they are very passionate about it?

Speaker3: [00:18:51] Yeah, definitely. I think the first thing that I'd consider doing is joining a community garden. I know right now it's not entirely plausible to do this because of lockdowns and things, but community gardens are a great way to learn about gardening and learn and take

those skills back home. But they're also a really fantastic way of reaching out to learn about what pollinators are in the area because they're usually full of pollinators, and they're just a good way to have a look at the pollinators that are available. But there's also options to do things like citizen science, so we have examples of the wild pollinator account. So this occurs every year in spring and autumn to count the pollinators that are in single patches of garden that you have access to. So they really easy to conduct these experiments. You just sit down, watch some plants and see what you can find. There's also the Urban Field Naturalist Project. I love the Urban Field Naturalist Project. It's a really good opportunity for people to not be so much involved in citizen science, but more becoming a naturalist. And this is more about stopping and thinking about nature and people add stories to this website about different aspects of nature that they're into. So we've got a range of things from brush turkeys to fishing to just a nest that someone saw and people talking about the craft that they've done associated with these pieces of nature. And I think it's a really good thing to be doing, and there's lots of scope to be learning about pollinators from the Urban Field Naturalist Project, too.

Speaker2: [00:20:14] That sounds like a fascinating project, and probably people will be interested in stories. Stories are something that makes people closer to nature and closer to the things that we want them to do. Caitlin, do you want to add anything?

Speaker3: [00:20:30] The only thing that I sort of wanted to point out is that cities are actually home to a range of species that are actually considered threatened. So it's a really good opportunity to think about the threatened species in our cities as well and how we can conserve them and just being in nature is a good opportunity to get a chance to see these species and appreciate them.

Speaker2: [00:20:49] Now that is the end for us. Thank you very much, Caitlin. This has been a very, very interesting conversation.

Speaker3: [00:20:57] Thanks for having me around to talk about pollinators. It's a really fun topic, and I always love to talk about all of our local nature.

Speaker2: [00:21:04] Oh, thank you very much. Yes, and keep an eye on our website. The urban ecology team has organized a Spring and Nature campaign. We also have an Instagram call out so you can hashtag your photos in your garden and your balconies in your backyards, front yards, whatever you have. And if you have things that are attracting pollinators or birds or any wildlife that is local in your area, you can get the chance to win

a prize. We have a few prizes. Have a look at the Spring and Nature page in the Inner West Council website. Thank you very much.

Speaker1: [00:21:45] Thank you so much Caitlin and Pilar for your time and your wonderful chat. Inner West Libraries has a rich range of resources, both physical and also electronic formats about pollinators and gardens ready for you to borrow or log into our catalogue for a reservation. Bye everybody, and thank you so much for listening in and look out for our upcoming digital content through the Inner West Library What's on and social media channels.