| Question | Asker Name | Name of Panelist | Panelist Answer |
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| Land arch can address habitat creation and conservation. Ana described climate implications. Less recognized perhaps are the pandemics effecting animals (e.g. bird flu) and plants (e.g. bug infestations). Any thoughts about spatial planning/design and disease control. | Kathleen Wolf | Keith Bowers | Vectors for disease, pathogens and infestations are typically a result of biological improvished landscapes. I fear spatial planning to steer development away from these areas (if I understand your question right) may serve to side-step the issue and divert resources away from actually addressing the issue. Restoring native biologically rich habitat, managing invasive species, and reintroducing keystone species will help minimize vectors for disease and infestations. |
| What do you think entry-level designer can do with design biodiversity. | YINING ZHU | Keith Bowers | Emphasize the use of native plants, minimize the use of pesticides, remove invasive plants, and reconnect fragmented native habitat. |
| How can landscape architects impliment biodiversity into thier designs? | Anonymous Attendee | | See above |
| Could Keith elaborate on the idea of working with evolution? Thank you. | Anonymous Attendee | | Attempting to protect, conserve and restore ecological processes that allow species and ecosystems to evolve with minimal detrimental impact by humans (recognizing that humans are a part of nature and ....) Admitedly, it's a complicated statement. |
| How do we balance designing for what has been there in the past (ecologically) while responding to the changes in climate moving forward? -- some of the spaces we are designing will not be able to support the same environments that have been there in the past | Jessica Eppard | Keith Bowers | Agreed. We need to work in both worlds. Past and current ecosystems are the only ones where we can abstract useful information. They have historical fidelity and can often provide us with a useful foundation for how to best move forward. We also should recognize that we are really bad at predicting the future, let along complex ecological dynamics. It's and interesting time. |

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| I think we need to understand all the ‘USERS” that use a landscape. USERS are not just humans, they are living and non living things. Flora and fauna, water and wind flows. This coiuld enable a integrative land USER flow analysis. This then could enable to integrate diverse professions into the design process. I think this in crucial to build climate adaptation and resiliency. How can we build a platform that could enable this approach? ie. Pollinators could be considered drivers in the urban realm for ecosystem services. | MaFe Gonzalez | Keith Bowers | Love the idea and agree. We need to learn how to give nature agency. |
| Would it be advisable for Landscape Architects to have ecologists/biologists on staff to assist with design for biodiversity? | Aurora Alcaide | David Maddox, Keith Bowers | I would think so, yes. Another route is for LA programs to be more comprehensive in the ecological education of their students. (KB -On staff or establish a collaborative relationship with individuals or ecological firms that you trust. The key is to bring them in EARLY on the design process.) |
| For organizations with large real estate portfolios and lean budgets, how would the panelists recommend pursuing a portfolio-wide program for biodiversity support? | Joseph Burg | David Maddox, Keith Bowers | Perhaps partner with local ecology professors. (KB - I'd suggest doing a high level analysis toidentify what measures your organization could take that would have the bigest positive impact on biodiversity, and start there. Don't try and do to much. Keep it simple and impactful and then over time lean more into it. |
| First, no one is talking very much about a diversity of PLANT species and consideration of native plants as foundational to biodiversity. Is this because this should just be an obvious element of our profession now? Seems like something we should discuss more.<br>Secondarily, there seems to be a big question of aesthetics here. Rewilding is great until someone freaks out about a vole. Do we need to sell the wilder side of this? | Chris Landau | Keith Bowers | First, you are right. We didn't spend much time on the importance of native plants and plant diversity. I don't think this is a settled topic in LA, far from it. It deserves some time and dialogue. Second, yes, we need to sell the wilder side of what we need to do to support biodiversity. I suspect we may want to adopt a rewilding continum, where we prioritize things like aesthedics and safety for certain landscape typologies while moving toward a more natural landscape full of carnivores. We need the more wild end of the continum to occupy 30-50% of our land and water. |

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| Reality check? I have 3 brothers who are residential building contractors in the PNW. At family gatherings we have (mostly) cordial discussions about local/state/fed environmental requirements and broader purposes beyond the site. How to bring land change businesses/trades into the biodiversity conversation? | Kathleen Wolf | David Maddox, Keith Bowers | Some will never be brought in, I suppose. But I also think that many clients are interested in such moves toward sustainability. (KB - Likewise, my brother-in-law is a land developer. Agree with David. Spend time and energy where you can have the greatest impact. That said, we need to come up with "what's in it for them" reply. Perhaps celebrating biodiversity could be a marketing advantage, or by employing certain biodiversity features does that offset environmental compliance costs.) |
| I am from an interdisciplinary architecture/landscape architecture firm; what is something that architects can do to support landscape architects and promote biodiversity? | Ilijana Soldan | Keith Bowers | Lots! Employ bird friendly glass, night sky lighting, use non-red list materials, green roofs, living walls/facades, sourcing material with minimal embodies biodiversity footprints. |
| Maybe looking closely to antifragility as a paradigm could help in adjusting regulations. So we can respond swiftly and efficiently to change. | MaFe Gonzalez | | |
| What's the best first step to upskilling a design firm in biodiversity design and planning? | Anonymous Attendee | David Maddox | Conduct a company workshop led by local ecologists? Or maybe organize a local/regional conference of LA firms and ecologist to talk about shared goals and methods? |
| Do you have any recommendations for landscape architects navigating regulations and safety conflicts with biodiversity? For example, in the intermountain west for public safety there are 'Firewise' standards put forward by the USDA Forest Service. In dense areas, it makes it nearly impossible to place many components of a native forest ecosystem when working at a lot by lot, project by project scale. | Anonymous Attendee | Keith Bowers | This is a problem. I dont have any specific recommendations. As landscape architects, we need to further engage in public pollicy issues if we are going to make a difference. |
| …What does this mean for existing ecological systems, and how do we get people comfortable with the evolving identity of a rapidly changing landscape. | Rayna deNiord | Keith Bowers | |

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| For the design profession.... Is "Biodiveristy" the best term to focus/educate the elected officials & public? Or should we focus more on "Ecosystems" and "Habitats"? Shift the dialogue to understanding what is required to truely support native fauna of all types. | Jeff Sawyer | David Maddox/Keith Bowers | I believe in a ecosystem and habitat -centered approach, but certainly this is contested, especially when it is viewed as one or the other. Even more contested: the view that we shold focus on ecosystems and function and less on native biodiversity, especially in a climayte changing world. (KB - Agree with David. I like habitat, flora, fauna, and nature. I understand the need to focus on ecosystem functions that lead to ecosystem services, but I dislike the idea that we are comidifying nature. And two other languate pet-pives of mine are 'natural resources' and 'open space'. As if nature is just a resource for our sole use and that open space confers that there is nothing there worth anything.) |
| What are the current metrics landscape architects should use in assessing biodiversity in planting plans? | Alyson Taylor | Keith Bowers | There are a few with varying degress of usefulness. Many are working on it, including SITES. |
| Any views on typical construction materials LA's use that impact and/or contribute to biodiversity? We're using the word 'sustainable' with building materials, but I never see 'biodiverse' in this regard. Thx. | Charles Shy | Keith Bowers | Charles, you are absolutely right. Unfortunately, 'sustainability' is primarily about addressing climate change, which is needed but falls short of true sustainability. We all need to be a part of redefining what it means to be sustainable. |
| Is there any kind of heirarchy out there for including biodiversity in projects from a small scale to large scale? Is it planting and soil health first? Then pollinators, wildlife, corridors, etc. as you get larger? | Briana Morrison | Keith Bowers | I actually advocate starting with the big-picture. How is the site you are working biologically connected (directly and indirectly) to the surrounding regional landscape? This provides an overall framework for what can be accomplished in terms of supporting biodiversity. Then it's time to dive down into the 'weeds"! |
| Many firms don't really operate with biodiversity in mind, as it's a relatively new consideration for many LAs and engineers. It costs time and money to reconsider company oeprations and standards. How would you encourage younger professionals to engage with more senior firm members on considering ecology as a critical aspect of what we do? | Claire Jarvis | David Maddox/Keith Bowers | Little by little, we can add firms that tilt in a better ecological direction and find clients. PLANITWILD is a startup that is having some success, for example. (KB - Start with some low-hanging fruit suggestions that take minimal time and cost to implement, while at the same time, exploring ideas that the firm cound institute that would help give them an advantage over their competiion, and provide more value to their clients. |

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| In LA we have a 'debate' about our urban forest species for the future. With few truly native tree species that are heat and drought tolerant there are concerns about introducing species from the climate zones where we are heading. How to Landscape Architects address concerns about introducing exotic species and their potential impacts to other experts like arborists and foresters? | Esther Margulies | Keith Bowers | From a big-picture perspective, it's not a tree problerm, rather it's the way we design urban environments. That said, we are left with legacy urban environments that we are trying to reforest. I'm a big propoenet of first - using native trees within their current range, second, using native species just outside their current range, third - using native species from ranges that are predicted to be present in the next 50 years and fourth - non-native species that have characteristics favorable to native biodiversity. I also advocate for a multi-species, multi-structure (overstory, understory) mix along streets and corridors. |
| To jump off of Rayna's great question, I was wondering what your thoughts are about conserving localized plant and animal genetic diversity. I know in some cases, it is desired in projects, but it can be tricky to contract grow and source plants to help with those needs. Any thoughts about approaching those challenges? | Diana Nightingale | Keith Bowers | We need to absolutely conserve local flora and fauna geotypes. Agree that it can be challenging, especially in terms of additional cost and longer lead times for plant material availability. Finding plant growers that have this type of experience is key. You may want to check growers that service the ecological restoration market. Also, explaining these challenges to the client is essential. They need to buy into the value of conserving and using local genotypes brings to the project. We need to do much more work in this area to create a reliable and robust supply chain. |
| I'd like to know how we can make use of AI in tracking, measuring, projecting... and discovering more potentials related to viodiversity | Dana Halwani | Keith Bowers | By AI, you mean artificial intellegence. We also need to combine that with AI - ancestoral information. AI is already being used for eDNA, image and audio recording analyses for species identification, forest gap analyses, corridor pathways analysis for specific species, species recovery plans, and a host of other applications too numerous to mention here. Hopefully we balance artificial intellegence with ancestoral information. |