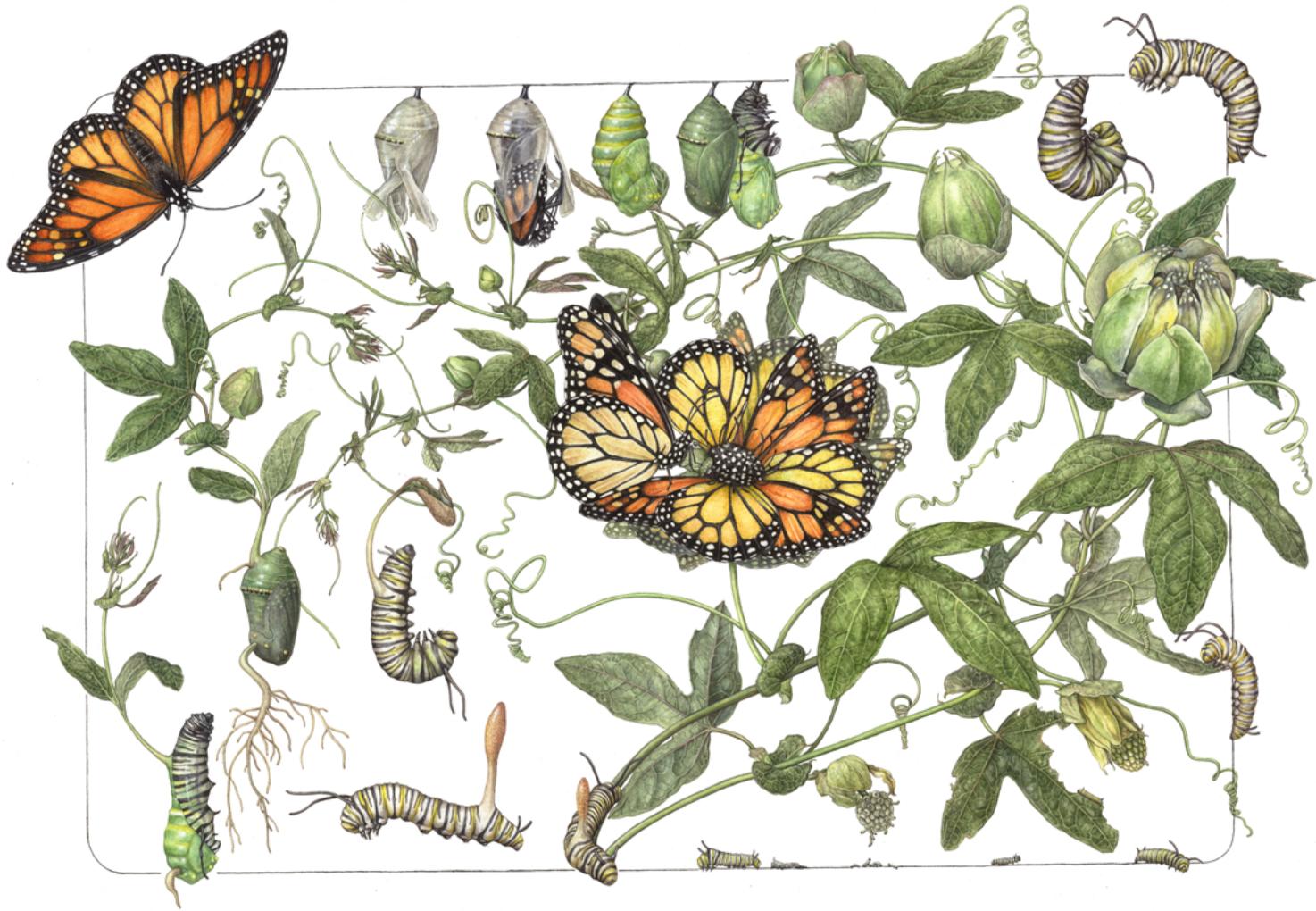


# Bioinfrastructures for Mobility Justice

Columba González-Duarte

Each year, a late-summer monarch butterfly generation migrates across Canada and the United States to Mexico. To complete this migration, they live six times longer than their parents and spend months in semi-hibernation waiting for their host plant, milkweed, to reappear in the spring. With its longevity and remarkable geographic reach, the monarch inspires and challenges all three North American governments' biodiversity and mobility policies. As part of conservation efforts to keep this at-risk migration alive, the butterfly's host plant is increasingly qualified as a bioinfrastructure that provides shelter to monarchs and offers ecosystem services to humans.

Thinking-with this butterfly-milkweed intertwining, I propose seeing milkweed as a bioinfrastructure that has the potential to enable justice for humans and monarchs migrating throughout North America. To make this argument, I am also inspired by how Asuka Hishiki depicts the plant-butterfly relation in the illustration below. Challenging the boundaries of what constitutes a host-guest relationship, Hishiki – a botanical artist and monarch lover – captures the fact that a monarch butterfly's lifecycle is also a plant's. In response to this collection's provocation, I challenge the view of bioinfrastructures being seen simply in terms of their ecosystem services to consider them as enablers of a broader and much-needed path to mobility justice.



Monarchs cannot survive without milkweed, but in many places milkweed struggles to survive without appreciation and care from humans. The evolutionary relationship of a plant being eaten by an insect is described in scientific and popular literature as an ‘arms race,’ a competition in which the milkweed gradually poisons the monarch caterpillar to avoid total defoliation (Agrawal 2017: 22–42). In a different angle on plant–insect communication, Carla Hustak and Natasha Myers (2012) mobilize Darwin’s, Margulis’s and Haraway’s work on evolution to offer a feminist reading of interspecies communication. In their words: “Plant bodies are extensive, distributed, and entangling” (2012: 81). Plants create affective entanglements with their human and more-than-human visitors. Although, at first glance, humans do not seem organically intertwined with the monarch–milkweed exchange, what if milkweed can entangle not just monarchs but also the humans who move in similar ways to this butterfly?

**Monarch Butterfly Type B Metamorphosis.**

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### Multispecies Mobility Justice

Framing justice in terms of mobility pushes beyond traditional Western justice frameworks which presuppose isolated and sedentary individuals (Sheller 2018: 45). An ontology of mobility justice, by contrast, stresses how sites and agencies are intertwined. A city, for example, is not just made up of the actors or activities stationed within its boundaries but comes to exist, too, through processes and relations that occur beyond its borders—through telecoupled geographies, that are often mediated by unequal power dynamics (Chester et al. 2022: 2). Extending this perspective, agencies of different origin – plants, animals, humans – are also engaged in co-productive relations. As will be explained below, in this case the butterfly's ability to live depends on human actions and human connections to its host plant. Nurturing these co-productive and telecoupled, or distantly connected relations requires a more expansive and dynamic conception of justice.

According to Mimi Sheller, “(im)mobility creates (in)justice” (2018: 30). In Sheller's intersectional view on the politics of movement, movement is constrained or enabled by one's class, gender, race, citizenship and ability. Moreover, (im)mobility is a matter of taxonomic classification: the usual hierarchical ordering of species in which humans are served first also enables or halts animal mobility (White and Sulek 2022). Infrastructures designed with human mobility in mind can consequently facilitate (Greatrex 2022: 53) or halt (Roos 2022) animal mobility – an issue crucial for migratory species that need interconnected habitat.

Milkweed as an urban bioinfrastructure is capable of fostering mobility justice precisely because it merges different scales of mobility with and beyond the city. Let me elaborate by looking at Hishiki's artwork again. We see a flower made of monarch wings offering nectar to its insect pollinators. A bulb-like structure with dangling roots is depicted as something we might call a bulb-root-chrysalis, the chrysalis being the protective covering of a butterfly pupa. This bulb-root-chrysalis is imagined as an in-between metamorphic organism; it is connected not only with the insect but with other butterfly-plant knots. Together, they form a single codependent organism. Challenging the language of conflict and competition in guest–host relationships, Hishiki invites us to see monarchs as a host insect to the weed. This slippery intertwining of who hosts who is also apparent in milkweed's occupation of urban areas as monarch enthusiasts and city planners plant it to help the monarch migration. This tending of milkweed raises the question: what if we shift the focus to it being a plant hosting humans through its interspecies relations with the iconic butterfly?

Milkweed has slowly gained attention from urban planners and conservationists who see it as the perfect bioinfrastructure for restoring pollinator habitat in North American urban spaces, given people's growing interest in the monarch (Johnston et al. 2019). Recent studies propose that nature, and monarchs in particular, require cities (Derby Lewis et al. 2019). The argument is twofold. First, agribusiness's negative impact on rural ecosystems through chemical fertilizers, pesticides and herbicides is so drastic that cities are potentially less deadly spaces – especially for migratory species like monarchs which require continuous healthy habitat. Nature also needs the city, in this view, because urban dwellers care for it. Monarchs appear within this conservation

literature as the perfect conveners, inspiring people to turn urban spaces into pollinator habitats. Scientists (Johnston et al. 2019) have estimated that the milkweed rewilding of important US cities within the monarch’s breeding range, like Kansas City, Chicago and Austin, can save the monarch migration while providing nature-based infrastructures to urban communities.

There are diverse human actors who, despite having different degrees of access to mobility justice, are intertwined with milkweed rewilding. It was late summer on the occasion of the Twin Cities Monarch Festival<sup>1</sup>, which celebrates the butterfly’s fall migration and the Minnesota–Mexico connection. This binational nature-culture festival is organized by amateur monarch enthusiasts and activists who stress the importance of interconnected mobilities. Mobilizing heritage and indigeneity, they invite us to reimagine what justice can look like. Larry, one of the people behind this event, expressed his desire to raise awareness of how mobility always affects life. He explained this relationship through the metaphor of a river: as the Mississippi connects distant cities, the monarch unites us across remote and unequal geographies. This is why Larry and other activists designed the festival to spread information about the use of herbicides in the Corn Belt region. Agribusiness corn production kills the monarch’s host plant and disrupts people’s relationships with native corn. Hence, during the festival, organizers distribute milkweed seeds and seedlings for visitors to plant and recreate monarch habitat in their own gardens. Participants can learn about the benefits of native corn cultivars, which require fewer herbicides that suppress milkweed.

<sup>1</sup> The Twin Cities are St Paul and Minneapolis in the state of Minnesota.

*Aztec dance performance at the binational Twin Cities Monarch Festival.*  
Photo: Columba González-Duarte, 2015.



The festival also celebrates the Mexican diaspora's contributions to the Twin Cities. It draws attention to the labor that Mexican residents provide – often under harsh conditions – and the rich heritage they bring to US cities. Mainly first- or second-generation immigrants, the Mexican festival organizers and participants claim their right to move across borders. At the festival, they express this through dances linking their heritage to Aztlan – the Aztecs' original homeland – and to the monarch's supranational mobility.

Being in contact with milkweed helps people to understand the shared injustices that monarchs and humans in movement face. I am mindful that not every monarch enthusiast who plants milkweed will make this connection, nor will every milkweed patch that regreens cities and aids pollinators also eventually help other humans in movement like those who attend the monarch festival. Deeply entrenched structural and ontological-political barriers lead people to disregard the intertwined causes of human and animal immobility. However, it is clear that the powerful pairing of milkweed and monarchs can inspire awareness in support of more-than-human justice.

One can only applaud any urban planning and conservation attempt to make cities more welcoming to animals on the move. But I posit that urban greening efforts will thrive only once they foster mobility justice for humans, plants and animals. A city mindful of multispecies mobility justice is one courageous enough to challenge the ongoing structures that reserve justice for some beings only. Such cities nurture the assembled and caring agencies sustaining all those in movement. Just as Hishiki's art encourages us to reimagine plant/insect boundaries and the monarch butterfly festival celebrates socioecological bonds beyond borders, I invite us to re-envision justice for all who move across distant yet interconnected geographies.

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#### Artwork credit:

2013 *Monarch Butterfly Type B Metamorphosis* © [Asuka Hishiki](#). This piece was created while the artist lived in NYC. It is one of a series representing Hishiki’s engagements with monarchs and milkweed over the course of more than a decade. A digital copy has been generously shared for this publication only and with no commercial purposes. To learn more about Hishiki’s work, visit <http://greenasas.com/artist-statement/>.

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