THE CITY'S DNA

Based on an interview with:
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Taxonomic expeditions in urban areas

COMMITMENTS
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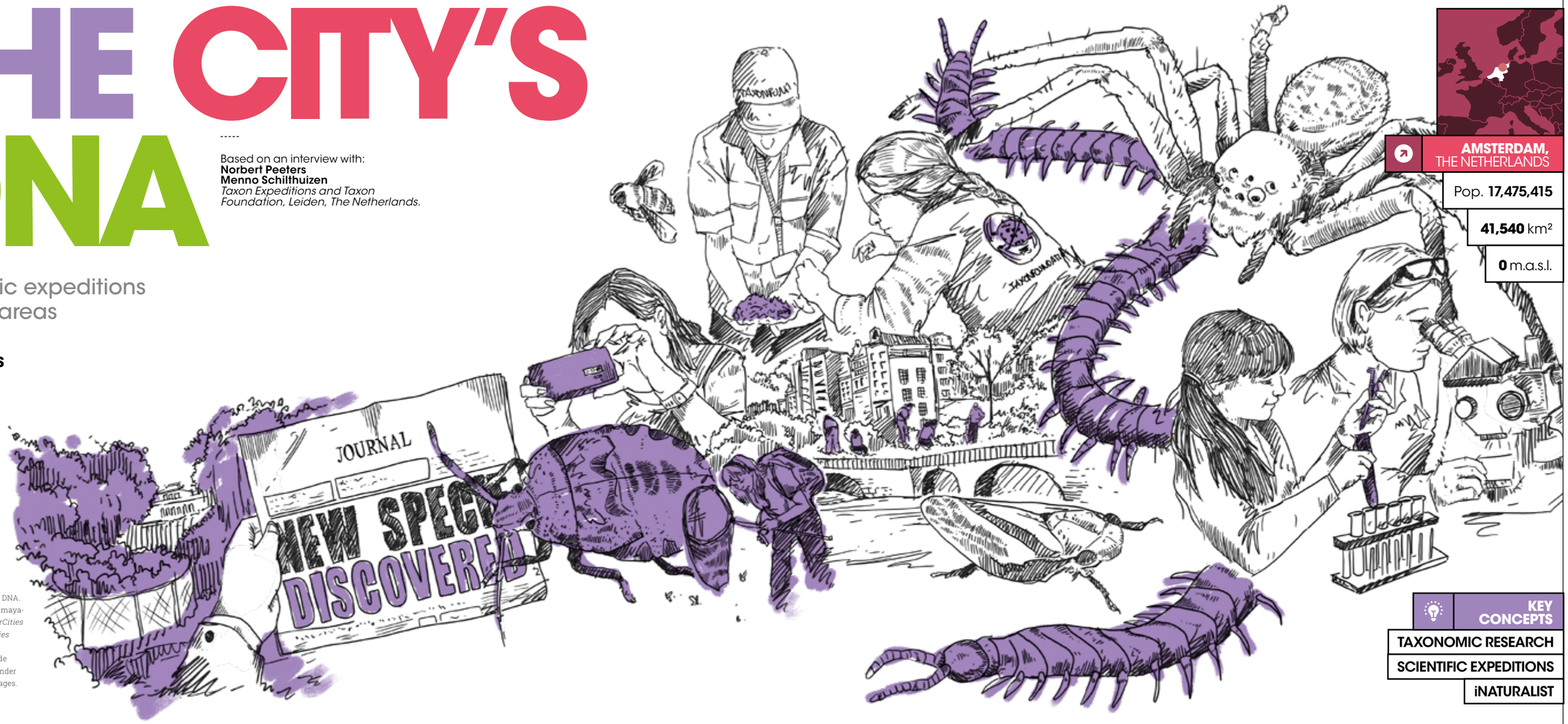


AMSTERDAM, THE NETHERLANDS
Pop. **17,475,415**
41,540 km²
0 m.a.s.l.

KEY CONCEPTS
TAXONOMIC RESEARCH
SCIENTIFIC EXPEDITIONS
iNATURALIST

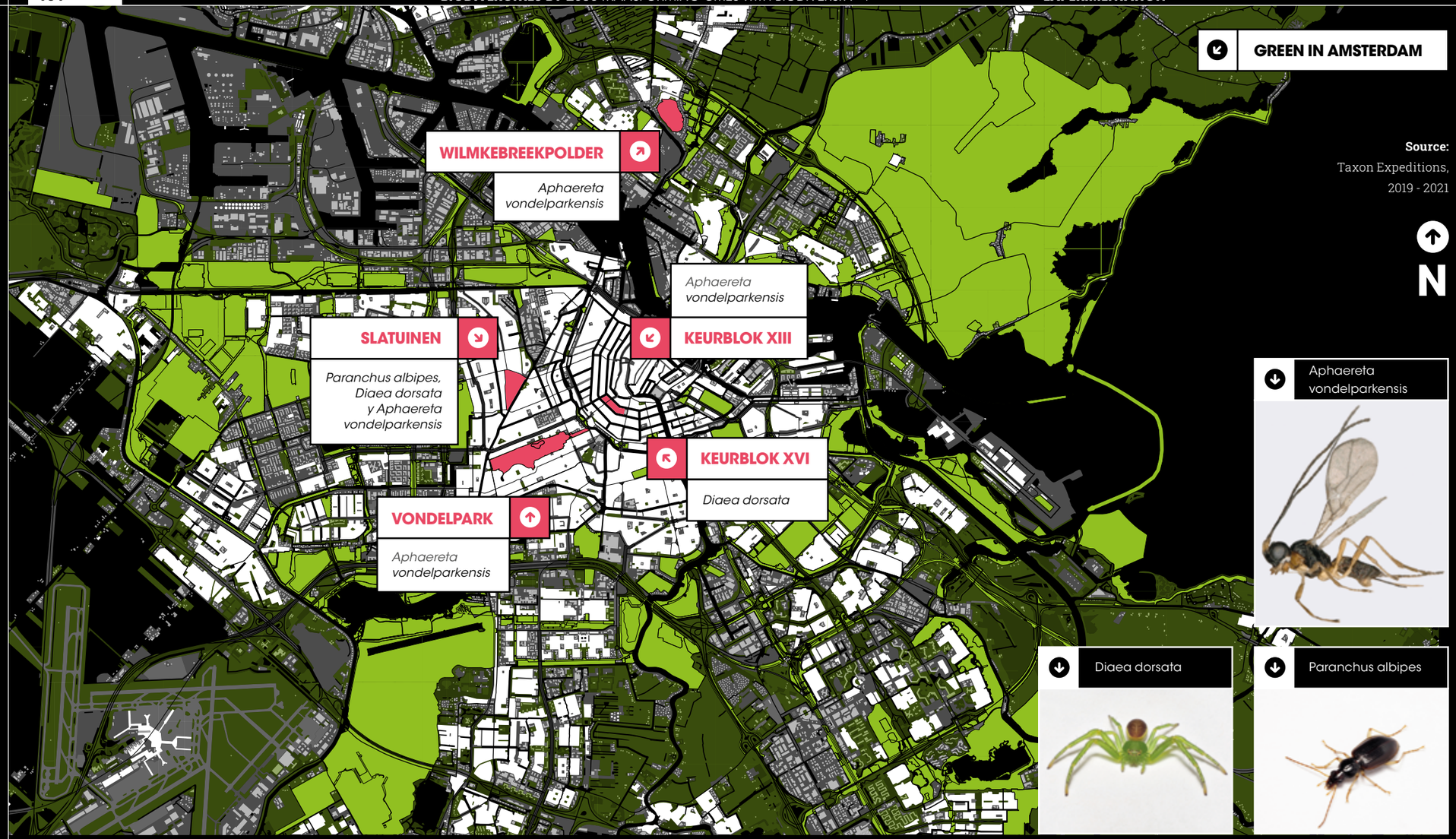
Quote as: Peeters, N., Schilthuizen, M. The City's DNA. P. 182-185. In: Mejía, M.A., Amaya-Espinel, J.D. (eds.). *BiodiverCities by 2030: Transforming Cities with Biodiversity.* Bogotá. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. 2022. 288 pages.

By organizing open, accessible taxonomic expeditions in urban areas, the Taxon Foundation is helping ordinary citizens become passionate about scientific research and biodiversity in city parks, their own backyards and balconies, and even informal greenspaces. This proves to be educational and helpful in finding new species and empowers people to start dialogues with city authorities regarding urban biodiversity hubs.

Taxon Expeditions promotes scientific discovery and education through **expeditions** organized by international experts to remote areas like the mountains of the Balkans of the rainforests of Borneo. There, both experts and travelers do scientific research together in the hope of naming and publishing new species of wild animals. In 2019, the company launched an expedition to the most famous city park in the Netherlands (Vondelpark). From this positive experience arose the Taxon Foundation, a non-profit sister organization of Taxon expeditions. Its mission is to encourage public involvement in ecological and **taxonomic research** and create a better basis for nature education, conservation, and awareness. Taxon Foundation's projects are funded by charities or crowdfunding, free of charge, and focus more on urban nature projects in the Netherlands.

Most expeditions take a couple of days or one week. They typically include specialists talking about specific types of insects and other invertebrate animals and their behavior or sharing quirky information. Traps are also set up to sort the material collected in a make-shift field lab. There can even be a mobile DNA lab set up, especially in the cases where new species are sought. Further sessions are arranged to show and share the results, and if a new species is found, the specialists discuss the name it should be given and how it will be shared with the scientific community. This process often leads to the writing of scientific articles by a joint team of experts and citizens. In other words, these expeditions work very much like crash courses on scientific research and species exploration.

The scientific framework the expeditioners receive often starts by challenging the more standard version of the concept of biodiversity. Instead of focusing on birds or mammals, the Foundation emphasizes invertebrates. When people think of biodiversity, they think of squirrels or butterflies, not the other thousands of unseen species. So people are amazed that they can spend half a day in ten square meters of urban vegetation and come up with hundreds of different species that nobody knew existed. Some are so poorly studied that they could even come from entirely new locations or set a new biodiversity record for their country of origin.



METHODOLOGY AND RESULTS

"It's all about discovering new species, especially the non-obvious species, not birds or mammals or amphibians or trees, but the tiny, invertebrate animals or mosses or fungi that nobody pays any attention to."

The main aim of these taxon expeditions, then, both those we launch locally and abroad, is to discover new species, not just new to the country, but to science, so they have to receive a new scientific name. Even in a country like The Netherlands, which is biologically very well studied, there are still many invertebrate animals like small flies, tiny parasitic wasps, and nematode worms with no dedicated attention. In other words, there are thousands of species and just one or two specialists to study them. This makes it relatively easy to find new species for the country and science in general. For instance, one of the few Dutch specialists on parasitic wasps was brought in for the Vondelpark expedition and discovered a new species. By the end of the week, an announcement was made, and several months later, the discovery was reported in a scientific paper and named *Aphaereta vondelparkensis*, after the park.

Another project that the Foundation is implementing is what we call *Backyard expeditions*. People from urban neighborhoods approach us to help them do a biological inventory of their balconies or private gardens, which can be very rich in biodiversity. It is imperative for people to realize that they have control over these little bits of nature which prove to be like miniature nature reserves or, in the case of a series of contiguous backyards, a kind of communal nature reserve. By working together with the neighbors, people can start appreciating the insects that live there and transform the gardens to make them more attractive to these creatures.

The Foundation's work is not only about the numbers of species that are found but also about the increased awareness amongst the people living around the areas studied. The shared appreciation resulting from these projects strikes a chord within neighborhoods and the municipality. So much so that we are often approached by citizens who are worried about the fate of, say, a nice bit of urban forest or a vacant urban lot. The organization helps them do a scientific investigation on the biodiversity of these places, take note of that information and use it to persuade the authorities to conserve those areas. For instance, the Taxon Foundation's first project was in Leiden. We worked on a strip of the urban forest with people from the neighborhood. Initially, the municipality wanted to remove it to build a new bicycle path. Still, because of the exciting biodiversity discovered by the expedition, they changed the plan and diverted the route so that the forest strip could be preserved.

KEY LESSONS

- People think of biodiversity as a concept inherently related to big mammals, birds, or giant trees. Providing ordinary citizens with basic training and tools, like a microscope, will help them see specimens of previously unseen insects living in the places these excursions are carried out and make them appreciate that bit of forest much more. A better understanding of the basics of biology gives a better understanding of biodiversity. And this gives way to a collective appreciation of urban green spaces.
- People in a neighborhood that care a lot about a particular piece of land don't want to see it change, and they often lack the means to address this problem on a higher level in the municipality. People who attend these expeditions suddenly realize they have a new tool that they can use to influence the authorities and the decisions these authorities make about their natural environment.
- People, especially people living in cities, must learn to accept messiness in their environment (e.g., weeds, vacant lots), something precious for the kind of biodiversity these expeditions are looking at. A great way to tackle this is to use chalk on the sidewalk to highlight the scientific names of plants that would typically be dismissed as weeds (this practice is known as *botanical chalking*). It helps people better understand the greenery that spontaneously grows around urban areas and biodiverse terminology.
- The most challenging group to reach is the people that have very little to do with science, don't have scientific training, don't read a lot, or are not particularly interested in nature (or even nature documentaries). This is a challenge for the channels customarily used to reach potential expeditioners.
- High school students and young adults don't often attend these expeditions, so efforts should focus on keeping individuals interested in nature once they become teenagers. One way to do so is to help them see this sort of project as a hobby or to spark engagement using tech like the **iNaturalist** app.