# Human Niche Construction

Rachel Carson Center

**16—17 October 2015, Munich, Germany**

**In Memoriam**

Among the original conveners of this workshop was Tony Wilkinson from Durham University, United Kingdom. Unfortunately, on 25 December 2014, Tony passed away. Besides being one of the smartest archaeologists on the planet, Tony was the friendliest person one could imagine.

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**Sponsors:** Delft University of Technology (DUT, the Netherlands) Rachel Carson Center for Environment and Society (RCC, Germany)

**Conveners:** Edmund Russell (University of Kansas, USA), Christof Mauch (RCC, LMU Munich), Maurits Ertsen (DUT, NL)

**Presenters:** David Bello (Washington and Lee University, USA), Ove Eriksson (Stockholm University, Sweden), Laura Martin (Harvard University, USA), Mariagrazia Portera (University of Florence, Italy), Michael Just (North Carolina State University, USA), Sjoerd Kluiving (Vrije University, the Netherlands), Tim LeCain (Montana State University, USA), Erle Ellis (University of Maryland, USA). Not able to join was Girogia Aquilar (Federico II University of Naples, Italy), but her paper was discussed. Gregory Cushman (RCC, Munich, Germany), Smiti Nathan (PhD student John Hopkins University, USA) and Sandra Junier (PhD student DUT, NL) joined the meeting as well.

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It is well known that organisms adapt their environments to increase their chances of survival, a process known in biology as "niche construction". This workshop tried to understand the causes and consequences of niche construction by human beings. Social forces (such as politics, economics, technology, and culture) have joined natural forces (such as climate and ecology) in shaping niches for people and companion species. This workshop examined the idea of human niche construction (HNC) on a theoretical level and applied it to case studies, such as the growth of cities. Our aim was to see how the idea of HNC might lead to new insights into the ways in which people and environments have shaped each other over time.

Potentially, the concepts of HNC and evolutionary history challenge the notion of anthropogenic influence as a recent phenomenon—which is not the same as suggesting that the concept of niche construction itself is completely accepted. Nevertheless, the focus on the importance of human agency in transforming humanity's own environment and the consequent feedback opens up several potential academic debates. Further exploration of HNC might renew interest in human-induced change. There is no need to reject the Anthropocene as a new geological time—problematic as the notion of 'new' may be—because the current focus on the Anthropocene would not necessarily mean that other human-nature interactions would be buried under CO2 and climate debates. Humanity has changed the world before, with potentially massive effects. It is very well possible—actually it is pretty likely—that full scale effects of interventions are only visible after some time has passed, that is after a generation.

The workshop allowed the exploration of the concept of HNC through the lens of different settings and themes—including cereal fields, meadows, the built environment, aesthetics, temperatures, the Antropocene, and materialism. During the workshop, none of the papers were read. Instead, each paper was commented on by two participants, after which a discussion was started to explore the details of the argument. Each of the three sessions included a general discussion at the end.

In the first session on histories of human niche construction, **DAVID BELLO'S** paper presented the niche conflict between people and locusts in Chinese cereal fields in the eighteenth and nineteenth centuries. It showed how human social structures were altered to deal with contradictory demands of timely interventions in the locust life cycle and in cereal cultivation to selectively deny a niche to the insects while maintaining one for the plants. Imperial agriculture was not only yielding subsistence and revenue, but a swarm of competitors for both. **OVE ERIKSSON'S** paper discussed the management of wooded meadows in Scandinavia. Archaeological evidence suggests that infields were established during the Iron Age, around the first few centuries AD, but it's likely it could have been even earlier. Management of these areas as wooded grasslands maintained a spatial continuity until the large scale transformation of agriculture took place from the mid-nineteenth century. Remnants of infields today are small and fragmented, but due to their exceptional species diversity they are high priority conservation areas. In her paper, **LAURA MARTIN** discussed the evolution of non-humans as a result of human-modified environments, focusing on the human-built environment on the evolution of other species. Recent work in the fields of evolutionary biology, ecology, anthropology, and building sciences turns our attention back to species that coexist with humans. Much of this work is conducted in outdoor spaces, but a growing body of work addresses evolution in the indoor biome.

In the second session, which continued focusing on the built environment, **GIROGIA AQUILAR'S** work presented urban heritage within the two-directional nature of the interactions between material environment and social arrangements, by placing emphasis on their mutual effects in the urban framework—the anthroposized space drawn by interlinked changes between different agents. The work of **MARIAGRAZIA PORTERA** showed how we live surrounded by works of art, design objects, artistic and aesthetic practices and practitioners, which play a crucial role in our lives and in human society in general. Through our aesthetic behaviour and choices we actively modify our environment. But what is the feedback action of this constructed, "hyper-aestheticized" space on the evolution and development of human aesthetic preferences and tastes? **MICHAEL JUST** presented one of the most important material environments for humans, our houses, as extensions of our phenotype possibly constructed to achieve survivable temperatures and humidities. The example of the geographical distribution of the global outdoor climate most similar to North American homes, was used to suggest how homes could extend phenotypes.

In the final session on concepts, **SJOERD KLUIVING** explored how niche construction could be related to the Anthropocene. He suggested an alternative definition of the Anthropocene based on the causes of environmental changes made by humans instead of their effects. These causes are to be found in changed behaviour, which possibly means that the onset of the Anthropocene could be located at the start of Neolithic revolution. **TIM LECAIN** explored new materialist theories and their affinities with niches through a close examination of turn-of-the-century cattle ranching in the American West. Beside profound effects on plains' grasses and US wealth, cattle ranching may have influenced (epi)genetic structures of both cattle and humans, and distinct human behavioural patterns and ideas. **ERLE ELLIS** presented on how sociocultural niche construction theory could potentially explain the unprecedented emergence of human societies as a global force, transforming the biosphere by building on existing theories of ecosystem engineering, niche construction, inclusive inheritance, cultural evolution, ultra-sociality, and social change.

Throughout the debates in the three sessions and during the final session, the concept of "niche" was explored. **EDMOND RUSSELL** brought a set of questions forward on "niche", "construction", and "human". Does a niche entail a specific place, does it model a relation, are there multiple niches, is a niche a babushka-concept? What scale are we thinking about, in terms of time, space, and interactions? All three constituting words "Human", "Niche", and "Construction" were thoroughly pushed around, to see how human could be different from natural, what a niche was, whether they were maintained and whether they emerged rather than being constructed. It was proposed to reframe HNC to "Mutual Shaping of Hybrid Niches", although it remains to be seen whether "MSHN" will catch on.

-- Maurits Ertsen