

Ecologies of Consumption: Food, Materials & Climate

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Our ways of living are endangered and on the verge of catastrophic change. Though we may experience the effects of climate change at a macro level, changes are rhizomatic, cascading through scales and networks interconnected by materials and energies, biologies and chemistries, economies and cultures; each of these connections affecting the very ingredients of our everyday life in diverse and unpredictable ways. No other system of matter and exchange offers such a thorough lens through which to examine these effects as does our contemporary food systems. This lecture presents a perspective on how degrees of interconnectivity and the precarity of decision-making for food, materials and construction can impact the future of built environments.

INTRODUCTION

When one takes a sip of coffee, tea, beer or wine, one is consuming something that is grounded in a particular geography, an artifact of a specific time and place. The natural ingredients, which are highly sensitive to their environmental conditions, co-mingle to craft these edible pleasures, and create a complex, yet delicate balance of chemicals that yield distinct aromas, flavors and textures. With a basic understanding of these relationships, we can ask: What does a place taste like? What does a season or year taste like?

Whether we consider staples such as vegetables, meats and grains or indulgences like alcohol, coffee and confection, food transects cultural, regional and physiological differences. It provides us with nourishment, and it also structures our routines and social practices – from cultivating, gathering and purchasing to preparing, consuming and discarding. Whether considering food as a domestic ritual, a commercial endeavor, or as an object of desire, it reveals our human evolution of place and memory, where fields and gardens, kitchens and dining rooms, bars and cafes are the cultural landscapes that represent our unique identities and material traditions. In effect, food defines who we are as individuals, as communities, and as citizens of this planet.

What is evident in contemporary food systems today is that they are in a state of flux. Food operates concurrently at the biological and ecological scales. And from shifting seasons, variable precipitation levels, increased global temperatures and greenhouse gas emissions, multiple crops have suffered lower and/or erratic yields, increased diseases, accelerated ripening or reduced flowering. The quality, as much as the quantity, of year-to-year variations for crops (including grains, vegetables, fruits, etc.) have significantly been altered; and with a projected 1.6 degree Celsius (or 2.9 degree Fahrenheit) rise in global temperature, our carrots could lose their texture, kale could become bitter, eggplants could become deformed, and canola oil could lose a quarter of its nutritional value. With climate change – linked with soil erosion, deforestation, pollinator extinction, invasive pests and diseases – the future of our food landscapes is transforming; and the effect on all biotic matter become irrevocably imminent and comprehensive. And so, one could say that every minute changes a plant's life. Through the basic interactions of soil, sub-soil, weather, microclimate and terrain, a flower, a grapevine or a barley seed can forever be changed.

THE CLIMATE OF DESIGN

The agricultural industry, along with the food and beverage industry, are the second and the third-largest sectors most dependent on nature – that is after the building and construction industry. Food security and nature loss are dire not just for our precious ecosystems and the species that are supported by them, but for the economic development of human populations. These communities are often directly and heavily dependent on these ecosystems; and not just as their source of food, but in addition to their income, shelter, fuel, health and way of life.

In a similar vein, these consequences will also have a disproportionate impact on women (and children) – as women play a vital role in these biological resources, providing for the essentials: food, fuel and water. Increased gender and racial equality are a driver of economic growth, but the adverse impacts of nature loss will have wider implications for social and economic development, and specifically for women and populations of color.

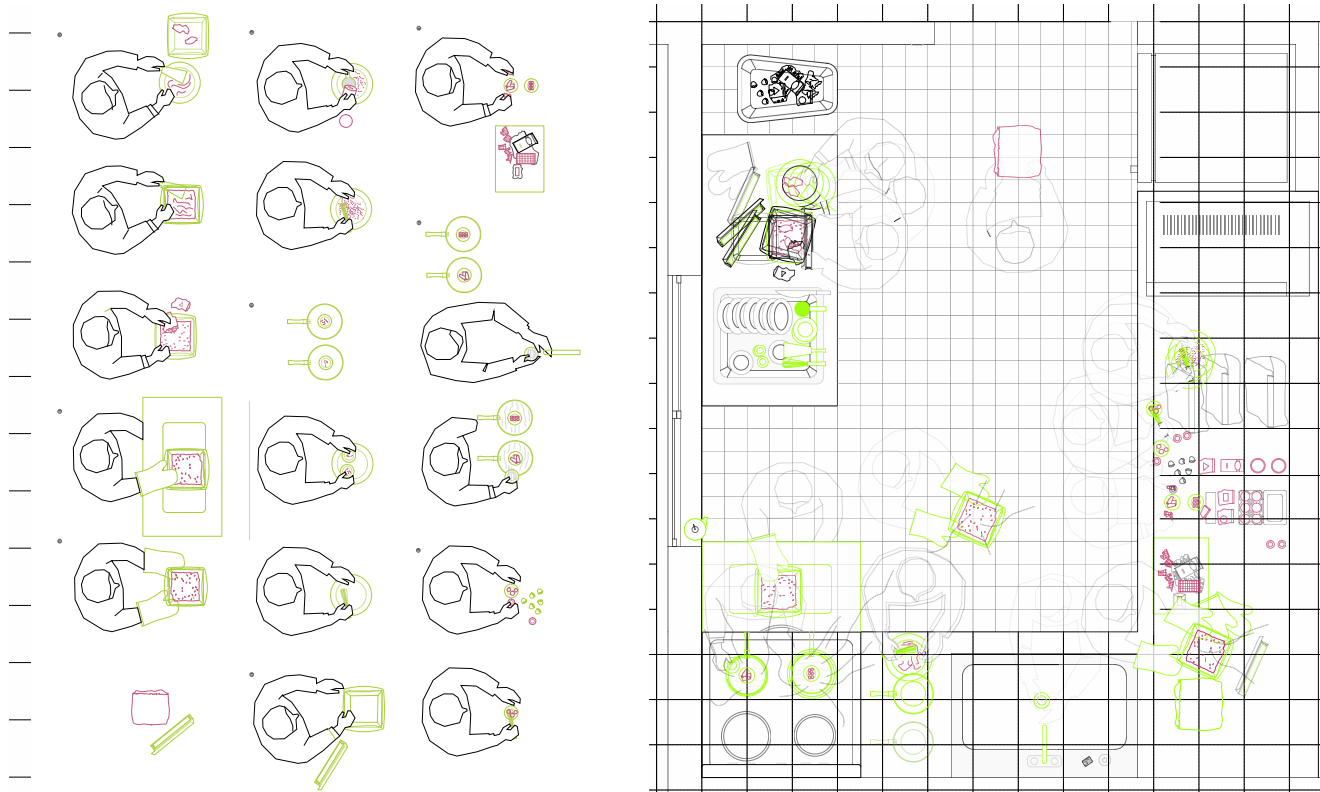


Figure 1. Human factors and operations related to cooking. Image credit: Hangxing Liu.

“Humanity is on a collision course with nature. Already 72 percent of the global ice-free land surface is dedicated to supporting our species, and between a quarter and a third of the entire ‘net primary production’ of the planet is consumed by humans”—Mark Lynas, *Six Degrees: Our Future on a Hotter Planet*.

We must invest in nature, in order to fight climate change – this is the greatest challenge of our time. Just as generations of designers entering the profession amid the energy crises of the 1970’s were fundamentally marked by their environmental-political context, undoubtedly so too will the architects and designers of today be fundamentally influenced by the increasingly existential threat of the climate crisis.

THE SCALES OF DESIGN

Food and materials are a litmus to change. They are both indicators and indexes of the global and local transformations and trends induced by human and non-human activities. As byproducts involved in production and consumption, both food and material ecologies are affected by a myriad of indeterminacies and injustices. This has led practitioners from anthropology and the natural sciences to design and social activism to a reexamination on how our consumption – if not our overconsumption – of natural resources can provide a lens

through which to engage the complexities of architecture, and in consequence the interconnectedness of our society and surroundings. As designers, we need to be increasingly aware that the material realities of our practice, including knowing how manufacturing and construction is interconnected at multiple scales, influenced by multiple species, and operated across multiple locations around the world is relevant.

Traceability is a term originating from the food industry. And as a point of comparison for materials, a food traceability system allows one to follow the movement of food products in order to document the food supply chain at each and every stage of the food handling process from production and processing to distribution. By tracking food products from their source of origin, manufacturers can better achieve food quality, hygiene, and safety; and as consumers, we can have a greater stake in influencing recommendations on safety guidelines and compliance. As a result, we achieve a sense of security and awareness of where and how our food arrives to our kitchens and dining tables. But what proves to be of question when applying traceability to materials and in architecture, is that it moves beyond distance, and the space between products and their locations. The notion of tracing a path in physical space becomes misleading. What might seem very distant in physical reality, might actually be closer than what we imagine. When



Figure 3. Cultural artifacts depicting the ecology of corn. Image credit: Alex Kiehl.

As designers, we are often, if not always confronted with these incongruent pressures – a collection of requirements, circumstance, and methodology all vying for saliency and influence within our design process. How we create coherence from these disparate factors, within our modes of exploration, whether in practice, academia or research will always be challenged to generate design synthesis. Designing for and with food and material ecologies – and by extension, designing for built spaces – begins with a set of metrics that determines a program for use; physical properties and human experience; and performance and sustainability. I would add, the acquisition of an environmental ethos that values ecologies and people first would be at the core of design.

Today, our co-habitation with nature has evolved in unprecedented ways; and the exchange of materials, energy and forces have influenced the biological, cultural, political, economic, and even the imaginary. The countless ways in which systems are interconnected, transcend well beyond a singular material, a singular ecology, an isolated moment in time. When we discuss issues of sustainability, we require an understanding of the architectural scale in simultaneity with the planetary scale. Our design disciplines require this facility and self-motivation to generate more responsible and more effective designed interventions – ones that are responsive to

their timely needs. In order to establish a framework – or a collective conscious – for these critical discussions on the agency of architecture and design in the milieu of global re-formation and information transparency should become the foundation for research and design. Fore fronting these issues will reveal a design empathy, one that is not just oriented towards our built environments, but more so to an understanding of diversity – or rather biodiversity – of our cultural and ecological circumstance. As architects, designers and planners, we do carry the responsibility to create self-reliant, sustainable, and resilient places. And in sharing new streams of information including the processes of how we make design decisions and how we translate design ideas, it can significantly impact the planning and construction of these constructed environments, from distant regions to local commons.

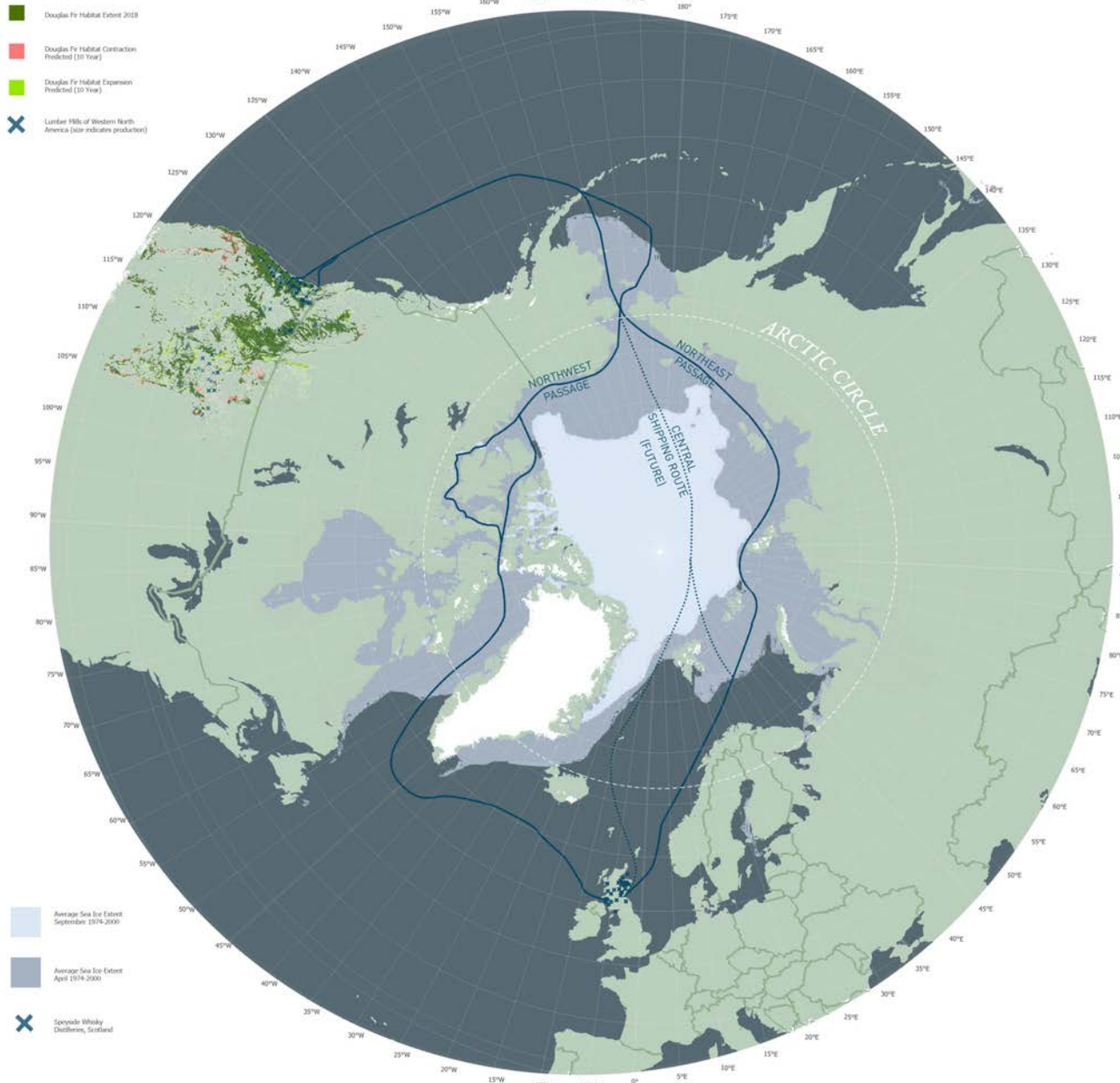


Figure 4. Traceability mapping for the ecology of Douglas fir. Image credit: Taryn Wiens.

BIBLIOGRAPHY

1. Antonelli, Paola. *Design and the Elastic Mind*. New York: Museum of Modern Art, 2008.
2. Bennett, Jane. *Vibrant Matter: A Political Ecology of Things*. Duke University Press Books, 2010.
3. Cohen, Jeffrey Jerome. *Prismatic Ecology: Ecotheory beyond Green*. University of Minnesota Press, 2014.
4. Lynas, Mark. *Six Degrees: Our Future on a Hotter Planet*. Washington, DC: National Geographic, 2008.
5. Morton, Timothy. *Being Ecological*. UK: Pelican, Penguin Books, 2018.
6. Tsing, Anna Lowenhaupt. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton University Press, 2017.
7. Wallace-Wells, David. *The Uninhabitable Earth: Life After Warming*. New York: Tim Duggan Books, 2019.