Transformation of agricultural landscapes in the Anthropocene: Nature’s contributions to people, agriculture and food security Adam J. Vanbergen

This paper makes me think deeply about the big problem of how we grow our food. I always knew that modern farming can be bad for the environment, but I did not realize it is the main cause of biodiversity loss and damage to important ecosystem services. The idea that agriculture is destroying the very natural systems it needs to survive is a powerful and worrying thought. It shows that our current system is not sustainable at all.

The most interesting part for me was learning about the different solutions. Before reading, I only really knew about organic farming. Now I understand there is a whole range of options, from using more technology to completely redesigning farms to work with nature. The concept of "ecological intensification" is new to me. Using nature, like helpful insects and healthy soil, instead of fighting against it with chemicals, seems like a much smarter and more long-term way to farm. It is good that the authors say there is no single perfect solution for everyone. This makes sense because farmers in different parts of the world have different climates, economies, and cultures.

However, the paper also makes me feel that this change will be very difficult. It is not just about science; it is about people, money, and society. How do we convince all the farmers in the world to change their methods? Who will pay for this transition? The social and economic challenges seem even bigger than the technical ones. I also think about the role of new technologies, like lab-grown meat. It is exciting but also a bit scary. Will it help save nature, or will it create new problems?

Finally, I agree that we need to think on a larger landscape scale and include everyone in the discussion. Farmers, scientists, governments, and people who buy food must work together. This paper has shown me that the future of our food and our planet depends on this cooperation. We cannot just continue as we are.

Questions for class discussion:

The paper says that convincing farmers to change is a big challenge. What do you think is the best way to motivate farmers to adopt these new and more sustainable farming methods?

The paper mentions new technologies like synthetic biology and 3D-printed meat. Do you think these high-tech solutions will help achieve sustainability, or could they create more environmental and social problems?

Question 1: Motivating Farmers

I think the best way to motivate farmers is to make sustainable methods less risky and more profitable. First, governments and banks can provide financial support. For example, they can give subsidies or low-interest loans to help farmers pay for the initial cost of changing their methods. This is important because switching to new practices can be expensive at the beginning.

Second, we need better education and proof that these methods work. Farmers trust practical results, not just theory. So, we should create local demonstration farms where farmers can see the benefits with their own eyes. They can see how ecological intensification improves their soil health or how new techniques can save them money on pesticides. Finally, creating a special market for sustainably grown food can help. If consumers are willing to pay more for food that is good for the environment, then farmers can get a higher price for their products, which is a strong motivation.

Question 2: High-Tech Solutions

I believe these high-tech solutions could be a helpful part of the solution, but they also bring new problems. On the positive side, technologies like lab-grown meat could greatly reduce the environmental damage of traditional agriculture. We would need much less land and water, and we could cut greenhouse gas emissions from cattle. This would be very good for conservation and fighting climate change.

However, I am worried about the social problems they might create. For example, if we can make meat in a lab, what will happen to the millions of farmers and workers who raise cattle? They could lose their jobs and their way of life. There could also be a big gap between rich companies that own the technology and poor farmers who cannot compete. Furthermore, we don't yet know the long-term health effects of eating synthetic food. So, I think these technologies should be developed carefully, with rules to make sure they are safe and fair for everyone, not just a way for big companies to make money. They are a tool, not a complete solution.

Lawrence, A.M. 2022. Listening to plants: Conversations between critical plant studies and vegetal geography.

This paper is about the importance of plants in geography and other studies. The main idea is that we often forget plants and focus only on animals, but plants are also very important living beings. The author says we need to "hear" plants, which means not just listening to sounds they make, but trying to understand their way of life.

The paper explains there is a new field called "vegetal geography" that studies plants in human geography. It is connected to another field called Critical Plant Studies (CPS) from philosophy and art. Together, they try to understand plants not just as objects or background, but as active subjects that change the world.

I learned that plants have their own time. They grow in cycles that are different from human time, and this challenges our fast, capitalist way of life. The paper also talks about plant agency, meaning plants can act and change things, like invasive species that cross borders. This was a new idea for me because I usually think of plants as passive.

Another interesting part was about ethics. If plants are alive and can feel stress, should we change how we treat them? This is a difficult question, especially about food. The paper says we must think about this without forgetting problems of human inequality and colonialism.

Finally, the paper talks about methods to study plants. We can use art, dance, stories, and walking to understand them better. This is more creative than normal science. The conclusion is that we must try to connect with plants, see them as kin, and learn from them to build a better future.

This paper is complicated but it opened my eyes. I never thought so deeply about plants before. It makes me want to pay more attention to the trees and flowers around me.

Discussion Questions

The paper says we should "hear" plants by understanding their growth and life. What is one practical way we can "listen" to a plant in our own daily life to understand it better?

The author says it is important to balance seeing the similarities and differences between humans and plants. Why is this balance important for creating a good ethical relationship with plants, for example, in agriculture or in our diet?

Question 1

One practical way to "listen" to a plant in daily life is to have a houseplant and observe it carefully. For example, you can choose one plant and every day, you can look at it for a few minutes. You can see how the leaves move towards the light, how the soil feels, and if new leaves are growing. You can also touch the leaves gently and see if they are firm or soft. This is not listening with ears, but it is a way to pay close attention and understand what the plant needs, like more water or more sun. By doing this, you start to learn its language of growth.

Question 2

This balance is very important because if we only see differences, we might think plants are too strange and we cannot relate to them. We might not care about them. But if we only see similarities, we might forget that they are different and treat them like humans, which is also not correct. For example, in agriculture, if we understand that plants need good soil and water to be healthy (a similarity, like we need food), we will take better care of them. But if we also understand their different time—that they grow slowly and cannot be rushed—we will not use chemicals to force them to grow fast. This balance helps us respect them for what they are.

Food geographies ‘in,’ ‘of’ and ‘for’ the Anthropocene

This paper is an introduction to a special journal issue about food geographies and the Anthropocene. The main idea is that the concept of the Anthropocene, which is about humans changing the planet, is very important for understanding our food systems. However, the authors say that food geography has not used this idea enough.

The paper explains three ways to connect food and the Anthropocene. First, food geographies ‘in’ the Anthropocene see it as a universal story for all humans. This view is simple but can ignore the big differences between rich and poor countries and people. For example, the EAT-Lancet diet is a good idea but may not work the same everywhere.

Second, food geographies ‘of’ the Anthropocene look at the uneven and unequal impacts. This view is more critical. It shows that the problems are not the same for everyone. The history of colonialism and capitalism created these inequalities. The papers about India and the broiler chicken show this clearly.

Third, food geographies ‘for’ the Anthropocene are about building better and more ethical food futures. This approach is hopeful and focuses on care, justice, and including more-than-human actors like animals and plants.

I think the three-part framework (‘in’, ‘of’, ‘for’) is very useful. It helps to organize different ways of thinking. It shows that we must not just accept the Anthropocene idea but must question it and use it to make a better future. The paper is strong because it uses many examples from different places, not just the West.

I also learned about other names for this era, like Capitalocene (blaming capitalism) and Plantationocene (blaming plantation farming). These names are important because they show the real, specific causes of the problem, not just "humans" in general.

This paper makes me think about my own food choices and where my food comes from. It also makes me question big technological solutions, like lab-grown meat, because they might create new problems in other places.

Revisiting the drought-food insecurity nexus

Question 1: Mechanisms for Integrated Governance

To solve the problems of data and coordination, I think we need practical solutions.

First, for data availability, a good mechanism could be to create a shared digital platform. All different agencies—like water, agriculture, and disaster management—must be required by law to put their data here. This platform should use simple, standard formats so everyone can understand and use the data, even if they are not experts. This reduces confusion from different data types.

Second, for institutional coordination, a strong innovation could be to form a permanent "Drought Task Force." This group would have real power and a budget. It would include not just government people from every sector, but also scientists, local community leaders, and farmers. They would meet regularly, not only during emergencies. This makes collaboration normal and not just a special project.

Question 2: Balancing Theory and Practice

Balancing the ideal SES approach with practical reality is very difficult but important. I think we can do it step by step.

We cannot change the whole governance structure at once. A practical way is to start with a small pilot project in one region that often has droughts. In this small area, we can try to use the SES approach perfectly. We can connect all the local agencies, share data, and make decisions together.

If this pilot project is successful and shows good results, it becomes a strong example. We can then show this example to national politicians and other regions to convince them to change. This way, the theoretical ideal becomes a practical model that people can see and believe in, making it easier to adopt in other places.

Question 3: Applying the Model in Research

Yes, I definitely see an opportunity to use this model in my research.

I am interested in studying how drought affects small farmers in my country. The authors' model is useful because it gives a clear framework. I can use it as a guide to structure my research.

For example, I can apply the model to a specific village. I would study:

The Resource System: The local water supply like rivers and groundwater.

The Resource Units: The water itself and the crops farmers grow.

1. Can “food futures” be optimistic without justice and reform?

No, truly optimistic food futures cannot exist without redistributive justice, land reform, and dismantling unequal power structures. An optimism that ignores these issues is a form of denial.

The text shows that the current food system is a major driver of the planetary crisis and is built on deep inequalities. Proposing high-tech fixes—like lab-grown meat or universal diets—without changing the underlying power dynamics might solve some symptoms but will reinforce the same problems. For example, a "universal diet" proposed by Northern institutions ignores the fact that some communities have contributed almost nothing to the crisis yet bear its worst impacts. This approach "risks erasure of alternatives."

True optimism requires a transformative approach, not just a technological one. It means building futures that are not only sustainable but also just. As the text states, we must move beyond an "anxious, pessimistic politics" and work for a "resurgent world." This is impossible if the system remains controlled by the same transnational corporations and logic of exploitation (what some scholars call the "Capitalocene" or "Plantationocene"). Therefore, optimism without justice is not real optimism; it is a privileged fantasy that greenwashes the status quo and risks making the crisis worse.

2. Who has the legitimacy to shape food system transitions?

Legitimacy belongs to those who have historically fed the world, protected its ecological systems, and have been most marginalized by the industrial food model: namely, peasants, Indigenous communities, and small-scale food producers, often from the Global South.

The text argues that the current system often grants legitimacy to powerful Northern institutions, corporations, and governments—the very actors responsible for the crisis. Centering other voices is not about just "giving them a seat at the table" but recognizing that they are the table. Their knowledge and ways of life are essential for building a resilient future.

The text suggests several ways to center these voices:

Recognize Their Knowledge as Science: Treat Indigenous and peasant knowledge—of seeds, soil, and ecosystems—as sophisticated science, not just anecdotal tradition.

Support Self-Organization: Directly fund and support social movements like La Vía Campesina, rather than filtering resources through large Northern NGOs.

1. What familial, local, and community roles do subaltern food systems play?

Subaltern food systems, like the small garden plots mentioned, play very important roles. They are acts of resistance against the large plantation system.

Familial and Local Role: They provide food for families and local communities. This is crucial for physical survival. The text says these plots offer "cultural and physical sustenance." For example, in northeastern Brazil, workers fought for their right to have small plots of land to grow their own food.

Community Role: These small-scale systems help build and maintain community ties. They are the opposite of the plantation, which destroys existing communities and replaces them with unequal, hierarchical relationships. These food systems are "embedded in intimate, small-scale relationships with land and people." They represent a way of life that is not controlled by the plantation boss or the market.

In short, these systems help people survive, resist the plantation, and imagine a different way of living on the land that is more just and equitable.

2. What political and social conditions could enable conditioned agency to create an alternative system?

The text suggests that "conditioned agency" in small, interstitial spaces (the gaps within the dominant system) can lead to alternatives. For this agency to become a real structural alternative, certain conditions are needed:

Political Support: There must be political and policy support that provides resources and space for alternatives to grow. This means supporting things like agrarian reform (redistributing land to small farmers), agroecology (ecological farming methods), and local markets. However, this support must avoid being exclusionary or nativist.

Rejection of Plantation Logic: The social condition is a rejection of the plantation's core ideas: large scale, extraction, and forced labor. Instead, society must value small-scale, diverse, and participatory ways of production. The text says alternatives would be "small-scale, labor-intensive, participatory, and diverse."

Centering Race and Justice: Because the plantation is built on racial violence, any alternative must actively fight racism and center justice. The text says we must learn from "Afro-futurists" and focus on "practical activities of resistance, encounter, and anti-colonial thinking."

Learning from Resistance: People have always resisted plantations by fleeing, disengaging, or protesting. Social conditions that allow this resistance to be organized and heard are essential. The agency is found in these acts of refusal and in building different communities.

Reading this study by George Cusworth and his colleagues from Oxford University made me rethink how I view farming and land management. I was struck by how the regenerative farmers organize their work through three different spatial imaginaries. First, there are the vertically nested scales, which connect the smallest processes, like nutrient cycling and water movement, to the level of individual fields and up to the whole farm. I found it interesting that farmers treat fields as modular units or “patches,” using them to observe and manage ecological processes while building diverse and resilient farm landscapes. This made me realize that productive farming doesn’t have to mean simplifying nature, but it can mean paying attention to complexity and using it creatively.

The second spatial imaginary, horizontal connections, shows how local decisions are linked to distant environments. For example, farmers prefer pasture-fed ruminants over animals dependent on imported feed, which reduces pressure on ecosystems. This idea of livestock stomachs as a site where global ecological connections become visible and actionable really challenged my thinking. It made me see that farming is not just about the land I can see, but also about the far-reaching consequences of the choices we make in supply chains and food production.

The last one was volumetric thinking which treats soil as a living, three-dimensional system. I was surprised by how much attention farmers give to soil depth, carbon content, root interactions, and water retention. I hadn’t thought before about soil as a space where ecological health, climate mitigation, and agricultural productivity intersect. The farmers’ focus on building soil structure and fertility, rather than relying on chemical inputs, gave me a new perspective on what sustainable agriculture can look like.

As someone studying GIScience this study resonates with the way I think about spatial data and analysis. Seeing how regenerative farmers organize their fields, manage livestock, and care for soil in nested, networked, and volumetric ways reminds me that GIS is not just about mapping, but about understanding complex spatial relationships and flows. The vertical, horizontal, and volumetric imaginaries described in the study could be directly explored through GIS tools like layered spatial analyses, network modeling, and 3D soil or terrain visualization. It makes me think about how GIS could help bridge local practices with global environmental patterns, making these nuanced farm-level decisions visible and measurable in ways that support both research and practical decision-making in the Anthropocene.

The questions that I have still in my mind:

1- How can the concept of spatial imaginaries in regenerative agriculture inform the way we design and apply spatial analysis in GIS to capture both local farm-scale processes and their broader ecological and socio-political impacts?

2- In what ways might the regenerative farmers’ use of multiple spatial imaginaries challenge conventional models of agriculture, and what can this teach us about rethinking human-environment relationships in the Anthropocene?

The idea of spatial imaginaries in regenerative agriculture asks for a better way to use GIS for spatial analysis. Normally, GIS might only look at a single farm and basic data like soil type or yield. However, regenerative agriculture sees the farm as connected to bigger systems like watersheds, wildlife corridors, and communities. Therefore, spatial analysis in GIS should also study these connections. For example, it can map how water moves from a farm into the groundwater and rivers nearby. It can also add social information, like community knowledge or local laws, to the map. This helps us understand not only the physical farm but also its relationship with the ecology and society around it. In this way, GIS can change from a simple mapping tool into a more powerful system that shows how everything in the landscape is linked together.

Question 2:

The use of multiple spatial imaginaries by regenerative farmers challenges normal agriculture in important ways. Conventional agriculture often imagines the farm as a factory for producing food, focusing only on control and production. In contrast, regenerative farmers have a different view. They see the farm as a living part of a larger ecosystem, a place for community, and even a spiritual home. This thinking challenges the normal model because it values things like soil health, water quality, and community well-being, not just crop yield. This teaches us a key lesson for the Anthropocene: we must change our relationship with the environment. We cannot see nature only as a resource for our use. Instead, we should see ourselves as part of nature, with a responsibility to care for it. This shift from control to cooperation is essential for creating a more sustainable and respectful future.