### **Team Members**



**Angela Babb** is a critical human geographer whose work encompasses critical food studies, examining political economy of hunger in the US and the contemporary food movement.



**Dan Knudsen** is professor of the Department of Geography. His food research encompasses topics such as taste, identity, food & farm security and justice.



**Eduardo Brondizio** is a distinguished professor of Anthropology studying human-environment interaction and social-environmental change with a focus on the impact of agricultural areas on the governance of indigenous and conservation areas.



**Kate Munden-Dixon** is a postdoctoral research fellow with an interest socio-ecological transitions and governance in food systems.



**Stephanie Dickinson** is senior biostatistician and manager of the Biostatistics Consulting Center in the Department of Epidemiology & Biostatistics in the School of Public Health-Bloomington.



**Sarah Osterhoudt** is an environmental anthropologist and political ecologist examining the human dimensions of cultivated landscapes, especially the agro-ecological systems of Northeastern Madagascar.



Jon Eldon is an agricultural ecologist with an interest in ecosystem management, soil fertility, and farmer adaptation and is a lecturer at the O'Neill School of Public and Environmental Affairs.



**Jennifer Meta Robinson** is a professor of practice in the Department of Anthropology studying food and culture, focusing on small-scale, alternative agriculture in the US.



Jodee Ellett leads the community engagement and translation elements of SFSS project in Indiana, working to enhance relations and partnerships with communities and the research team



Annie Shattuck is an assistant professor in the Department of Geography. Her research draws on political ecology to examine food politics, agrarian change, and rural health.



**James Farmer** convenes the SFSS initiative and is an Associate Professor in the O'Neill School of Public and Environmental Affairs. His research focuses local and regional food systems.



**Shellye Suttles** is an agricultural economist whose work encompasses local and regional food systems, municipal food policy, and climate change's impact on agricultural land use.



**Stacey Giroux** is an associate research scientist with the initiative. Her research interests include food security, connections between food habits and health, and social network analysis.



**Peter M. Todd** is a cognitive scientist who studies how people make decisions about important resources in their lives, including food, social partners, and information.



**Carl Ipsen** is a food historian and the director of the IU Food Institute. Recently, his work focuses on the history of olive oil and is co-leading field work in Puglia on the impact of Xylella on olive plantations.



**Julia DeBruicker Valliant** is a public health researcher trained in the social determinants of health. Her work focuses on food and agriculture as forces guiding a people's ability to be well in a place.



**Olga Kalentzidou** is a lecturer in the Department of Geography. Her research interests include immigrant foodways and how food insecurity impacts migrant and refugee communities.



**Kurt Waldman** is an assistant professor in the Department of Geography. His research applies behavioral economics and decision science to understand socio-environmental problems.

Jordan Blekking is a Ph.D. student in the Geography Department

Claire Frohman is a Research Associate with the Sustainable Food Systems Science program

Leila Mzali is a Ph.D. Student in the Anthropology Department

Wesley Zebrowski is a Ph.D. student in the O'Neill School of Public and Environmental Affairs



### OFFICE OF THE VICE PROVOST FOR RESEARCH

# SUSTAINABLE FOOD SYSTEMS SCIENCE

While the industrialized global food system of the 20<sup>th</sup> and 21<sup>st</sup> centuries has achieved remarkable levels of abundance and productivity, at the same time, this system is implicated in numerous social and environmental concerns. The policies, environmental influences, and social trends that shape food production, aggregation, and consumption in the United States and throughout the globe are inextricably linked through local, regional, and global systems. At Indiana University, a corps of interdisciplinary scholars and professionals are working together using a multi-case study approach with field research sites from Indiana to Madagascar to understand the leverage points that can be used to build more resilient and sustainable food systems that support food justice, public health and wellbeing, sustain more livelihoods, and improve civic and community life.



**Food Systems** - We understand food systems, whether local, regional, or global in scope, to encompass three primary components: production and supply, aggregation and distribution, and access and consumption. These components intersect and interact with each other to create a complex

system in which changes in one sector affect the others either directly or through cascading implications.

**Community-Based Networks and Approaches** –Our research is applied and in the real world. Thus, developing and maintaining strong community networks and relations is paramount to the work we do. We support communities via translation of scholarship and assistance with community initiatives, working with them in ways that contribute to the needs of both groups.





Convergence of Disciplines - Sustainable food systems have never been the central focus of any of the standard academic discipline. As we understand the nature of the topic to be both inter- and cross-disciplinary, our lens includes history, geography, anthropology, biostatistics, community development, economic, public policy and affairs, environmental health, environmental studies, network science, sociology, ecology, psychology and cognitive science, and more.

**Local to Global -** Our team is conducting research both locally and across the globe, with field sites throughout Indiana and in New York, as well as multiple sites in Brazil, Italy, Laos, Norway, Madagascar, and Zambia. Examining food systems in a global context enables us to understand the interconnections between various systems and to explore how the lessons therein are situational or transferable.



**Sharing Lessons Through a Systems Lens -** We utilize Ostrom's Social-Ecological System (SES) framework to analytically underpin our research. Using this systems lens allows us to examine food's unique positioning at the center of a complex social-ecological system grounded in the ecological, historical, political, and economic realities of its day.

## **Indiana Team Projects & Regional Map**

#### **Community Centered Projects**

A Commodity-based, Continuous Surface Approach to Defining Food Deserts in Rural South-Central Indiana This study works to shift the traditionally urban-focused conversation around food deserts to include rural areas like South-Central Indiana as well as bring our attention to the commodities offered in stores, not just the stores themselves. We argue that the solution to the 'food desert problem' revolves around the placement of fresh, healthy, nutritious commodities in existing stores using programs such as USDA's Healthy Food Financing Initiative rather than the addition of new stores within food deserts. With the Indiana University Food Institute (IUFI) and Critical Food Studies Lab (CFSL)

<u>Choice in a Food Pantry: A Case Study</u> Using interviews with patrons of a local food pantry, we developed an alternative model to current assumptions about people's food choices. Results about what influence selections made in the food pantry setting provide insights into space-specific decision making. *With IUFI and CFSL* 

Community Food Projects & Volunteer Recruitment As with many non-profit organizations, community food projects often struggle to recruit and maintain a robust team of volunteers to achieve their missions and goals. We survey Far Eastside Indianapolis residents to identify intrapersonal and interpersonal factors influencing volunteer engagement in community food projects among current volunteers and non-volunteers and explore the level of realistic participation in community food projects based on previous literature regarding the economics of volunteerism.

Complex Food Provisioning Strategies and Food Insecurity among Low-Income Older Americans Our project investigates the barriers to accessing and consuming sufficient, culturally- appropriate food among older adults, and the complex provisioning strategies used to mitigate household food insecurity. With IUFI, CFSL, Center for Rural Engagement (CRE)

<u>Feeding South Central Indiana: Evaluating Accessibility of an Emergency Food System</u> This study explores how measuring the spatiotemporal availability of Emergency Food System services at both the county and organizational level is useful for the examination of the efficacy of EFS both in the Indiana Uplands and in other parts of the world. *With IUFI and CFSL* 

<u>Food Access and Security in Marion County, Indiana: Present and Future</u> Disparities in food access plague many communities throughout Indiana's state capitol region. We are engaged in a community-based participatory research project that centers on conducting ethnographic and geospatial research across the Marion County and Indianapolis area to better understand critical food access issues, community needs, and existing and potential remedial actions. *With City of Indianapolis and CFSL* 

<u>Indiana Food Council Network</u> We support network weaving and social network analysis, communication Strategies, and policy development for Indiana's established and developing food councils. Working in concert with national and regional organizations, we host monthly meetings, in-person workshops, unconference format meetings and create connections.

Local Food, Local Good This project aims to help strengthen the economic, environmental, and social resiliency of the Indiana Uplands food system. A listening tour and online survey will inform the regional needs assessment exploring the business, non-profit, and government sector needs identified by county residents. A regional Indiana Uplands Food Conference with guests from ACEnet will set the table for conversations on strengthening the local economy. With CRE

Public Transportation in Healthy Food Access Research Simplistic approaches to assessing access to healthy food such as drawing zones around grocery stores and labeling land outside those zones as 'food deserts' fail to paint the full picture of food access in a neighborhood. Accounting for transportation, our study adds nuance to understanding this complex issue as public transportation use introduces spatiotemporal constraints on households that are absent or less pressing with other modes of transportation. With IUFI and CFSL

Statewide and Regional Consumer Survey While many reports outline a shift in consumer demand towards local, regional, organic, and sustainably produced foods, little is known about Indiana citizens' involvement in this trend. We conducted a statewide survey to better understand past, current, and future consumer behaviors which we will follow with a series of online regional surveys to expand the scope and depth of our understanding and facilitate more nuanced conclusions.

White Supremacy at the Farmers' Market: Space, Speech, Safety, and Social Justice in 2019. This project tracks the visibility of white supremacy at farmers' markets in Indiana, with Bloomington, Indiana, as a case study. In 2019, the controversy drew a spectrum of local and national actors in shifting alliances, including white supremacists; social and conventional media; antifa protesters; municipal administrators; and local producer-vendors. This case implicates issues of social solidarity, justice, and embodiment in the context of food and examines how coalitions based in this particular context offer obstacles and ways forward.

#### Farmer Focused and Value Chain Projects

ELD Mandate Impacts on GHG Emissions and Food Waste In December 2017, Electronic Logging Devices (ELDs) became mandatory for commercial motor carriers. In December 2019, ELDs will become mandatory for produce haulers as well. We explore the environmental impacts of the ELD mandate's enforced hours of service for produce haulers, particularly GHG emissions and food waste on refrigerated vehicles. With University of Florida's Southwest Florida Research and Education Center

<u>Farmer Adaptation and Diversification in an Era of Change</u> Based on emerging models Indiana's climate is predicted to drastically change in the near and long term with altered precipitation and temperature norms. With these imminent

changes in mind, we are conducting research to better understand farmers' thought processes and decision-making behaviors related to adjustments in their approach to production and distribution of food in this era of an evolving farming landscape.

Farm Justice and Parity Pricing This project explores the extent to which farm-gate prices and parity prices differ by commodity as well as alternative markets for farm products that may yield higher-than-farm-gate prices. With IUFI, CFSL

Farmland Transfers to New Farmers An issue in agriculture that constrains rebuilding local food systems is the routine cycle of farms struggling to transfer from one generation to the next. This study assesses local, state, and federal policies and services that support farm owners in transferring to new generation farmers, to keep land in agriculture, re-cultivate rural communities, and build regional food systems. With Kansas Rural Center, Land for Good, Center for Rural Affairs, Purdue University (PU), and Purdue Institute for Family Business

High Tunnels in Indiana Our team has engaged in multiple projects over the years to improve the utility of producing specialty crops in high tunnels in Indiana. Project 1, a past collaboration with Purdue Extension (PEX), produced the Indiana High Tunnel Handbook. Project 2, occurring now at the IU Campus Farm, focuses on understanding the differences in and challenges of growing in stationary versus movable high tunnel infrastructures.

Hoosier Farmer? Learning from the People and Places of Sustainable Food Farming in Southern Indiana This project documents the contributions of Indiana's small farmers in re/inventing sustainable food and foodways for a growing base of consumers over the past 50 years. We examine the trade-offs they have made, look for cross-cutting themes, and share their stories and the scholarly conclusions that emerge therein with diverse audiences across the state. Arts and Humanities Council and New Frontiers in the Arts & Humanities Program

Organic Transition of Indiana Row Crop Grain Farmers This project works to better understand variables affecting row-crop farmers' decisions to transition to organic production systems and attain organic certification for their grain operations and includes survey and interview work with farmers (IU), grain buyers (PU led), and on-farm case studies and outreach workshops (PEX led).

Tariffs and Industry Consolidation in Soy and Dairy Sectors We surveyed a statewide sample of Indiana soy and dairy producers to better understand the impacts of tariffs on their farm operation decision-making (soy and dairy) and the consolidation occurring in the dairy industry. We focus on State of Indiana decision-making as it pertains to farm diversification or the closure of farm businesses and are evaluating effects on farmer mental health.

Food Distribution in the Indiana Uplands
This project investigates aggregation and distribution networks in the Indiana Uplands in terms of size, location, and complexity, with a particular interest placed on the role of trust, social capital, longevity of relationship, and exclusionary behavior in these transactions. Based on the results of structured interviews with wholesale suppliers, brokers, distributors, and customers, we examine the economic effects of these operations within the region as well as the industries' vision for greater sustainability and equity.

<u>Indiana Meat Producers and Processing Systems</u> This project is an investigation into barriers and issues in animal processing for small-scale meat producers in Indiana. Working in partnership with Nightfall Farms and Plumer Bowers Farmstead, a statewide survey was designed, distributed, and analyzed. *With Indiana Young Farmers Coalition (IYFC) and Liz and Nate Brownlee* 

Indiana Value Chain Network
Indiana Farm Connect is a research and implementation project aimed at connecting local suppliers and buyers in our Indiana food system. Four value chain coordinators have been hired to liaison with buyers, farmers, distributors, aggregators, processors and organizations to better understand their needs, suggest strategies for change, and build networks to drive economic opportunities for Indiana's food systems. With Purdue University

<u>Institutional Buyers of Indiana Food Stuffs</u> An investigation based on a state-wide survey of barriers to Indiana institutions (schools, hospitals, corporations, etc.) in purchasing and utilizing Indiana produced foods such as specialty crops and meat products.

