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ACTING LOCALLY: VEGETABLE GARDENING IN SOUTHERN ILLINOIS

by

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A Dissertation

Submitted in Partial Fulfillment of the Requirements for the
Doctor of Philosophy Degree

School of Anthropology, Political Science, and Sociology
in the Graduate School
Southern Illinois University Carbondale
August 2023

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DISSERTATION APPROVAL

ACTING LOCALLY: VEGETABLE GARDENING IN SOUTHERN ILLINOIS

by

Aimee L. Trojnar

A Dissertation Submitted in Partial

Fulfillment of the Requirements

for the Degree of

Doctor of Philosophy

in the field of Anthropology

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June 13, 2023

AN ABSTRACT OF THE DISSERTATION OF

Aimee L. Trojnar, for the Doctor of Philosophy degree in Anthropology, presented on June 13, 2023, at Southern Illinois University Carbondale.

TITLE: ACTING LOCALLY: VEGETABLE GARDENING IN SOUTHERN ILLINOIS

MAJOR PROFESSOR: Dr. David Sutton

This dissertation explores the everyday practice of home and community vegetable gardening in a small southern Illinois city. The project engages with questions of how diverse elements of practice interact over time in the development of both gardens and gardeners, dwelling particularly on how the material agency of nonhumans contributes to what emerges. Combining a broad investigation of societal influences and constraints involved in gardening practices with a granular focus on material interactions in the garden, I consider the kinds of relationships individuals forge with the nonhuman environment in a modern, Western context and how they do so. Understanding such connections is essential in formulating responses to contemporary environmental crises. The study addresses multiple topics of interest in anthropology including skill and learning, sensory experience, time, care practices, ecological embeddedness, and community building in social movements.

DEDICATION

In memory of my dad, my first gardening buddy

and

For my mom, always curious

ACKNOWLEDGEMENTS

I am deeply grateful to the many people who helped me complete this dissertation. The project would not exist at all, of course, without the southern Illinois gardeners who generously and thoughtfully shared their time and experiences with me. I feel very fortunate that my research introduced me to so many wonderful people in my own community.

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CHAPTER 1

INTRODUCTION

Samuel Ramirez decided to pursue a degree in graphic design shortly after moving to southern Illinois from his hometown of Chicago. Through quirks of state budget cuts and course cancellations at the community college he attended, however, that path vanished, and he unexpectedly found himself starting seeds in a science class. "It was the first time I seen a seed germinate. It was the coolest thing ever!" he exclaims. As we weed a bed of herbs together at Carbondale's Washington St. Garden in the summer of 2019, Sam tells me he spent the first decades of his life essentially oblivious to plants. But exposure to them in school soon had him thinking, "Yeah, I could study these guys for the rest of my life." About a year before we spoke, he enrolled in the College of Agriculture at SIU and dove into research on invasive weeds, native plants, and pollinators. "We need to create more habitats for the pollinators. So, you think of like the movement for like the monarch butterflies and planting all the milkweeds. Kind of that, for all the rest of them," he says. He enthusiastically describes being routinely "just blown away" by "super cool plants" such as cup plant, a native species in the sunflower family whose leaves form small cups that collect water, which attracts birds.

I have rarely met anyone as effusive about their love of plants as Sam. His joyous fascination with the botanical world speaks to the powerful connections people can

develop with plants, but his lack of contact with them earlier in his life also highlights the strange separation between people and plants that very frequently occurs in the US today, especially in urban and suburban contexts. Plants make human life possible. Nevertheless, many Americans know even food plants only in their processed forms¹ and have minimal awareness of plants, more generally, as diverse, growing, living beings, a phenomenon sometimes characterized as “plant blindness” (Wandersee and Schussler 1999; Sanders 2019). This lack of consciousness about plants and their importance matters a great deal as people worldwide attempt to address complex and increasing threats to the stability of the agricultural and ecological systems that sustain us. Under these circumstances, the contexts in which Americans do establish and maintain relationships with plants deserve attention.

This dissertation explores the everyday practice of vegetable gardening in a small southern Illinois city. Roughly one-third of American households grow food in home or community gardens each year, making gardening a relatively common way people in the US interact with living plants (Butterfield 2009). While vegetable gardens obviously produce food, most home gardeners cultivate relatively small areas and consider the practice a hobby, as I discuss in more detail in Chapter Two. Anthropological research on vegetable gardening often overlooks this large group of gardeners, but this study centers them to better understand what the practice means for those who do not necessarily rely on their gardens for subsistence. Additionally, anthropologists have frequently documented the close ties humans create with the nonhuman natural world

¹ This claim may sound exaggerated, but I have observed deep unfamiliarity with plants myself on many occasions. Just two examples include a grocery cashier who did not recognize a garlic bulb and a college student surprised to learn that walnuts grow on trees as opposed to being manufactured products.

in non-Western contexts, but the kinds of relationships Westerners develop with other species, especially plants, have been much less studied. Significantly, broad characterizations of Western modernity typically emphasize alienation from nature and sensory experience among its features, but gardening often resists such pressure (Colby 2021; Walstra 2021).

Gardening requires direct engagement with nonhuman species, not just proximity to them. As the only “natural,” outdoor spaces for which most people can claim concrete, personal responsibility, gardens offer a useful site for observing different kinds of relationships individuals develop with the nonhuman environment and how they do so (Bhatti 1999). My approach to this topic includes a granular focus on material interactions in the garden. Writing about a Chicago subsistence food producer’s emotional response to witnessing one of her hens laying an egg, Ashley Colby notes, “This physicality in the developing relationship with the ecosystem is something that has not yet been discussed in detail in the literature on ecological embeddedness. Yet it is present throughout the data: a sense of tangibility and experiential learning is central to the development of ecological embeddedness within this community” (2021, 73). Stories of individuals like Sam, who did not grow up feeling connected to the nonhuman natural world, intriguingly hint at how much a person’s perspective can begin to shift through participation in a practice as seemingly mundane as starting a seed.

The practice of vegetable gardening incorporates knowledge and meaning from outside the garden in addition to developing them through physical engagement within it, of course. Alert to recent widespread fears about declining pollinator populations, for example, most participants in this study deliberately choose at least some practices that take those organisms’ well-being into account. A long history of theories about soil

health and fertility also influences gardeners both through products available for purchase and widely varying recommendations on ideal care practices from diverse sources. An array of concerns tied to political and economic conditions influence gardeners as well. Several study participants distrust the rulemaking and enforcement processes for organic food production, for instance, a potential motivating factor for pursuing gardening. These and many other elements of social context shape gardeners' practices in conjunction with the interactions they experience within the garden itself.

In addition to ecological embeddedness, the practice of vegetable gardening provides a window into multiple other topics of interest in anthropology also considered in this study including skill and learning, sensory experience, time, care practices, and community building in social movements. Competence in tasks like weeding and harvesting produce, for example requires “education of attention” and skilled sensing (Ingold 2000; Grasseni 2022). Tending a garden also entails an attunement to the rhythms of nonhuman lives which can substantially impact gardeners' perception of time. Slight differences in the priorities of gardeners—with respect to the relative importance of productivity or benefiting wildlife, for instance—sometimes lead to significant variability in specific care decisions. And, at least in Carbondale, small, numerous material exchanges of varied types appear to play a crucial role in community gardens' efforts to establish a broad and diverse social network.

This study builds on the work of anthropologists and many others with diverse areas of specialization. I often introduce their research throughout the dissertation within the context of relevant chapters. Here, I discuss three bodies of literature that inform and structure the entire project, then provide an overview of the dissertation. First, prior studies on gardens and gardening in the U.S. and elsewhere provide

background for this investigation. Second, the basic framework of this study draws upon theories of practice. Finally, a variety of literature focused on interactions between humans and the nonhuman world guides my exploration of the relationships gardeners establish with their gardens.

Gardening Literature

In anthropological and sociological literature, the term “garden” can refer to anything from a strip of grass outside a London townhouse to a plot that yields most of a household’s food and income in Tajikistan (Bhatti 1999; Rowe 2009). Although definitions are fluid in practice, anthropological convention draws a distinction between gardeners of horticultural societies and farmers of agricultural ones based primarily on technology rather than “the knowledge and social relations that are necessary both for the production and employment of technologies” (O’Flaherty 2000, 16). Many researchers apply the term “farmer” more broadly to include all those whose household economies depend on crop production, regardless of the technologies they use (Conklin 1975; Dove 2002; O’Flaherty 2000). Nevertheless, most anthropological studies of gardeners focus on people, typically in non-Western contexts, who rely mostly on their own produce for subsistence and have significant expertise in plant cultivation (Rappaport 1968; Boster 1984; G. L. Wilson 1987; Eyzaguirre and Linares 2004). The scant research on gardening as, essentially, either a hobby or a chore rarely explores producing vegetables and growing ornamentals as separate practices (Wagner 2000; Tilley 2006; Degnen 2009).

Surprisingly few anthropological studies tackle the topic of the economics of food gardening directly. David Cleveland and Daniela Soleri (Cleveland and Soleri 1987) argue that home gardens provide substantial economic benefits, even in countries where food is relatively cheap, and should be promoted as an economic development strategy.² In *Black Food Geographies*, Ashanté Reese touches on vegetable gardening as a means of coping with “food apartheid” in a low-income, Black neighborhood in Washington, DC (2019). Meanwhile, Megan Maurer finds links between gardening practices and the reproduction of racial and class differences in a small Rust Belt city (2017).

Geographer William Campbell Rowe (Rowe 2009) makes a case for the critical importance of kitchen gardens in household economies in Tajikistan where they are often cultivated intensively for market production. In Barcelona, vegetable gardens have come to be negatively identified with frugality and poverty because plots are frequently maintained by impoverished pensioners (Domene and Sauri 2007). In Scotland, on the other hand, the dual identity of allotment gardens as a source of poverty alleviation or an opportunity for recreation, allows them to persist through varied political climates (DeSilvey 2003). Sociologist Mark Bhatti (1999) suggests that people may plant gardens as a reaction to perceived environmental and food safety risks, a significant theme in the present work.

A substantial percentage of garden research in anthropology centers on agrobiodiversity – assessing it, maintaining it, increasing it, and so on (Boster 1984;

² The claim that vegetable gardens save money, though often taken for granted, is somewhat controversial. Even sources such as agricultural extension services frequently offer more equivocal assessments of financial benefits of gardening, noting that it is very easy to spend more on a garden than it would cost to buy vegetables (Haynes 2009). Estimates of savings also tend to disregard the time and labor of gardeners as part of the cost of gardening.

Padoch and de Jong 1991; Nazarea 1998; 2005; D. E. Williams 2004; Perreault 2005). These studies frequently touch on both risk management and aesthetics. Potato growers, for example, may plant several varieties with different tolerances and susceptibilities to hedge against heavy crop losses due to pests or unusual weather. Additionally, they may maintain both varieties that yield watery tubers and types that produce dry ones because each kind of potato is good for different styles of cooking (Brush 1992). Valued crop varieties grown in large quantities in fields are often simultaneously carefully nurtured in home gardens to ensure that seed continues to be available in the event of crop failures, improving resiliency. Gardeners frequently experiment with new crops and varieties in home gardens as well, sometimes managing highly diverse plots of significant ecological value (Eyzaguirre and Linares 2004). Management practices in urban and suburban yards with respect to both wild (Doody et al. 2014) and cultivated species are gaining multidisciplinary interest for their potential to help address accelerating loss of biodiversity worldwide (Aronson et al. 2017).

Anthropological literature provides ample evidence that vegetable gardening is not simply about the practical value of the food produced. Planting can be fundamental to the “production of locality” and identity, for example (Appadurai 1996, 180). While conducting research on sense of place, Keith Basso learned that Western Apache matrilineal clans “named themselves for the places where their women first planted corn... Their names for themselves are really the names of their places” (Basso 1996, 21). The gardens yielded people as well as crops and the people of those gardens were rooted in that place even if they moved away. Anne Jepson, working in Cyprus, notes that gardening is forbidden in refugee camps, even where permanent housing structures exist, because cultivating plants “fixes people to a particular spot” (Jepson 2006, 165).

The specific plants grown in a garden also help to establish identity and materialize memory in a place. Numerous studies from anthropologists as well as others demonstrate the strength of ethnic identification with specific crops in the Andes, the Middle East and elsewhere (Weismantel 1988; Nabhan 1989; Ohnuki-Tierney 1993; Schneider 2004; Braverman 2009). All over the world, farmers and gardeners maintain heirloom plant varieties that are “witnesses of the past,” carrying both personal and community memories (Dove 1999, 45; Nazarea 1998; 2005; Wagner 2000; Veteto 2008). Cultivars transplanted by immigrants draw the past into the present and transform new places into homes (Brook 2003; Head, Muir, and Hampel 2004; Jepson 2006; Black 2015; Gagnon 2021).

Garden research also explores experiential aspects of gardening. Working in the north of England and Mozambique, respectively, Cathrine Degnen (Degnen 2009) and Julie Soleil Archambault (Archambault 2016) explore intense emotional connections gardeners feel with their plants, which they characterize as their “babies,” in the former case, and as their “lovers,” in the latter. In “The Sensory Dimensions of Gardening,” Christopher Tilley directly addresses the physical experience of gardening in non-subsistence contexts in the U.K. and Sweden (2006). Not surprisingly, disciplines including landscape architecture and garden history offer varied studies related to landscape and design aesthetics (Francis and Hester 1990; A. Wilson 1992; W. J. Darby 2000; Veder 2013). Additionally, gardens and the practice of gardening are widely described as providing an “alternate temporality,” briefly slowing down the pace of life, and giving gardeners a sense of peace (Kaplan and Kaplan 1990; Parkins and Craig 2006; Tilley 2006; Pink 2012; Gross 2018). Significantly for this work, some of these studies center on the concept of “slow living” in Western contexts (Parkins and Craig

2006; Pink 2012), and highlight the role of gardening in countering the sense of alienation from nature often ascribed to modernity (Tilley 2006; Walstra 2021).

Organized Gardening Projects

Organized gardening projects (Pudup 2008)³ are particularly well represented in academic literature on gardening in Western contexts. Such works typically explore the diverse “motivations, benefits, and challenges” associated with the projects (Schauwecker 2015). Studies delve into the complexity of concepts of community and inclusion (Staeheli 2008) and caution that such projects sometimes reproduce asymmetries in power (Ramírez 2015), spark processes of gentrification (Voicu and Been 2008) that may inadvertently harm communities they were intended to benefit (Braswell 2018), or fail to address concerns relevant to residents of marginalized communities, especially when the impetus for the gardens arises outside the immediate communities in which they grow (Davenport and Mishtal 2019).

Research also links organized gardening projects to a wide range of benefits, including improvements in food security (White 2011), health (van den Berg et al. 2010), environmental education (Bendt, Barthel, and Colding 2013; Chollett 2014), and civic engagement (Salvidar-Tanaka and Krasny 2004), among others. They have become an increasingly common feature of social movements. Monica White describes the cultivation efforts of the Detroit Black Community Food Security Network as “a strategy

³ Geographer Mary Pudup advocates using the broad term “organized gardening project” to refer to group gardening sites—including allotments, teaching and therapy gardens, membership-based gardens, and public, collective gardens—rather than the more commonly used term, “community garden,” because many projects are not oriented around involvement from the “community” or even interaction among their own members. I explain my use of “community gardens” to describe the organized gardening projects I visited for this study in Chapter Seven.

of resistance against capitalism, corporatism of the food system, and agribusiness and its use of environmentally unsustainable food production practices” (2011, 24).

Researchers in Tallahassee, Florida, found that community gardens there offered residents a means of peacefully “resisting uneven geographic development and social investment within violent environments” (Hite et al. 2017, 65). Claire Nettle, who compiles a particularly thorough review of the role of organized gardening projects in activist movements in *Community Gardening as Social Action*, stresses the “long history of gardeners growing mutual aid and solidarity along with their self-provisioned cabbages,” a phenomenon I witnessed in Carbondale as well (Nettle 2014, 85).

Theories of Practice

Sherry Ortner (2006) describes anthropological theory immediately prior to the emergence of practice theory as being dominated by three major schools of thought—interpretive anthropology (Geertz 1973), structuralism (Lévi-Strauss 1970), and political economy (E. R. Wolf 1982)—which she characterizes as “theories of constraint” because they emphasize the impact of structures on human behavior. In interpretive anthropology, pressure comes in the form of the shared signs, symbols, and discourses of culture. For Lévi-Strauss, fundamental structures of human cognition shape the structure of society. Capitalism and its interactions around the world dictate human action according to Wolf. Additionally, in an earlier paper, Ortner (1984) highlights cultural ecology (Steward 1953; Sahlins 1964), which identifies the necessity of adaptation to varied physical environments as a key source of cultural differentiation

and change.⁴ None of these approaches address individual human action and agency, however. Ortner mentions that interactionism in sociology (Goffman 1959) spoke to these issues, but notes that it was not widely adopted in anthropology. Additionally, it essentially ignored structure, effectively maintaining structure and agency as separate, opposing concepts.

Practice theories draw inspiration from a variety of philosophy (Wittgenstein 1958; Heidegger 1962; Merleau-Ponty 2013) and social theory, including the threads discussed above, but the exploration of the connection between structure and human action unites the first wave of practice theorists (Bourdieu 1977; Giddens 1984; Sahlins 1981; de Certeau 1984). Giddens (1984), for instance, centers his theory of structuration on the recursive relationship between “human activity and the social structures which shape it” (Shove, Pantzar, and Watson 2012, 3). On the other hand, “in emphasizing societal *reproduction* and in being framed at such a general level,” Giddens does not fully address “how practices emerge, evolve, and disappear” (4).

To varying degrees, practice theories question the Cartesian split between mind and body as well. Schatzki (1996) for example, notes that Bourdieu (1977) draws on Levi-Strauss’s structuralism, which is explicitly concerned with cognitive structures. Nevertheless, he also tries, through the concept of *habitus*, “the durably installed generative principle of regulated improvisation,” to bring mind and body together to produce real action in the lived world (Bourdieu 1977, 78; Schatzki 1996).

⁴ The concerns of political economy and cultural ecology later converged in the complex field of political ecology which utilizes varied theoretical approaches, including practice theories, and incorporates studies at scales “ranging from the household garden to the whole earth” (Paulson, Gezon, and Watts 2003, 210).

Among the key innovations of Bourdieu's thinking relate to his emphases on improvisation and temporality. Although Schatzki accuses Bourdieu of not theorizing an adequate mechanism of change—he profiles a village that comes across in his description as more or less static, for example—Bourdieu carefully and repeatedly emphasizes the point that even when actors appear to be enacting and reenacting a rule with the same outcome time after time, there is always the possibility to do something differently. He illustrates his point more effectively in his reanalysis of the *kula* ring, in which he stresses that slight variations in the timing of exchange have serious potential to alter the meaning of the actions. As Ortner says, this emphasis on temporality in Bourdieu suggests the potential of practice theories for exploring historical processes, though he did not do so (2006).

Second generation practice theorists (Schatzki 1996; Reckwitz 2002), taking practices as a basic unit of analysis, further develop the details of what does and does not constitute a practice (Pink 2012; Shove, Pantzar, and Watson 2012). Schatzki defines a practice as “a temporally unfolding and spatially dispersed nexus of doings and sayings” held together by three types of linkages: “1) through understandings, for example, of what to say and do; 2) through explicit rules, principles, precepts, and instructions; and 3) through... ‘teleoaffective’ structures embracing ends, projects, tasks, purposes, beliefs, emotions, and moods” (1996, 89). Significantly, while Schatzki emphasizes the temporality highlighted by Bourdieu, his definition neglects material elements of practices. He later clarifies his view that the material world is a crucial part of social life and meshes with practices, but is not an integrated element of them: “Human coexistence inherently transpires as part of nexuses of practices and material arrangements” (Schatzki 2010, 129).

By contrast, Reckwitz defines practices as “routinized types of behavior which consists of several interconnected elements: forms of bodily activities, forms of mental activities, ‘things’ and their use, a background knowledge in the form of understanding, know-how, states of emotion, and forms of motivational knowledge” (Reckwitz 2002, 249). He states that these elements form an irreducible block and a pattern for social action. Unlike Schatzki, Reckwitz fully incorporates “things” into practices. His emphasis on the routine nature of practices, however, presents challenges in using them to understand processes of change (Shove, Pantzar, and Watson 2012).

Among the more recent works on practice theory, *The Dynamics of Social Practice: Everyday Life and How It Changes*, which I rely on for this study, proposes a model for social practices in which they “are defined by interdependent relations between materials, competences, and meanings” (Shove et al 2012:24). The authors construe each of these elements broadly and each interacts with and shapes the others. Changes may occur in any element and any such shift potentially ripples through all three. The authors offer an example of how the practice of driving has changed over time. Early automobiles, which were complicated to operate and prone to breaking down, essentially required a driver who was either a mechanic or wealthy enough to hire a “chauffeur mechanic” (30). As cars became more reliable and prices dropped, it became more reasonable for people who were neither professional drivers nor rich enthusiasts to drive them. “In Latour’s terms, know-how previously embodied in the mechanic-driver was delegated to the vehicle itself” and the meaning of the practice of driving and who participated in it shifted as well (31).

Significantly, although new technologies do often foster “recruitment” of new practitioners to a practice (Shove et al. 2007), the relationship between things and users

does not translate simply into “improved” technology requiring less skill. David Sutton (2014), for example, writes about an older Greek woman who cannot get the hang of a new “automatic” can opener. Together, in the process of trying to open a can, they are unskilled. This concept of distributed competence between things and their users arises repeatedly in the practice of vegetable gardening. In Chapter Five, for example, I discuss how the use of freezers configures tasks related to harvest and preservation and draws on different competences than other methods do. Shared competence also applies to gardeners’ interactions with crops. Traits such as disease resistance or drought tolerance may shift the burden of competence toward plants, for instance, but gardeners sometimes knowingly choose varieties that require more skill to grow to enable access to the traits, typically aesthetic, they prefer.

Works on practices tackle a wide variety of everyday activities and concepts including doing dishes, using freezers, riding in automobiles, “making” time, and eating (Pink 2012; Shove and Southerton 2000; Sheller 2004; Shove 2009; Warde 2016). Critically, practice theories place “the human body as the nexus of people’s practical engagements with the world,” making them particularly well-suited for the investigation of the physical, sensory rich practice of gardening (Postill 2010, 7). Among the insights from studies on everyday practice that relate directly to this study are the concepts that material objects (Jalas 2009) and practices can “configure time” (Ehn and Lofgren 2009; Wilk 2009), that aesthetic and kinesthetic senses are integral to practices (Sheller 2004), and that practices that involve developing new skills often generate new practices (Shove et al. 2007). Additionally, vegetable gardening, which, like the practice of eating Alan Warde investigates, may incorporate a varied assortment of “component practices”—tilling, composting, growing from seed, pruning, seed saving, and canning

for example—is best described as a compound practice, unruly in that it leaves “much discretion to individuals” (2016, 10).

Attending to Nonhumans

Shove, Pantzar, and Watson’s (2012) model of practices demands detailed attention to the material element of gardening. Clearly, gardeners constantly interact with diverse nonhuman species, among other things, in complex ways. Literature centered in areas including ethnoecology, actor network theory, and multispecies ethnography inform my approach to investigating these material entanglements of gardeners.

Emerging in a context of blurring distinctions between nature and culture in Western societies and growing fears related to environmental degradation, “multispecies ethnography centers on how a multitude of organisms’ livelihoods shape and are shaped by political, economic, and cultural forces” (Kirksey and Helmreich 2010, 545). Acknowledging that humans currently face environmental and economic precarity, Anna Tsing asks, “What kinds of human disturbances can we live with? Despite talk of sustainability, how much chance do we have for passing a habitable environment to our multispecies descendants” (2015, 3)? She argues, “if we want to know what makes places livable we should be studying polyphonic assemblages, gatherings of ways of being” (157), adding that “to appreciate the assemblage, one must attend to [those] separate ways of being at the same time as watching how they come together in sporadic but consequential coordinations” (158).

Ethnographers, broadly, and particularly ethnoecologists, have long witnessed the intimate interactions of people with the nonhuman natural world (Evans-Pritchard 1940; Conklin 1975; Dove 1999; Nazarea 1999; Saxena et al. 2018; Seshia Galvin 2018). Such observation, alongside contributions of indigenous scholars from multiple disciplines (TallBear 2011; Kimmerer 2013), has made it clear to Western academics that dividing the world into nature and culture or human and nonhuman is not universal (Ingold 2000; Kohn 2013; de la Cadena 2014), a perspective essential to multispecies ethnographers.⁵ Anthropological studies that could be considered multispecies ethnography expand upon such research, reexamining broad concepts including questioning the idea of domestication as human control over nature (Seshia Galvin 2018), and investigating human engagements with plants (Archambault 2016), animals (Blanchette 2015), fungi (Tsing 2015), and microbes (Paxson 2007) in varied contexts. The approach is widespread across disciplines, and includes research used in this study drawn from geography (Brice 2014), public health (Elton 2019), and philosophy (Puig de la Bellacasa 2015). Similar explorations of how “humans coexist with, and flourish alongside, other living and nonliving beings” (Saxena et al. 2018, 57) have become increasingly popular in nonacademic literature as well (Pollan 2002; Kimmerer 2013; Yong 2016).

Multispecies ethnography also finds antecedents in the works of Bruno Latour (Latour 1993; 2000) and actor-network theory (Callon 1986) in which nonhumans—including artifacts and organisms alike—act in conjunction with humans in social

⁵ TallBear and de la Cadena suggest the limitations of the word “multispecies” to characterize the approach as it still seems to exclude many things that certain peoples include among persons, such as rocks, thunder, and wind.

networks, ensuring that analyses of human action are grounded in the physical world (Kirksey and Helmreich 2010; Seshia Galvin 2018). Arguing for “the capacity of artefacts to construct, literally and not metaphorically, the social order,” Latour claims that things “are not ‘reflecting’ [society], as if the ‘reflected’ society existed somewhere else and was made of some other stuff. They are in large part the stuff out of which socialness is made” (Latour 2000, 113–14). Geographers Russell Hitchings (2003) and Emma Power (2005) apply the concepts of actor network theory to gardening in studies that approach the experience of gardening as collaboration between plants and gardeners.

Drawing on Deleuze and Guattari (1987), and criticizing “Latour's nonhumans” as “resolutely inanimate,” Tim Ingold emphasizes that material things, especially organisms, and including humans, are not static, but always in a state of becoming (Ingold 2012, 436). He elaborates on the porous boundaries between material things, including organisms, and their surroundings: “The bodies of organisms and other things leak continually; indeed, their lives depend on it. Precisely this shift of perspective from stopped-up objects to leaky things distinguishes the ecology of materials from mainstream studies of material culture” (Ingold 2012, 438). Donna Haraway, a central figure in this emerging area of scholarship, stresses that not only are organisms always emergent, they are continually “becoming with” (2008, 17). She sums up the intricacy of this process in a way that seems particularly apt applied to vegetable gardening: “Once again we are in a knot of species coshaping one another in layers of reciprocating complexity all the way down” (Haraway 2008, 42).

Outline of the Dissertation

This exploratory, ethnographic account of the current practice of vegetable gardening in and around Carbondale, Illinois is essentially a “study of how people perceive, act, think, know, learn and remember within the settings of their mutual, practical involvement” with their gardens (Ingold 2000, 171). The project engages with questions of how diverse elements of practice interact over time to develop both gardens and gardeners, dwelling particularly on how the material agency of nonhumans contributes to what emerges. I begin this section by laying out the general conceptual organization of the core chapters of the dissertation. I then provide more specific descriptions of the content of each chapter.

The tangle of interacting species and other contributing components involved in vegetable gardening, considered along with the many changes that occur through multiple iterations of a garden, does not neatly lend itself to linear description. Instead, I visualize the organization of this dissertation in relation to Shove, Pantzar, and Watson’s (2012) diagram of practices as three mutually influencing elements—meaning, competence, and material. In Chapters Three through Six, I gradually rotate through these elements, looking at the practice from slightly different angles and bringing shifting combinations of elements forward in each chapter, though all three are always present to varying degrees. Many topics surface in multiple chapters, accentuating the tight interconnections among the elements of practice.

Chapter Three emphasizes meaning and competence as I discuss gardeners’ values which combine their knowledge—about health and nutrition, for example—with their interpretations, beliefs, and feelings about the same topic. Chapter Four centers on

competence, though all three elements figure prominently as I turn more toward material, with a focus on garden design and methods. Chapter Five strongly foregrounds material as I detail gardeners' interactions with nonhumans in the garden. Completing the circle, Chapter Six particularly highlights material and meaning as I consider gardeners' sensory, emotional, intellectual, and social experience through practice. Chapter Seven breaks with the pattern as I directly address aspects of community gardens that set them apart from home gardens.

In Chapter Two, I briefly introduce the geographical area in and around Carbondale, Illinois where the gardens I visited are located and discuss some of the characteristics of the site that make it worthwhile for exploring the widespread practice of vegetable gardening. I also describe the participant group and the process of data collection.

Chapter Three discusses the values gardeners bring to vegetable gardening that inform their practices. I consider concerns and interests related to health, personal and political economy, environment, and education, all of which are interconnected. Although these values sometimes inspire individuals to begin gardening, they may also emerge within the practice. They continue to develop through engagement in gardening and in conjunction with changing circumstances beyond the garden.

Garden planning and preparation are the central focus of Chapter Four. I discuss how participants envision their gardens and the role that media, particularly online, plays as they formulate plans. I describe methods that gardeners use or consider using in their gardens and connect those practices to the values that I outline in Chapter Three. I dwell particularly on attitudes about and use of compost in contemporary suburban gardens, considering compost within the context of debates about soil fertility,

appropriate residential landscapes, and sustainability. I also explore crop characteristics that gardeners consider as they decide what to plant and note some ways in which current garden crop preferences may be shifting, perhaps reflecting changes in the role of food gardening in suburban American communities.

In Chapter Five, I turn my attention to details of everyday interactions between gardeners and nonhumans. I emphasize the improvisational nature of routine care as gardeners respond not only to the needs of their crops, but also to the presence of myriad other nonhumans and variable growing conditions in their gardens. I explore the fuzzy concept of “weeds” in depth, including how gardeners learn to recognize them, which plants the category contains and under what circumstances, and how gardeners manage them. Again, I contextualize these ideas within a discussion of suburban landscapes, particularly lawns. I find that despite the challenges to productivity and frustration wild flora and fauna sometimes create, gardeners frequently deeply appreciate their presence and the opportunity gardens afford for engagement with the wider nonhuman world. I extend the discussion of improvisation into exploring the ways gardeners accommodate the distinctive rhythms of nonhuman lives and the repertoire of skills gardeners tap to manage the complex tasks of harvest and preservation. I also address the significance of engagement with nonhuman actors to gardeners’ perceptions of issues related to food systems and the environment.

Chapter Six focuses on multiple overlapping aspects of the experience of vegetable gardening that can often render even minimally productive gardens meaningful for those who care for them. I highlight the sense of wonder and curiosity gardeners bring to the practice. The chapter emphasizes the inseparability of sensory experience from the skills of gardening, the emotional connections gardeners forge with their plants, and

the ways in which solitary gardening is often also a social activity. I touch on elements of contemporary American lives beyond the garden as well, including the pressures of the coronavirus pandemic, that make such experiences particularly compelling.

Chapter Seven examines specific aspects of the three Carbondale community gardens I visited that distinguish them from personal gardens, namely their collective orientation and overt activism. These gardens, all cultivated communally and without membership requirements, include the tasks of creating and reinforcing social networks in the wider community among their core missions. As a key component of assessing the reach of the gardens, I trace the flows of essential resources—land, labor, and materials—to and, in the case of materials, from the gardens and find that in addressing these practical needs, the gardens create a weak but broad network that extends their influence far beyond their physical boundaries. The openness of the gardens to varied forms of connection and participation centered on gardening practices allows them to cultivate a diverse network that depends less on shared ideology than many activist organizations do.

Finally, in the concluding chapter, I reiterate some key findings of the study and discuss the importance within the contemporary context of environmental crises of the ecological embeddedness vegetable gardening sometimes fosters.

CHAPTER 2

SITE DESCRIPTION AND DATA COLLECTION

Southern Illinois defies widespread perceptions of the state (K. Wolf 2014). Growing up in Virginia, I thought of Illinois as little more than the city of Chicago surrounded by endless, flat cornfields. Although an unfair assessment of even the northern and central regions of the state, that description bears no resemblance to the rolling hills, rocky bluffs, forests, and cypress swamps found in the south. Illinoisans disagree about where the northern edge of the region lies, but the city of Mt. Vernon, adjacent to Interstate 64, marks a transition for many. The highway—which crosses Illinois and Indiana to connect St. Louis, Missouri and Louisville, Kentucky—also happens to roughly track the boundary between two plant hardiness zones. South of that border, regional features from accents to ecosystems mark the area as belonging as much to the South as to the Midwest.

Centered in the city of Carbondale and incorporating a handful of additional gardeners from surrounding areas in Jackson and Union Counties, this study explores only a very small, and arguably uncharacteristic, sliver of southern Illinois. Nevertheless, the elements that differentiate the research area from other parts of southern Illinois, as well as from places explored in many other gardening studies—frequently sited either in the dense cores of large cities or in fully rural settings—make

the location a useful example for investigating the common and widespread practice of vegetable gardening.

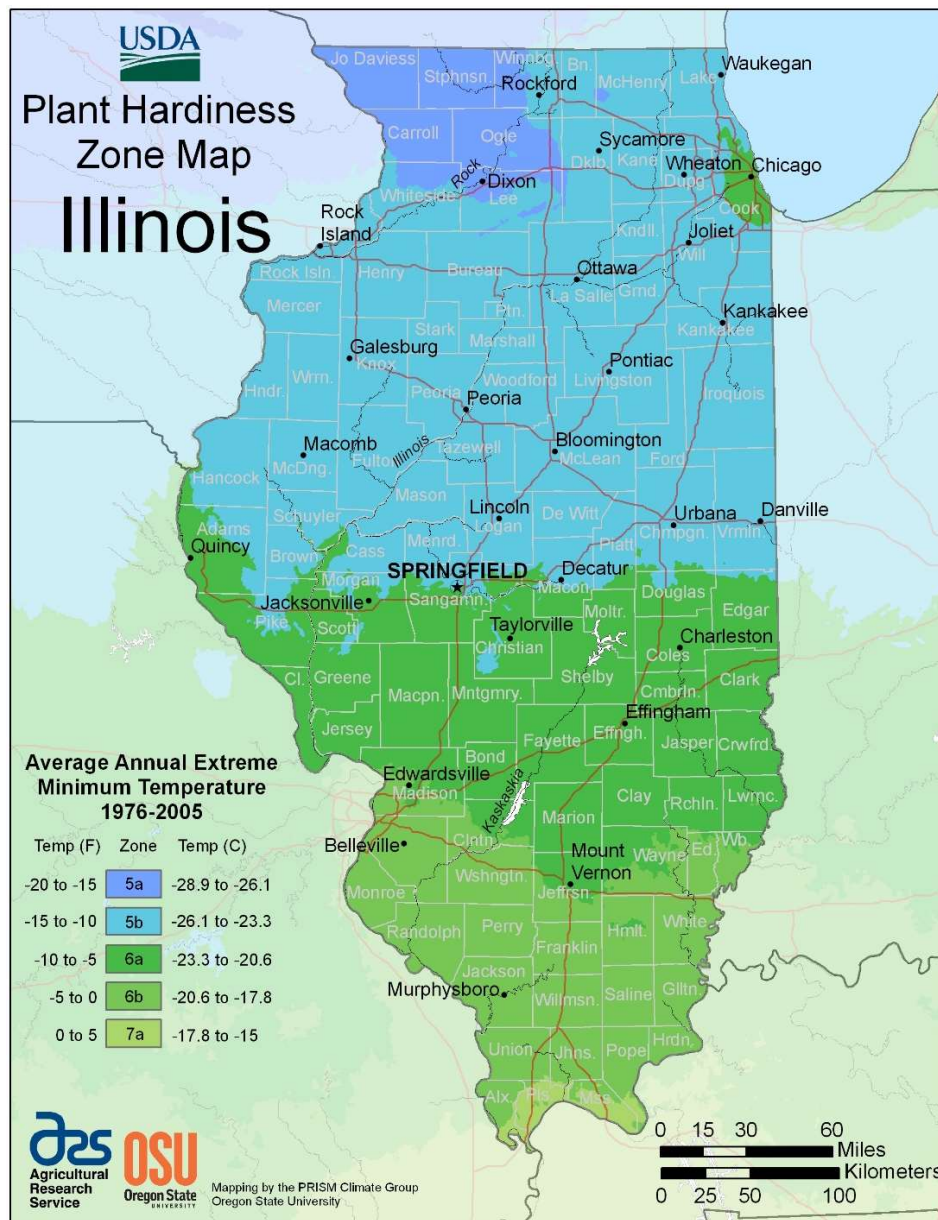


Figure 1. Plant Hardiness Zone Map (USDA 2012). Interstate 64 crosses Illinois at Mt. Vernon. Belleville, the largest city in southern Illinois is part of the St. Louis metropolitan area. Carbondale, the largest southern Illinois city outside the Metro East and the primary location of gardens in this study, is not marked, but is located in Jackson County about seven miles east-southeast of Murphysboro, the county seat.

Jackson County, generally, but particularly its largest city, Carbondale, has a much more racially and ethnically diverse population than most parts of southern Illinois, including a substantial group of foreign-born residents.⁶ A small and now shrinking university town of just under twenty-two thousand people, Carbondale was established in the early 1850s by a small group of land speculators hoping to profit by building along the planned route of the Illinois Central Railroad (US Census Bureau n.d.; n.d.; Batinski 2021).⁷ They constructed a depot and parceled most of the surrounding land they had purchased for sale to new arrivals. The rail line, which began operation in 1854 and bisects the town today, links Chicago to New Orleans and continues to transport both passengers and freight.

By the beginning of the Civil War, Carbondale had swelled to include more than one thousand inhabitants, a population that was highly transient from the beginning of the town's history.⁸ That number included only one Black family near the outset of the war, but thirty-seven within five years after its end as formerly enslaved people migrated to the area, particularly from Tennessee. During the 1880s, the African American portion of Carbondale's population reached twenty-five percent. Although Black migrants also settled in other parts of Jackson County, two-thirds lived in communities along the railroad which is where many found employment as well (Batinski 2021).

Southern Illinois University (SIU) has been another key contributor to both the diversity and the transience of Carbondale. Originally a school to train teachers and called Southern Illinois Normal University, SIU opened its doors in 1874. Although the

⁶ In 2017-2021, 9.6% of Carbondale's population was foreign born (US Census Bureau n.d.).

⁷ The population of the state of Illinois as a whole also declined 2010-2020.

⁸ "In 1860 nearly half the people enumerated (49 percent) had not appeared on the 1850 census. And of those listed in 1860, two-thirds had left by the end of the decade" (Batinski 2021, 70).

city's public elementary schools were racially segregated, the university enrolled a small number of Black students beginning with its first class (SIU 2022).

Nevertheless, segregation in Carbondale's neighborhoods grew increasingly pronounced as the city approached the mid-20th century (US Census Bureau 1910; 1930; 1950). Racist practices such as redlining reinforced the process and residents recall cross burnings in the 1950s and 1960s (Batinski 2021). The northeast quadrant of Carbondale became a predominantly Black neighborhood and remains so today.⁹ A vibrant African American community including Black-owned businesses, railroad workers, and college students renting lodgings developed there (Batinski 2021).

A large wood treatment plant, a major employer in the city for decades, dangerously polluted the northeast neighborhood producing long-term negative health impacts among its workers as well as neighborhood residents more generally, as I discuss in greater detail in Chapter Seven (Blakely 2021). The neighborhood also suffered from inferior provision of city services. Civil rights activists in Carbondale's Black community began organizing to protest and to protect themselves, insofar as possible, against such threats from the city's early years (Batinski 2021). This history of northeast Carbondale bears directly on the motivations and operation of the community gardens I engaged with for this study.

⁹ Many Carbondale neighborhoods have, in fact, diversified and several times more African American residents now live outside the northeast side than within it. US Census data at the commonly used tract level, however, obscure the racial structure that still exists. Tract level data from the 2020 Census, for example, show 45% of residents in the northeast quadrant identifying as "Black or African American alone." This tract (109) subdivides into three block groups. Block groups two and three more than cover the area locals recognize as the northeast neighborhood and nearly 80% of their residents identify as "Black or African American alone." Meanwhile, block group one extends into the countryside to the north and east and 87% of its residents identify as "White alone" (US Census Bureau 2021). Combining the three block groups inaccurately creates the appearance of an integrated area.

One of four Illinois counties, all located in southern Illinois, designated as a Persistent Poverty County (PPC) by the US Economic Development Administration (USEDA), Jackson County has an extremely high poverty rate—particularly in Carbondale ¹⁰—that would appear to favor food gardening as a subsistence strategy (USEDA 2021). Very low-income households are less likely than higher-income ones to participate in vegetable gardening for many reasons, however, including lack of time, money for materials, and a place to cultivate (K. J. Darby, Hinton, and Torre 2020). In Carbondale, where the transience of the population amplifies these challenges, the community gardens I visited are working on ways to make vegetable gardening accessible to more people, as I address in Chapter Seven. The gardens are just one segment of a broader southern Illinois community of individuals and organizations deeply engaged in trying to develop equitable and sustainable local food systems.

Certain additional characteristics of Carbondale and the surrounding areas make it seem to be a place where it could be less necessary or desirable for residents to engage in vegetable gardening than it might be in others. Gardeners frequently cite lack of access to high quality produce among their reasons for planting a garden, for example (Butterfield 2009). Cost and transportation do present significant barriers for many to obtaining nutritious food in heavily car-dependent southern Illinois. However, local produce from peaches and basil to mushrooms and bok choy is widely available in the study area, which is home to numerous farms and orchards. Carbondale residents

¹⁰ USED A defines PPCs as those consistently experiencing “20 percent or greater poverty over the last 30 years.” The current US poverty rate is 11.6%, in Jackson County 22.3%, and in Carbondale 40.5% (US Census Bureau n.d.). Carbondale’s population includes a disproportionately large number of college students who typically have low incomes but may also have access to other sources of financial support. Their presence potentially makes the extremely high Jackson County poverty rate somewhat misleading (US Census Bureau 2018).

acquire these foods through multiple farmer’s markets—including an online market that offers home delivery—as well as area grocery stores that often offer select locally grown items. Food Works, a sustainable agriculture development non-profit, has even facilitated a matching program to boost Supplemental Nutrition Assistance Program (SNAP) benefits for low-income residents who choose to buy food at area farmer’s markets (Food Works 2021).

Beyond its potential for providing food, researchers often describe gardening as offering a valuable means of engaging “nearby nature,” particularly in densely populated urban areas with scarce green space (Kaplan and Kaplan 1990). Unlike some cities and



Figure 2. Wild pawpaws at Green Earth Oakland Nature Preserve in northwest Carbondale. Photo by the author.

suburbs, Carbondale provides its residents with varied options to spend time outdoors in natural settings. Not only does the Carbondale Park District manage city parks in each quadrant of the city, Green Earth, a local non-profit, privately manages nature preserves in each section of town that include hiking trails that are free and open to the public as well. A national wildlife refuge, multiple state parks, and Shawnee National Forest offer more rugged natural areas within short distances from Carbondale. The easy availability of this “nearby nature” matters insofar as it suggests that gardeners may seek a different kind of connection to the natural world than what they can find in parks. In gardens, the relationships of care and responsibility for the beings—human and nonhuman alike—that gardeners nurture come to the fore.

Data Collection

This study relies on three types of core data, mostly gathered in the context of participant observation within food-producing gardens: 1) voice-recorded, transcribed, unstructured interviews, 2) informal interviews and conversations with gardeners and visitors to community gardens, and 3) observation of well-attended workdays and events at or connected to community gardens. Social media, organizational websites, news reports, and podcasts provided substantial additional data, especially related to the community gardens I visited. These public sources introduce multiple southern Illinois gardeners by name, but in this work I only name individuals if I both spoke to them personally and obtained their signed consent to participate. Enrolled study participants had the option to be identified by their full name, first name only, or a pseudonym. Except in the case of two gardeners who share a first name, I use full

names, for those who chose that option, the first time a person appears in a chapter and first name thereafter.

Although I spoke to dozens of vegetable gardeners while conducting this study, it centers on twenty-three named individuals. I met some of these gardeners only once, but I interacted with about half of them frequently over the course of multiple years. I knew four of the people I interviewed before the study began, one for several years. Hoping to assemble a varied group of participants, however, I reached out beyond my personal social network by advertising, making new connections through acquaintances and members of the participant group, and attending workdays at community gardens.

Home gardeners appear far less frequently in academic literature than community gardeners do, though only about three percent of vegetable gardeners nationwide participate in community gardens (Colby 2021; Butterfield 2009). The disparity exists, at least in part, because community gardeners are more visible and accessible, but also perhaps more inclined to participate in studies than those who practice gardening as a solitary activity. I originally intended to directly address that gap and not include community gardeners in this study. Nevertheless, I eventually opted to add them because while the gardeners who responded to advertising vary in many ways—gardening experience, age, education, household structure—all are White women and I wanted to diversify the group. Adding community gardens had the intended impact as well as two fortunate side effects. First, it allowed me to see the influence of the community gardens on home gardeners who sometimes draw both inspiration and plant material from the organized projects. Second, the community gardens afforded the opportunity to observe new gardeners learning directly from experienced ones, something mostly absent in the home gardens I visited.

Ultimately, I met roughly half of the gardeners cited in this study at two community gardens: Washington St. Garden and Red Hen Garden. I conducted interviews at both gardens in the fall of 2019 and have been a regular volunteer at Red Hen since early 2021. I also attended several workdays at the Birch St. Food Forest, a project partly organized by a study participant and core gardener from Washington St. The community gardens I visited are all located in Carbondale's northeast neighborhood.

The number of vegetable gardeners in the US fluctuates substantially, but members of more than thirty-five million American households grow plants for food each year (Butterfield 2009). In selecting participants for this study, my goal was to include a diverse group of ordinary gardeners. Not surprisingly, successful, expert gardeners feature prominently in literature about food cultivation (Nazarea 2005; Black 2015). Some studies even explicitly exclude newer practitioners (Elton 2019).

Relatively new gardeners, however, often represent a large proportion of the total population of growers. In 2009, for example, a year that saw a massive surge in food gardening with the onset of the Great Recession, 59 percent of food gardeners had five or fewer years of experience (Butterfield 2009). Novice gardeners are not only challenging to find and more likely not to garden in a given season than veteran gardeners, but the beginners also tend to be difficult to convince that they have anything of value to offer on the subject. Because they are so common among gardeners, however, and because I believe that more recent adopters of the practice, especially those who were not raised around it, might offer unique insight regarding the changing meaning of vegetable gardening today, I made a concerted effort to include them in this study.

As I spoke to more people, I found that the question of when someone started gardening is not as straightforward as it seems. Many gardeners I interviewed had experience, but in different places, times, or contexts. Even minimally experienced individuals had often been exposed to gardening as children, at least in limited ways, though sometimes only to the cultivation of ornamentals. One seasoned vegetable gardener mostly stopped growing many years ago after moving from a nearby state and had constructed and planted new beds only a couple of months before I visited her. Other participants were new to growing in the southern Illinois region. Among the most experienced food producers I interviewed, one was growing what she identified as her first vegetable garden when we met. Another has never been the primary person responsible for a garden, from what I gathered. Both, however, had years of experience growing crops for income.

Regardless of such fuzziness related to experience, Carbondale and the surrounding areas are home to many experts in gardening, farming, permaculture, and so on, some of whom are locally well-known and influential among the people I interviewed. I ended up encountering, and including in the study, several people with significant expertise. I consciously avoided seeking experts out, however, because I wanted to be sure to highlight the significant majority of vegetable gardeners who likely fall more into the category of hobbyists or enthusiasts rather than subsistence producers or small-scale farmers.¹¹ Garden size, as well as gardener experience, helped identify this group. While big, productive gardens are more apparent, most people cultivate only

¹¹ Subsistence agriculture researcher Ashley Colby defines subsistence food production “as producing at least fifty percent of one’s food needs in the high season of production” (2021, 7).

small areas.¹² Among the home gardens I visited, about half measured less than one hundred square feet—some far less—though they each also incorporated some food plants into landscaping or containers outside the main vegetable plantings.

In addition to seeking gardeners with varied experience and garden size, I attempted to assemble a demographically diverse group. Gardening researchers—including Power (2005) and Bhatti and Church (2001), working in Australia and the UK, respectively—often describe participant groups that include disproportionately few men or gardeners under forty years old. My study group resembles theirs in that more than two-thirds are women, though the National Gardening Association (NGA) survey estimates a substantial, but smaller, gender gap among American gardeners (Butterfield 2009). On the other hand, named participants in this study range in age from SIU students in their twenties to a Vietnam veteran in his late seventies. The group includes several gardeners in their thirties. Although I did not enroll minors in the study, I spoke informally to many participating in home and community gardens alike. Notably, all the home gardeners I interviewed were at least in their thirties, though one younger community gardener mentioned growing tomatoes in a bucket at home. Generally, the younger gardeners rent their residences and lack access to places to garden, which is one of the many issues that animate the community gardens. One home gardener I interviewed did obtain permission to plant a garden at a rental property.

¹² The NGA reports that in 2009 the median size of a US food garden was 96 square feet and 80% of gardens supplied two or more people. Only 18% of vegetable gardens exceeded 500 square feet (Butterfield 2009). To put those numbers in context, subsistence gardening expert John Jeavons estimates that an average annual vegan diet requires ten thousand square feet per person to grow, but considers it possible to grow adequate food for one person in four thousand square feet using biointensive methods (1995, xii).

Approximately one-third of the cited group are Black, more than one race, or Latino, reflecting proportions similar to the general population of the study area. Unfortunately, I enrolled no Asian or foreign-born individuals though both have a significant presence in Carbondale. I did not systematically gather socioeconomic data from study participants. Through conversations, however, it became clear that although the study group does include low-income participants, the poverty rate among them is below Carbondale's unusually high rate. The NGA survey demonstrates that vegetable gardeners tend to have higher educational attainment than the population at large and this participant group echoes that finding (Butterfield 2009).

Although roughly two-thirds of study participants have lived in the Carbondale area for a decade or more, an equal proportion were not born or raised locally. This latter group migrated from all over the country and for most, their move was connected to SIU in some way. As of spring 2023, at least five participants no longer live in southern Illinois, and one more will likely leave soon. Nevertheless, some of those who arrived only recently have thrown themselves into transforming their yards—building raised beds, planting perennial herbs, pollinator gardens, and fruit trees—including two who have already moved away from Carbondale. Among the roughly one-third of participants who grew up in or very near Carbondale, several spent years living elsewhere.

Convinced of the benefits that previous garden researchers have attributed to speaking to participants in their gardens, I followed their examples whenever possible (Hitchings 2003; Power 2005; Tilley 2006; Elton 2019). Nearly every interview occurred in a garden, though not always in the personal gardens of the people with whom I spoke.

Some of the individuals I interviewed at the community gardens, for example, also maintain personal gardens that I never visited.

Because I wanted to explore gardening as a participating observer, I offered my labor in the gardens as an incentive for participation in the study. While a few participants preferred to either sit and talk or to lead me on garden tours, others told me they viewed the availability of an extra pair of hands as a nudge to accomplish garden projects they sometimes struggled to fit into their busy schedules. “Gardening is practical, work carried out with the hands and through the body— embodied activity: doing rather than saying,” so I found working alongside participants to be invaluable in understanding both what gardeners do and how they experience it (Tilley 2006, 328; Pink 2009). Working, or even meandering through gardens, together also fostered a relaxed, companionable atmosphere more difficult to capture in formal interviews (Lee and Ingold 2006).

I am a long-term resident of Carbondale and a vegetable gardener myself, making me an “insider,” with respect to my participant group, in certain important ways (Aguilar 1981; Anderson 2021). Consequently, this dissertation incorporates elements of autoethnography (Ellis, Adams, and Bochner 2011). My personal gardening experiences significantly informed my discussions with other gardeners, guided my attention as I observed their interactions with their gardens, and shaped my broader understanding of the topic. Being an enthusiastic gardener was also a key factor in quickly building rapport with participants. On the other hand, it was important to guard against making assumptions about others drawn from my own experience or habits in the garden (Massey 2005). Engaging with participants in the minutiae of their practices ensured

that I could fill many gaps in their explanations about their gardening with direct observation, not speculation.

Although I approached all interviews with a variety of questions in mind, the study is exploratory and I generally adhered to the principle that I should “Get an informant onto a topic of interest and get out of the way” (Bernard 1988, 207). As a result, the content of interviews with different participants is often not directly comparable. Participants did, however, routinely and productively steer conversations in directions I had not anticipated. For example, I expected gardeners to express environmental interests and concerns. I thought I would see those issues primarily in decisions related to managing pests and soil fertility. I did not foresee that gardeners would also demonstrate deep engagement with pollinator gardening—sometimes even within their vegetable beds—but I spent a significant amount of time discussing it with multiple people. Additionally, they frequently spoke about social and emotional aspects of gardening in surprising ways that I do not think the questions I formulated in advance would have elicited. Throughout the study, participants led the way.

CHAPTER 3

GARDENING VALUES

For as long as I have known him, my husband, Justin, has been an enthusiastic proponent of vegetable gardening. His mother kept a large garden when he was a very young child that he remembers fondly. He also recalls, with a hint of chagrin, rejecting her beautiful homegrown tomatoes. Spurred by environmental and political economic concerns, he loves the idea of living off the land, growing food organically, and essentially making the world better and more sustainable through responsible food production.

In the late 1990's we shared two rental homes in Mendocino County in northern California. The first rental was a shack at the edge of sand dunes, literally an old potting shed that our landlady had converted into a studio rental. She market gardened for extra cash, and our backyard was filled with deep 4 x 4-foot wooden garden boxes planted with prolific strawberries and herbs. Built on top of landscape cloth and pallets, her planting boxes reflected her longstanding efforts to thwart the gophers she viscerally loathed in their constant tunneling through the soft, sandy soil to threaten her crops. She also maintained a high tunnel filled with tomatoes and peppers, fertilizing everything with foul-smelling, home-brewed fish emulsion. Soft-spoken, kind, and generous, she allowed us to pick whatever we wanted from her boxes. Justin and I both

loved being able to step out our door and harvest fresh produce, and when we moved inland a few months later, both of us looked forward to the opportunity to plant our own garden.

We moved into a rental house on a rocky hilltop that had been bulldozed flat for construction. Justin signed up for a course at the local community college with a biointensive gardening expert, John Jeavons, and quickly adopted his recommendations for best practices as law (1995). We carefully pored over Justin's course material, eagerly choosing unfamiliar crop varieties, planning spacing and companion planting, and scheduling successional crops. Justin built wooden flats from scrap wood for starting seeds indoors. He insisted that we dig 5 x 20-foot beds, using hand tools and Jeavons' method, loosening the soil to a depth of 24 inches. The deep beds would allow dense planting, increasing productivity in a small area and keeping the soil shaded to limit weeds and reduce water consumption—a key concern where dry summer days routinely reached 110°F.

Not surprisingly, we struggled to dig in the rocky soil. While the potential of Jeavons' method entranced Justin, the work of creating the beds did not. I ended up hacking our garden from a patch containing more stone than soil with a pickax, often working after dark and seeing sparks fly. I ultimately pulled enough rocks from two beds to outline our small garden, both inside and outside the simple deer fence we built together, as well as our small circular driveway. I enjoyed the heavy work of digging beds, at least until the time pressure to get it done and get plants in the ground became burdensome. Meanwhile, Justin, who reveled in the research, planning, and small construction projects the garden required, hated most of the basic physical elements of gardening: digging, planting, watering, weeding.

In our garden today, Justin occasionally turns compost or prunes trees, he builds trellises and frames for beds. He appreciates it when I point out emerging seedlings, though it does not generally occur to him to check on them himself, and he enjoys witnessing the development of the garden through each growing season. He becomes mildly irritated when something damages our crops, a good harvest of any crop delights him, he appreciates subtle differences in crop varieties, and he loves using garden herbs to cook. He talks about what we grow, gardening methods, and how we manage pests with such a sense of deeply invested enthusiasm that, for well over a decade, his family thought he was the primary gardener in our household. He clearly values the garden and has a vision for what it can be, but it is not enough to make him willing to fully engage in the practice of gardening.

The contrasts between Justin's experiences and preferences and my own helped me grasp both the varied ways in which gardening attracts and discourages individuals and the limitations of focusing on mental elements, such as motivations, alone to understand how it persists. Most dedicated gardeners enjoy getting their hands in the dirt. Nevertheless, the fact remains that for some, the best parts of gardening have remarkably little to do with physically nurturing plants or working the soil.

Gardens offer multi-faceted opportunities for mental engagement. Some gardeners begin as they learn how environmental, economic, and health concerns are wrapped up in how we provision ourselves; gardening becomes a means of thinking through problems as well as a possible solution. Other gardeners throw themselves into design, relishing the research and creativity involved in the process. Most often, multiple elements intertwine to entice and keep the gardener engaged. This chapter

explores some of the values enmeshed with the ways in which gardeners physically engage their plots.

In outlining his “dwelling perspective,” Ingold states that it has been a common path “in social and cultural anthropology to suppose that people inhabit a world—of culture or society—to which form and meaning have already been attached. It is assumed, in other words, that they must perforce ‘construct’ the world in consciousness before they can act in it” (2000, 153). He suggests, instead, “that cultural knowledge, rather than being imported into the settings of practical activity, is constituted within these settings through the development of specific dispositions and sensibilities that lead people to orient themselves in relation to their environment and to attend to its features in the particular ways that they do” (153).

I begin my discussion of the practice of vegetable gardening in this chapter with its most abstract elements. By doing so, I do not intend to suggest that the values involved in gardening are detached from or prior to the material element of practice. On the contrary, although people do incorporate ideas and values developed in other spheres of activity into their practice of gardening, values are also emergent through gardening and inherently entangled with material conditions. While many of the gardeners I introduce in this chapter engage the issues I cover with other people and within other practices, they often grapple with them through direct interactions with their gardens as well.

I have divided this chapter into several categories—health, personal and political economy, environment, and education— but these topics overlap a great deal. The gardeners I interviewed do not think of them separately. Renee Schwartz’s gardening centers on education, for example, but what she teaches includes elements of each of the categories mentioned. Likewise, health provides a focal point for Kim Reese, a

nutritionist, but health intertwines with the economic and political concerns of who has access to healthy food and why, the educational element of how they learn to produce, prepare, and enjoy it, and, of course, the environmental conditions of production.

Health

Most of the gardeners I spoke to at least mentioned health as a benefit of gardening, though only a few focused on it as a driving concern. They link gardening to health on several different levels. For some, the simple availability of fresh, whole foods is key. They also recognize that both high quality and the act of participating in growing crops can make produce more appealing for people attempting to increase their consumption of fruits and vegetables or trying them for the first time. Some consider garden produce healthier because of concerns about growing conditions and methods used for commercially grown crops. In addition to the benefits of consuming garden produce, a few said gardening offers a good opportunity for exercise. Finally, for several participants, the health value of gardens extends into interest in medicinal plants as well.

Kim, more emphatically than any other participant in this study, identifies health as the direct inspiration for her recent entry into gardening. After retiring from a 28-year career in the US Air Force, Kim moved to Carbondale to train as a Registered Dietitian Nutritionist (RDN) at SIU. She enjoyed exploring the various places throughout the US and abroad the military sent her during her service, and she had prepared for a second career in hotel management that would enable her to keep moving. Several years ago, however, she learned her blood sugar levels indicated

prediabetes. The results surprised Kim, an avid runner who considered herself to be in excellent health. Her interest in nutrition developed as she learned more about the links between diet and diabetes and reflected on the highly processed foods she grew up on. She decided to become a nutritionist to help others build healthy lifestyles and communities.

When I first meet Kim at Red Hen in the spring, she is new to gardening. She tells me about her studies in nutrition right away, as well as her hope to complete the internship required to become an RDN with an organization that incorporates urban community gardening experience in its practice. In her current field of study, it quickly became clear to her that poor nutrition entails far more than not knowing which foods to eat. From dietary preferences and cooking skills to food deserts and farm subsidies, complex factors at multiple levels influence diet. So, although Kim's interest in gardening definitely begins with health, pulling that thread reveals connections to educational, political, and economic issues, among others.

Kim grew up in a low-income household in Brooklyn, New York. Her family rarely ate fresh fruits or vegetables, and she knew very little about nutrition, let alone food production and distribution. As we talk, I mention that my sister cultivates a plot at a community garden in Brooklyn, wondering if Kim's interest in vegetable gardening originated in a similar place. She laughs and tells me that, to her knowledge, no community gardens existed in Brooklyn when she was a child. She had no exposure to any type of gardens at that time, she adds, and never even tried starting seeds. She started volunteering at Red Hen Garden to acquire produce and gardening skills for herself, but also thinking that community gardens might be able to supply the fresh foods residents of urban food deserts need. Ultimately, she wants to work in East St.

Louis, a predominantly Black, low-income community she sees as facing many of the same challenges her childhood neighborhood in New York confronted.

Although she considers increased availability of high-quality produce essential to improving nutrition, Kim also recognizes that access to healthy foods does not guarantee that people will eat them. She knows that many people prefer familiar dishes and flavors, regardless of nutritional value. She also knows that people often lack the money, cooking skills, or time they need to make even desired changes. As she intellectually works through the various things that must come together for people to improve their diets, she simultaneously participates in several practical activities to address them. In addition to volunteering at Red Hen, she works at a campus preschool planning nutritious school lunches. She started an herb garden there to help familiarize kids with plants and seasonings. She also leads a cooking club on campus because she wants to learn new cooking techniques and cuisines and to practice sharing them with others.

As we work on garden cleanup one morning following the first hard frost of the fall, I ask Kim whether her growing season of gardening experience at Red Hen altered her thinking about the role of community gardens at all. She tells me she had briefly thought of urban gardens as places that could potentially supply a major portion of the produce for the surrounding community, but the garden requires more effort and space than she imagined for the food it produces. She no longer expects that community gardens can adequately meet the need for fresh fruits and vegetables in densely populated areas. Her enthusiasm for community gardens remains undimmed, however. Red Hen demonstrated they can provide fresh herbs to brighten up meals, opportunities to experiment with new foods, and perhaps a few prized crops such as tomatoes or fresh



Figure 3. Kim prepares the Red Hen Garden for winter. Photo by the author.

greens. Offering guidance on nutrition and how to prepare garden produce can further aid urban gardens in drawing communities together to learn and grow healthier.

Most of the gardeners I spoke to do not draw as direct a line between health concerns and their own desire to garden as Kim does. But many, including Logan, whose family market gardens in northern Illinois and who studies horticulture at SIU, question the nutritional value, and sometimes the safety, of commercially grown fruits and vegetables. As he offers me a tart sorrel leaf to taste at the Washington St. Garden Logan says:

Most of the plants available today that are... commonly marketed... like I mean, just lettuce, for example, is a very low nutrient food. It's just, you can't get full on it. You can't survive on lettuce, so I try to grow plants that have high nutrient content. Like that's just my personal thing. Which as a marketer, the best things for you to grow are... these bourgeois-type things that it's like, 'Ho ho ho, I can eat food that doesn't offer me nutrients, 'cause I can afford that.' So it helps you as farmer, 'cause then you can sell a bunch of lettuce... I don't know, maybe I'm just being crazy. But these heirlooms, stuff like that hasn't been bred for size and appearance... It has more flavor. It's not so much that I'm actively resisting, but... I just like... to have the best quality foods and it seems like quality is not what the current market pushes for.

From Logan's perspective, the economics of commercial food production systems provide disincentives to growing healthy, flavorful food. Vegetable gardening offers a way to push back against these tendencies and the consequent sensory alienation often associated with modernity (Colby 2021).

Most study participants avoid using pesticides in their gardens and consider their pesticide-free harvests safer and healthier than conventionally grown produce. Cost and availability, among other factors, prevent many from routinely buying organic foods. Adriane, who has experience growing organic crops for income and now gardens organically at home, tells me that chemical sensitivities and an autoimmune disorder make her wary of eating non-organic food. While in the past she says she was strict to the point of being "snobbish" about eating only organic produce, her views have shifted slightly. She knows and trades with several local farmers and feels that even when their

crops are not technically organic, she understands their attitudes and practices well enough to trust them not to use pesticides indiscriminately. Nutritionally, she considers freshness essential.

I would rather buy fresh local produce from somebody who might have sprayed a little bit than just to buy it from somewhere else that it doesn't even have any nutrients and got shipped in, you know? So yeah, we're not like totally sticklers, but we try.

Marjorie Yuill takes a firmer position on sticking to an organic, vegetarian diet for her health. Retired from working in Kentucky state government, she has been working for the co-op grocery store in Carbondale for more than a decade. She says nearly all the food she buys comes from there because they offer a wider selection of organic items than other local stores. Marjorie tells me that she is 73 years old and that her mother and three of her siblings died in their sixties from cancers and other illnesses. She suspects her diet has helped her stay healthier than they were. She adds, “And because I've eaten pretty good for so long, if I don't eat well...I pretty much have to go to bed. I'm so tired, can't hardly function.”

Growing food at home allows gardeners to control a wide variety of factors. Kate identifies several reasons a homegrown crop might be preferable to something grown commercially.

And I think that suddenly at my age I have become intolerant of wheat. And I'm thinkin' that's not I've suddenly become intolerant to wheat. I'm thinkin'

that it's the wheat that they're growing now is not that digestible. So I'm interested in doing some wheat on my place... Of old, older varieties and see if I can tolerate that. But then it would be organic and it would be home ground, so there's a lot of other things rather than just the fact that it's an old variety of wheat.

Gardens contribute to health beyond supplying food crops as well. The Washington St. Garden nurtures a collection of medicinal plants available for free to the community. Jessica Lynn, one of the key organizers there, is studying herbalism and beginning to make some products such as tinctures and salves which she sells at a local farmer's market. She offers programs at Washington St. in which visitors can participate in tending and processing the herbs while also learning how to use them. As she guides us around the garden, Jessica goes out of her way to find out which plants or uses interest each participant and to ensure that everyone takes a share of the harvest home.

Jessica's programming on herbal medicine draws Louis McNulty and his sister Marilyn to the garden on a hot morning in July. Louis currently lives in Arizona, but he grew up in Carbondale. He came to Washington St. because he wants to learn to grow and harvest echinacea: "I take it in a pill form, like fresh is always better." Meanwhile, his sister harvests comfrey for a friend who cannot be there. I leave with bundles of stinging nettle and anise hyssop to dry for tea, reflecting on the holistic approach to health gardens afford.

Personal and Political Economy

The 2009 National Gardening Association survey found that 54% of American gardeners cited saving money as a key motivation for growing food, which aligns with widespread assumptions about why people plant vegetable gardens (Butterfield 2009). In my group, however, few gardeners talked about the monetary value of the practice.

Although Gwen realizes that some gardeners spend a great deal of money on the hobby—her sister built costly boxes and filled them with purchased soil— she deems gardening inexpensive: “The thing I like about gardening a lot is... it's got really low barriers. It's like, if you screw it up, I mean, you only wasted like, I don't know, a pack of seeds. It doesn't really matter, you know? It's not a big deal.” Gwen, in the midst of planting her third vegetable garden, dismisses the costs of her wire fence and electric tiller considering them investments in what she expects to be a long-term hobby.

Renee, also relatively inexperienced, says, “I mean gardening is not easy. But I think people feel compelled to do it because it would save them a lot of money if they could do it correctly.” When I ask if she thinks it saves her money, she answers definitively:

Nope! Nope. I think research actually shows that it... costs more. Right, but there's something about it where like I said, you feel like you're this nurturing person who's providing for your family. And there's the whole problem-solving puzzle part of it, like out-witting the squirrels. And there's the... whole social thing. Like sharing anecdotes that work. And then there's the fact that work, right, releases serotonin and that you feel better and you're making

your yard beautiful. I mean it, it's more than about just saving money on food, otherwise people wouldn't do it. They'd do the math, realize they blew 400 bucks and only got seven tomatoes. You wouldn't do it again. Gardening gives you more than just food.

Most of the more experienced gardeners I spoke to—Calvin, Ruth, Adriane, Abbie—do harvest substantial quantities of produce. Their gardens tend to be larger than those of newer gardeners and they often employ low-cost practices, such as planting from seed, though they generally seem not to dwell on expenses. Additionally, not a single study participant hinted that they consider the value of their time and labor as part of the cost of their produce. Gwen explicitly rejected the idea. Instead, their attitudes about gardening appear to correspond to Ingold's explanation of task orientation in preindustrial societies: "Work is life, and any distinctions one might make within the course of life would not be between work and non-work, but between different fields of activity, such as farming, cooking, child-minding, weaving, and so on" (Ingold 2000, 324).

Study participants do think of the economic value of their gardens in one important way. Most of the gardeners want pesticide free produce, but they often feel high prices and spotty availability of preferred foods make it difficult to buy consistently. The garden provides accessibility. Additionally, several gardeners—all more experienced ones— express concerns about the USDA Organic certification system. Corporate lobbying significantly influenced its creation and the gardeners worry that the politically negotiated organic standards fail to ensure the ecologically responsible production of certified products despite their higher prices (Howard 2016). Logan, for example, notes

the organic certification of his family's business as he identifies multiple loopholes in USDA Organic regulations that make him somewhat cynical about the value of the designation. Adriane mentions organic-approved practices she considers ecologically questionable.

I discuss the significant activism at the community gardens around ideas of food security, access to land to cultivate, and skill development, among other issues, in Chapter Seven. In terms of individual thoughts, a vein of discomfort with American political and economic systems runs through several gardeners. For example, in the fall of 2019, Kate, a founder of the Red Hen Garden who did not even have a home garden at the time, commented that she wants to hide food plants scattered on her rural property because she worries democracy will collapse and she will need to be able to feed her household herself. Abbie Kruse, who probably grows a larger percentage of her own food than any study participant other than Adriane, generally questions capitalist values and aspires to self-sufficiency.

Jessica Allee, who established a small seed bank at the Carbondale Public Library, suggests that she feels a little uneasy about food security for both environmental and political reasons. Her modest garden produces relatively little food, but I ask whether those concerns play into her decision to have one, if she feels she should know how to grow food "just in case." Her answer—in an interview conducted in the late summer of 2019, prior to the eruption of the coronavirus pandemic—captures the general sense of disquiet others also seem to feel.

I need to know how to grow food just in case is exactly what it is. I'm not going to be able to feed myself for more than like two days off of this, but... in terms

of what I can contribute to like a community effort, you know, society collapses, I'll at least be able to grow some things.

AT: So it feels like more secure to have one and to have some knowledge about, especially open-pollinated seeds and things like that?

Jessica: Yes. Very much so. And I actually think it's really important to, with the propagation of open-pollinated varieties, to have varieties that are acclimated... to your region. So that's an important factor for me in terms of like the seed library.... What if we ended up figuring out an eggplant that does really well here, that becomes a varietal that's like specific to southern Illinois? You know, that can really help people... sustain themselves in like a food shortage and things like that. And you know, like, even though we live the American Dream, there's no way to know that bad stuff's not on the horizon.

Environment

Many participants in this study express interest in ecology, both in the garden and beyond, as well as a desire to mitigate perceived environmental problems. Water and pesticide use, soil conservation, climate change, energy sources, environmental justice, and many other issues come up in conversations with them. Gwen, for example, makes a point of telling me that all her powered garden tools use solar energy. She also plans to install rain barrels. Adriane talks about methods such as digging swales to conserve water and using Asian carp to produce fish emulsion, simultaneously providing a valuable organic fertilizer and a means of controlling the invasive species. The

community gardens tackle issues including access to land and the risk of industrial soil contaminants in the northeast quadrant of Carbondale, which I discuss in Chapter Seven. Abbie Kruse, Ruth Hoak, and others share information on methods for fostering healthy soil biota as they strive to exceed the minimum requirements of organic gardening and build robust garden ecosystems.

While many newer growers bring a degree environmental awareness to vegetable gardening when they begin, understanding of the environmental impacts of food production often evolves within the context of the practice as well. Jessica Allee first learned to garden in high school using conventional, agrochemical-heavy methods. She tells me her political activism related to other issues, which she reluctantly characterizes as “left-leaning,” connected her with people who started her thinking more about environmentalism. That exposure, as well as sustainable design training during her education to become an architect, contributed to her gradual modification of her gardening practices into the more ecologically conscious approach to gardening she takes today.

Walking around Jessica’s garden with her, it quickly becomes apparent that she cares deeply about pollinators. Native plants, such as Wild Quinine and echinacea, grow interspersed with shrubby herbs and colorful zinnias. Hundreds of bees and butterflies visit flowers all around us and Jessica comments, “This whole area is just like pollinator central. I mean there's been a few around today, but like we get so many amazing insects in here.” When I ask whether she attracts them deliberately, she initially says, “Yeah, I like looking at the insects.” Pressed to elaborate, she adds:



Figure 4. Native pollinator plants, butterfly weed and purple coneflower. Photo by the author.

I feel like they need their environment too and this makes me happy to know that they're happy. I know this makes me sound really earthy crunchy, but that's who I am... So, you know, I try to provide habitat for them. And then it's really important, you know, that they are here as my pollinators.

The depth of Jessica's investment in pollinators comes more clearly into focus a moment later, when she points out a cluster of swamp milkweed near her front porch which she uses to nurture monarch caterpillars. I discuss her interactions with these and other insects in her garden further in Chapters Five and Six. Suffice it to say here, her involvement extends beyond simple concern about providing habitat for the pollinators benefiting her crops and local ecosystems and has become a rich source of engagement in the garden.

Jessica is not alone. The strength of interest in both pollinators and native plants among many of the people I interviewed surprised me, even though I share the fascination. Ruth, for example, regularly volunteers at native plant sales to raise money for local environmental organizations and to encourage southern Illinoisians to plant an array of native species that can be difficult to find at nurseries. Red Hen and Washington St. have recently joined forces under the umbrella of Food Autonomy, which I discuss in Chapter Seven, to provide free plants to the community, including native tree saplings ordered from a forest service nursery. Both also purposely grow a variety of native and pollinator plants such as Jerusalem artichokes, elderberry, black-eyed Susans, and tithonia. Francine and Al, Renee, and I have all planted multiple native species including pawpaws, native fruit trees which are the sole food source for



Figure 5. Zebra swallowtail caterpillar on a pawpaw leaf. Photo by Justin Harrell.

zebra swallowtail caterpillars. Renee established a pollinator garden with her students as a class project.

Marjorie, who pauses to murmur encouragement to the butterflies visiting her blooming herbs as we move around her garden, speaks to the anxiety many gardeners express about habitat destruction and their desire to play a part in sowing ecosystem restoration.

We used to have an elderberry here and it was really pretty. And... one of my dreams is, I have a fantasy about this. I lived up in Perry County and it was stripped a lot. Strip mines are up there. Sneaking up there and planting trees. Because I have a lot of trees. I have oak trees. I have walnut trees. I have elderberry right there. I mean, I have them coming up all the time... I thought I'd do those seedles. You know the seedles? What they call seedles is, you put

the seeds inside a clay and compost and then throw 'em. So my plan was that I would like take my grandson and my brother... and we'd ride around in the back of the truck with slingshots and put out clover and anything else I could... think of. So, and then somebody said, well they don't have any moisture, but you know, seeds don't have any moisture. I mean, if they had to have moisture all the time, they wouldn't proliferate, so you know. If you just put the seed there, and some of 'em take and some of 'em don't. You know, that's the way it is.



Figure 6. Zebra swallowtail butterfly. Photo by Justin Harrell.

Concerns about pollinators are not new to gardeners. In the 1960s, the book *Silent Spring* famously warned of the consequences, for insects and humans alike, of indiscriminate use of pesticides, and is widely credited with helping to spur a then-nascent organic gardening movement (Carson, Darling, and Darling 1962). Nevertheless, understanding of the problems pollinators face has changed significantly since that time. In addition to continued pesticide use, habitat loss through development and climate change threatens pollinators. Eliminating pesticides alone cannot solve the problem. As human dominated landscapes continue to sprawl, the presence or absence of native species in highly developed areas becomes more critical to determining their ultimate fate (Doody et al. 2014; Aronson et al. 2017).

In 2015, the Obama Administration issued a “National Strategy to Promote the Health of Honeybees and Other Pollinators” which calls for more native plant habitat to support pollinators, including in landscaping on federal properties (Pollinator Health Task Force 2015). The report specifically addresses declining populations of the charismatic monarch butterfly and sets targets for recovery. In 2020, the US Fish and Wildlife Service (USFWS) announced that listing monarchs as endangered was “warranted,” although the listing did not occur because other species in more imminent danger took priority (USFWS 2020). Awareness of the need to expand pollinator habitat predates these actions, but financial support for school and other community pollinator gardens emerged partly because of this governmental attention, and news reports on the precarious status of pollinators have become increasingly common. No doubt, this pervasive atmosphere of anxiety has penetrated the thinking of southern Illinois gardeners.

In “The Meaning of Gardens in an Age of Risk,” Mark Bhatti suggests, “For those worried about the state of the planet, the garden becomes the ‘nature’ to be looked after and valued” (1999, 181). Although gardeners always engage the natural world in concrete ways, the environmental consequences of their actions can be difficult to see. Concerned about an issue such as climate change, a gardener faces the twin problems that a single home garden influences climate minutely and that measuring the actual impact of various gardening practices lies well beyond the abilities of nearly every home gardener. Planting native pollinator species, by contrast, presents an unusual opportunity to gardeners grappling with environmental anxiety. Given the decline in populations of pollinator species, their presence on native plants cultivated for their benefit offers tangible evidence of effective intervention. So, although vegetable gardeners may adopt a variety of environmentally sensitive methods, deliberately planting native pollinator species not only benefits crops, but it also gives gardeners the sense of supplying a concrete contribution to protecting local ecosystems.

Education

Many gardeners tell me that gardening constantly teaches them new things. In fact, curiosity and the desire to tinker strike me as perhaps the most widely shared attributes of participants in this study. Not surprisingly then, many gardeners I spoke to also recognize the opportunities gardens afford for educating others. Garden education occurs in an academic sense—learning about the process of pollination or the medicinal properties of plants, for example—as well as in the form of sensory education and

enskilment—such as experiencing and recognizing the scents of garden plants or learning how to start seeds.

At the community gardens I visited, the missions explicitly include education. Targeting adults and children alike, community gardens educate through both planned programs and in the course of routine garden activities. I discuss education in the context of community gardens in detail in Chapter Seven.

Among home gardeners, parents of minor children frequently comment on the educational value of the garden. Cynthia Plunkett tells me that her kids find it “kinda cool” that the kitchen waste they add to their compost bin “turns into dirt” and she appreciates that they have the chance to directly observe natural cycles of growth and decomposition. Her children also tend to be more willing to try vegetables they participate in growing. Francine mentions, as we prepare to plant tomatoes, that she heard planting them partially horizontally can improve their growth. She discusses possible benefits of the method with her older son, and they decide together to plant one of their tomatoes that way as a test. She says she has loosened her expectations of how things should be done in the garden since the kids started “helping” and that the whole family enjoys seeing how their various experiments work out.

Renee has given the question of what role gardens can play in education unusually careful thought. An experienced teacher of children in preschool through eighth grade, she currently operates a small, mixed-age homeschool co-op at her home. She draws heavily on two teaching philosophies, Waldorf and Montessori, in structuring her curriculum. Each values gardening for different but overlapping reasons.

As Renee explains it to me, Waldorf methods emphasize the importance of rich sensory engagement and free exploration of the natural world in early childhood

development. Attention in planning outdoor spaces focuses on providing varied sensory experiences, not on growing useful crops per se. As a result, Renee's garden includes things such as a patch of velvety soft lamb's ear and a potted money plant, which has unusual papery fruits, in addition to plants more typical of vegetable gardens.

The Montessori approach, while also broadly concerned with sensory development, more specifically advocates growing vegetable gardens. The method stresses practical skills that both develop understanding of the natural world and give kids a sense of efficacy and participation in something they understand as meaningful, such as producing food for themselves and their community. Renee tells me that Maria



Figure 7. A patch of lamb's ear in Renee's garden. Photo by the author.

Montessori, the Italian doctor who developed the method over the first half of the 20th century, believed that heavy physical work brings necessary balance to more intellectual labor and improves concentration and behavior.

Renee integrates lessons on a wide array of skills and subjects with garden work. Shortly after our first meeting, she tells me about a science project for her older students comparing a cold frame in the garden with a hydroponic system indoors. Her youngest students finger knit to build manual dexterity, then apply their newly woven cords to a structure to support sweet potato vines. Children practice measurement skills by making seed tapes they can lay in the garden to grow optimally spaced plants and by tracking the growth of plants they “adopt” in the garden. Her students study plant taxonomy and biology centered on the crops they grow. On a cold fall day, children take turns helping to make warm persimmon jam with small fruits gathered from a backyard tree. Throughout the year, gardens offer up countless educational opportunities for those attuned, through their engagement in practice, to look for them (Ingold 2000).



Figure 8. Renee’s persimmon tree. Photo by the author.



Figure 9. Renee's teepee trellis with finger knitted cords. Photo by the author

Conclusions

In this chapter, I outline multiple types of values vegetable gardeners connect to the practice and begin to link those values to specific approaches to gardening. Notably, the values I discuss frequently intertwine with one another. Logan, for example, connects his concerns about nutrition and economic incentives in commercial food systems to the crops he chooses to grow. Additionally, as I discuss repeatedly throughout the dissertation, different interests often prompt similar approaches. Health or environmental concerns—and sometimes both at the same time—may lead gardeners to reject or limit pesticide use, for example. Learning about and applying different types of methods can impact the way a gardener relates to the garden both conceptually and materially, potentially influencing the course of a gardener's process of development through practice (Ingold 2000).

Participants in this study brought up environmental concerns very frequently and I discovered that many have developed a related interest in pollinators and the plants that support them. I note that government and media likely played a significant role in popularizing pollinator plantings. I suggest that this approach has become so common among the vegetable gardeners I spoke to, however, in part because it allows them to witness the ecological impact of their efforts more easily than many other pro-environmental actions do.

CHAPTER 4

SETTING THE STAGE: GARDEN PLANNING AND METHODS

Anita attempted her first tiny vegetable garden in the summer of 2009, but when cabbage worms and a destructive dog left her with nothing to show for her work, she decided to give up on it and planted nothing for a couple of years.

And then I went to visit a friend of mine who lives in Colombia, Missouri and she's got like the best soil. Everything grows like crazy in her yard. And I went to visit her and she gave me all these vegetables from her garden. I mean I left with armfuls of food and I was just like, 'That was... really cool. I want to do this.' So then... I started and I went like full force into it.

Describing her vision for her own garden, Anita frequently invokes the Missouri garden with its "just gold" soil in which a gardener need only "throw a seed out there and it'll grow." She marvels at the relationship her friend developed with a beekeeping neighbor to trade homegrown vegetables for honey. She longs not only for the abundant harvests, but for the verdant aesthetic and the social relations produced in the garden.

Both intimidated and inspired by her friend's garden, Anita contacted a local permaculture expert for advice on getting restarted. It seems strange to her now, but she

felt deeply anxious about another potential garden failure. Nevertheless, she began building up her soil with compost and mulch. She planted fruit trees, ordered heirloom seeds from Baker Creek, and gradually increased the area she cultivated each summer. Every year, she tries at least one unfamiliar crop—tat soi, tomatillos, kohlrabi—in addition to the “normal” ones— tomatoes, peppers, greens. She shares tomatoes and cucumbers with her neighbor.

Not everything always goes to plan. She does not have the skills to build the cute fence of her imagination, animals often make off with a substantial share of her crop, and she cannot cultivate as large a garden as she would like, but she no longer fears mistakes. She confesses that she sometimes experiences bouts of “garden envy.” Mostly though, other gardens, coupled with each year’s experience in her own, help her to constantly reimagine what she wants her garden to become.

Whether they picture a sprawling plot bursting with vegetation, tidy planter boxes filled with orderly rows of perfect produce, or a lone bucket bearing a tomato-laden plant, gardeners bring a variety of ideas and expectations to their spaces. Many contemporary vegetables gardeners lack significant personal experience with gardens when they begin their own. The methods and specific crops they choose directly influence the physical experience of gardening. I introduce them here, however, because in delving into research and assembling plans, gardeners actively envision their gardens. A great deal of thinking about the nuts and bolts of gardening occurs outside the garden—whether to grow from seed or starts, where to acquire plant material and what to grow, what tools to use, which methods will work best— and may or may not hold up once applied there. Many gardeners have dreams much more elaborate than they can fully materialize. Some ideas never make it past the planning stages and others have

unexpected outcomes. As successive plans play out, the experience of each season contributes to constant re-visioning.

Pinterest Gardeners

Ideas for all kinds of garden projects proliferate online. While vegetable gardeners have looked to media—magazines, catalogs, books, and television shows—for inspiration and instruction for many decades, the internet supplies a firehose of information, advice, and images for gardeners to absorb. Traditional gardening practices, such as hügelkultur and composting, compete with newer ones, such as planting in recycled pallets, for attention. Thousands of examples of teepee trellises resembling the one Renee built with her students, usually draped in lush greenery, tempt gardeners to reproduce them. Quests to discover possible improvements for their gardens count among the great joys of gardening for many people. Even novice gardeners often come to the practice primed to experiment. For better or worse, Pinterest and YouTube, gardening forums and blogs significantly shape the imaginations and practices of curious gardeners.

At Red Hen Garden, Pinterest frequently pops up in conversations about garden planning. Deborah Woods and Kate, founding gardeners there, pore over the website dreaming of construction projects: cold frames and trellises, benches and firepits, greenhouses and sheds. The construction plans, many of which never come to fruition, help articulate their conception of the garden. They envision an attractive gathering place for the community, active through most of the year, greeting visitors with swathes of pollinator covered flowers and abundant free produce. The budgetary constraints of a

non-profit garden combined with their own thrifty and environmentalist inclinations make projects that rely on found and recycled materials, a strength of Pinterest, particularly appealing. Many other gardeners I spoke to share the affinity for such projects.

Gardeners look to Pinterest, and the internet more generally, both to solve specific problems and to explore and develop skills. Francine and Al, for example, having struggled to protect their vegetable garden from hungry wildlife, downloaded plans for enclosed beds, which they quickly built with their sons. Meanwhile, always eager to experiment and learn new skills, Deb considered tackling a less immediately practical project with a lower likelihood of success.



Figure 10. Francine and Al's enclosed beds during construction. Photo by Francine.

I watched them yesterday on a show graft these maple trees, and I had seen grafting before. And I thought, 'It would be so neat. I would like to try that.'... I heard the guy say, which gave me confidence, that he might do 60 and maybe 4 or 5'll actually take. So I said, 'Okay, then... I recognize the odds are not great. It's okay.'

AT: You won't feel bad if it doesn't quite work.

Deb: Don't feel bad if it doesn't work.

Of course, things do not always turn out quite as gardeners imagine they will. Red Hen and Renee both installed beds made from recycled wooden pallets and teepee trellises. All the gardeners involved now loathe the pallet beds that web tutorials portray as enticingly tidy and effortless. As we struggle to pry rotting pallets from the ground with an improvised crowbar, Kate emphatically tells me, "Never ever ever plant a garden with pallets... We put the pallets down and then we put the compost and stuff on 'em. And it has just been a pain in the butt. Never ever do this." The weedy Bermuda grass surrounding the beds creeps underneath the pallets while the boards, touted as an effective barrier facilitating a weed-free garden, only make it impossible to remove the grass. Meanwhile, Renee found that her neat rows of baby plants grew poorly in the shallow beds, their roots apparently inhibited from reaching the soil beneath. Indeed, similar to British garden makeover television shows Hitchings (2007) cites, the sites promoting the method tend to display photos of newly constructed gardens with freshly transplanted crops emphasizing the immediate aesthetic effect and ignoring long-term results.

The gardeners evaluated their teepee trellises more positively. Renee placed hers in an open area of her unfenced yard rather than in her protected garden beds. Deer relentlessly browsed her sweet potatoes, preventing them from reaching even the first course of finger knitted supports. The lush, green barrier Renee envisioned never materialized, but the suggestion of walls created by poles and yarn created a satisfying fort for her students. She kept it outside the fence, accessible to playing children and hungry wildlife alike. At Red Hen, pole beans did cover the enormous trellis built with timber bamboo, producing a leafy shelter roomy enough for adults. As a practical element of vegetable production, however, the structure presents a problem. Inside, even I—at nearly six feet tall—can only harvest the clusters of beans hanging near the apex by standing on a wobbly bench and stretching to pull them down. The angle of the poles makes beans on the outside even more difficult to reach. Still, Kate and Deb love it, considering it a unique, attractive feature that distinguishes Red Hen from other community gardens. These outcomes demonstrate that in both gardens, the obvious objective of food production exists alongside a variety of other goals.

General Gardening Methods

Technologies... do not work or fail in and of themselves. Rather, they depend on care work. On people willing to adapt their tools to a specific situation while adapting the situation to the tools, on and on endlessly tinkering. (Mol, Moser, and Pols 2010, 14–15)

Participants in this study broadly share a few basic gardening approaches. For example, most generally reject “chemicals,” though several accept specific synthetic agrochemicals under limited circumstances. All see value in returning organic matter to the soil and at least sometimes use compost or undecomposed plant matter to support crop growth, though several do not produce their own compost. Many gardeners mulch to retain moisture and keep weeds in check. Most start at least some of their plants from seed and weed by hand. Although common and generally non-controversial today, these methods and principles potentially offer hints about the gradual evolution of the practice of gardening.

I should note here that many people say, “I don’t use chemicals in my garden,” to mean that they do not apply pesticides not approved for organic agriculture within their vegetable beds. They often do not consider synthetic fertilizers, or anything labelled “organic” to be part of the “chemicals” category. Additionally, in practice, some make exceptions to their general rejection of synthetic pesticides and occasionally different rules adhere to the yard beyond the vegetable beds. I discuss some of the specific choices gardeners make in terms of weed and pest control in greater detail in Chapter Five. Here I focus on elements such as general garden design, soil preparation and management, and planting.

The apparent consensus among participants in terms of general approaches conceals some striking differences. Although adhering to the shared principles outlined above, Renee, a relatively inexperienced gardener, uses a method unique among study participants. She generally objects to tilling, reflecting both a Master Gardner class she attended in Maryland a few years before we met and personal preference, and wants to minimize weeding. The gardening course recommended using plastic sheet mulch to

prevent weeds and retain moisture provided through drip irrigation, but she strongly dislikes the idea. “If you're trying to have people garden so they become closer to the land and they're stewards of the land,” she tells me, “it seems like covering up the earth with plastic wouldn't make any sense.” Instead, she employs an approach she saw at a farmstand, using strawbales topped with compost as garden beds. Proponents of the method often target individuals gardening on rental properties or in small spaces, neither of which applies to Renee (Karsten 2015; Burgess 2017). She likes that using bales allows her to rearrange her garden each summer and that the height of the bales



Figure 11. Renee assembles a small cold frame in the fall using strawbales she will plant on top of the following spring. Photo by the author.

positions plants closer to her students' eye level. How things lend themselves to teaching always occupies a prominent role in her decision-making.

Renee's grandfather previously owned her home and established a garden there. When I comment on the high quality of her soil, she proudly tells me that he worked on it over decades, constantly incorporating his own compost along with manure contributed by a neighbor who owns horses. Despite access to this resource, she continues to rely upon her strawbale planters.

The strawbale is the closest I ever came to having a garden look like I thought it should in my head. And so now I'm attached to the idea. Because... it didn't have as much of a failure rate as every other garden project I'd ever tried. It was more success than failure as opposed to the other way around. So now I'm just like, 'Okay, well I'm going to stick with that.' You're right though, this soil is beautiful. I probably should be doing something with it besides covering it with cardboard and walking on it.

Curiously, Renee does use the garden soil—often quite successfully—even as she insists upon her preference for the strawbales. The first summer we met, she had been unable to acquire bales in time to condition them for that growing season. Tall, productive tomatoes and enormous rhubarb plants grew directly in garden soil heavily mulched with the remains of the prior year's bales. Healthy volunteer crops emerged from her compost piles as well, but she attributes her victories almost entirely to the adoption of the strawbale method. Simply by turning out as envisioned, the unusual method won her confidence.

Even among gardeners whose methods superficially align closely, significant variations exist in the details of attitudes, competences, and the material realities of different gardens. For example, Angela, an inexperienced gardener with a small plot surrounded by a low fence in her yard, tells me, “We just put the plants in and see what happens. And sort of let them go, grow against the fence if they feel like it.” Angela tills with hand tools, adds purchased bags of compost, covers the ground with landscape cloth to block weeds, and transplants purchased starts. The vegetable bed contains only tomatoes and a few hot peppers, though she has herbs and two peach trees elsewhere. Angela’s simple methods do reflect some attention to the needs and habits of her crops—enriching her soil with organic matter and ensuring that tomatoes have support if they need it, for example—but she explicitly states that she prefers to devote relatively little time or thought to her garden. She has not encountered significant pests on the vegetables thus far and comments, “Here, tomatoes are like nearly maintenance free.”

Angela makes me wonder how she would react if her plants began to require more care due to infestation or disease. Would she simply stop tending the affected plants or would she attempt to respond to their needs, becoming more engaged? Would she quit gardening entirely if she came to regard tomatoes as needy or difficult instead of almost effortless? For Angela, it seems that appreciation of the garden may depend upon its continued docility (Hitchings 2006).

Calvin has gardened in Carbondale for decades. When I inquire directly about his methods, I get an answer resembling Angela’s. He shrugs and tells me, “I don’t do much special. Just till. Spread the compost.” Calvin prepares his unfenced plot of roughly one thousand square feet with an enormous, gas-powered, walk-behind tiller. He routinely amends it with a truckload of bulk compost purchased from a local producer. Calvin

plants partly from seed, maintaining a diverse array of crops throughout the entire growing season with harvests starting early and extending into December. He supports his plants with a variety of homemade trellises and cages. He protects the soil over the winter with a combination of the remains of summer crops left in place and freshly sown cover crops. His self-assessment clearly oversimplifies the skilled attention he gives to his plants and soil. His ability to coordinate the rhythms of his various crops in successional plantings requires significant knowledge, planning, and adaptability, but does not feature at all in his explanation of how he gardens. As we gather mustard greens from a dense patch of plants he protected from frost under a tarp, he contemplates the rather stunted collards growing nearby, musing about adjustments he could make for better performance next season. Unlike Angela, he brings an assumption of the necessity and desirability of tinkering to his gardening.

Most gardeners I spoke to share Calvin's flexibility. Logan exemplifies Hitchings' claim that "to fully find pleasure from plants, people must become enjoyably expert in understanding that any complete control is always unlikely" (2006, 364). Despite extensive gardening experience, Logan professes little attachment to any one approach to gardening and finds the methodological rigidity of some gardeners at Washington St. frustrating.

I mean it's really crazy too, the different whatever you want to call it, theories, religions that people want to subscribe to around gardening. You know, like, some people do it all by the moon cycle... or have to do it exactly the way some author says. Other people just literally chuck stuff in the ground and don't do anything. Everyone's got their own. But gardening specifically seems to really

like have all these strong opinions... The way I've always looked at it is, you know... it's such a complex system, so many different parts, that you could never definitively say anything. It's all basically, yeah, there's some practices that're like, unexplained, but it works or pretty good reasoning, do that... I always say like, you don't have to be right, you should just be able to explain... If anything, I'm the one that's adamantly against following a cookbook... Come up with a plan. Explain it like logically and execute it... And see if it works.

Gardening methods do not operate in the form of completed designs that can be simply and predictably enacted upon the world. Instead, they serve more as principles for supporting a process of correspondence among humans and nonhumans: “To make a living, farmers and woodsmen must join with the ways of plants... Production, in such an ecology of correspondence, is about attending to the trajectories of these nonhuman lives” (Ingold 2017, 22). Gardeners attempt to orchestrate excellent conditions for plant growth, but a great deal related to the constitution of good conditions always remains unknown or beyond their control, as most acknowledge. Constantly changing circumstances—in terms of weather, pests, and soil development, for example—often varying in multiple factors simultaneously, undergird Logan’s contention “that you could never definitively say anything.” Responsiveness to the needs of plants requires recognition of the specificity of shifting conditions. “Care depends not so much on a formula as a repertoire that allows situated action.” (Law 2010, 67).

Gardeners often add layers of complexity to selecting methods as they extend beyond simply evaluating what “works” in terms of measures such as productivity and

attempt to understand the effects of their choices within a broader context. Adriane reflects on her farming experience as she considers her attitude toward managing her first home garden. She focuses on the ecological impact of her approach, zeroing in specifically on the matter of “inputs,” which no other gardener I spoke to specifically mentioned as a component of sustainability.

We used the word sustainable, which I feel like, is it impossible to achieve anyways? But, so basically like not really being interested in getting certified organic, but wanting to use organic practices. But there are even some organic certified things that aren't really that great for the soil either. And plus, like BT kills all the caterpillars, you know? So yeah, like, we try to do really low input. On River to River Farm...we didn't irrigate anything. We just dug all our beds as swales, which was really hard...I mean yeah, it's so much more than just following organic practices.

For Adriane, choosing methods occurs repeatedly, with every cycle of planting. She makes it clear that she constantly reevaluates the environmental consequences of her gardening practices and attends to emerging recommendations. Her husband tilled their large garden with a broadfork, a tool intended to enable deep loosening and aeration of soil with minimal mixing of layers, to preserve soil structure. Nevertheless, Adriane wonders whether other approaches could do even more to protect the soil. She expresses interest in no-till methods which have gained popularity due to environmental benefits such as improved erosion control and carbon sequestration (O'Brien 2020). Because

none of the farms where she interned used no-till, however, she hesitates to attempt it, uncertain about how to manage the approach without resorting to herbicide use.

Other gardeners I spoke to attend closely to the environmental effects of their methods as well. Abbie Kruse and Ruth Hoak, for example, speak specifically about soil microbiota and think through factors such as cover cropping, that may benefit the microbiome, and tilling, which may inhibit it. Ruth advocates growing buckwheat as both cover crop and green manure. Abbie argues against even limited applications of synthetic fertilizers, concerned that they upset the balance of microorganisms in the soil. They routinely share and discuss information from their favorite gardening authorities with other gardeners as they both work toward “understanding of soils as dynamic ecologies” (Krzywoszynska and Marchesi 2020, 194).

Roughly a third of the gardeners, mostly in the community gardens, spoke about the concept of permaculture and new projects reflect their interest. Kate, who lives on a rural property with substantial waste wood available from fallen limbs and trees, constructed hügelkultur beds there and wanted to build them at the community gardens as well. She recently helped create one as the foundation of a new community pollinator garden project. Meanwhile, Jessica Lynn led a group to establish a small, multi-layered food forest on a vacant lot. Both projects depend upon applying large quantities of organic matter to the task of building high quality soils in an area previously degraded by construction.

Gardeners also frequently tap into ecological thinking in adopting companion and interplanting. Marjorie Yuill and Red Hen, for example, both plant marigolds among tomatoes to protect the tomatoes from pests. Renee always consults a companion planting guide when organizing her garden (Riotte 1981). Several gardeners comment

on the traditional practice widespread among Native American tribes of interplanting corn, beans, and squash—often identified as the “Three Sisters”—for their mutual benefit, and wonder how to apply similar principles in their own gardens (Kimmerer 2013; G. L. Wilson 1987). Kate, for example, tells me:

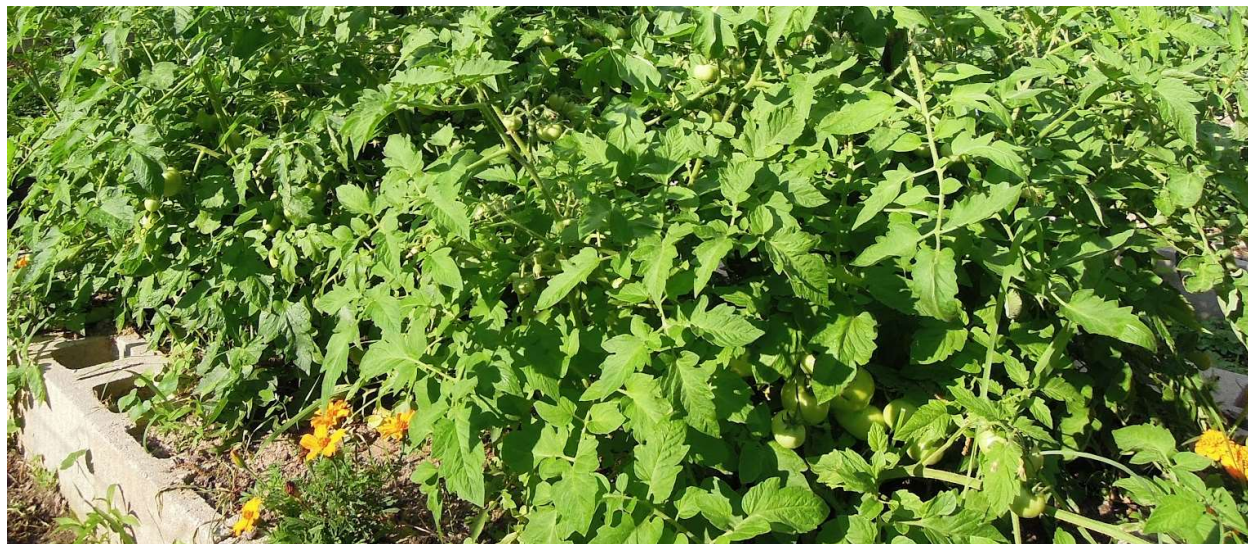


Figure 12. Marigolds planted with Marjorie’s tomatoes. Photo by the author.

That's how the Indians used to do corn. They'd plant it here or there. And you have all the plants around it that can take care of it. You don't get an infestation of stuff that eats it. And if you do, you might get it there, but you won't get it over here, you won't get it over there. So, I mean, that's really kind of interesting. It's like, no work gardening.

At Washington St., Mason Smith and Logan discuss the rooting zones occupied by onions, tomatoes, and carrots as they consider how to use their limited bed space most effectively. Having learned to grow each crop in its own rows or beds, Ruth tells me interplanting does not come naturally to her. Nevertheless, as we discuss plans for Red

Hen's beds, she expresses admiration for the complex arrangement of crops in Washington St.'s beds, acknowledging it as an excellent preemptive pest management method.

Compost in Social Context

As I stated previously, every gardener I interviewed for this study believes in the value of adding organic matter to soil, with a few variations. Gwen tills chopped, undecomposed yard-trimmings mixed with lime into her plot, but she eventually intends to add composting to her repertoire. Cynthia Plunkett uses compost in a small bed on the ground and in a few pots. She now plants most of her vegetables, however, in two deep boxes her husband recently built. He objects to compost, and she produces a relatively small amount, so they filled the boxes with a blend of topsoil and potting mix—mostly peat moss—and fertilize them with Miracle-Gro. The remaining gardeners rely upon compost as their primary, and often only, form of fertilizer. Among these gardeners, three do not make their own compost. In several cases, gardeners who do compost supplement with purchased compost or acquire extra undecomposed plant matter from offsite. Notably, Cynthia, who makes her own compost, and Angela, who uses it but does not make it, comment that their spouses, both chemists, strongly dislike compost and think it “ruins the garden” and is “gross,” respectively.

Gardeners' decisions regarding soil care generally, and making and using compost specifically, have potentially significant and varied environmental impacts. The underexplored attitudes and behaviors of gardeners in this area emerge from relationships among complex factors including theories of soil fertility from the 19th

century to the present, evolving suburban home care practices, and shifting environmental threats.

Theories of soil fertility

At garden centers across the United States, the labels on organic and synthetic fertilizers lining the shelves share a common feature—the guaranteed analysis numbers for the quantities of nitrogen, phosphorous, and potassium (NPK) in the products. This system for quantitative fertilizer assessment emerged from the work of 19th century chemists Justus von Liebig and Carl Sprengel who worked separately to understand plant nutrition from a chemical perspective. Both rejected the humus theory supported by the earlier work of Sprengel’s teacher, Albrecht Thaer, who considered the presence of decayed organic matter in the soil essential to plant nutrition despite his contention that plants only actually absorb inorganic nutrients (Heckman 2006; Marchesi 2020). “Dismissing humus as mold, Liebig proposed a ‘mineralist’ model of fertility management in which agriculturalists would focus on the addition of minerals according to the needs of particular plants” (Marchesi 2020, 213).

Liebig promoted his theories at a time of massive social and economic transformation. Greta Marchesi explains that in early 19th century Britain, as peasant farmers moved to cities to work in expanding industries, agricultural soils often became depleted. Karl Marx wrote of a “metabolic rift”— essentially removal of nutrients more rapidly than they could be replaced— which he attributed to the loss of workers’ “humanore,’or night soil” on agricultural land (Marchesi 2020, 315). Marchesi and others connect the loss of soil fertility, instead, to changes in key land management practices as knowledgeable peasants left the land in the hands of capitalist farmers who

pushed for maximal production as opposed to sustained productivity of agroecosystems. Regardless of the cause of soil depletion, however, insights from Liebig's and Sprengel's research on plants' requirements for inorganic nutrients helped farmers disconnect productivity from engagement with natural processes of nutrient cycling. Massive transfers of nutrients to agricultural fields in the form of guano mined from Peru's Chincha Islands,¹³ bones from European catacombs, and eventually synthetic chemical fertilizers enabled continued agricultural productivity even as many farmers neglected traditional management practices that recycled nutrients within the system. The apparent success of this extractive approach—which Liebig himself came to regard as destructive—masked degradation of soils and created new capital dependency in agriculture (Foster and Clark 2018; Marchesi 2020).

Sir Albert Howard, considered the founder of organic agriculture, valued Liebig's research on nutrients, but thought his “neglect of soil biology and physics” led him to fundamentally misunderstand the significance of organic matter in soil (Heckman 2006, 145). The “Law of Return” outlined in Howard's 1943 book, *An Agricultural Testament*, emphasized the importance of returning all organic waste—including human waste—to agricultural fields via compost both to recycle nutrients and to create favorable conditions for soil biota (Heckman 2006). J.I. Rodale, a key figure in popularizing organic methods in the US, also focused on the central role of composting as he adopted and further developed Howard's methods. Although organic and other ecological methods typically allow for the application of materials imported to the farm or

¹³ Between 1840 and 1880, buyers in Europe and North America purchased 11 million tons of Peruvian guano worth \$750 million. Exhaustion of the resource contributed to an economic collapse in Peru (Klaren 2000, 158).

garden—particularly necessary on already depleted soils—practitioners ideally try to minimize inputs in the recognition that bringing nutrients to one place effectively requires removing them from another (Rodale et al. 1973; Jeavons 1995).

Neither Howard nor Rodale invented composting, of course, though both experimented with improving its effectiveness. Incorporation—and specifically recycling— of organic matter in cultivated soils typically forms the foundation of ecological approaches to crop cultivation. Documented examples exist of ecologically astute farming systems employing this principle from throughout the world and dating back thousands of years (Jeavons 1995; Rodale et al. 1973; Kolata 1996; Conklin 1975; Heckman 2006). Various methods of composting, which have a deep history in the United States, represent just one relatively common form of this process of nutrient recycling.

Even as chemical models of soil fertility became dominant, composting retained a place in both agriculture and gardening. Agronomist Joseph Heckman claims that in conventional agriculture, farmers primarily incorporated organic material into soils as a means of waste disposal (Heckman 2006). On the other hand, Rodale quotes George Washington Carver’s agricultural pamphlet, “How to Build Up and Maintain the Virgin Fertility of Our Soil” as evidence of widespread support for composting: “Make your own fertilizer on the farm. Buy as little as possible. A year-round compost pile is absolutely essential and can be had with little labor and practically no cash outlay” (Carver 1936, 7; Rodale et al. 1973, 17). Notably, despite his enthusiasm for compost, Carver, unlike organic advocates, did not uniformly reject synthetic fertilizers (Carver 1936).

Likewise, multiple 20th century US Department of Agriculture (USDA) bulletins on “Town and City” vegetable gardening advise that gardeners add manure and compost to soil to improve texture and richness, though they often recommend using fertilizer in addition (Beattie 1924; Boswell and Wester 1962; Wester 1972). A 1924 bulletin specifically cautions gardeners that “the best results are obtained by the use of commercial fertilizers where there is plenty of manure or organic matter in the soil,” implying alignment with the humus theory of plant nutrition (Beattie 1924, 8). As Americans transitioned away from using horses for transportation, urban and suburban gardeners had less access to manure. A bulletin from 1962 advises that, lacking manure, “to hasten decay of coarse plant material, a few handfuls of fertilizer high in nitrogen can be thrown over each layer of organic matter” (Boswell and Wester 1962, 10). A decade later, the USDA directs that to each 6 inch deep layer of plant matter, gardeners should “add one-half pound or one cupful of 10-10-10, 10-20-10, or 10-6-4 fertilizer to each 10 square feet of surface,” top with 1 inch of soil, then repeat the process to create a pile 4-5 feet tall (Wester 1972, 3).

With the addition of fertilizers to compost, the later iterations of USDA advice conceptually decouple nutrients from organic matter. In other words, even though nutrient recycling in the landscape continues to occur whenever gardeners use their organic waste to make compost, the logic of composting, especially as presented in the 1972 bulletin, does not necessarily include nutrient recycling. Rather, the bulletin recommends an extractive approach to furnishing nutrients for the garden. Interestingly, composted livestock manure is the only commercial fertilizer mentioned at all in a 2009 USDA bulletin, which otherwise recommends relying on homemade

plant-based compost to fertilize a garden, signaling a return to acknowledging the nutritive value of organic wastes (USDA 2009).

Suburban home care and “waste landscapes”

The landscapes many Americans lived in also changed significantly in the 19th and 20th centuries. Beginning around the time of the US Civil War (1861-1865), Americans increasingly moved into detached, single-family homes on small lots on the outskirts of cities (Jenkins 1994). While yards historically served as places to dump waste, communities increasingly encouraged residents “to contribute to civic beauty” with landscape plantings instead (Engler 2004, 61). Relatively early in the process of transformation, the yard “rid itself of waste functions” such as outhouses and “What remained— trash cans, compost piles, and furnace ashes— slowly became a source of shame” (Engler 2004, 60).¹⁴ Trash collection, which occasionally included some recycling of waste, became common in suburbs in the early 1900s and lawns gradually became the dominant landscape form in these communities. By the middle of the 20th century, orderly, sanitized suburbs demanded that their residents produce tidy, manicured lawns and policed the aesthetic via homeowners’ associations and local ordinances (Jenkins 1994; Robbins 2007).

Of course, left to itself, a yard does not stay tidy. Grass grows tall and goes to seed, shrubs become shaggy or lopsided, and trees cover the grass with fallen leaves.

Reimposing order requires knowledge, tools, and labor, of course, but also a place to put

¹⁴ When I met her, Adriane was gardening at a rental house on the outskirts of town that was built in the mid-19th century. She mentioned that she had been surprised at how well her crops were doing in one small part of the garden. She later learned from her landlord that the spot was the site of a relatively recently filled in outhouse.

all the trimmings and leaf piles. For most suburban homeowners during the greater part of the 20th century, cleaning up the yard meant sending landscape waste—frequently in plastic bags— to a dump or landfill.

Organic waste and environmental crises

The systematic elimination of organic waste from suburban landscapes creates a metabolic rift paralleling the one in agricultural fields. Like farmers, homeowners can apply amendments to obscure the fertility crisis, but in failing to address the source of the disjuncture, crises continue to proliferate (Marchesi 2020).

One such crisis loomed in the 1980s as it became apparent that landfills would rapidly reach capacity in the coming decades, largely packed with biodegradable waste. Jenkins cites a report that a single “half-acre lawn would yield nearly three tons of grass clippings a year, enough to fill 465 bushel bags” (1994, 173). Responses to that crisis included advocacy for mulching mowers—relatively common today— which leave grass clippings in lawns, and home composting. Additionally, many communities adopted policies to separate the waste stream for organic landscape trimmings from other residential trash to allow for the recycling of the organic material. Although relatively uncommon, a few even began collecting kitchen waste. Such programs diverted significant quantities of organic waste from landfills. Nevertheless, in 2018 nearly 34% of the total municipal solid waste (MSW) stream in the US consisted of food waste and landscape trimmings (USEPA 2021). Other biodegradable materials including cardboard, wood, and leather made up another third. All this organic matter represents nutrients removed from circulation.

In communities, including Carbondale, with separate collection of landscape waste, residents often pay extra for its removal. Intended, perhaps, to nudge occupants toward using the materials for compost or mulch, the cost also sets up a perverse incentive to ignore the separate waste stream entirely and throw the organic material in the trash. Municipalities frequently sell the landscape waste they do collect to businesses for commercial compost and mulch production. Thus, consumers preferring to use compost, but to avoid the messiness of composting, pay twice for that decision. Collection, transportation, and sometimes packaging of the materials add to the ecological footprint of the process.

Passing decades revealed another environmental crisis as well. In the anerobic conditions of landfills, decaying organic waste produces large quantities of methane, a potent greenhouse gas. While hundreds of landfills now capture and burn the methane for thermal or electric energy generation, most still do not have that capability (USEPA n/d). Of course, even if landfill gas can be used effectively, the original problem of nutrient recycling remains. Not only does composting prevent overstuffed landfills from leaking methane, but widely distributed compost also protects soil quality and fertility rather than entombing nutrients, removing them from natural cycling.

Garden fertility in the marketplace

Although widespread among the participants in this study, making and using compost among contemporary American gardeners should not be taken for granted. At garden centers, extractive models of plant care—logically requiring the purchase of more products than low-input ecological approaches do—tend to dominate. Synthetic plant care products occupy a great deal of shelf-space, of course. But in tandem with the rapid

expansion of the organic grocery sector, organic, time-release, “complete” fertilizers in attention-grabbing packaging have proliferated as well.

To some extent, these products represent needed redistributions of nutrient-rich organic wastes such as bone and blood meals and livestock manure. Due to the structure of American food systems, these valuable resources routinely become overly concentrated, effectively transforming them into toxic pollutants. They can be used, however, to enable gardening practices quite similar to those of the 19th century British and American farmers who imported Peruvian guano and largely ignored sustaining soil care practices. For example, a gardener might simply lighten clay soil with peat—nutrient poor organic matter harvested from slow-growing sphagnum moss bogs in Canada—and apply organic fertilizers. Absent biomass recycling, such a garden requires substantial continuous investment of external resources. Similarly, a participant in this study filled her raised beds using a purchased blend of topsoil and compost. Topsoil sold at landscape centers frequently results from the profitable removal of surface soil from property development sites, which leaves the soils of those areas degraded (Robbins 2007). While organic in the sense of not using synthetic inputs, these methods do not embrace an ecosystem approach to gardening, even as they appear environmentally conscientious according to typical contemporary American definitions.

The power of compost

Gardeners can employ compost to manage organic waste, to limit costs, to improve soil texture, to benefit soil ecosystems, to fertilize and, more specifically, to ensure nutrient recycling. Those who make their own compost may achieve all of these, albeit sometimes unwittingly. Recent studies seek to quantify the climate impact of home

composting, but few consider how gardeners understand the multiple roles of compost and what influences their decisions on whether to make or use it (Adhikari et al. 2013; Andersen et al. 2010; Ermolaev et al. 2014; Tucker et al. 2003). Marjorie, for example, would prefer to make her own compost, but mobility challenges prevent her from doing so. Ruth says that she has composted throughout her decades as a gardener but started the practice mostly to avoid smelly trash cans attracting flies. Engagement with her garden quickly taught her to appreciate the impact of compost on her soil and plants, but she did not consider the importance of nutrient recycling for many years.

Despite multiple environmental crises related to organic waste, producing compost still fits awkwardly in suburban yards, as Cynthia and Angela's spouses make clear with their disgust. Engrained practices lead most Americans to expect "trash" of all kinds to be picked up and carried "away" leaving communities "clean." While suburban standards do not usually explicitly forbid composting, concerns about sanitation, odor, and unsightliness all prevent composting from being an obvious choice for many residents, who may be unaware of all the benefits of the practice. Nevertheless, as ecologists and planners increasingly recognize, removing organic waste from circulation defies natural cycles and creates catastrophic problems (Puig de la Bellacasa 2015; W. McDonough and Braungart 2002; Hawken, Lovins, and Lovins 1999). By composting, gardeners not only replenish their soil, but they also offer themselves and others a comprehensible example of the successful use of our waste to meet future material needs.

Selecting Crops

“And these parsnips. We don't even eat tons of parsnips. I mean, I don't know. I just can't help it. I wanted to plant everything.” – Adriane

On a late summer afternoon, Adriane points out parsnips and other vegetables maturing in her garden as we prepare to sow fall crops. “We're gonna plant this in I don't know... [my husband] said choi and radishes and I was like, ‘That sounds great!’ Then when I went through the seeds, it's like, ‘Well maybe this. Well maybe this.’ So I have a box full of seeds that might go in.” Adriane and her husband love radishes and she mentions that in the spring they seeded too enthusiastically and ended up with far more than they could eat. Now, in the fall, we plant Cherrybells because they grow quickly, and spicy Black Spanish radishes. We sow a collection of chois too: Hon Tsai Tai, Vitamin Green, Yu Choi XL, and Green Wonder. We add dill, cilantro, cabbage, bunching onions, spinach, and several kinds of lettuce including a cold-tolerant variety called Batavian. Limited space leaves us planting a few seeds in the paths between the rows, but Adriane is excited we find places for so many things.

Adriane's enormous box of seeds overflows with varieties she has saved, been given by friends, and ordered—she loves heirloom seed companies Fedco, Johnny's, and Baker Creek. A few of the chois she considered planting today came from a bok choy variety trial conducted at the SIU farms. Although she says they have reduced their seed ordering over years of market growing as they have figured out what they like, she and her husband still constantly seek out new things. This year they planted galangal for the first time. A spiky pineapple top grows experimentally in a pot at the edge of the garden.



Figure 13. Kate sorting seeds at Red Hen Garden. Photo by the author

Adriane’s comment that she “wanted to plant everything” echoes those of nearly all the gardeners I spoke to. While Adriane’s farming experience probably makes her a little more ambitious than most newer growers, gardeners at all levels seem to have a hard time containing their exuberance when the time comes to select varieties. They always seem to want a few more plants than can reasonably fit in whatever space they have

available and often grow multiple varieties of prized crops. Like Adriane, most experienced gardeners have favorite varieties they grow year after year. Even so, many also join newer gardeners in embracing the experimental, whether in terms of unusual varieties or unfamiliar types of crops. Collections of unopened seed packs and neglected starts often quietly hint at a different version of the garden that would exist given sufficient time and space. Gesturing toward trays full of stunted peppers and other starts wilting in the early September sun, Adriane says, “Even if we don't plant them all, we just... go a little nuts with seeding in the spring.” Laughing, she adds, “Cause there's time, there's more time.”

Varieties attract gardeners in multiple ways. When I first meet Renee, before we ever step foot in her garden, she excitedly tells me about the heirloom tomatoes growing there. She picked out starts from a farmer's market grower who initially disappointed her by not having the Black Krim or Green Zebras she wanted. Ultimately, though, he impressed her with both his knowledge and the “unbelievable heirloom tomatoes” he grew. “The names are fabulous. Cow's Forehead, Submarine Blush. Yeah, he rattled them all off. He knew what they all were. Purple Dragon.” Pineapple Pig and an orange Slovenian variety rounded out her selections, which she made based mostly on the fruit color indicated on their tags. Envisioning her harvest, she chose a rainbow.

As we transplant tomato seedlings from flats into six packs in the small greenhouse at the Washington St. garden, I ask Mason if he has any favorite tomato varieties. He generally likes plum types because he likes making pasta sauce.

And then there's something I've been trying to get my hands on, but I haven't been successful, is the Berkeley Tie-dye... It's a really desirable market and

like, you know, high end chef tomato... It consistently wins awards for flavor, like year after year, or the last couple years it's done really well. And they're just beautiful. They... call it the tie-dye for a reason. Like the outside of it is like red with these streaks of green and purple. And it, it looks like, I mean, it looks out of this world... They're notoriously hard to grow and they're not very good producers, but they're supposed to be one of the best tomatoes you can ever eat. It'd just be more like for fun than anything else. Nothing wrong with that.

Kate tells me that she used to view heirloom plant varieties negatively, but she wants to give them another chance:

Tomatoes I don't think taste as good as they used to and... I think it's 'cause they're hybrids and they have real heavy skins on 'em now, like I said, for shipping. So I think I'm gonna try some of the heirlooms. And I'm just gonna go to the farmer's market and buy a bunch of tomatoes and get the seeds that way. 'Cause those seeds do breed true.

AT: So why was your impression of heirlooms negative?

Kate: Not much for the work. But then we were in this clay area when we did that, so not much production for the work involved. Now maybe it's less because they're not bred to produce a lot all at once, so. I mean, you know they present their own challenges, but I think we're up to it.

As these comments suggest, gardeners I spoke to often prioritize aesthetic and culinary features of the cultivars they choose as opposed to agronomic characteristics such as disease resistance and yield. Some even explicitly accept the likelihood of a tradeoff of increased care work to obtain, for example, thin skins or excellent flavor. In markets, produce with such desirable traits may be unaffordable or entirely unavailable if the varieties carrying them incur relatively high production and distribution costs. Personal gardens, in contrast, open up opportunities to reject “dominant ideologies of economic efficiency” in favor of sensorial experience (Walstra 2021, 37).

A few study participants do give greater weight to agronomic characteristics when choosing their crops. Angela dislikes bland grocery store tomatoes, for example, but detects little difference in flavor among tomato varieties from the garden. An abundant harvest of tomatoes and basil for making Caprese salads and pasta sauce fulfills her vision for the garden. While she grows heirloom San Marzano plum tomatoes for sauce, she generally values hybrid tomato varieties for their productivity. Jessica Allee and Abbie, on the other hand, enthusiastically seek out interesting varieties, while also wanting to foster ones that may adapt well to local growing conditions.

Regardless of the other crops that attracted gardeners, tomatoes were stars of every garden I visited, and no one grew only one variety. According to a National Gardening Association survey, 86% of American gardeners who raise any food plants grow tomatoes. Cucumbers, the next most popular crop, attracted only 47% nationwide (Butterfield 2009). Greens—kale, collards, lettuces, mustard—appeared in nearly every southern Illinois garden, as did herbs, including basil. Several gardeners grow okra, a favorite of mine for its long period of productivity and beautiful flowers, and it proved

particularly popular at Red Hen, drawing in visitors from the surrounding community to harvest it.

Although seeds handed down in families appear frequently in research on gardens, none of the study participants reported maintaining any family heirlooms (Nazarea 2005). Francine and Al do often grow lemon cucumbers, which Al remembers fondly from his mother's garden, but they do so with purchased seeds. Over the past few years, many of the gardeners have started to save and share seeds, however, especially at the community gardens. Washington St. Garden, in conjunction with other local organizations, organizes increasingly popular fall and winter seed swaps. Through the seed swaps and the Seed Library, local gardeners hope to revive the tradition of seed exchange outside of commercial networks.

Crop selection in context

The complement of crops most gardeners grow reflects changes in the roles and meanings of vegetable gardens. Few gardeners in this study, for example, grow staple and storage crops. Abbie, exploring the idea of eventual self-sufficiency, grows corn and cow peas. She enthusiastically recommends growing garlic, as the task of growing enough to meet a household's needs for a year is more manageable than it would be for most crops. But like cabbage, once a mainstay of American vegetable patches, garlic only appears in a couple of the larger gardens.

Several of the home gardens I visited had tiny vegetable beds, intended to produce only tomatoes for fresh consumption and a few other things that may strike a gardener's fancy. While gardening manuals from multiple eras advise planning quantities of each crop to plant based on harvest estimates and household needs, no gardeners showed

signs of such organization (Beattie 1924; Boswell and Wester 1962; 1962; USDA 2009). Gardeners more interested in freewheeling experimentation than careful provisioning sometimes found themselves with barely enough produce to try from certain crops. Even Adriane, with more experience and space than most, told me she raised a single okra plant out of curiosity and ended up harvesting only a handful of pods.

At the same time, however, several of the gardeners expressed interest in the concept of edible landscaping—growing food-producing perennials such as blueberries and hazelnuts. This desire runs counter to a long trend in American suburbs favoring ornamental trees and shrubs—including the now-notorious, supposedly sterile Bradford pear—to minimize the mess and inconvenience of managing fruit. The choices gardeners make often attempt to fulfill multiple, sometimes competing, impulses: to make the yard both productive and attractive, to supply food for wildlife, to try something novel, to grow native or locally adapted plants that require little care. This wish list reflects an integration of their environmental concerns with the demands of suburban aesthetics.

These complicated requirements may help explain the surging popularity of pawpaws among the study group. Small trees native to most of the eastern half of the United States and related to tropical guanabanas and cherimoyas, pawpaws have also gained attention beyond southern Illinois over the last several years. Pawpaws provided fruit, medicine, and fiber to both indigenous and colonial Americans, but lost favor beginning in the early 20th century (Moore 2015). The extraordinarily fragile ripe fruits of the pawpaw make them a poor fit for contemporary food production and distribution systems. Most Americans have never tried the fruits of the widespread tree, which combine novelty with ease of care, even as they supply habitat for an attractive



Figure 14. Pawpaw flowers. Photo by the author.

pollinator. As such, pawpaws constitute an excellent partner for many southern Illinois gardeners to orchestrate the gardens they envision, the ultimate goal of crop selection.

Conclusions

This chapter explores the process of envisioning and planning a garden, including choosing methods. I find that many study participants enjoy opportunities the garden affords for experimentation, whether by way of construction projects, methods, or crop varieties. Gardeners frequently seek project inspiration online and the ones they discover, some of which are seemingly designed primarily to produce appealing photos for a website, often work—or fail—in unexpected ways. Most gardeners draw on diverse

sources to learn new methods, and pick and choose among them through a process of trial and error, gradually developing “a repertoire that allows situated action.” (Law 2010, 67).

An extended discussion of soil fertility and compost forms the core of this chapter. While most participants in this study use compost, several do not make it. I describe some barriers to compost production, including suburban landscape ideals that favor orderly yards free of waste. I also identify ways in which the history of research on soil fertility has influenced gardening recommendations and the soil care practices of gardeners. Gardeners’ choices in this area are significant because practices related to managing organic waste have multiple, substantial environmental impacts, which I discuss as well.

Finally, I delve into the process of crop selection and find curious gardeners, frequently more interested in trying new things than concerned about productivity. I learn that many gardeners cultivate relatively small beds of annual vegetables, tend to avoid planting storage and staple crops, and are beginning to incorporate native, perennial, food-producing plants in their landscaping. Gardeners’ crop choices often balance multiple priorities including sensory experience, ease of care, and environmental concerns.

CHAPTER 5

BEYOND CONTROL: MANAGING THE GARDEN

So long as a garden lives only in the imagination of a gardener, it remains in the gardener's control. Preparing a site for their chosen crops, gardeners, some with painstakingly crafted designs and others with only the vaguest of plans, set a stage for growth (Ingold 2000; Hallam and Ingold 2014). The material garden, alive with crops and weeds, animals and fungi, wind and rain, is full of active entities all contributing to its development, often in unanticipated ways. This chapter explores how gardeners navigate the “material unpredictability” connected to this complex animacy of their gardens (Hitchings 2006, 369).

In their introduction to *Creativity and Cultural Improvisation*, Tim Ingold and Elizabeth Hallam argue that life involves constant improvisation (2007). Even simple, repeated activities require frequent adjustments. The authors cite the example of a walker on a city street swerving to avoid obstructions and other pedestrians. To complete a route, the walker must move responsively through an ever-changing world. No two walks are identical, and it is by way of specific, improvised interactions with the rest of the world that each walk, and walker, develops. Similarly, gardens emerge in the entanglement of gardeners, crop plants, and other elements of the material world.

Gardens, as well as the gardeners who tend them, exist in a constant state of coming into being, changing continuously throughout these engagements.

The agency of the nonhumans gardeners interact with is a key factor in gardeners' improvisations. The orientation of organisms toward growth and reproduction sometimes aligns them with the interests of gardeners, especially in the case of crop plants. Even as gardeners collaborate with and adjust to meet the needs and preferences of the plants they enroll to put on the "performance" of the garden (Hitchings 2003), however, they must also adapt to the involvement of actors, such as weed species and pests, less inclined to cooperate (Power 2005).

This theme of improvisation within the context of relationships with nonhuman actors unites the topics of this chapter. I begin by exploring gardeners' diverse, particular, and sometimes surprising responses to "weeds" and "pests." Next, I consider how gardeners perceive and manage the variable harvests they produce in collaboration with their crops. Finally, I consider how accommodating the rhythms of nonhuman lives structures the time of gardeners.

Plant or Weed?

"This is supposed to be a lettuce row. How do you know if it's the thing you planted or if it's a weed?" Renee's question is a variation on one I have heard frequently, both from participants in this study and other gardeners. It usually comes from less experienced gardeners who often pose it simply as, "Is this a plant or a weed?" Nevertheless, even Abbie Kruse, an experienced gardener who can typically distinguish young seedlings of closely related crops from one another, once asked, "Is this

something?” as we weeded a bed together. At least three problems that all gardeners grapple with lie within these apparently simple questions. First, how do gardeners learn to recognize the crops they plant at various stages of development and distinguish them from other plants in the garden? Second, what constitutes a weed? Third, what belongs in a garden bed?

Skilled crop identification

Contemporary novice gardeners often skirt the fundamental issue of being able to identify their crop plants, at least initially, by purchasing plant starts from a nursery. The plants come labelled and often even include brief instructions on cultivation. Although it seems obvious that this widely available option exists, it is worth noting that historically, most gardeners would have had to start many or all of their crops from seeds or other dormant forms. Even today, buying numerous plant starts can be expensive, making it a less desirable approach for subsistence gardeners and those trying to save money by vegetable gardening. The point is significant with respect to the evolution of the practice of gardening; gardeners today can successfully harvest produce without ever having seen early-stage crop seedlings at all. Relatively large, labelled plants can be transplanted into plant-free containers or beds. Any new plants that appear can logically be removed and the gardener remains certain of what they are growing. Under such circumstances, gardeners do not have to identify “weeds” as such; they simply recognize their starts as legitimate “plants.”

Of course, despite the availability of plant starts, many gardeners still choose to start plants from seed. Germinated in containers in sterile potting mix, gardeners can be reasonably confident that any sprouts they see came from the seeds they sowed. When

gardeners direct sow in beds or use garden soil to plant starts, however, identifying seedlings becomes more challenging. Renee faced this problem with her lettuces, knowing that something was coming up, but not entirely sure what it was because she did not know what lettuce sprouts look like. The problem in not being able to recognize the crop at an early stage lies in not being able to remove weeds that could quickly outcompete the preferred plants, or even to thin the desired plants with certainty.

How, then, do gardeners come to recognize plant seedlings? In *The Perception of the Environment*, Tim Ingold states that foraging techniques are “inculcated in each successive generation through a process of development, in the course of the novices’ practical involvement with the constituents of their environment – under the guidance of more experienced mentors – in the conduct of everyday tasks” (2000, 37). Although operating in a much more controlled context, gardeners, likewise, gradually develop the ability to distinguish plants primarily through experience in the garden. Plants, especially at very early stages of growth, can be quite difficult to describe and identify. The cotyledons that emerge first rarely resemble later-developing true leaves at all. While some gardeners learn identification through apprenticeship—their attention purposefully directed to distinctive characteristics (Grasseni 2022)—many others lack actual mentors. Today, of course, gardeners can often retrieve images of seedlings of various species online. Nevertheless, in my own experience, images are not always sufficient to identify seedlings confidently.

Kim Reese, a brand-new gardener volunteering at Red Hen Garden, encountered the problem of seedling identification in the herb bed she planted there. About two weeks after she direct-sowed several types of seed, there were dozens of tiny plants in her soil, and she asked me to help her determine which were things that she had

deliberately planted. While I recognized many of the seedlings in her plot, such as dill and basil, she had also planted several herbs that I have never grown from seed, including lavender and thyme. Looking closely, I saw only grasses sprouting near the tags for the latter herbs. Knowing that those herbs were both in the mint family, I told Kim definitively that none of her seedlings had come up, even though I am not directly familiar with seedlings of those species. I also pointed out characteristics to help her differentiate the monocot weeds from the dicot species she had hoped to see germinating, details that seemed more confusing than helpful for her. As Ruth Hoak, a third, very experienced gardener and volunteer at Red Hen joined us, Kim wondered aloud how she could know what was coming up if both the crops and the weeds were unknown to her.

There are many reasons to start plants in pots. Ruth, who had also never grown thyme or lavender from seed, and I both suggested to Kim that one of those reasons can be to enable identification of unfamiliar plant seedlings. Although I almost always start unfamiliar plants in containers myself, I never really gave it a great deal of thought as a method of training my eye to recognize my crops. I do it to shelter the plants and to manage a range of uncertainties, including how many plants will come up and how long they will take to germinate. Upon reflection, however, I realize I learned the skill of seedling identification mostly by starting seeds in pots. Over time, identifying direct sown or even “volunteer” crops became automatic. In the absence of an experienced mentor, limiting variables, close observation, and repetition supported the “education of attention” necessary to distinguish crop seedlings from weeds (Ingold 2000).

Defining weeds

Commonly used though it is, the term “weed” is fuzzy, at best. Ecologically, weedy species readily colonize disturbed areas, tolerating a range of conditions many species cannot, and playing key roles in succession. The pejorative connotation of “weeds” notwithstanding, they can bring life to barren, nutrient poor, water starved or waterlogged soils. Many attract pollinators. They are impressively resilient. Potentially more problematic, non-native, invasive weeds often outcompete native plants and may reduce habitat for native animals as well.

Agricultural weed scientist John Cardina who focuses, not surprisingly, on weeds that negatively impact farm productivity, finds such explanations of weeds insufficient. He notes that some weeds have truly destructive effects within particular systems of crop cultivation, but relatively benign species such as dandelions occasionally draw the ire of humans as well and undeservedly join the ranks of deeply loathed “weeds.” Lacking any consistent biological definition, fundamentally, “A plant is weed in relation to human values” (Cardina 2021, 5). Additionally, humans and weeds are inextricably intertwined and weeds as we know them emerge through interaction with humans and human-mediated landscapes. Coining the term “agrestal selection” to refer to the process by which weeds evolve in relationship with human-altered environments, Cardina argues that through efforts to remove undesirable plants, humans unintentionally intensify the selective pressures that gradually transform them into effective weeds (Cardina 2021, 10). Archaeologist Marijke van der Veen makes a related point:

Weeds are wild species, but they live in cultural, i.e., human-created, habitats. Their history is bound up with their mutual relationships with people and human practices, just as much as that of ‘domesticates’ is. Thus, to regard ‘crops’ as pertaining to the world of ‘culture’ and ‘weeds’ as unwanted intruders from an external world of ‘nature’, misses the point entirely – people, crops and weeds (as well as animals, artefacts, etc.) all occupy the same, mutually constructed ontological realm. (2014, 801)

Gardeners do not necessarily think about weeds in ecological or evolutionary terms, of course. Former professional landscaper Phil Williams favors a blunt definition: “A weed is any plant growing somewhere you don’t want it” (2015, 42). Most gardeners, including myself, seem to work with a similar, apparently simple, definition of a weed. In practice, however, that basic representation of weeds obscures a wide variety of attitudes and habits. For some gardeners, achieving the ability to recognize their crops effectively ends concerns about identifying weeds. They simply pull out anything not planted deliberately in their vegetable beds. For others, tackling weeds requires a more nuanced approach. Gardeners face decisions not only about wild plants appearing among their crops, but also cultivated plants out of their intended places. Aesthetic, ecological, and other considerations drive the process, which must also incorporate the influence of the surrounding environment, usually a lawn. Thus, understanding southern Illinois gardeners’ attitudes about weeds requires thinking about gardens within the context of lawns.

American lawns and the perception of weeds. I have a distinct memory of answering a knock on the door of my family's suburban northern Virginia home as a teenager and encountering a representative of ChemLawn (soon after rebranded as TruGreen). I immediately told the woman that my parents had no interest in treating the lawn with pesticides and herbicides. Even though my power, with respect to the service she wanted to sell, was limited to passing on her message, she launched into a tirade about the disgraceful state of my yard (a mixture of grasses and clover, dotted with dandelions) and insisted that in addition to being ugly, it posed a terrible threat to my neighbors' yards (in the form of crabgrass). She utterly baffled me. Not only did her poorly targeted sales pitch rely on inducing shame and anxiety, she seemed genuinely appalled by the idea of a lawn containing anything other than a narrow selection of grasses.

Furthermore, she brushed off my concerns when I said we wanted the lawn to be safe for children and pets, saying essentially, "You only have to avoid walking directly on it for a few days." Although I had already developed some appreciation for the value of clover and sincerely liked dandelions, I had also absorbed the idea that lawns and gardens should be orderly and free of weeds. I saw neighbors' lawns that contained nothing but grass, neatly trimmed and edged. I knew many of them spent significant time seeding, watering, fertilizing, and mowing to maintain the look. I found the sales rep ridiculous, but part of me wondered whether my family's passive approach to lawn care disrespected our neighbors' efforts. Alternatively, I thought perhaps our neighbors willfully ignored health and environmental factors in pursuit of their visions of carpet-like lawn perfection.

As the intensive care requirements of a "proper" lawn suggest, such landscapes occur only by design. Most grasses native to the US either do not form dense, even turf,

or cannot tolerate the conditions we expect lawns to survive, including being cut short and growing in monoculture. Buffalograss and Blue Grama, native American shortgrass prairie grasses, occasionally appear in contemporary lawn mixes. Kentucky Blue, a non-native popular for lawns, seems to have spread unintentionally at first. Generally, however, horticulturalists deliberately imported and bred popular lawn grasses, such as Zoysia, Bermuda grass, and ryegrasses, over decades to create lawns as we know them today (Jenkins 1994; Robbins 2007; P. Williams 2015). Even crabgrass, native to Eurasia and the bane of lawncare professionals across the country, was deliberately introduced in 1849 as livestock forage (UMass Extension Turf Program 2011).

Geographer Paul Robbins outlines the origins of the American lawn trend in *Lawn People* (2007). The earliest lawns in America mimicked the pastoral landscapes surrounding English and French manors and appeared on elite estates, including Thomas Jefferson's Monticello, and in town commons. Landscape designer Andrew Jackson Downing advocated more widespread adoption of lawns in the 1840s, imagining homeowners mowing with scythes, which proved impractical. He considered lawns critical to developing community. Builders adopting his vision opposed fences, preferring one property to flow seamlessly into the next, as if part of a single, large estate. Downing believed that such landscapes could help construct citizens sharing "a strong attachment to natal soil," which was necessary to balance the "tendency towards constant change, and the restless spirit of emigration, which form part of our national character" (Robbins 2007, 26).

Influential landscape architect Frederick Law Olmstead, known for carefully constructed views of "nature" in many of America's most famous parks, carried the ideal of open, grassy landscapes forward, insisting upon their positive moral impact. Robbins

cites Olmstead's 1870 book on public parks, in which he argues that less structured and controlled landscapes "cannot be guarded against 'temptations to shabbiness, disorder, indecorum, and indecency, that will be subversive of every good purpose the park should be designed to fulfill'" (2007, 27). Although he often radically transformed landscapes, Olmstead attempted to make the design itself invisible. "Olmstead's legacy is not just making grassy landscapes, but naturalizing them so they appear inevitable, timeless, and appropriate" (Robbins 2007, 28).

As pastoral parklands became normalized, expectations that lawns should surround homes became more widespread. Efforts to push homeowners who have failed to cultivate short grass lawns into changing their ways go back more than a century in the US. In *The Lawn*, Lisa Jenkins cites an 1875 source that characterizes such pressure on neighbors as an attempt to "shame them into decency" (1994, 28). Landscape architect Samuel Parsons, designer and manager of public parks from Washington, D.C. to New York City, wrote in 1891: "In this country especially, we see a great many poor lawns and very few good ones, and a poor lawn should be considered as inexcusable a home feature as a ragged or soiled carpet" (Robbins 2007, 29). At that time, relatively few Americans had lawns. With the development of cable and electric streetcars in the late 19th and early 20th centuries however, suburban developments began to grow rapidly, making homes with yards more accessible to middle class buyers.

For homeowners who did have yards, limitations on the adoption of lawns extended beyond the lack of adaptable turfgrasses. They had to acquire unfamiliar tools and learn lawncare practices, which were still developing. Lawnmowers, for example, gradually began replacing scythes and livestock for mowing with 138 models patented between 1868 and 1881 (Jenkins 1994). Sprinklers and city water became more widely

available in the same period. Books and articles, advertisements and garden clubs all focused attention on teaching Americans how to grow lawns, from choosing seed and fertilizing, to digging out dandelions.

Conceptions of the ideal lawn and appropriate care practices shifted throughout the 20th century. In the early 1900s, lawncare experts considered some non-grasses acceptable in lawns. Clover, which breaks up compacted soil, fixes nitrogen, and remains green in most weather, was often planted deliberately. A popular 1923 lawncare manual recommended weeding dandelions and other “undesirable” plants by hand and keeping chickens for insect control and fertilizer. Less than twenty years later, typical advice included using pesticides and herbicides containing lead, arsenic, and mercury (Robbins 2007). As lawn standards narrowed to exclude everything but grass, applications of synthetic fertilizers, insecticides, and herbicides increased rapidly to support the ecologically unsustainable systems.

In the post-World War II era, as suburban housing developments sprouted across the country, more homeowners than ever took on lawncare responsibilities. DDT, an insecticide invented in Switzerland in the 1930s and widely used during the war to control lice and malaria-spreading mosquitos, rapidly gained popularity for managing lawn pests (Robbins 2007). According to Alexander Wilson in *The Culture of Nature* (1992), lawn companies removed clover from seed mixes in the 1950s as homeowners embraced the new herbicide 2,4-D which kills all dicots. Nitrogen fertilizers became a more necessary component of lawn maintenance as a result. Wilson adds that in this petroleum-intensive approach to lawncare, landscapers lost any appreciation for the importance of soil health. Instead, they viewed soil as a “lifeless, neutral medium that

did little more than convey water-soluble fertilizers and help plants stand up” (1992, 97).

Contemporary Americans live in a nation dominated by monocultured grass lawns in the suburbs and monocultured soybeans and corn in agricultural fields. Relentless advertising by lawncare companies reinforces a negative perception of weeds. In many communities, particularly wealthy ones, homeowner’s associations (HOAs) strictly regulate landscaping. Surrounded by these examples, many consider undifferentiated, weed-free plots normal, attractive, and desirable. Others choose to maintain proper lawns simply to avoid trouble with neighbors (Jenkins 1994; Engler 2004; Robbins 2007; P. Williams 2015). Despite the pervasiveness of such landscapes, however, an undercurrent of resistance to these norms has existed alongside them for decades.

Interest in ecological landscaping, particularly with respect water use and regionally adapted plant species, began to emerge in the US by the early 20th century (A. Wilson 1992). J. I. Rodale started publishing *Organic Gardening* magazine in 1942, initially to share methods of improving soil fertility as nitrogen fertilizers became scarce during World War II, but soon increasingly focused on maintaining “contaminant-free soil” (Rodale Institute 2021). Rachel Carson directly addressed the dangers of widespread use of agrochemicals on lawns in *Silent Spring*, significantly raising public awareness of their drawbacks even as American spending on such chemicals boomed (Carson, Darling, and Darling 1962; Robbins 2007). Concerns about fossil fuel use for lawncare, declining bee populations, and widespread loss of wildlife habitat have all figured prominently in arguments in favor of changing expectations of appropriate home landscaping over the past several decades, as have objections to the time and

expense required to maintain a lawn. Currently, a wide variety of popular media sources tout the benefits of minimizing lawns and re-evaluating common perceptions of “weeds” (Corbett 2021; Feingold 2021; Nafici 2016; Spengler 2020; Stross 2014; P. Williams 2015). “Lawn, ecologically, is dead space,” according to entomologist Doug Tallamy (Root 2021). He and many other environmental advocates encourage homeowners to adopt regionally adapted landscaping that supports wildlife, reduces water use, and requires minimal maintenance.

Gardeners trying to coax produce from their plots often quickly discover drawbacks of “perfect” lawns. Although I grew up inundated with messaging supporting a suburban lawn aesthetic, for me, vegetable gardening conflicts with its demands. In my garden, the most persistent and frustrating weed is the primary grass in my lawn, a Zoysia that I did not plant. I understand its popularity for lawns: it grows relatively slowly, so I am not constantly mowing, it provides reasonable coverage in areas that are not too shady or heavily trafficked, and it survives through all kinds of weather challenges, although it often looks terrible doing it. The same resilience that could make my grass appealing for someone looking for a passable lower-maintenance lawn, however, creates endless work for me—weeding, digging, building barriers. Its rhizomes burrow under the frames of my raised beds tangling with the roots of my crops and making it far more difficult to remove than any other weed I find there. I appreciate the “weeds” in the lawn— clover, chickweed, wild mints, plantain—in part because they slow the incursion of grass into the garden.

I am not alone in battling grasses. At the Red Hen Garden, aggressive Bermuda grass repeatedly invaded the beds. I spent a hot Saturday morning alongside several other gardeners pulling grass from a large bed to make way for sweet potatoes only to

return a few weeks later to find it filling in with grass again. We competed to pull the longest runners, routinely pulling segments at least three feet long. Kate, one of the founders of Red Hen, was thrilled to hear from a visitor to the garden that there is an organic herbicide that will kill the grass, but not harm sweet potatoes. She struggles with Bermuda grass at her home as well and wanted an easier way to kill it than digging it out of beds or smothering it in both beds and paths. After a few weeks passed with no luck in finding the organic herbicide, Red Hen gardeners revisited the question of how to manage the issue. Disinclined to use non-organic sprays despite the magnitude of the problem, gardeners also found smothering with cardboard and woodchips inadequate. Kate advocated using carpet pieces to smother because they do not degrade easily. Ruth observed that if the carpets kill the grass, they only do so very slowly; sun exposure allowed runners to send up shoots even after being covered for months. She favored applying vinegar to the grass outside the beds before covering with carpet to prevent the weeds from returning. No one argued in favor of maintaining the grass outside of the beds or against laying the carpets for aesthetic reasons. The gardeners at Red Hen considered even the grass outside of the beds a threat to the plants cultivated within them and a more significant concern than the overall appearance of the garden.

At the Washington Street Garden, Johnsongrass became a particularly challenging weed. Native to the Mediterranean region, an Alabama plantation owner introduced Johnsongrass to the United States in the 19th century for forage and erosion control (Rocateli and Manuchehri 2017). Illinois and many other states currently classify it as a noxious weed (University of Illinois Extension 2021). Although gardeners at Washington Street generally prefer organic methods, an individual there told me, “I sprayed glyphosate last year. Once again, make sure, do it at night, no one's around, but now we

have a whole new bed that... had Johnsongrass in it... and now we don't have Johnsongrass.” For this experienced gardener, Johnsongrass fits into a category of particularly harmful weeds justifying relatively extreme control measures. The individual understands that other gardeners at Washington Street would probably disapprove of using a synthetic herbicide but concluded that destroying this particular weed was more important than strict adherence to organic methods.

Gardeners occasionally single out other weeds for aggressive removal as well. Home gardener Marjorie Yuill adamantly prefers using organic methods for health reasons. She generally manages weeds with a combination of mulching and hand pulling. She mentioned that foxtail overwhelmed a new asparagus bed so severely that she decided to just let it go. She does make one exception to her herbicide-free rule, however:

I am going to use Round Up to get rid of some of the poison ivy because it is just so invasive. The thing is that you know I just have to be real careful... so I don't get it on surrounding things. Even like Virginia Creeper, I mean, I just pull Virginia Creeper out. I just don't want to use it on anything but the poison ivy and I've got to get the poison ivy out.

Valued weeds? Ambiguity in garden beds

None of the gardeners I spoke to apply synthetic herbicides broadly and most allow at least some plants they did not choose to grow. Deborah Woods, who cultivates vegetables at Red Hen, focuses on ornamentals at her home. She dislikes the appearance of weeds, particularly in flower beds, but accepts that weeds can also provide some

benefits, such as shading the soil in the spring. Cynthia Plunkett, planting primarily in tall boxes and pots and weeding by hand, keeps the most weed-free garden I visited. The tidy aesthetic of her containers aligns with the relatively formal structure of her garden. As we talk about volunteer plants in her mother's garden and in my own, however, she wonders whether she loses something by clearing her boxes too thoroughly. She expresses interest in discovering what her garden might produce if she were to allow things to self-seed.



Figure 15. Cynthia's garden boxes. Photo by the author.

For many gardeners, the image of neat lines of crops in weed-free rows as the ideal form of vegetable garden holds sway even as they modify the vision in their own plots. As Gwen and I pull weeds near her young peas on a sunny spring afternoon, she announces “My goal this year is to have a weedless garden.” When I ask if it bothers her if the garden starts to get weedy, however, she says:

No, not too bad, but I do think you get better plants, you know, if you don't have that many weeds, so I'm trying to get better... The first year I gardened, I planted all this stuff and then it rained for a month straight, kinda like it's been doing. And I came out here and I was like... I don't even know what I'm



Figure 16. Gwen weeding her peas. Photo by the author.

looking at because, you know, it was like my first year and I wasn't good at recognizing what plants were. And I was like, this just looks like, like it was just all green again. Like it looked like a lawn. And so that one was, that was hard to get over. Like I had to re-start some stuff just 'cause it was too bad.

In other words, Gwen does not truly believe that she needs to remove all weeds. She simply worries about her plants being overwhelmed again and wants to control her weeds enough to prevent it.

Similarly, Angela does not believe a vegetable garden must be weed-free and considers the appearance of her vegetable garden unimportant. She mentions that she typically leaves dandelions, for example, in her lawn or vegetable beds because she finds them beautiful but removes them from flower beds because they should be more composed. She says her husband, a chemist who grew up in a household with a “perfect lawn,” disagrees with her and favors an entirely weed-free lawn and garden. He approves of using herbicides, but she does not, in part because she worries about their potential effects on her son and dog. Unfortunately, she suffers from skin allergies following contact with many plants which makes weeding particularly unpleasant without protective clothing. She uses landscape cloth in her vegetable bed to prevent her crops from being choked out while also avoiding both weeding and herbicides as much as possible.

Adriane’s ambivalence about removing weeds extends into appreciation for many wild plants and awareness of benefits of leaving weeds in place. In addition to being an experienced gardener, she sometimes forages as part of her job with a local brewery. She

mentions passionfruit, persimmons, garlic, and pawpaws among the plants she has gathered and consumed. As we get ready to plant several varieties of chois, she says:

And you're probably going to ask why in the world I have so many dandelions everywhere. And the answer is, I don't know. I just, I can't pull them out. I just like them. I mean, they're so useful, they're so good for you, and I probably don't actually eat them as much as you would think I would for having them everywhere, but... I can't bring myself to pull them.

Surprised that she seems almost ashamed about keeping the dandelions and failing to use them, I ask, “Do you generally pull other weeds? Are you like more aggressive with other ones?”

Well, I was pretty aggressive in getting ready for planting. So basically, this garden was really weedy and I just let it go and it was great. And then I pulled them and then mulched the aisles and that's just kind of...what I did... In our heads... we have this idea of like a clean bed is so beautiful and appealing, but there, I don't know... I mean there's obviously purposes, like the plants that you're trying to have grow get more nutrients and water and all that stuff, but as far as... like they're really useful for ground cover too... So you know, we're not super strict on getting weeds out.

When gardeners purposefully decide to retain weeds within their beds, they typically do so for one or more of the following reasons: 1) to protect the soil, 2) to

attract pollinators, or 3) to eat or use in some other way. Leaving some weeds in place rather than uniformly eliminating them protects soil by shading it and preventing erosion. As crop plants get larger, weeds can gradually be removed to limit competition with crops. Small-scale, traditional farmers often use this approach. In Mexico, for example, farmers extensively use and sell *quelites* (meaning edible herbs) growing wild in maize fields for food, medicine, and animal fodder (Vieyra-Odilon and Vibrans 2001). Nevertheless, it often strikes those who have grown up surrounded by contemporary American monocultural practices, which minimize human labor in favor of mechanization, as wrong. Even experienced, knowledgeable gardeners such as Adriane can struggle to overcome the tendency to unconsciously frame weeds as “bad” or “dirty.”

Perhaps because of such framing, Renee tells me that having a “weedy garden” makes her anxious. As presented in her question about distinguishing crops from weeds, quoted at the beginning of this section, she seems to define weeds as essentially anything not planted deliberately. It turns out that her definition is malleable, however. Moments after asking about the lettuce row she says, “I don't know what this plant, this weed is. I have it everywhere. Then I thought, well, if it's milkweed, I should keep it, but then I thought, no that's not milkweed.” Were milkweed to come up, she would leave it in place, even in a vegetable bed, because it would attract pollinators, an outcome she considers desirable. Pokeweed, on the other hand, grows abundantly in her garden because her grandfather, who was a botanist, encouraged it. Though it also supports pollinators, the native plant remains unwelcome. “There's nothing pretty about a poisonous plant,” Renee comments. Given that she had a toddler at the time of that interview, her preference for non-toxic plants was unsurprising. On the other hand, she

fondly remembers using juicy, purple pokeberries as ink to draw on bark as child and would consider allowing the plant to return when her son is older.

Jessica Allee allows thistle to grow in her home garden because she likes it and pollinators do too. She tends to leave any plants that come up in place if they will be good "for the ecosystem of the garden." At Red Hen, Ruth expresses a similar attitude toward violets growing among the tomatoes. They attract fritillary butterflies, she informs me, and should remain in the beds so long as the crops have enough space to grow.

Some gardeners also enjoy learning about and experimenting with useful weeds in their gardens. Purslane proved a popular weed to gather and eat among gardeners at Red Hen. Abbie, in particular, enthusiastically promotes purslane both as a salad green and for making pesto. She also appreciates chickweed, dandelions, purple dead nettle and white clover. A variety of online resources make information about using weeds readily available to many gardeners (Deane 2007; Stross 2014). Nevertheless, among the gardeners I spoke to, only the more experienced ones knew much about their weeds. When they shared their knowledge at the community gardens I visited, however, it often excited newer gardeners.

One visit to the Washington St. Garden presents me with two very different perspectives on weeds. The garden occasionally offers educational workdays, advertised on social media. I attend an event in the summer of 2019 focused on harvesting and learning about medicinal herbs grown there. Jessica Lynn, one of the primary gardeners at Washington St. who also studies herbal medicine, leads a small group around the garden introducing us to a variety of plants—including several native species and a few considered weedy— and their uses. Later, we harvest some of the plants for drying and

weed their beds, mostly removing naturalized morning glories twining through the perennial crops.

As I cut back an enormous catnip plant alongside Samuel Ramirez, he marvels that “the same stuff cats go crazy over” can be useful in treating fevers and colds, according to Jessica. Sam grew up in Chicago and says he simply had no exposure to gardens there. Plants only captured his attention a few years ago in a community college class he ended up taking by chance. Now he studies them formally in the College of Agriculture at SIU, where he works on a project researching native plants that have the potential to help keep herbicide-resistant noxious weeds in check in agricultural fields. He cheerfully chats about planting native plants in agricultural contexts to provide pollinator habitat as well, but adds, “But we work in a herbicide system, you know? So how well are those gonna be adapted to those areas?” He sees weeds negatively as organisms that pose a serious threat to lucrative crop monocultures, but simultaneously admires their prolific seed production and adaptability. Sam alternately characterizes himself as a “weed scientist” and a “native enthusiast.” He responds with excitement and surprise as Jessica discusses the value for habitat, food, or medicine of some plants he regards as “weeds.” When I spoke to him, he did not yet have his own garden, but he does want to plant one.

I'd like to get into vegetable gardening, I guess maybe herbs. That's definitely an interest. Especially hearing that like some of the plants that I already work with have those properties to them? Like I never knew that about 'em, you know? The whole eat the weeds thing, like what in the world is that!? These are horrible things that we see in our field and it's like, it's disgusting to see

them and it's like a big problem. So to think that we've been thinking of these plants, you know, rightfully so because of our purposes for monoculture, but like, you can eat that, or it can relieve headaches, you know? Like that's just crazy. It's something we don't learn in the classroom, you know?

Critiques of industrial agriculture argue that the approach seeks to dominate nature in a quest for economic efficiency, rather than collaboratively engaging with plants and soil (Walstra 2021). Industrial farms manage to produce the cheap, abundant food Americans take for granted through extensive mechanization—enabled by monoculture—low wage labor, and application of agrochemicals. Sam's comment positions weeds as antagonists to efficient monoculture. Yet even as he takes the continued ubiquity of monoculture and herbicides as a given, he acknowledges that herbicide resistance in noxious weeds and insufficient pollinators present critical problems for that system and that agricultural researchers hope to find solutions in partnership with native species often themselves regarded as weeds. Tellingly, despite casting about for ways to mitigate the impact of invasive species on commercial crop production, the potential usefulness of resilient but disfavored species does not always factor into research, hence Sam's shock at learning about the properties of certain weeds.

I suspect Jessica, who has been listening to Sam as she weeds nearby, thinks differently about weeds than Sam does, so I ask what “weed” means to her. At first, she laughs and jokes that it just makes her think about getting high. She continues on a more serious note:

So one thing that brought me into herbalism beyond just culinary stuff was like, I started studying food systems and studying like, counterculture movements and what the kinds of different things people were fighting against in the 60's and 70's... There's been like a lot, that in our food system is taught to us that is total, pure and utter, like, not just garbage, but propaganda, so that the industry, like everything we know about food in the United States is a lie to some degree. And it's actually making everybody very sick. It's causing major health issues that people have never dealt with before. The food system even like, quote fresh food is like, not. I mean it's potentially like toxic... You know, it's very problematic and monoculture is what's destroying the entire earth... So when I think of weed, I think of food. I think of things that are good for us and... I think of knowledge we've lost. We have to recover that knowledge. We have to start taking like, this is, we are this. Like we come from this, we're no different from this. We can't be separate from this. We're gonna die and our children are gonna die and children may not be able to live at all if we don't change the way things are going.

Coming, as it does, while we weed Washington St.'s beds, Jessica's adamant embrace of weeds only emphasizes the slipperiness of the concept. A plant that poses a threat in one context can be a boon in another. Cardina (2021) notes that even some valued individual crop species have variants that diverged into pernicious weeds under conditions differing from those experienced by their deliberately cultivated brethren. But even benign plants that have simply become unfamiliar to modern people are often dismissed as weeds. As Jessica's wistful comment about "knowledge we've lost"

suggests, widely deteriorating relationships with a diverse array of species close off avenues humans need to generate more sustainable food systems. A broad network enables improvisation.

Volunteers. “Volunteers”— cultivated plants that emerge without being purposely sown— represent a final category of plants out of place. Sometimes they sprout in garden beds where previous crops have left remnants such as seeds or small tubers behind to grow. Sometimes volunteers from plants that never even grew in the garden turn up in compost. Among the gardeners I spoke to, those having the skill to



Figure 17. Volunteer squash and potatoes in Renee’s compost. Photo by the author.

identify volunteers generally welcome many of them as free, resilient, new plants. Crops volunteering from seed can also bring a degree of mystery and sometimes novelty to the garden.

Jessica Allee grows several unusual crops and often takes recommendations on things to try from friends who are experienced gardeners and farmers. When a friend who grows groundcherries brought her some fruit but told her they can be tricky to start from seed, she opted not to try planting them herself. Later, Jessica discovered seedlings that she believed to be Chinese Lantern growing in her compost. She transplanted them to a pot and eventually realized she had groundcherries when the fruit husks began turning brown instead of orange. She found her volunteer crop of sweet fruits delightful.

At Red Hen, late spring brings a wide array of volunteer plants to the beds. Gardeners clearing early crops of mustard greens and collards encounter tiny herb seedlings—dill, anise hyssop, shiso—and several tomatillos, among other things. No one wants to kill healthy, useful plants. Slight adjustments to plans allow a few tomatillos and some of the dill to stay in place. Gardeners move the remaining herbs into other beds or small pots to give away. Not all the volunteers survive thinning or transplanting but we make the effort not to squander our accidental abundance of seedlings.

Incorporation of volunteers into a garden plan means that even a one-time, experimental planting can have a long-term impact on a garden. Many years ago, I planted Giant Red Amaranth having heard it recommended as a relatively easy grain for home gardeners to grow and process. I found winnowing tedious and my harvest disappointing. The seven-foot-tall plants with their red stems and enormous, magenta inflorescences look impressive, however, and each one can produce thousands of seeds. They thickly self-seeded in my beds and I soon learned that Mexican farmers prize the



Figure 18. Amaranth volunteer in the author's garden. Photo by the author.

young greens as *quelites*. More than a decade later, the amaranth continues to appear each spring without my assistance. I only remove seedlings when they crowd my crops. If something I plant fails to grow well, I often allow an amaranth plant to remain, filling the gap. I rationalize the habit as a way of protecting the soil while growing some extra greens, although I do not routinely harvest the leaves to eat. The amaranth persists in my garden mostly because it is beautiful.

Squashes rank highly among the volunteers gardeners enjoy discovering and growing out. Seeds from purchased and garden-grown squashes alike often end up in compost piles and seem to relish growing there. As we prepare to plant pumpkins in a compost-filled trench at Red Hen, Ruth tells me that some of the most successful pumpkins she has ever grown volunteered in her compost. They seemed so happy there, she simply let them sprawl from the nutrient-rich pile, undisturbed. Renee, too, allows squashes to grow in her compost and along her garden fence.

Because squashes have separate male and female flowers, a flower cannot self-pollinate. Different varieties also readily interbreed, so whenever two or more varieties grow in proximity, they typically do so. Each new seed then contains the potential to produce squashes distinct from those that came before them, a source of engagement for curious gardeners. Renee's garden produced a squash variety her family dubbed "squmpkin," an apparent combination of spaghetti squash and pumpkin. She says, "It was edible, but... the rind was really hard. So I spent all last summer trying to figure out how to use up our squmpkin and we did get enough... that the kids all had jack-o-lanterns." Although the unique variety she describes clearly had its shortcomings, it fascinated her. The squmpkin came up repeatedly in the course of our conversations. Recently, she planted



Figure 19. A volunteer squash grows on Renee’s fence. Photo by the author.

half a dozen unusual varieties of pumpkins hoping they too would recombine in interesting ways.

Tomatoes—the most treasured crop of many home gardeners—also frequently volunteer in gardens. Unlike squash flowers, however, tomato flowers do self-pollinate. In most tomato varieties, anthers enclose the style making natural cross-pollination uncommon. Seed saving guides advise that gardeners can reliably maintain most non-hybrids without concern for separating the parent plants of different varieties (Ashworth 1991). Because tomato-loving gardeners often grow multiple varieties, however, they typically do not know what variety they are seeing when a volunteer

emerges which adds an element of suspense to the project of growing one to maturity. Furthermore, unintentional mixtures occasionally happen. Several years ago, a unique tomato volunteer captivated Francine and Al's family. An apparent cross between a Green Zebra and a chocolate variety, Francine says, "It looked weird, but they tasted really good." Al adds, "Those were like the best tomatoes we ever had." Like Renee, the family often keeps and values volunteers for the surprises they contain.

Animals and Pests

Just as study participants often manage weeds with nuanced interventions, they report complicated relationships with local fauna. Overall, they tend to appreciate having wildlife in their gardens, sometimes to the point of being willing to sacrifice vegetables. They neither expect nor attempt to impose total control over animals; they choose their battles. None of the gardeners I spoke to apply pesticides broadly, but a few make some exceptions to using synthetic pesticides for certain pests or crops. Most do what they can to understand their competition for garden produce and plan for gentle deterrence. Many adopt labor intensive methods of pest management to avoid indiscriminate harm to animals. All juggle complex sensibilities, skills, and preferences in their interactions with pests. Each gardener tends to address herbivory in multiple ways. Responses are always contextual.

Anita describes the animals feasting on her garden with a mingled sense of exasperation and wonder. Birds pulled up her squash and sunflower seedlings, "But I saw birds in my yard that I've never seen before," she tells me. A neighbor suggested the sprouts looked like gourmet groceries to the birds, so Anita protected them with straw

when she replanted. But when the new sunflowers matured, birds and squirrels, not Anita, harvested the seeds.

I thought it was kinda cool. I mean, I know, like, they're destroying it or whatever, but I've never seen that. [A squirrel] was like running with... just a big chunk of sunflower in its mouth. I was just like, "Holy crap!" I mean, wow, yeah. But I was most excited about that little yellow bird. I was just like, "Ahhh!"

Less selective and more destructive than the squirrels and birds, neighborhood deer nevertheless managed to garner Anita's sympathy.

So last year we had a female deer who had three fawns. So she was roaming around and I was really upset... when I first saw her in the yard eating the garden. And then when I saw her with three fawns, I was like okay, have at it. Eat all you want. I felt really bad. I was like, "Oh my god, you poor thing" right? But yeah she... was funny 'cause she, she ate like tops of beets, tops of carrots. There was something she didn't like, 'cause it'd be chewed up and she'd, you know, spit it out... I know there was like some lettuce stuff and... she must have just been like, "Bleh, I don't like this!" I mean, that's wild, right? That... she was in town and... she must have been like, "Scored!"

The first time I visit Francine and Al's garden, the food garden consists of two 4 x 4-foot raised beds left behind by the previous homeowners and some potted herbs.

Francine has just made tall cages from PVC pipe and chicken wire to cover the beds, spending “about 50 bucks” to try to protect them from animals. She says, “Hopefully, it works. 'Cause we have every creature in our yard. We've got skunks, raccoons, possums— we saw a possum go under the deck the other day— rabbits, squirrels, chipmunks. We've got 'em all back here.” When I express sympathy, she claims with a touch of uncertainty, “I like it?” She does want to harvest produce from her garden, but values having wildlife in the yard as well. Establishing conditions in which both can happen requires routine reassessments of methods and improvisation. Ultimately, in Francine and Al’s first year vegetable gardening at their new home, a groundhog thwarted their defenses— also undermining a wall of the adjacent garage— leading the family to build fully enclosed beds set well away from any cover for hungry mammals.

Other gardeners relate similar tales of animal encounters. Marjorie recounts discovering a fawn tucked beneath the leaves of a giant zucchini plant growing outside the fenced area of her vegetable garden, the surrounding flowers grazed to stubble. Chipmunks slipped through Renee’s garden fence and snacked on her tomatoes, but she learned to fend them off with a homemade fermented garlic spray. Calvin sprinkles a repellent around his unfenced garden to deter a persistent groundhog, but he accepts the theft of a share of his abundant tomato crop by squirrels. Occasionally, he relocates an animal that frustrates him— an opossum last year— as the stack of live-traps in his garage attests. Mason Smith tells me that a hungry rabbit briefly became a source of conflict at Washington St. Garden when one gardener, protective of the crops, killed the animal, to the horror of some of the other gardeners there. His story is the exception that proves the rule; the gardeners I spoke to generally value the presence of birds and mammals in their yards enough to accept some loss of crops in exchange.

That grace sometimes extends to insect pests as well. I consider hornworms¹⁵ a garden nemesis, so I am more than a little surprised when Jessica Allee tells me the moth phase of the hornworm's life cycle so fascinates her that she somewhat willingly sacrifices her tomato plants for the opportunity to enjoy it.

I... found out this year the potato hornworm turns into the, what's it called?... It's the Hummingbird Moth... I've only seen one in my life here in our yard and I could've sworn it was a hummingbird, but it also looked like a bumblebee. It's got a very fuzzy sort of bee-like body... And then it's got these clear wings that are shaped like hummingbird wings. And they move really, really, really fast and it hovers. And so it looks like you're looking at a hummingbird and it eats nectar and so it's, it's like a pollinator and a sweet little insect and... I'm just like, 'Okay, well do your thing.'

Jessica clearly values the insects in her yard, and I ask if the garden is organic. "It's definitely not organic. I really try to avoid putting any pesticides or herbicides in the garden, but I do sometimes, and on very discreet areas." She applied pesticide to her cabbage worm infested kale, for example.

Two other gardeners, John and Calvin, initially state that they do not use pesticides, but they make a shared, specific exception. John tells me:

¹⁵ Tomato and tobacco hornworms, two closely related species, are common tomato pests.



Figure 20. Tobacco hornworm on a tomato plant. Photo by the author.

I think you feel like that stuff that's grown that you know you didn't put in any pesticide in there or anything else... 'cause I don't... The only thing I do, and I don't even do it after I've tried many times to pick all the bugs off, is I use

Sevin¹⁶ dust on my tomatoes. But I don't use any... fertilizers or anything on anything. I compost, put all my food scrap out there and stuff like that. But I think that's part of it because I think people are gonna run into all the cancer and everything.

Interestingly, both gardeners verbally distance themselves from insecticide use, appearing to believe they should garden without synthetic pesticides, even though they do not entirely do so.

Overall, study participants prefer to manage pests by inhibiting their access to crops or making the produce unappealing rather than toxic. I discuss examples of accomplishing both through polyculture and companion planting in the “General Gardening Methods” section of Chapter Four. Many gardeners, of course, rely on fences or other physical barriers. Marjorie, who has a simple fence made from bird netting around her garden, rolls her eyes as she points out a few other vegetable beds nearby. Her brother decided to plant some tomatoes of his own there—unfenced— but the many deer who visit Marjorie’s yard predictably mowed them down. Jessica Allee, who has a mostly shaded backyard, considers planting some crops in her sunny front yard and protecting them from the deer that frequently wander through her neighborhood by surrounding them with plants they dislike, or perhaps putting up a “nice little architectural wooden fence” to deter them. At Red Hen, floating row covers protect various Brassicas from cabbage worms while also extending the growing season.

¹⁶ Sevin is a broad-spectrum, synthetic insecticide.



Figure 21. Marjorie’s garden, protected by a simple fence. Photo by the author.

Gardeners often put significant effort into protecting their crops from insect infestations. Many— sometimes grudgingly— hand-pick certain types of insect pests from their plants, a labor-intensive approach that also requires vigilance. Francine tells me about her family spending “a couple hours picking bugs off” squash plants just moments after asserting her willingness to allow infested crops to die. Anita, who mostly relies on planting early to stymie cabbage worms, also plucks the pests off as a delay tactic, if necessary, just long enough to get a meal or two from her plants. Once she has gotten a share of a harvest, she relinquishes the remainder of the crop to the invaders. Abbie and Ruth, who use any insects they harvest as supplemental feed for their chickens, seem happy to take the time to remove pests such as Japanese beetles and squash bugs from their plants. Nevertheless, Abbie emphasizes her belief that fundamentally healthy crops will not sustain prolonged infestations; a focus on growing

strong plants remains the best form of pest control. At Red Hen and in my own garden, tomato plants stripped of their leaves prompt a careful search for well-camouflaged hornworms, yet a discovery that parasitic wasps have colonized the pests may result in the hornworms remaining in place. In each case, eliminating pests by hand is only one element of a repertoire of care. Its usefulness varies depending on the specific crops and pests involved, the timing and degree of infestation, and how a pest fits within the broader garden ecosystem and the interests of the gardener.



Figure 22. Wasp-parasitized hornworm. Photo by the author.

Harvest and Preservation

Harvests make the unruly materiality of the crop plants themselves apparent. Gardeners routinely contend with too much or too little produce, some possibly tough or bitter from delayed picking, or decaying as the gardener scrambles to use it. For many gardeners, including myself, who did not grow up immersed in the rhythms and skills of harvest and preservation, the process presents a radical departure from patterns of provisioning via contemporary American grocery stores. Like other elements of the practice of gardening, current attitudes and approaches toward these tasks are not static, but emergent in relation to broader technological and social changes.

Collecting produce from a garden at harvest differs significantly from buying food to cook. In the dynamic process of grocery shopping, consumers must balance “complex possibilities of menus, storage space and durability, personal desires, time and monetary constraints” (Sutton 2001, 128). Shoppers have limited control over the items for sale and their cost, but under ordinary circumstances in the US, inventory at most grocery stores tends to be fairly stable and predictable.¹⁷ Although shortages due to regional crop failures, tainted products, and other such events happen, grocers routinely mask those variations for consumers by finding alternate suppliers. Availability fluctuates more at farmer’s markets, particularly seasonally. Nevertheless, given a set of options, a consumer can generally choose to buy what they consider to be a useful

¹⁷ Recent events disrupting global supply chains, including the coronavirus pandemic and the war in Ukraine, have led to empty shelves and relatively high food prices, an unusual experience for many Americans. Water shortages in the western US are expected to exacerbate the problem in the summer and fall of 2022.

quantity of green beans, for example, or decline to do so and choose something else when faced with undesirable quantities, quality, price, and so on.

Gardeners, of course, select crops and how much of each to grow, but they only ever have partial control over the outcome as the various elements of the garden ecosystem interact in the performance of the garden (Hitchings 2003; 2006; Power 2005). At harvest time, gardeners essentially manage the same factors shoppers do, but with decidedly less control over exactly when, how much, and what kind of produce becomes available. Inexperience in the garden often amplifies the unpredictability of harvests.

Many of the gardeners I spoke to plant only small areas, so those curious about unfamiliar crops frequently grow just a plant or two to learn a bit about growing the crop and whether they like it before devoting much energy or space to it. Sometimes the effort yields a harvest difficult to use because the gardener does not collect enough to cook at any given moment. Renee's handful of tightly packed okra plants, for example, produced one pod at a time each. She soon realized that by the time she gathered enough pods to make a dish she wanted to cook for her family of five, the pods collected first would be rotting. Although she envisioned preparing freshly harvested garden vegetables, the slow production led her to immediately deposit her okra in the freezer instead.

On the other hand, Anita joyfully describes the unexpected, overwhelming abundance that sometimes happens in a garden.

Okra does well in my yard. It was like, 'Holy Moley!'... I'm from the south, so I just know okra for, like putting it in like gumbo and stuff, but I was like

grilling it and I was like making Indian dishes with it. And for me, having a garden was... I don't know if I can explain it. But instead of having a recipe and going to the store and buying the ingredients for it, it was reversed. Here I am with all these ingredients, now what do I make? And I, I thought that that was just sort of cool, right? Like... I had all this okra and I had to figure out, what now right?... Looking up recipes and coming up with ideas... that part was pretty cool. I thought that that was neat.

When I started vegetable gardening the periodic bursts of produce from my garden took me by surprise. I had a passing familiarity with handling substantial quantities of perishable fruit from going strawberry picking with my family as a child and helping to process our haul into freezer jam. But on those trips, my mother knew roughly how much fruit she wanted for fresh eating and preservation. The harvest always seemed enormous to me, but we picked a planned quantity. Our jelly jars and pectin sat ready for us at home. We quickly used or processed everything we collected. We were prepared. Uncertainty fell to the farmer.

The garden resists such deliberate planning. I still watch impatiently as tiny beans slowly elongate or sizeable tomatoes wait, hard and green, not visibly changing for weeks. I try to predict exactly when the first one will be ready to pick, when I will have enough to make a meal. The wait for each crop seems interminable, until I suddenly have more than I know what to do with. However much I anticipate a harvest, do I really want okra every day? Of course, the opposite outcome is always possible as well. Once, watching my pole bean harvest accelerate, I gave most away assuming I would have

more than enough over the coming weeks, as I had in past years. Instead, the early arrival of sweltering nights abruptly halted the plants' productivity.

The imprecise timing, variable abundances and shortages, all atypical in grocery store provisioning, necessitate improvisation. As Anita's comment makes clear, many gardeners find the experience of harvesting from a productive garden both novel and exciting. Like Anita, I love the challenge of coming up with creative ways to use excessive amounts of zucchini or green beans until suddenly their productivity ends, and the focus turns to another crop. Successive waves of produce help establish a sense of time and seasonality in the garden as one crop gives way to the next. After years of gardening, the abundance of a given moment signals where I am in the season.

Experienced gardeners often develop a variety of skills, emerging from closely attending to their plants, for managing harvests. Staggered plantings and growing multiple varieties that mature at different rates can reduce the impact of certain weather events and stretch harvests, for example, but small gardens sometimes limit the usefulness of such methods. Certain leafy crops, including many herbs and greens, offer greater flexibility when grown rather than purchased as they can be partially harvested, an approach well-suited to a small home garden. Cynthia, for example, frequently cuts just a leaf or two from her kale plants to add to a sandwich, ensuring that the produce remains fresh until she wants to use it, while also allowing it to continue growing, extending the period of productivity. Additionally, the developmental stage of crops at the time of harvest often impacts both their volume and culinary qualities. For instance, choosing between cutting small, tender okra pods or waiting for larger, firmer ones gives a gardener a degree of control over yield. Gardeners frequently deploy several such

strategies dynamically throughout a growing season, taking multiple factors into account, including plans for successional plantings.

Gardeners finding themselves with too much produce for immediate use essentially have three options: allowing it to rot, giving it away, or preserving it. Surprisingly, although no one wants to waste food, produce does often go unharvested or unused among study participants. Especially as problems with quality—such as plants becoming bug-eaten or bitter with age— and awkward quantities emerge, many find it easier to rely on purchased foods. This disinterest in using inconvenient produce seems common among gardeners who consider the practice a hobby. Abbie, more committed than most to growing a significant portion of her own food, makes a concerted effort to find ways to prepare and enjoy crops others might consider past their prime, as well as often overlooked parts of crop plants. From carrot-top pesto to sauteed sweet potato leaves, she uses anything she can. When high quality produce is available, several of the gardeners I spoke to also delight in having enough to give away to friends and neighbors, as I discuss further in Chapter Six. In fact, Kate told me that giving food away is “the best part of gardening.”

Food preservation

Some of the gardeners I spoke to plant with the intent to store food while others only begin thinking about preservation methods as they scramble, at least initially, to avoid wasting unexpectedly large harvests. Abbie particularly values crops such as cow peas that can be saved dry with minimal effort. Adriane and her spouse can, pickle, and ferment produce extensively. Kate and Gwen, each surprised one summer by bumper crops of hot peppers, processed them into pickles and jams. Both now aim to grow

enough peppers to preserve every year. Gwen, having expanded her recipe repertoire to make several types of fruited chili pepper jams that she uses to glaze grilled meat, takes pride in the fact that family and friends clamor for her to share.

The skills of each gardener and the equipment available to them significantly influence preservation methods. For example, while several of the study participants have canned acidic foods using a water-bath method, often learning from recipes or online tutorials how to do so, very few have pressure canned. Lacking prior experience with pressure canning, wary of the time the process takes, and frequently harvesting too little produce to make the process seem worthwhile, many gardeners are reluctant to invest in an additional bulky pot they may end up not using. Both the work involved and mild unease about botulism make canning produce unappealing to Ruth, so she purchased a dehydrator and uses it for many fruits and vegetables. She would like to buy a freeze-dryer—perhaps jointly with another gardener because of the high cost—to preserve a wider range of food. By far the most common form of preservation among the gardeners I spoke to, however, is freezing.

In *The Design of Everyday Life*, the authors suggest “that in some—and perhaps many—fields of consumption, products are actively implicated in the configuration of skill, in what people are willing and able to do themselves, in the dynamics of practice, and hence in related forms of consumption and demand” (Shove et al. 2007, 42). Freezers are an example of a technology enmeshed in the transformation of the skills of food preservation as well as provisioning and cooking more generally. Although taken for granted in the US today, when freezers were introduced, mass-produced frozen foods did not exist at grocery stores and Americans, with no experience of having freezers, did not yet “need” or know how to use them. Early manufacturers promoted

freezers for storage of foods produced at home and provided detailed instruction on how to do so (Rees 2015). Emerging as demands on women's time were shifting and, critically, within the context of widespread access to the necessary stable electrical power, freezers rapidly became a popular tool for preservation. Even those who had canned extensively in the past often embraced freezing when it became available to them (Adams 1994; Rees 2015).

Freezing garden produce offers several advantages relative to canning. First, freezing foods tends to be less labor intensive, whether items are stored whole or prepared. Mason puts in the effort to process Roma tomatoes into pasta sauce, for example, but usually chooses to save time by freezing it flat in bags rather than canning it. And although she enjoys canning jam, Gwen prefers to freeze green beans and other low acid produce: "I don't really can vegetables. It's a lot of work, canning. It's so much easier just to freeze 'em." Additionally, as Renee discovered, freezers allow gardeners to easily save small harvests piecemeal, an especially desirable feature for those with small hobby gardens. Finally, freezers allow gardeners to skirt certain food safety concerns typically linked to canning—botulism, most prominently. Indeed, despite the rarity of food borne botulism, several gardeners lacking canning experience mentioned it as they expressed both discomfort with their ability to safely can food at home—uneasiness I share even though I also consider my own fears laughably excessive— and their related preference for freezing.

Nearly all contemporary American households maintain at least one freezer. No longer specifically targeted at preserving home-produced foods, the role of the appliance has evolved, however. Freezers have become essential tools for managing spending on groceries, as consumers use them to store food purchased on sale or in large quantities,

and time, as they enable flexibility in scheduling shopping and cooking (Shove and Southerton 2000). Most of the gardeners I spoke to are much more familiar with stocking freezers by purchasing food rather than through self-provisioning. Nevertheless, even gardeners freezing fresh produce for the first time generally have both access to the equipment to do so and a thorough grasp of the “likes and dislikes” of the freezer, knowledge ingrained through experience that early adopters of the practice would not have had (Shove and Southerton 2000, 314). This deep comfort with freezing helps to make it an obvious choice for many gardeners looking for ways to preserve their harvests.

Yet the positive attributes of freezing come at a cost. Freezers rigidly constrain storage space, offering less flexibility than canning or drying foods does if harvests fluctuate substantially in size from year to year. Permanently expanding storage capacity by buying a new appliance is expensive and requires dedicated space. Furthermore, while canned goods are shelf-stable and require no additional energy input after processing, freezers require constant energy use. In fact, General Electric sold early refrigerator models despite expecting the appliances themselves to be unprofitable because their presence in homes would create consistent demand for the power generation equipment and electricity the company also produced at that time (Rees 2013).

While new refrigerators and freezers have become dramatically more efficient in recent decades, they have also gotten much larger. Additionally, Americans often continue to run older, inefficient models for extra storage even when they buy new appliances, the energy costs unquestioningly absorbed as part of the familiar baseline expenses of running the household (Rees 2015; Greenlee 2021). Reliance on freezers,

given their energy requirements, carries with it both the environmental impacts of power production and the risk of spoilage and waste during power outages. Users routinely accept such drawbacks, among “the creeping normalized expectations of the freezer as a taken-for-granted character within the average home,” with scant thought for alternatives (Hitchings 2004, 180). But sporadic, high volumes of produce occasionally highlight the limitations of freezers for gardeners, nudging them to expand their preservation repertoires beyond the reflexive option. In fact, Ruth’s interest in freeze-dried foods arose, in part, from her consideration of how to retain the ease of freezing while addressing some of its shortcomings.

Growing awareness

Even when managing harvests requires minimal effort, the surprises they offer can provoke reflection on broader issues of food production and consumption. I visit Jessica Allee shortly after she harvests the first of the heirloom Hutterite shell beans she is growing experimentally. She only has a few plants, and as she skeptically eyes the scant half cup of dry beans she has accumulated in a bowl in her kitchen, she tells me “I’ve never grown and dried beans and then like cooked ‘em. And it’s like I don’t know if it’s going to be gratifying or just feel like it was a lot of work.”

Growing shell beans for the first time certainly changed Anita’s perspective on the effort required to produce dry beans.

Last year, my first time growing beans and that was a real eyeopener. Like I did black beans. I did red beans. And I think at the end of the season, I had like a cup of beans... For me, that was one of many eyeopeners. Like, really, as

far as being able to go and just purchase a pound of beans. It was like, ‘Holy crap, that requires a lot, a lot of plants.’ I mean, yeah... I had no idea, you know?... I think I even used the beans from the Co-op to make the beans, right? And it was like, ‘Wow, a cup.’... So yeah... that was a nice little like lightbulb moment for me... I don't think anything of just pouring it into a bag. But now I do.

The surprise gardeners express at the difficulty of producing a significant quantity of dry beans touches on something fundamental about the value to society of widespread hobby vegetable gardening. A small and shrinking number of US residents participate in producing most of the food for the country.¹⁸ Household provisioning today can be accomplished with virtually no awareness of the many agricultural factors that impact food prices and put certain foods preferentially on American tables, not to mention the various other complexities and impacts of commercial farming. Although it certainly does not guarantee reflectiveness, the practice of gardening can help awaken gardeners to how the food production systems our lives depend upon operate.

Guessing based only on grocery store prices, for example, a reasonable person might conclude, as Anita did, that a cheap, minimally processed staple such as dry beans must be more productive and easier to grow than more expensive items such as fresh okra, even with some recognition of perishability as a key component of cost. But gardeners often learn through experience that other elements of the materiality of a crop also impact its price. Okra, resilient and productive though it is, needs to be picked

¹⁸ Agricultural sector labor accounted for about 13 percent of US employment in 1948, having already been in sharp decline for decades, but less than 2 percent by 2017 (Wang et al. 2022).

nearly every day for weeks, demanding a great deal of labor compared to many commercial crops. Meanwhile, many varieties of shell beans that mature all at once are less space efficient but can be machine harvested and processed, minimizing labor requirements. If their expectations for productivity arise primarily from shopping for produce, hobby gardeners—lacking harvesting machinery, usually space-limited, and prone to overlooking the value of their own labor—are likely to regularly encounter such examples of crops that behave in unanticipated ways in their gardens. Questioning these unexpected results can draw a gardener's attention to important issues in agriculture including the varied causes and impacts of increasing dependence on mechanization.

Hobby gardening is not farming, of course, and basic familiarity with cultivating food plants does not necessarily provide any answers to difficult questions about how to address critical concerns—sustainability, resilience, labor practices and shortages, affordability—related to food systems. But especially for those who grow up in non-farming households in non-farming communities—as I did, and as more and more Americans do—gardening provides valuable context for appreciating some of the challenges farmers routinely face as well as the need for public policy attention to the future of our food systems.

Garden Time

Four years before I met her, Gwen started keeping bees on her rural property south of Carbondale. Thinking that a garden would benefit her bees by providing better forage, she planted her first one the following spring. Gwen did not choose either activity primarily because she wanted their products, though she enjoys them. Instead, she tells

me, she deliberately searched for a quiet hobby to draw her outside consistently. A health condition had driven her to spend her time indoors: “It was like I was allergic to the sun... It was like every time I went outside, I got this big red rash for months on end. And then it finally went away. It just went away on its own. And so, I just really wanted to go outside again.” Staying indoors had become a habit, however, and she found that she needed a nudge to change it. Having responsibilities outside—first for the bees, then for the plants—ensured that her routine would include the time in the sunshine she craved. As a result, ongoing tasks that even some gardeners find tedious—such as weeding or picking insects off plants—seem more liberating than burdensome to Gwen. They help her reinforce a chosen habit of spending daily time outside (Wilk 2009).

Among the gardeners I spoke to, only Gwen expressed a conscious desire for the garden to take control of her time, and even she has limits. She hopes to install a drip irrigation system, for example, because watering at optimal times can be difficult to manage with her work schedule, but she worries delaying beyond a brief window could damage new transplants. On the other hand, she considers her sister’s garden boxes effective for minimizing weeds, but an extravagant expense for someone who wants to spend time in the garden. Essentially, Gwen invites the garden’s demand for even time-consuming forms of routine care but needs leeway in terms of exactly when she provides it.

Of course, other gardeners also recognize that gardens require time. Elements including size, tools, crop types, growing from seed or starts, and irrigation all impact claims on a gardener’s time and factor into their efforts to anticipate and constrain the garden’s demands. Nevertheless, inexperience and various unexpected events frequently lead gardeners to spend their time in unintended ways. Most gardeners mentioned at

least one experience of having to coddle or replace plants affected by weather or pests, for example, and several commented that their first gardens were too large to manage properly.

A key challenge of providing care lies in the fact that exactly what the garden needs and when varies. Even in a carefully structured agricultural context, growers must dynamically accommodate the temporality of their plants. Describing the vagaries of harvesting wine grapes in Australia, for example, geographer Jeremy Brice makes it clear that the grapes exert control over human time even beyond the vineyard (2014). Viticulturalists and farm laborers, truckers and winemakers must all coordinate to bring in the harvest when the grapes reach a peak of sugar content and flavor, and to transport and process the fruit before it begins to degrade. Growers only know roughly when ripening will occur, however. Each year, they must wait on weather and vines to determine the precise timing of the period of intense work that structures time not only for wine industry workers, but their families, friends, and other community members as well.

While a small hobby garden commands time much less comprehensively than a commercial vineyard can, the fact that plants consistently operate on their own schedules also forces gardeners to engage temporalities alternative to clock time (Shove, Trentmann, and Wilk 2009). Most gardeners grow several types of crops, of course, with differing requirements. The timing of care necessarily varies between radishes that live only a few weeks from seed to harvest and fruit trees that can take several years to bear fruit and survive for decades, or between cool weather annuals such as lettuce and crops like okra that insist upon warm soil for a good start. But seasonal and life cycle patterns only provide guidelines for gardeners, they do not repeat precisely. “Life is rhythmic, not

metronomic,” as Ingold and Hallam put it (2007, 10). The development of individual plants and the specific interactions of weather, soils, crops, weeds, and pests in each iteration of the garden place shifting demands on a gardener’s time. Plants behave differently in a hot, dry summer than a cool, wet one, for example, and rely upon gardeners to act accordingly. Research attention to the rhythms and timescales of plant lives—as well as those of other nonhumans in the garden—can accentuate their agency, bringing the relational nature of garden production into sharper focus (Elton 2019).

Not surprisingly, gardeners respond to their gardens’ demands in diverse ways. While Gwen values the pressure the garden puts on her to engage with it, others sometimes find the responsibility oppressive. Francine, for example, enjoys many aspects of gardening—planting, researching pests, harvesting—but dislikes repetitive, routine care. Her husband Al, on the other hand, appreciates the meditative quality of watering and the occasions it offers to observe minute changes in the plants. Renee welcomes the opportunities the garden affords for human social engagement in the form of teaching or family time regardless of the specific tasks she tackles with others, but when left to perform basic upkeep alone she finds it burdensome. Many gardeners draw on experience to anticipate the contours of the garden’s needs and align them with their own preferences. Kate, for example, overheats easily in the summer sun, so she shifts heavy work to the winter months, whenever possible, and to mornings in the summer. As part of her plan to avoid pesticides, Anita contemplates the life cycles of crops and pests and tries to plant kale early enough in the growing season to mature before cabbage worms become prevalent.

Writing about the painstaking practices involved in building and renovating old-fashioned wooden boats in Finland, Mikko Jalas argues that practitioners feel a duty of

stewardship toward their boats that underlies the boats' ability to configure their time (2009). Likewise, many gardeners carefully consider the time they have available to maintain their plots in part because they feel a sense of obligation toward their plants, distinguishing gardening from many other hobbies. Planting the garden entails a commitment to strive for its survival. People frequently characterize caring for a garden as being akin to tending a pet or a baby (Hitchings 2003; Degnen 2009; Black 2015). Even when unexpected demands arise, the gardener has a responsibility to meet them, and not only because they hope for a harvest. Thus, Francine finds herself picking insects off plants even though she does not consider herself someone who would invest so much time in plant care. Such attachment to plants can have profound effects on gardeners. Sarah Elton discusses two who, in periods of deep depression, found "reason to live" in meeting the needs of their plants (2019, 95). On the other hand, multiple people I had arranged to interview decided not to plant gardens at all as travel plans or changes in work schedules or marital status made them fear they would be unable to provide regular care for their crops.

Gardens structure gardeners' time not only physically, in requiring timely provision of care, but also perceptually, as fulfilling those requirements attunes gardeners to the rhythms of the nonhumans in their gardens. In my own experience, gardening established a more acute sense of seasonality than I developed growing up in climate-controlled, market-fed suburbia. Increasingly over recent decades, fresh foods arrive in American grocery stores from around the country and the world at relatively low cost, dampening consumers' experience of the seasonality of produce and their awareness of the impact of weather fluctuations, as well as longer-term climate changes, on crop plants. Carefully considering the right time to start seeds or dig in the soil forces

me to attend to the weather beyond deciding whether I should put on a sweater. The varied lifecycle patterns of my plant collaborators give shape to each year. This focus also makes the gradual creep toward earlier frost-free dates in the spring and the later arrival of killing frosts in the fall apparent even without consulting climate data.¹⁹ Through such embodied knowledge, practicing vegetable gardening gently pushes back against the tendency of global commercial food systems to obscure the rhythms and agency of the nonhumans we all depend upon.

Conclusions

This chapter offers a detailed account of how gardeners interact with a wide range of nonhumans, including wild plants and animals. Study participants often enjoy observing animals and value providing habitat for them even though they may reduce garden productivity. Gardeners typically use diverse strategies to attempt to protect their gardens while minimizing negative impacts on animals.

In an extended discussion of weeds, I describe the process of education of attention or sensory enskilment that allows gardeners to distinguish their crops from other plants, countering the tendency toward plant blindness I mention in Chapter One (Ingold 2000; Grasseni 2022; Wandersee and Schussler 1999). I learn that gardeners often take a nuanced approach to weeding, particularly as they become more skillful in recognizing plant species. They routinely express interest in retaining species that attract pollinators and they often appreciate crop volunteers. Expanding the discussion of suburban

¹⁹ According to the Illinois State Climatologist, “The 1991-2020 average growing season length is 15 to 20 days longer than the 1971-2000 average” (Ford 2021).

landscapes in Chapter Four, I explore the impact of the typical placement of suburban vegetable gardens within the context of lawns. I find that care for lawns and gardens sometimes conflicts, leading gardeners to question or reject certain suburban lawncare ideals.

Sections on time and harvesting both point to ways in which attunement to the rhythms of nonhuman lives results in gardens taking control of gardeners' time. It also impacts their perceptions of time and promotes an awareness of seasonality. Such consciousness potentially contributes to building a sense of ecological embeddedness and calls attention to the lack of seasonality in commercial food systems. Additionally, I address how differences in the patterns of harvesting and yield among varied types of crops can raise questions for gardeners about processes of food production.

A gardener never produces a garden in isolation. Gardening requires willingness and skills to engage with the needs and temporalities of nonhuman actors. In addition to the crops and pollinators ostensibly cooperating in the performance, a shifting and uninvited cast of others also participates in the life of the garden. Judicious application of a varied repertoire of skills offers gardeners a semblance of control, but managing a garden always amounts to improvisation in correspondence with other actors in the garden (Ingold 2017).

CHAPTER 6

EXPERIENCING THE GARDEN

Food gardeners can, and often do, list a variety of practical-sounding reasons for maintaining their gardens. Yet the uneven productivity of many hobby gardens, including my own, hints at the significance of other explanations for widespread dedication to the practice. In fact, surveying gardeners on which aspects of gardening bring them the greatest satisfaction, environmental psychologists Rachel and Stephen Kaplan unexpectedly found that “tangible benefits” actually drop in importance as gardeners gain experience (1990, 240).

In previous chapters I have explored some of the values people bring to vegetable gardening, how they plan and set up their gardens, and how they interact with nonhumans in the garden. In doing so, I also necessarily touched upon many experiential elements of gardening such as how it helps gardeners ease their economic and environmental anxieties, which crop characteristics attract gardeners and lead them to choose specific varieties, and what gardeners feel when animals destroy their carefully tended crops. This chapter takes a slightly different angle and directly addresses questions of what it feels like to garden and what gardeners gather from the experience because clearly, as Renee Schwartz bluntly summarizes, “Gardening gives you more than just food.”

Attention Restoration Theory (ART) in the field of environmental psychology provides a preliminary framework for understanding what makes the experience of gardening so valuable for gardeners. ART proposes certain elements of gardens and other natural settings that make them effective in alleviating mental fatigue. These factors include “being away,” “extent,” and “fascination” (Kaplan and Kaplan 1990; Gross 2018). Being away refers to the sense of separation gardens can provide from other activities and responsibilities. Extent means that a site has “sufficient scope to be explorable and... sufficient coherence to be understood” (Kaplan and Kaplan 1990, 242). Fascination refers to a garden’s ability to capture attention. Gross further differentiates between “soft” and “hard” fascination, both of which gardeners routinely experience. The former refers to an undemanding but pleasant aesthetic that leaves the mind mostly free to wander. The latter refers to deep absorption in the garden.

The question of how extensive and fascinating gardens come about deserves comment. A gardener can plant diverse species with interesting attributes organized in a compelling way, but that is never the only source of extent and fascination in a garden. The lives and agency of nonhumans are substantially responsible for the extent of gardens and, as a result, a garden’s ability to fascinate gardeners. Every season brings changes—growth, senescence—even absent the ongoing intervention of a gardener, which adds depth to the experience of the garden.



Figure 23. Partially decayed tomatillo husk. Photo by the author.

The fact that the boundaries of the garden are porous to nonhumans impacts extent as well. The varied lifeforms constantly passing in and out of the garden provide endlessly new potential sources of fascination and, once again, may occur without effort from the gardener. The fact that a gardener does not have to be fully responsible for planning and establishing surroundings capable of engaging them likely contributes to the relaxing effect gardening has on many people.

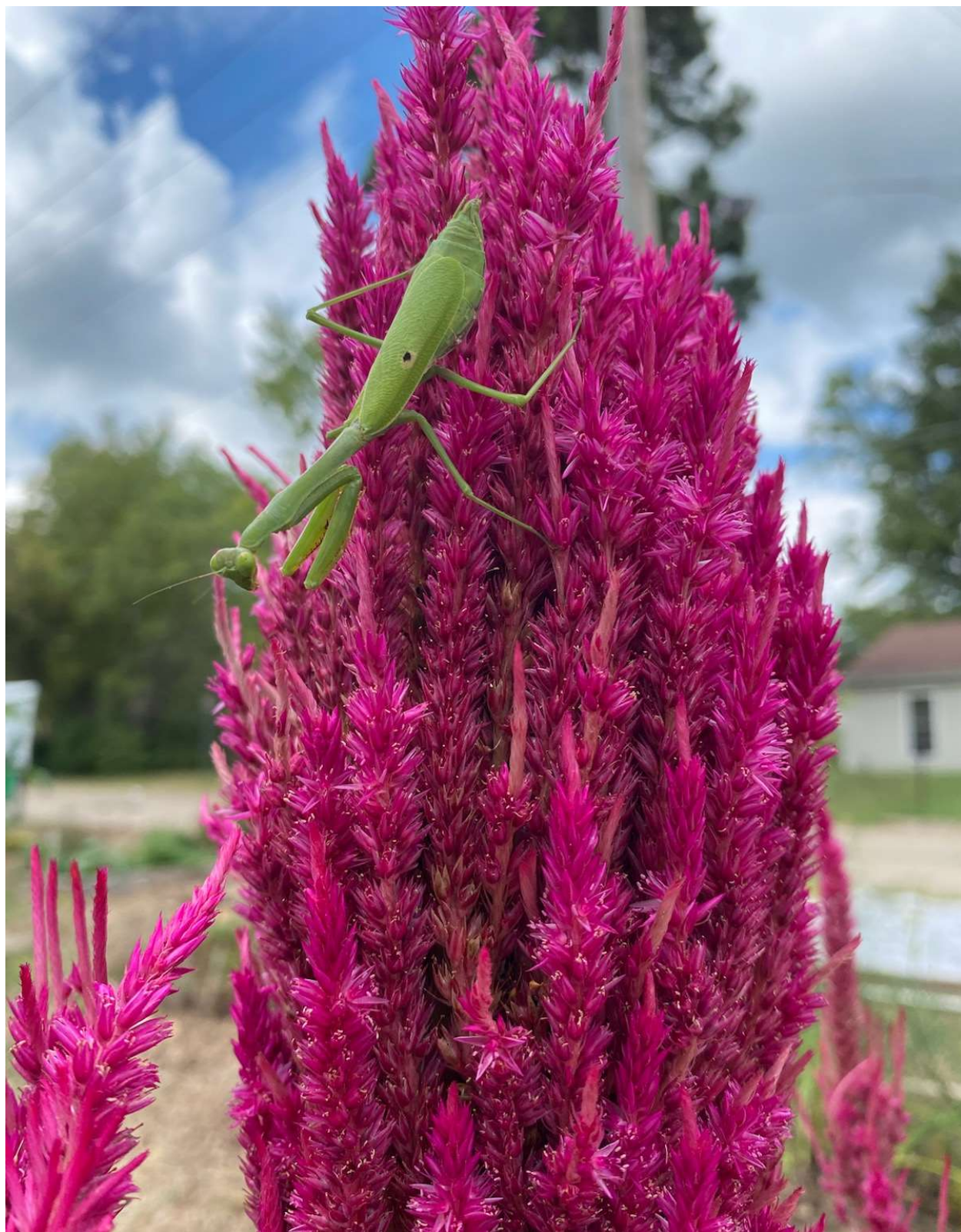


Figure 24. Praying mantis on celosia at Red Hen Garden. Photo by Ruth Hoak.

Finally, I would argue that revolting discoveries, as well as pleasant ones, can elicit fascination. Playing together at Red Hen one day, for example, my son and Abbie's discovered stinkhorn mushrooms, which they greeted with giggling enthusiasm. The adults quickly joined them in marveling at the slimy, foul-smelling surprise. We could not have planned a more captivating encounter.



Figure 25. Stinkhorn mushrooms. Photo by the author.

To be clear, I am not making a claim about the validity of ART or the specific impact of gardens on attentional fatigue.²⁰ Rather, I find some of the factors it highlights a useful entry point for thinking about what makes the experience of gardening meaningful and enjoyable. ART researchers, often interested in narrow questions about how small interventions might restore attention, sometimes test things such as looking

²⁰ A number of studies attempt to strictly define mental fatigue, attention restoration, and exposure to nature and formally test how they intersect with mixed results (Ohly et al. 2016; Crossan and Salmoni 2021).

out a window or “virtual gardening” as potentially helpful exposures to “nature” and frequently focus heavily on visual and auditory experience (Gross 2018). By contrast, I argue that rich multi-sensory engagement, extending even beyond the five-sense sensorium, matters deeply to gardeners and deserves specific attention.

Multiple other aspects of the experience of gardening are meaningful to many gardeners as well. Through their consistent care practices, gardeners frequently become emotionally attached to their plants, as well as to the place they cultivate. Memory, deeply intertwined with sensory experience, also contributes to the emotional significance of the garden. Finally, gardens are important sites for social connection, often even for those who prefer to practice it alone.

As the framework I have outlined suggests, gardeners’ experiences are multidimensional. I have divided this chapter into categories—intellectual, emotional, sensory, and social experience as well as memory— only to organize and highlight certain facets of gardening experiences, not to imply their independence from one another. On the contrary, many common gardening activities, such as sprouting seeds, could reasonably appear in any or all of these sections, with each aspect I have named seamlessly contributing to the experience.

Any illusion of a Cartesian split between mind and body falls apart quickly in a garden, though English vocabulary that captures a sense of unified experience tends to be lacking (Scheper-Hughes and Lock 1987). Intellectual engagement in the garden, for example, frequently consists of gardeners learning through direct observation and interaction with their soil and plants. They use the evidence of their senses to physically understand what is happening in the garden as they provide care, which often entails significant emotional investment as well. Likewise, sensory engagement intertwines

with intellectual curiosity about what is being apprehended and is a fundamental component of skilled practice. The experience of gardening can only be understood holistically.

Intellectual Engagement

Inquisitiveness and an experimental spirit broadly characterize the gardeners in this study. Intellectual aspects of gardening, in varying forms, clearly bring them joy. Many dive into research—in books, online, and through conversation with other gardeners—about their crops and how to use them, other plants and animals that turn up in their gardens, methods, and a variety of other topics. Perhaps not surprisingly, most take particular pleasure in opportunities for hands-on learning through close observation, experimentation, and problem solving.

Many gardeners spend significant time outside the garden looking into the subject. Marjorie Yuill and Renee enjoy learning about companion planting, for example, then testing various combinations in their beds. Jessica Lynn, at the Washington St. Garden, investigates the medicinal properties of plants and best practices for preparing and using various tinctures, salves, and infusions. Her research has led her to start a business making herbal medicines. Ruth Hoak, Kate, Deborah Woods, and Abbie Kruse love studying new methods and skills they might later apply at home or in the community gardens.

Francine and Al's garden draws their attention in a variety of ways. Al tells me, "I like seeing the plants grow. I like testing like when they're ready to pick and stuff like

that... trying to troubleshoot when things are eating [the garden].” Francine agrees and continues:

And then finding out what things are. Like we found some

Al: Like the cucumber beetles.

Francine: ...Yeah, well we found some like red cocoons in the soil yesterday.

Al: Oh right, yeah.

Francine: And so Al went and looked 'em up and they're moths and so it's kind of cool. We call the kids over and stuff.

Al: Nature hour

Francine: Yeah, nature hour. But yeah, no it is kind of interesting to find out like what likes what and what doesn't and like... we bought a bunch of mosquito plants, like lemongrass and lemon balm and stuff to hopefully keep them off the patio.

Always curious about the insects, especially the pollinators, she finds in her garden, Jessica Allee actively nurtures monarch butterflies. Her project demonstrates how deeply inquisitiveness in the garden intertwines with things like sensory and emotional experience, as well as cooperation with nonhumans and the values, such as environmentalism, that a gardener brings to the practice. After scouring internet forums on the topic of fostering butterflies, Jessica sought out and planted swamp milkweed, “the most delicious kind for monarchs.” She closely monitors her plants, watching for monarch eggs to appear on their leaves.



Figure 26. Swamp milkweed, “The most delicious kind for monarchs,” in bloom. Photo by the author.

I take them, and I put them in a jar that's not airtight, you know, they can breathe in. And I set them up with like enough food and then they basically pupate. And they form a chrysalis. And once they form the chrysalis, I take the chrysalis out and very carefully attach the chrysalis to like a little bamboo stick. And I set up a whole nursery of these chrysalis according to when... they form their chrysalis. And then when it's time for them to eclose²¹, the entire chrysalis goes from this beautiful jade green to black. And then in a twenty-four-hour period they will eclose... I then take them outside and I place them

²¹ To emerge from the chrysalis

somewhere outside so that they can basically eclose and into the world. And so it's sort of my way of like saving them from predators and also watching them do their thing... And if I take them off the plant, then the next time a monarch visits the plant... it thinks of the plant as ready to receive more eggs. And so it's a way to actually get more monarchs produced off of one plant.



Figure 27. Monarch caterpillars in Renee's pollinator garden. Photo by Justin Harrell.

Caring for the monarchs through a treacherous part of their lifecycle, Jessica cherishes the opportunity to observe their metamorphosis and help boost struggling monarch populations. Renee, too, shelters vulnerable monarch larvae, incorporating their process of transformation into lessons for her students on biology and environment. Ruth, now retired from teaching, recalls the wonder her elementary students expressed when she used the same approach, satisfied that the experience offered an understanding of natural cycles that reading about it alone could not.



Figure 28. Monarch butterfly on tithonia. Photo by the author.

Other gardeners remain more directly focused on their crops. As a new gardener, Gwen started cautiously: "I kinda stuck to things that I knew would work well the first year. Like not too much variety and then I started branching out slowly." Her father-in-law, an experienced gardener, sometimes helps Gwen by caring for her starts in his greenhouse, so I ask whether she relies on him to teach her about gardening. Gwen certainly listens to what other gardeners have to say, but she quickly discovered she likes to chart her own course and learn about different crops through experimentation.

Yeah, I did [ask] for some advice... but everybody always has advice. Like if it doesn't work for you, then you'll spend the rest of your life telling people you can't grow carrots here or something. "You could never grow carrots." And I'm like, "Maybe you could." He's kinda right though. I've had trouble with carrots, but I don't know. I usually just try. I'm willing to try it a couple times to see how it works out. And some of the mistakes you make are just funny. Like the first year I grew carrots successfully, I forgot to thin them, and so I just had like a thousand tiny carrots... So I was like, "Oh yeah, I remember. I was supposed to thin them at some point." And that's okay. The thing I like about gardening a lot is that... it's got really low barriers. It's like, if you screw it up, I mean, you only wasted like, I don't know, a pack of seeds. It doesn't really matter, you know? It's not a big deal.

For each of these gardeners, the varied opportunities for and approaches to learning the garden affords are an important component of what keeps them engaged. Gardening gives them a chance for intellectual exploration.

Care and the Emotional Experience of Gardening

Emotion permeates gardeners' experience. From curiosity and delight to disappointment and frustration, gardens provoke a wide range of feelings. In Chapter Five I wrote about how a sense of obligation to the garden gives it the ability to command the time required for care. In fact, gardeners frequently become emotionally attached to their plants as they care for them, as study participants repeatedly discussed.

Emotional engagement with a garden often starts early. Many gardeners express a sense of awe and excitement about witnessing the emergence of life when they plant their gardens. The first seed Samuel Ramirez ever sowed, in a college class he enrolled in by chance, hooked him on plants. "It was the first time I seen a seed germinate. It was the coolest thing ever!" Even though I plant seeds fully intending and expecting them to grow, year after year, a fizz of excitement accompanies each one that pops up. Seeing loops of tiny stems pushing through the soil, then rolling up to reveal new cotyledons is one of the great joys of gardening for me. Anita, too, loves watching sprouts come up: "It's like overnight they 'Boing!' It's like, I remember the first time I saw that. I was like, 'Oh my god!' I think I took pictures of 'em and stuff." Transplanting seedlings into the garden, she frets about their survival, worried that pests or a sudden turn in the weather will harm her "babies."

Attachment to plants does not happen automatically, but rather appears to arise in the process of providing care. Anita, recuperating from knee surgery when we meet in late April, declares herself behind in getting her garden started. She tells me that instead of growing from seed this year, she resigned herself to just picking up some plants at

Rural King. She still wants to add a few things, but based on the greens she has already planted, she worries that she will not become attached to her crops because she did not start them herself.

It was a totally different experience planting plants that I bought. I was just like digging a hole and dumping 'em in... And I am like super crazy when they've been the seedlings that I've been nurturing... I don't know if growing it from a seed somehow... you're more concerned about it? I don't know.

Many gardeners, of course, happily nurture purchased plants, and growing from seed can be simultaneously rewarding and exasperating. Jessica Allee tells me:

I try to grow from seed... And then I get really frustrated like in the spring at some point and I buy some what I call immediate gratification plants... I'll have been coddling... my tomato starts for like two months and they look great to me and then I like go to the farmer's market and there's someone who's got like a plant that's like this big with fruit on it. And it might even say "heirloom." And I'm just like, like, "Why do I even do it?" So, but I still... do it because I like the experience of growing something from seed. It brings me a lot of joy... Like if you have a tray of stuff that you've sown, and you just wait like for a few days, and you start to see the sprouts come up on the first ones, and... it's almost like an endorphin rush... It's very gratifying and, you know, if I have extras, I share it with friends and things like that.

Almost as routinely as gardeners express wonder at the emergence of seedlings, they also bring up their dislike of thinning their crops. Even experienced gardener Adriane confesses, “I’m really terrible about thinning stuff. ‘Cause I’m like, ‘Oh look at all these little babies. Oh this’ll be fine.’ ... And then like too late did I say, ‘Oh no this is too thick, this is ridiculous.’” Chatting at Washington St. with Logan, who has both academic horticultural training and market gardening experience, I ask whether the communal decision-making style there ever presents challenges. “The biggest issue here is overgrow. We don’t thin anything. We like leave everything in too dense, ‘cause like, ‘Oh, look at the baby plants,’” he comments. Laughing, I sheepishly admit, “It’s ridiculous, but I sometimes have a hard time thinning things, ‘cause I just... It makes me sad, like to kill the little plants.” It surprises me a bit when he sympathetically concedes the unpleasantness of the task, “Yeah. No, it does,” before reiterating its importance.

John Law, writing about the mass slaughter of livestock in Britain to control the spread of foot and mouth disease in a chapter entitled “Care and Killing: Tensions in Veterinary Practice,” argues, “if multiple objects are simultaneously being cared for—then the coherence, consistency, or compatibility of the practices that care for those objects is chronically uncertain” (2010, 68). In his example, appropriate care of some animals, demanded the killing of others. Law notes that even though the animals were being raised for slaughter, and even though farmers and vets often agreed on the necessity of culling animals that could carry disease, caregivers found the process emotionally draining. They also expended considerable effort to minimize the suffering of their herds, demonstrating their attachment to them.

While the specific circumstances Law describes are extraordinary, the tradeoffs in care he outlines are common. With plants frequently glossed as inanimate objects in

contemporary American society, it admittedly seems odd to compare killing livestock with thinning seedlings. Yet gardeners often recognize their plants as independent beings, not just passive objects (Ryan 2012). And as gardeners balance the needs of an individual plant with those of another, deliberately sown crops with volunteers, or crops with local wildlife, different priorities yield variations in practice. A Washington St. gardener intently focused on the needs of crops and gardeners, for example, killed a rabbit that had been feasting on the crops. Other gardeners, expecting greater effort to balance care for the garden with concern for wildlife, gathered to protest the action. Clearly mystified by the short-lived but intense reaction to the incident, Mason Smith tells me, “I mean, you know, I understand where you're coming from, like everything wants to live, but I don't think even vegetarians understand how much gets killed to make your produce.”

The impulse to care for each crop plant can make even a routine task such as thinning seedlings more complex than it appears. Like Law's caregivers, Logan appreciates the desire to protect every seedling even as he insists that high quality care for certain plants requires the removal of others. But as I mentioned previously, faced with the need to destroy one seedling to improve growing conditions for another, many gardeners also seek to circumvent the issue by transplanting densely packed or volunteer plants into any available space or by potting plants and giving them away. Balancing care often means improvising alternatives. Interestingly, no gardeners spoke about sorrow associated with harvesting crops, even if it kills the plant. Instead, the sadness of thinning seems related to wasted potential.

Memory in the Garden

I have an unfortunate track record with growing sugar snap peas. Timing trips me up over and over—sow too early and the seeds rot in cold, wet soil; sow too late and heat saps productivity. I tend to overcorrect for my mistakes each time I plant peas. Throw in spring weather that fluctuates wildly both from day to day and from year to year, and you get a crop that seems to take a measure of luck—or multiple plantings—to grow well in my climate zone. After a couple of sad pea harvests in a row, I usually give up on growing them for a few years. Nevertheless, I always know I will try again. Eventually.

In my earliest garden memories, I carefully search through the leaves on rambling pea plants in my Uncle Butch's garden in upstate New York to find and pick the plump pods hidden among them. Sometimes I pop pods into my mouth whole on the spot. Sometimes I gather a few and carry them to the steep, wooden steps leading up to the second-story kitchen door to sit with my siblings and cousin and shell them so we can snack on just the sweet peas inside. I remember pulling the string down the length of each pod, trying to neatly crack it open without losing any peas, then comparing the hauls in each of our shells. Sliding my thumbnail down the smooth interior of the pod to release the peas, I always hoped I had managed to catch them at their peak before they turned dull and starchy.

Decades later, harvesting handfuls of peas, stringing them, eating them raw invariably returns me to childhood trips spent laughing and playing outside with cousins. That feeling ensures my persistence in growing them regardless of my underwhelming results. In my sprawling extended family, multiple other relatives have shared excellent produce from their gardens over the years, but peas remain uniquely

evocative for me. When I share one of my paltry pea harvests with my son, however, he is unimpressed. For him, they do not carry the memory of cousins and carefree summer vacations.

Anthropological literature on memory related to crop cultivation typically focuses on heirloom crop varieties shared within communities, often across borders and generations, and on preparing food (Nazarea 1998; 2005; Dove 1999; Jepson 2006; Veteto 2008; Black 2015; Gagnon 2021). Participants in these studies, unlike many of those in my own, usually have deep histories in gardening or farming. While many of the gardeners I spoke to have developed an interest in heirloom seeds and seed saving relatively recently, none claimed to cultivate any varieties that have been handed down in their families or circulated in their social groups over the long term. Nevertheless, several participants discussed gardens as sites of personal memory.

At times, memory influences what the gardeners in this study choose to plant. While my own positive memories of peas compel me to plant them, and Al usually grows the lemon cucumbers he enjoyed as a child, Anita's childhood experience with green beans in her parents' garden had the opposite effect. Though she likes eating them and knows they grow well in southern Illinois she tells me, "I haven't done like green beans or anything, 'cause I dread snapping beans. I used to have to snap beans when I was a child and that was just like torture."

Angela expresses less interest in growing diverse crops and varieties than other gardeners I spoke to, so it surprises me when she draws my attention to a plant I had not seen in any of the other gardens I had visited to that point: bronze fennel. She explains that her late mother, who was not a vegetable gardener, had taught at nature centers in Texas and had a particular love of butterflies. Bronze fennel, though not a

North American native, supports black swallowtails, her mother's favorite species.

Angela excitedly points one out to me as we tour her garden. The fennel plants serve as a living memorial, evoking remembrances of Angela's mother while continuing her project of creating pollinator habitat. Angela demonstrates that even gardeners who appear to be straightforwardly practical and goal-oriented at first glance may also sustain more complex relationships with their gardens.

For John, certain gardening practices stir memories of his father as well as informing his own actions in the present (Sutton 2011).

My dad used to start his stuff, he didn't really winter garden, but you know one of the old wives' tales around is you plant your lettuce on Valentine's Day. You ever heard that? My dad died in, it was 1991. He died in like late February. Sudden heart attack. He'd already planted his lettuce. My dad used to always plant his lettuce on Valentine's Day. And so what it does, it lays dormant until it warms up, but it's, you know, it's a cool weather, moist weather plant. And then he used to always start stuff in the basement windows, which I've done.

Cynthia Plunkett had little exposure to food gardening as a child in Texas. She remembers her father planting a vegetable garden one year and she enjoyed the chance to "pick what we wanted," even though the family had to compete with birds for the strawberries. After that summer, however, her father stopped growing vegetables for many years—because it was too much work, she assumes. He did plant a lemon tree and a lime tree and Cynthia notes that when her parents moved out of that house, it was the fruit trees that they found the most difficult to leave behind. Psychologist Harriet Gross

states that people often form similar deep attachments to gardens and long-lived plants as they offer a means of “engaging with your own past and future self” (Gross 2021).

After her parents moved, Cynthia’s father threw himself into growing vegetables. Years later, his garden itself played an active role in reminding his family of him after he passed away.

Now, my mom was always like, she was the person who murdered plants... Then they moved to Fredericksburg [Texas] and my dad planted this huge vegetable garden and like for whatever reason there, like as long as you can keep the deer out of it, they, I mean, you should see it. Like the plants just become enormous... But so he has this amazing garden. And then, it was kinda nice, my mom was like, "I kill every plant I've ever touched" right? And then after he died, his garden came back. And so she took over and now she's like, really into it. It's kinda cute actually... And I mean, she's got tons of stuff from it... already, like tons of produce. Zucchini, spinach, I don't think she did any tomatoes, okra. Like she'll just sit there and chomp okra... But yeah, she's always like, "I'm gonna go to my garden and grab a salad."... She said she feels amazing... I'm like, "Wow, okay, good for you." But no, like, I feel like his little garden, I think that helps her.

Cynthia’s mother had not intended to care for the garden, but when plants started coming up on their own, it drew her attention. Despite her previous lack of interest in gardening, she began spending as much as eight hours a day in the garden. While it clearly offered a place of connection for Cynthia’s mother with her late husband, the

garden also eased communication between Cynthia and her mother. Cynthia tells me that their political and religious differences routinely spark fraught conversations. The surprising reemergence of her father's garden gave them a non-contentious way to connect to one another and actively remember Cynthia's father.

Sensing the Garden



Figure 29. The author's son enjoying one of the last garden tomatoes of fall. Photo by the author.

The tanginess of sun-warmed tomatoes, accented by the pungent tomato-plant scent clinging to my fingers; the slightly musty odor of compost as I scoop it into buckets, often sifting it through my fingers; the sound of mourning doves calling from my sweet gum trees in an otherwise quiet garden; and the pleasant exhaustion from

spending a day digging after a winter of too much sitting all spring immediately to mind if I think about my own sensory experiences in the garden. Having read or listened directly to the accounts of dozens of gardeners relating similar experiences, I know I am not unique in regarding such moments as the essence of gardening (Black 2015; Kingsolver 2007; Tilley 2006).

Vegetable gardening fully engages the senses and sensory experience provides the key means both to appreciate a garden and to build knowledge of it. As examples throughout other sections of this work demonstrate, perceptual considerations influence nearly every aspect of gardening. Gardeners select their crops largely based on characteristics such as color, texture, and flavor, then assess the development of those same traits to determine when to harvest their produce. While they may understand the value of pollinators intellectually, the attention-grabbing beauty of butterflies and wildflowers no doubt draws many gardeners into learning more about them and nurturing them. Meanwhile, negative sensory perceptions of composting may lead gardeners to opt against making or using it. In each of these cases, as well as in countless other ways, sensory engagement shapes practice.

Of course, simple enjoyment of sensory experience often drives interactions with a garden. Anita recalls an early garden exposure: "I remember as a child, my grandmother used to grow, she had mint. And she grew it along the back of her house. I don't know why. And I remember I would go, and I just liked to touch it. And smell. Mmmm." As we run our hands through her lavender plants, Jessica Allee tells me, "Out of everything in the garden that brings me joy, this is like really at the top of my list... The way it looks, the smell, I mean there's nothing like lavender to like lift spirits and like ease the mind." In my own garden, I routinely wander around barefoot, appreciating the sunshine and

fresh air, relaxing by watching the bumblebees visit whatever flowers happen to be in bloom and looking for small changes such as the initial emergence of fruits.



Figure 30. Developing green beans. Photo by the author.

The holistic sensory experience of gardening can also be deeply therapeutic for gardeners. Jessica Allee tells me that as a young architect, she suffered from an inflamed optic nerve that severely limited her vision and made it impossible to do her work. With her mental state disturbed by both the steroids she was given to treat the condition and concern about her future ability to see well enough to return to architecture, her garden offered relief.

I would just go in the backyard and I would just garden and I didn't have my glasses on or anything. I would just like dig my hands into the soil... and like pull weeds... and it was like the most therapeutic experience of my life. It really saved me from going like cuckoo.

Many study participants say they do not consider the overall appearance of their vegetable gardens particularly important, but at times, aesthetics resonate emotionally for a gardener. Confronting a garden overtaken by weeds during a tumultuous period when she could not care for it, Rene, who prefers to plant into strawbales, says,

And I had herbs here. And I had straw bales in the center. And it was just like so tidy. You know, these beautiful bales, they're like this uniform height and width and it was just great. And now it's just like this wreck of a garden. It makes me really sad to look at it.

Cynthia prefers an orderly aesthetic as well. While she appreciates productivity from the garden, it also often, “starts to feel overwhelming and jungle-y.” By contrast, Francine wants a garden that is “green and lush and producing.” She sometimes finds it necessary to trim back a garden that gets too overgrown in the fall, but she says generally, “I kinda like things to look natural, like not one of those people who plans out rows and has to have perfect rows.”

As I discuss in the section on crop selection in Chapter Four, gardeners frequently center the senses in their decisions about what to grow. Ruth opted to grow toothache plant, for instance, after becoming intrigued by reports of the anesthetic effects of

chewing its flowers and wanting to find out what it feels like for herself. Delighted by the strangeness of the experience, as well as the plants' potential for managing the pain of an actual toothache, she brought a handful of blooms to Red Hen for other gardeners to try.²² On the other hand, childhood memories of disgustingly slimy okra dishes prevented Ruth from considering that crop for her home garden for decades. Seeing the beautiful flowers of the plant, a member of the hibiscus family, blooming at Red Hen, sparked a determination to find an enjoyable way to prepare it, however, and she recently declared herself a convert.

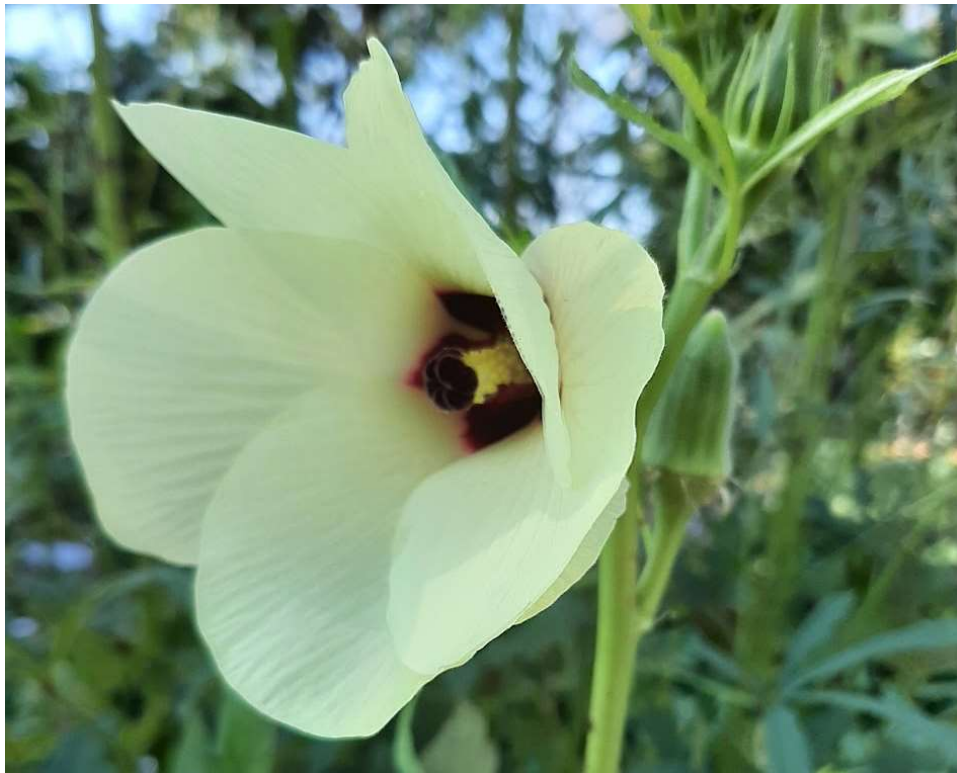


Figure 31. Okra flower. Photo by the author.

²² I found the feeling they produced—sharply zingy at first, with an odd saltiness as intense numbness set in—disconcerting.

Becoming a skilled gardener means developing skilled senses (Bourdieu 1984; Ingold 2000; 2011; Sutton 2006; Grasseni 2009; 2022). Many gardeners begin that process by learning to recognize their crops visually, often eventually even teasing out differences among varieties. Other senses can also aid identification, of course, especially scent and taste for herbs.²³ But gardeners deploy sensory skills to carry out a variety of other tasks as well. They need to know when soil is too cold or too wet to plant crops, for instance. Monitoring the warmth, odor, and moisture of a compost pile, as well as recognizing the presence or absence of mycelium and insects, provides a gardener a great deal of information about whether the process is unfolding in a desirable way or requires adjustment. The texture of garden soil offers clues about the kinds of amendments and preparation it needs. And details of a plant's appearance can tip off a gardener with a well-trained eye to infestations, infections, nutrient imbalances, and water needs. Like learning other crafts, learning to garden is, in short, "a dynamic process arising directly from the indissoluble relations that exist between minds, bodies, and environment" (Marchand 2010, S2).

The community gardens I visited illustrate how important informed and attentive sensing can be at harvest time as well. At the Washington St. Garden, Logan hands me an anise hyssop leaf to taste saying, "This is really good right now. It's gonna bolt in a couple of weeks, so it'll be a little bit more bitter. Right now is when it's like somethin' special." At Red Hen, where anyone in the community is welcome to harvest produce at any time, large tomatoes vanish early, claimed for fried green tomatoes, a treat often unavailable to those without their own gardens or access to an accommodating farmer's

²³ For my son, now ten years old, recognition of herbs through smell and taste occurred relatively early. Visual discrimination took much longer.

market. Knowledgeable locals also turn up to harvest okra pods when they are smaller and more tender than ones typically available in a store. On the other hand, watermelons, large and appealing-looking but still immature, often disappear from the vines. Red Hen gardeners, worrying that the harvesters simply lack the skill to recognize maturity, discuss putting up a sign with tips on how to identify a ripe melon so the harvest will not be wasted.²⁴

Sensory experience in a contemporary context

In “The Sensory Dimensions of Gardening,” Christopher Tilley argues that the synesthetic experience of gardening offers respite for the increasing number of people who spend most of their time engaged in sensorily impoverished and often abstract activities (2006, 313).

Through the expressive medium of the human body itself, through utilizing and exploring its entire range of sensory and perceptive capacities, gardening as a craft and as a productive activity, is a primary way of redressing the existential alienation inevitably produced in a culture of mass production and mass consumption. We live without any longer making that which we consume and, for much of the time sit in offices and houses remaining cut off and insulated, suffering varying degrees of sensory deprivation, from the living world beyond.

²⁴ The watermelons have all been picked without gardeners present. It is possible, though the gardeners believe unlikely, that the melons have deliberately been harvested early for making pickles.

Mason's experience reflects the yearning for sensory engagement Tilley suggests. Studying for a microbiology degree, he realized that working indoors at a lab bench was unsatisfying even though he enjoyed the material intellectually: "I was just like, 'I cannot spend that much time inside in a white coat, in a white room, under fluorescent lights. I just don't think it's for me.'" Gardening offered a vibrant contrast. Mason now works for an ecosystem management company, where he spends most of his time working outdoors even when he is not volunteering at Washington St.

Keeping his discussion bounded within the Western, five-sense sensorium, Tilley provides numerous examples of sensory experiences gardeners told him they value, from feeling the earth in their hands to hearing the rustling of leaves, as well as how such experiences intersect synesthetically. Nevertheless, he notes that gardeners often struggle to find words to convey the impact of non-visual aspects of experience and have even greater difficulty expressing how their senses intertwine in the garden. Attributing the lack of robust non-visual sensory vocabulary partly to the primacy of vision in the contemporary Western sensorium, Tilley adds that non-visual "sensations are so all-embracing and personally intimate they become part of our unconscious" (2006, 327).

The challenges Tilley identifies in talking about the sensory experience of gardening only become more pronounced if the universe of the possible sensory experiences under consideration swells beyond the five-sense sensorium. Yet sensations outside that set clearly do matter to gardeners. Addressing potential "extra" senses, however, demands some explanation of what they might include.

Expanding the sensorium

Kathryn Linn Geurts opens *Culture and the Senses* with a straightforward definition of sensing as “bodily ways of gathering information” (2002, 3). The familiar senses of the Western five-sense sensorium—taste, touch, smell, sight, and hearing—clearly fit this description, but they just as clearly do not encompass all the ways a human body is potentially capable of sensing. Geurts points out that certain Western disciplines—psychology, medicine—recognize additional senses, such as balance, even as popular discussions of the senses often continue to treat the existence of a five-sense sensorium as an immutable fact.

Geurts and others argue that classifications of sensory experience are arbitrary and culturally constructed (Classen 1997; Geurts 2002; Howes 2003; Vannini, Waskul, and Gottschalk 2012). It is possible both to identify senses not included in the Western sensorium at all—balance, movement, thirst—and to lump or split the five Western senses into a variable number of other senses—touch could be divided into many separate elements, including temperature, tactility, and pain, for example (Vannini, Waskul, and Gottschalk 2012; Geurts 2002). A given sense may also occupy different levels of significance, relative to other senses, in different cultures or in different historical periods. Beginning in the eighteenth century, smell gradually became less culturally valued in Western societies as vision became overwhelmingly dominant, for example (Classen 1997). Meanwhile, for the Anlo-Ewe people Geurts worked with, balance is more culturally salient than any of the senses typically emphasized in the West (2002). Different peoples are raised to attend to and interpret different elements of sensory experience (Ingold 2000). Limited cultural elaboration or acknowledgement of a sense does not necessarily mean people do not experience a given type of sensation,

of course, but as Tilley recognizes, such circumstances may render individuals both less conscious of such senses and less able to verbalize their experiences (2006).

This body of work on the senses relates to my own because I believe sensory experiences related to posture, movement, and work—crouching to plant seeds, strolling through the garden, and the muscular effort of digging, for example—matter a great deal as part of the experience of gardening in a contemporary Western context. Yet most study participants primarily access sensory experiences consciously and verbally that fit within the sensory framework with which they were raised, the five-sense sensorium. This fact immediately raises the question of what to call the senses that gardeners activate when their experiences do not fit into the sensorium they recognize. Unfortunately, because of the fundamental challenges in defining sensory categories, as I outlined, scholarly works on the senses offer no consistent answer.

The terms most frequently used for the types of sensory experience that interest me include kinesthesia, proprioception, and haptic sensing or haptic touch. Haptic sensing, regarded by some as a single sense and by others as a coordination of multiple senses, relates to feeling and manipulating objects, usually with the hand, though references to sensing with feet and mouths also exist (Fulkerson 2011; Ingold 2011; Field and Hernandez-Reif 2008). Through a combination of movement and cutaneous sensation, haptic sensing detects characteristics such as the shape, texture, and weight of objects (Fulkerson 2011).

Kinesthesia and proprioception both relate to body position and movement. The details of what each term encompasses vary substantially, however, and they are often applied undefined, especially in relation to one another. Where both terms are acknowledged, some consider proprioception and kinesthesia to be synonymous

(Vannini, Waskul, and Gottschalk 2012). Geurts argues for a distinction between them, primarily linking the former to sensations in muscles and skin and the latter to joints and ligaments, adding, “The sensations would be distinct if a person learned to attend differentially to the stimulated sites” (2002, 53).

In this work, I adopt a sensorium drawn from occupational therapy that adds two senses to the five-sense sensorium: proprioception and vestibular sensing.²⁵ Proprioception relates to “the contraction and stretching of muscles” as well as “the bending, straightening, pulling, and compression of the joints between bones” (Ayers 2005, 41). It includes feeling the position and movement of body parts and is involved in skills such as applying appropriate force to accomplishing a task. Meanwhile, “The vestibular system is the unifying system. It forms the basic relationship of a person to gravity and the physical world. All other types of sensation are processed in reference to this basic vestibular information” (Ayers 2005, 43). According to pediatric occupational therapist A. Jean Ayers, who developed sensory integration theory, proper development of vestibular, proprioceptive, and tactile sensing undergirds the organization of all other sensory experience, making those experiences available for use. I apply this model that distinguishes movement from touch to emphasize the importance of full-bodied, muscular engagement for gardeners even while still acknowledging the integration of those sensory experiences into unified perception.

²⁵ I learned about this sensory model because study participant Renee Schwartz recommended a book based on Ayers’ work to me (Hanscom 2016). That book has significantly influenced her attitudes and approach to gardening with her students.

The garden in motion

A garden often presents richer sights and smells and textures than sterile interiors do, but it also offers varied forms of motion. Gardening encourages people to move in ways modern built environments are often designed to minimize or eliminate—perhaps part of the reason working in even a simple backyard garden can feel like “being away.” Study participants spoke about proprioception and vestibular sensing far less than other types of sensory experiences, but they did appear in the interest some showed in heavy work and in the tools people chose or avoided. The significance of holistic sensory experience, including movement, is also clearly interwoven with garden design.

Renee talks about sensory experience more frequently than other study participants, almost always with reference to teaching. Grounding her thinking in a combination of Montessori pedagogy and her study of sensory development from the perspective of occupational therapy, she tells me that well-developed proprioceptive and vestibular senses provide a necessary foundation for everything from basic physical agility to handwriting and attention. Part of the value of her school garden lies in the varied sensory experiences it offers, including heavy work. Her students particularly enjoy digging and moving heavy loads of compost and mulch. Similarly, at the Birch St. Food Forest I observed that the many neighborhood children who participated in workdays reveled in digging holes for saplings, shoveling massive piles of woodchips, and maneuvering unwieldy wheelbarrows through the lot.

Among adults, most talk about the opportunities for movement the garden affords only by mentioning that they appreciate that gardening gives them a bit of exercise. After telling Kate a story about hauling a buck he had hunted up a steep embankment, for example, John comments that the labor involved in gardening “is good for you if you

don't like going to the gym." Kate agrees that she far prefers physical work to working out. Now retired, Kate worked as a coal miner for 15 years and remembers the job fondly. Explaining why gardening suits her so well she says, "I am a person that likes physical labor. So that is a tendency. I like physical labor and I like a three-dimensional product, which is why I also like to sew. And that is like basic, built-in things about me." She also pays attention to how using different tools feels. One day, seeing me pick up a shovel, she commented, "There's a long-handled shovel in the shed. No tall person should ever use a short-handled shovel."

Most of the gardeners in this study rely on simple tools—shovels, forks, hand spades—when they opt to use something other than their hands. As she crouches down to scrape out a short furrow for the seeds we are planting, Adriane tells me about the short-handled hoe she uses for the task:

This is probably my favorite tool in my life. It's a Japanese hand hoe... I like it because like the ones you can buy from other places are a lot taller and I don't always like that because sometimes I really like, I don't know, I like to get up close and personal you know and if it's really tall, then, then you're like pushing so much more into the plant.

Using the Japanese hand hoe requires the gardener to bend over, squat, or kneel, all postures that have become less common for many Americans as everyday life becomes more sedentary.

Interestingly, I never saw any of the gardeners I interviewed use a long-handled garden hoe, or other tool that would allow them to remain standing upright, to weed,

though Calvin did mention doing so. Cynthia's tall boxes, which afford gardening in a more upright posture, deliberately circumvent the issue. Nevertheless, like Adriane, most gardeners in the study prefer to bend over, squat, kneel, or sit on the ground while they work. Usually, they use only their hands to weed, often ungloved. Gardeners do occasionally pick up small tools such as hand spades or clippers to help remove tougher plants, but they rarely use them for long.

As the example from Cynthia's garden demonstrates, garden design significantly impacts the sensory experience of moving through and spending time in a garden and suggests certain choreographies of interaction with it (Veder 2013). The design of my own garden, a pattern of variably shaped and sized raised beds, is decidedly inefficient. It creates constant practical problems in terms of quick access to each bed and sharing structures such trellises or cold frames around the garden. But it does achieve what was a conscious experiential objective—offering a sense of immersion in vegetation in a small area. Frequent turns in the paths also slow a visitor down and position plants directly ahead, rather than only off to their sides as they walk, encouraging attention to garden life.

When I first visited Red Hen Garden, most of the crops grew in a single, large, tilled plot. Both Kate and Deb said they found the soft, uneven ground of the area unpleasant to walk on, however. They transitioned to using raised beds instead. They mulched the interspersed paths with cardboard topped with a thick layer of wood chips. Suppressing the garden's weedy Bermuda grass prompted the heavy mulching, but it also levels out most of the unevenness of the area, including filling in some spots where the remains of an old house foundation created a trip hazard. The paths still feel soft but

are easier on knees and ankles than the tilled plot was. Their changes significantly altered the proprioceptive experience of moving through the garden (Veder 2013).

While a plot with space between rows but no true paths does not make itself particularly welcoming to visitors, the bed and path format anticipates the routine presence of people. In restructuring the garden, Deb and Kate specifically discussed making paths wide enough for gardeners to comfortably work simultaneously in adjacent beds. More frequently, however, gardeners tackle one together, companionably working their way down the length of a bed on opposite sides as they plant seeds, weed, or harvest. The relatively wide mulched paths may be somewhat space inefficient with respect to productivity, but they invite exploration of the garden and the kinds of social interactions Kate and Deb originally imagined taking place there.²⁶

The Social Experience of Gardening Alone

While the social nature of gardening is often obvious at community gardens, which I address separately in Chapter Seven, it is less immediately so among home gardeners, who frequently cultivate their plots alone and specifically value the quietness of the activity. Reflecting on her positive memories of working in her parents' garden as a child, for example, Adriane says, "I think I liked being alone. Having the space to just think or whatever." Yet even solitary gardeners often value certain social aspects of gardening. Explaining what she likes about gardening, Jessica Allee points to both the

²⁶ Plants sometimes spill out of the beds in the summer, making some paths more challenging to navigate and less well-defined visually. Although anyone can harvest at the garden at any time, Kate observes that when a path is overgrown, community members tend not to harvest produce from the adjacent beds.

solitude of puttering in the garden and the joy of sharing a harvest. Although she prefers gardening alone at home to joining a community garden, she volunteers her time to maintain a seed bank at the public library and loves hashing over the details of gardening methods and crop varieties with friends. For Jessica and many of the other home gardeners I spoke to, gardening involves social connections extending far beyond the boundaries of the plot.

Almost every participant in this study mentioned at least one person they routinely talk to about gardening—sometimes asking advice, sometimes giving it, and sometimes just sharing experiences. Many connect with other gardeners through various forms of social media. Renee, who occasionally blogs about gardening, tells me that she and her ex-husband found chatting and exchanging tips about vegetable gardening with co-workers surprisingly rewarding. She also feels a deep sense of responsibility for maintaining the plot out of respect for her grandfather, who established and spent decades tending it.

Adriane, among others, values the role gardening conversations play in supporting familial connections: "That's one thing that we can always talk to my parents about is our gardens and our fermented veggies that we've grown and made. There's not really that much else that we can talk to my parents about nowadays. They're just on... very different lifestyle and have gotten more so since they've gotten older." Interestingly, Jessica Allee once hoped that gardening would provide common ground between herself and her heirloom-vegetable-growing sister but discovered that food gardening itself is too wrapped up in their sharply divergent politics to offer a non-contentious topic of discussion.

Beyond conversation, many gardeners relish the opportunities the garden affords for material exchanges, especially of seeds, plants, and produce. Renee, whose ex-mother-in-law provided strawbales for Renee's garden, imagines the pleasure of reciprocating: "And then we can bring her carrots and be like, 'Thanks for the strawbales. We brought you these carrots. We grew them in our cold frame.' That would be nice."

Anita's garden helped smooth her relationship with a challenging neighbor.

My neighbor, she enjoys the garden, and so every season, she loves tomatoes and cucumbers, so I make sure I give her bags and bags of whatever. So it's cool that it... 'cause we kind of, we got along and then there was some, uh, a period where she was going through a lot of stuff and, and there was sort of neighbor tension and now... she's back on.

AT: You placated her with food.

Anita: Yeah, with vegetables... Well, 'cause... her father used to grow... tomatoes and keep his own seeds and everything and so she gets real excited when she sees the tomatoes. So I'm gonna have to go buy more tomatoes, 'cause I only bought like two.

Calvin exemplifies the ways in which a personal garden, tended alone, can be a nexus of social connection. He clearly loves talking about gardening and occasionally stops by the Red Hen Garden to chat, though he does not garden there. More significantly, however, Calvin grows the produce in his large garden almost entirely for others. A tour of his garden is equally an introduction to his web of human

relationships. In the late spring, he solicits tips about growing zucchini, which he planted for the first time after his niece, who lives in Atlanta, told him she likes it. He says the coronavirus pandemic might delay her planned summer visit, but he wants to be ready with fresh produce if she comes. He looks forward to his sister making coleslaw for a crowd from his enormous cabbages each 4th of July and wonders what could be slowing the growth of the collards he intends to give to his cousin. On a crisp November morning, he hurries to fill bulging grocery bags with fresh mustard greens for “ladies at church” before meeting up with his bowling team.

When I visit Calvin, he invariably offers repeatedly to send some of his fresh vegetables home with me: “There’s some little tomatoes ripe over there. Why don’t you get you some of those.” Harvesting a bumper crop of habanero peppers, which he started growing for the man he buys compost from, Calvin asks if my family might also enjoy a few. If nothing is ready for harvest, he looks to the future, “Come back in a couple weeks, I’ll have a cabbage for you.”

Calvin also values reciprocity. Delighted by the strawberry plants I brought him from my garden, he makes a point of updating me on their progress whenever I see him. He frequently asks how I like to use various produce, so it surprises me slightly when I ask him how he prefers to prepare the mustard greens from his garden and he exclaims, “I’m a bachelor, I don’t cook!” Instead, the extensive social network Calvin nourishes with his produce supports him, in turn, with companionship, plants, and shared meals.

In the Epilogue of *Moveable Gardens*, Krishnendu Ray writes of Karen gardeners who arrived in upstate New York as refugees from Myanmar:



Figure 32. Calvin harvests mustard greens for friends from church. Photo by the author.

The purpose of all this growing, cultivating, and nursing is also peculiar by the standards of Western possessive individualism. It is to give away the seeds saved, the produce wrestled from and with the earth, as exemplary forms of sociality, reciprocity, and care. You can be a poor refugee but still be invested, not just in functional nourishment or self-enrichment, but in generosity by producing what is beautiful and good. The object... is not to create domains of autonomy but in fact to underline intimacies and dependencies. (2021, 274)

Calvin and Anita, among other southern Illinois gardeners, demonstrate that Western hobby gardens potentially play similar roles in binding together communities of care.

Conclusions

During the early months of the coronavirus pandemic, there were few pastimes that won as many new avid converts as vegetable gardening. Economic concerns related to job losses and empty shelves caused by supply chain disruptions certainly played a significant role in its popularity. Beyond the actual productive value of gardens, however, the experience of gardening also proved itself well-matched to the crisis, as studies from around the world are beginning to demonstrate (Egerer et al. 2022; Sia et al. 2022). Reflecting on what made vegetable gardening so enticing at the height of the pandemic underscores some of the aspects of gardening that make it meaningful in more ordinary times as well.

With social gatherings sharply curtailed and many people suffering from a sense of social isolation, gardening offered multiple ways for people to connect with others.

Some of the ways people participate in gardening conversations—phoning friends and family, taking part in chats online—remained accessible, of course. But gardening alone, people could often still tend to relationships with loved ones in other households materially as well by dropping off seeds, plants, or produce, or even canning some jam for another time. As an outdoor activity in which remaining socially distanced is also possible, many people found they could safely garden alongside others as well.

Chronically short of volunteers prior to the pandemic, Red Hen Garden saw a dramatic increase in participation during 2020, attracting one-time or occasional helpers and gardeners who became regulars alike. Many of these gardeners found donating or sharing produce to ease food insecurity a satisfying way to extend support to struggling people in the community during an especially difficult period. Such opportunities were not available everywhere. In Toronto, for example, community gardens were characterized as “inessential” and temporarily closed during lockdowns, disproportionately impacting lower-income gardeners who already struggled to obtain access to land. Sarah Elton and Donald Cole (2022) argue that such gardens deserve recognition for their role as an essential part of the “culinary infrastructure” of the city and for providing other critical cultural and health-related benefits.

In addition to food, gardens gave both the people who worked in them and other visitors the opportunity to mentally “get away” from homes where they were locked down, even if it was only into a backyard or onto a porch. Because gardens invite a revolving cast of birds, insects, seeds, and mammals they put on an engagingly unpredictable show. The rich sensory environment of the garden provides opportunities for restful interactions that do not demand full attention or concentration. On the other hand, gardens also afford widely varying forms of deep mental and physical

engagement. The heavy work they offer is linked to improvements in mood and cognition. They accommodate creativity and curiosity. Memory, engagement with care, and the wonder of watching lives unfold involve gardeners emotionally as well.

As Gross points out, fascination frequently leaves gardeners feeling that time passes differently in a garden (Gross 2018). Absorbed in their tasks, gardeners may enter a flow state in which they lose track of time (Csikszentmihalyi 1996). Prior to the pandemic, Adriane told me:

Oftentimes, this spring and summer, I would work out in the garden and be like, 'Oh, I'll just work for twenty minutes, it's gonna be great' and like two hours later, I'd still be out there and like be completely sun burnt... [my husband] would come home and yell at me and be like, 'Why didn't you just put on a hat, or a long sleeve shirt?' and it's like, 'Cause it's just our little garden and I thought I'd be out there for just a little bit.'

This commonly voiced aspect of the experience of gardening, which contributes to the sense of gardens as an escape from other routine elements of daily life, likely became even more valuable to gardeners during lockdowns that left many feeling trapped and isolated in their homes. But another aspect of the way gardeners often experience time may have benefited them as well. Amid common complaints of pandemic monotony making life feel like the movie *Groundhog Day*, gardeners were able to witness constant changes through the seasons. Although quite differently paced than clock time, the development of a garden makes the passage of time palpable.

The complex experience of food gardening clearly affects gardeners in a multitude of ways, both large and small, and evidence of unexpected new elements frequently enters the mix. For example, research intriguingly suggests that certain soil bacteria may stimulate production of serotonin, a mood regulator, in the brain (Lowry et al. 2007). Perhaps not entirely coincidentally, many gardeners I interviewed, like many participants in Tilley's (2006) study, prefer to work in the garden without gloves, feeling the soil and plants in their hands. In an interview with *Medical News Today* researcher Chris Lowry echoes my own thoughts when he notes that while his team's studies of *Mycobacterium vaccae* illuminate how immune system function may impact mental health, "They also leave us wondering if we shouldn't all be spending more time playing in the dirt" (Paddock 2007).

CHAPTER 7

COMMUNITY GARDENS



Figure 33. Entry sign at Washington St. Garden. Photo by the author.

On a typical summer workday at Red Hen, Kate hollers out a greeting along the lines of, “Hi there! Do you need any cucumbers?” whenever she spots someone walking or biking past the garden. Curiosity piqued, they frequently come over and chat for a few minutes and many learn for the first time that the garden’s produce is free for anyone to pick. Core gardeners at Washington St. enthusiastically aid in both stocking and running seed swaps at a winter farmers market and sometimes at the garden as well. These

events draw in scores of locals, some of whom have no other relationship with any of the community gardens. At the Birch St. Food Forest, Jessica Lynn arrives on workdays outfitted with plenty of snacks to welcome the neighborhood kids who flock onto the lot from nearby homes to help transform it into a perennial fruit and nut grove. Through these and many other “practices of community,” garden leaders deliberately reach out to add strands to the web of connections the gardens maintain with the community and to strengthen them, a key mission of each garden (Nettle 2014, 116).

The catchall term “community garden” frequently lumps together a vast array of gardening projects that occur away from gardeners’ homes. They may feature individually assigned plots that gardeners cultivate for their own use or be tended collectively. Some gardens enforce rules established by a central figure or group, others create guidelines through participant consensus, and still others place few, if any, restrictions on gardeners’ activities. Some gardens strictly limit participation while others welcome all comers. Occasionally, shared gardens even compel participation from certain gardeners, as in the case of some school or prison gardens, leading geographer Mary Beth Pudup to propose “organized gardening project” as a name that more accurately reflects the diverse types of nonhome gardens one might encounter (Pudup 2008, 1231).

The city of Carbondale has hosted a varied constellation of garden projects over the years, including allotments managed by the park district, an elementary school teaching garden, and ventures overseen by religious organizations, some of which survived only briefly (Schauwecker 2015). For this study, I chose to focus on food gardens communally cultivated with the intention of drawing participation from a broad swath of residents to address perceived community needs. I apply the label “community

garden” to them based on a combination of these elements, self-identification, and their specific emphasis on various types of public outreach to nurture community ties (Nettle 2014).

I interviewed and worked alongside gardeners at two such gardens—Red Hen Garden and Washington St. Garden—and participated in workdays at a third—the Birch St. Food Forest, all located in the northeast quadrant of Carbondale, a predominantly Black and low-income neighborhood. Prior to the coronavirus pandemic, the gardeners at Red Hen were aware of the other gardens, but Red Hen was organizationally distinct from Washington St. and the Food Forest.²⁷ Currently, all three collaborate as part of the Food Autonomy initiative of the group Carbondale Spring, although Red Hen also continues to be a project of the organization Women for Change (Carbondale Spring 2020). I visited both Washington St. and the Food Forest multiple times and have become a regular volunteer at Red Hen.

The values, practices, and experiences of the Carbondale community gardeners I met—many of whom also maintain personal food gardens—overlap substantially with those of home gardeners and I frequently incorporate them in my discussions of those topics in other chapters of this work. But the community gardens, all of which emerged as projects of relatively young parent organizations, differ from personal gardens in their intent to function collectively, inclusively, and for the purpose of fulfilling organizational missions. This chapter addresses these distinctive elements of community vegetable gardening, examining what kinds of relationships the gardens

²⁷ Less than a mile separates the gardens. Red Hen sits at the northeastern end of the group, Washington St.—adjacent to the town square—is the farthest southwest, and the Food Forest is roughly in the middle.

create and how they do so, the complexities of inclusion, and the diverse goals—related to food security, education, environment, safety, health, community care, and more—gardeners attempt to achieve and balance through their practices. In exploring these facets of community gardens, I draw particularly on Claire Nettle’s research on community gardens in Australia and Ashley Colby’s work with subsistence food producers (SFPers) in and around Chicago, Illinois (Nettle 2014; Colby 2021).

In *Community Gardening as Social Action*, Nettle explores the theoretical and activist underpinnings of community gardening and demonstrates that in many gardens, “community [is] a practice, something that garden activists seek to enact in specific ways” (2014, 117). The word “community”—always fuzzily defined—occupies an awkward position in studies of organized gardening projects. Researchers justifiably question who is included or excluded in the category and how, whose interests the projects advance or neglect, and whether the term simply serves to obscure the reproduction and reinforcement of pre-existing social divisions and inequalities (Staehele 2008; Nettle 2014; Ramírez 2015).

Alert to such concerns, Nettle nevertheless warns that skeptical scholars tend to be overly dismissive of the conscientiousness community gardeners apply to grappling with community and inclusiveness practices. The community gardeners she worked with, Nettle writes, do not believe that “community” is an inevitable consequence of gardening collectively, but that it arises “from the conscious—and difficult—work of facilitating, nurturing, and encouraging relationships of friendship and care” (Nettle 2014, 131). Moreover, community gardening is not “a campaign with a projected end, but an ongoing intervention in daily life. ‘Community,’ for these community gardeners is therefore an aim of itself, not merely a legitimating discourse, a means of movement

building or a site of political action.” (p. 133). Nettle identifies precedent for these attitudes in both anarchist theory and in feminist work on deploying care practices in pursuing social justice, political discourses that echo overtly among some Washington St. gardeners as well as in Food Autonomy. The fundamental ethic of committed attentiveness to care practices as a means of transforming everyday life locally is apparent throughout the gardens even when it remains unstated, undefined, or unaligned theoretically.

Meanwhile, in *Subsistence Agriculture in the US*, Colby observes social ties proliferating among SFPers through their practices of subsistence food production (SFP) and sees in these networks the emergence of “political and economic shadow structures” which offer critically important alternatives to dominant forms of social organization, particularly consumer capitalism, without directly conflicting with them (2021, 96).²⁸ She gives attention to efforts toward subsistence achieved through multiple productive and strategic means—gardening, raising livestock, hunting, fishing, bartering, sharing—with particular emphasis on urban and suburban SFPers. Although occasionally touching on community gardens, she focuses primarily on SFPers independently producing food for personal use specifically because their activities are far less obvious—and consequently less studied—than those of community gardeners and rural food producers. According to Colby, SFPers, despite largely flying under the radar, constitute at least an incipient social movement that, instead of pursuing familiar,

²⁸ Colby (2021) defines subsistence food production (SFP) “as producing at least fifty percent of one’s food needs in the high season of production” (p. 7), a metric based upon “self-reported behavior” (p. 31). Very few participants in my study—whether growing at home, in a community garden, or both—would reach this threshold. Nevertheless, Carbondale’s community gardening organizations share many values and practices with Colby’s SFPers.

high-visibility actions such as protests, primarily organizes itself and propels social change through sharing and education. Nettle recognizes a similar, if more public, dynamic with respect to community gardens (Nettle 2014).

A surprisingly large and diverse group of people practice SFP in Chicagoland. Among marginalized communities throughout the US, food production has been consistently important for both meeting basic needs and supplying culturally valued foods (White 2010; Black 2015; Reese 2019). In many non-immigrant, higher income and non-rural communities, by contrast, producing food at home came to be stigmatized as a lower class activity in the 1950s and 60s.²⁹ Cities and suburbs began passing ordinances banning chicken-keeping and front yard vegetable gardens, reinforcing the concept of non-productive yards as ideal and appropriate (Maurer 2017; Colby 2021).³⁰ Growing concerns about multiple aspects of commercial food systems as well as events such the Great Recession and the coronavirus pandemic have drawn increasing numbers of people from across the social spectrum into SFP in recent years, however (Colby 2021).

Colby states that social barriers of race, class, and ethnicity are often rigid in Chicago, and neighborhoods typically insular, making interaction among people from disparate social groups uncommon. Nevertheless, she witnessed SFPers routinely crossing social boundaries in pursuit of their practice. While they most frequently forged ties by sharing practical knowledge, Colby also notes the importance of material transfers, offering the example of a rabbit keeper finding a responsible way to dispose of

²⁹ Abbie, who lives in a small town near Carbondale, recently ran afoul of such an ordinance banning chickens and was forced to give up her flock. She soon began raising rabbits instead.

³⁰ Notably, the city of Chicago continued to allow chicken keeping even as many surrounding suburbs began banning the practice (Colby 2021).

waste by donating it to a community garden for compost. She argues that orientation around shared productive practices—as opposed to organizing based on ideology or identity, as is more common in social movements—made establishing an unusually diverse network possible. Additionally, despite the usually weak connections among SFPers and the fact that the relationships did not form for the purpose of overt political action, the network enables quick political mobilization when necessary. For example, a short-lived proposal by a Chicago city council member to institute a ban on chicken keeping in the city was defeated in 2007 after keepers united to oppose it with efforts including a citywide educational event, the Chicago Chicken Coop Tour (Colby 2021).

Carbondale's community gardens are gradually building similarly diverse and expansive networks. A relatively small group of people routinely works in Carbondale's community gardens, but—starting by rejecting policies common in many community gardens that require labor as a condition of inclusion—the gardens deliberately extend connections beyond their own boundaries. Much as Colby and Nettle describe, enrolling multiple segments of Carbondale's population, in varied ways, in the missions of the gardens relies on outreach grounded in sharing and education.

Resources and Community Engagement

Certain types of gardening projects—especially institutional ones, including some school gardens—come together with little doubt about how they will get the most basic resources they need to function. While they may also apply for grants or pursue other means of support, securing administrative approval is often the primary hurdle a potential garden leader must overcome to initiate such a project. The community

gardens I visited started with virtually no institutional, financial, or material resources, however. Instead, project leaders called upon their personal connections in the community and established new ones to produce the gardens, accumulating the resources they needed—land, water, tools, seeds, labor, etc.—by building a garden community. The gardens create or reinforce additional ties as they share seeds, plants, and produce. Resources are, therefore, both a cause and a result of community engagement and these gardens partially achieve their goal of community building as a primary mission through practices of resource gathering and distribution.

Land

Organized gardening projects obtain access to land in varied ways. Schools, park districts, and religious organizations often host such projects on property they control, for instance, and examples of each of these situations exist, or did so recently, in Carbondale (Schauwecker 2015). Cities also frequently authorize gardening organizations to care for municipally owned vacant lots—sometimes only until the land can be sold for development, but often utilizing long-term leases or even transferring ownership—as a means of addressing concerns including crime, blight, and public health while reducing demands on public maintenance departments (Salvidar-Tanaka and Krasny 2004; Gorham and Waliczek 2005; van den Berg et al. 2010; Schauwecker 2015). Other gardening projects or their parent organizations buy or lease privately held land to cultivate. Some community gardens with limited funds also rely on informal arrangements with private landowners to access garden space.

Notionally, relatively low property values and low population density in Carbondale make acquiring land for community gardens a more easily attainable goal

than it tends to be in larger cities and, in fact, none of the community gardens I visited has paid for the land they use (Schauwecker 2015). The Birch St. Food Forest, for example, grows on property the city donated to a non-profit, Common Greens, to establish a community garden (Duncan 2016). Meanwhile, for Red Hen and Washington St., access to a place to garden currently depends upon social networks. Neither garden owns or leases the property where they garden and continued access to the land is entirely at the discretion of private landowners.

Washington St. began its life in 2015 as the Flyover Garden, planted in a garden plot acquired through the now defunct Carbondale Park District allotment program. Gardeners later moved it to a vacant lot across the street from the meeting place of the Flyover Infoshop, now closed, the garden's original parent organization. Current garden leader Jessica Lynn approvingly suggests that Flyover may have begun gardening at Washington St. without consulting the owner, although gardening continues there today with permission.³¹ She harbors hopes that Washington St. will not only retain access to the property but also be able to expand onto an adjoining lot where a historic building previously stood because the historic status of the site complicates rebuilding on the centrally located space (Partisan Gardens 2020).

Red Hen Garden grows on a lot owned by a former Carbondale resident who expects to return and build a home there in retirement. The owner promised use of the property for seven years, most of which has already passed. Deborah Woods and Kate, founding gardeners and current leaders at Red Hen, remain in contact with the owner

³¹ "Guerrilla gardening"—planting somewhere such as a vacant lot or grassy median without securing the legal right to do so—has become a popular form of action among anti-capitalist organizations (Nettle 2014; Millie 2022)

and express some hope that previous plans for the property will change. They also frequently discuss other lots that might serve as either a new home for Red Hen or as additional community garden space.

Precarious access to a specific piece of land presents a community garden with significant challenges. The gardens I visited, like community gardens in many other cities, sprang up on sites where demolished structures left behind relatively poor soil riddled with broken glass, chunks of masonry, and other building debris. Thriving gardens require investment in building better soil, an ongoing effort that requires years of attention. Additionally, all the gardens want to include a variety of perennial plants, including fruit trees which take multiple seasons to begin bearing. Changing locations, assuming new sites are available at all, forces gardeners to recommit resources and time to these slow processes and uncertainty about land tenure complicates decisions about longer term projects. Studies link successful community gardens in some cities to neighborhood gentrification and associated rising property values can lead gardens to lose access to the land they need (Voicu and Been 2008; Federici 2012; Schauwecker 2015; Braswell 2018). So although community ties can make it possible for projects lacking financial resources to get started, such approaches to acquiring land also introduce risks for the long-term survival of the gardens.

Labor

Beyond securing access to land, acquiring and maintaining a steady supply of labor may be the greatest challenge community gardens face. Many people in Carbondale express interest in and appreciation for community gardens and many cheerfully volunteer occasionally, but only a handful turn up for workdays weekly or more

frequently. Gardens, however, typically demand consistent care and attention. And while a mass of volunteers may lend their energy to a big project on a fresh spring morning or a crisp afternoon in the fall, watering and weeding during the dog days of summer garners far less enthusiasm. At the peak of a recent heatwave, even the ordinarily sought-after okra at Red Hen went unpicked for several days as harvesters from the community apparently opted to wait out the weather.



Figure 34. Deb harvesting sweet potatoes. Photo by the author.

Garden project organizers, usually perceiving demand in some form for a garden in their area, often seem to expect that if they establish a garden and let people know about it volunteers will materialize. But garden founders often find themselves doing most or all of the work alone for long stretches of time, and not necessarily only at the beginning (Ramírez 2015; Schauwecker 2015; Maurer 2017). A manager of a small, long-lived allotment project in Carbondale, for example, told me she typically plants several of the garden's beds herself just so they will not be left empty. When someone does sign up for a plot, they frequently abandon it by late summer. Only the combination of secure access to the site and a dedicated leader allows the garden to persist despite sometimes minimal participation in the project by others. Community gardens generally depend heavily on such steady management and frequently do not survive transitions of leadership.

Not surprisingly, volunteers must often prioritize paying jobs or other commitments over consistent garden care, a fact the Food Autonomy gardens try to offset by paying for some labor. Extremely limited funds have prevented the creation of any predictable, long-term, or full-time positions, however, so nearly all garden work remains unpaid, even among core gardeners.

Nevertheless, the presence of committed leaders at each of the gardens I visited enabled significant, albeit one-time or short-term, labor contributions from many additional volunteers. At Red Hen, for example, a Boy Scout troop built new frames for several vegetable beds as a service project. A young man, laid off from a job in another city during the pandemic and temporarily living with his parents while looking for new employment, volunteered for a few months before leaving town again. SIU students, including nutritionist-in-training Kim Reese and horticulture major Logan who I

introduce in Chapter Three, sometimes share their time generously at the gardens, but usually with the expectation that they will eventually move away. Deliberately making space for these different types of volunteers at the gardens does more than accommodate schedules and preferences. It also facilitates connections between students and other new or temporary residents of Carbondale on the one hand and long-term residents on the other, a boundary that can be difficult to cross in a small college town. It also affords non-gardeners the opportunity to dip into the practice with guidance from experienced practitioners and minimal personal investment.

At the Birch St. Food Forest, now populated with perennials, the rhythm of work the plants demand seems to align with volunteering patterns more effortlessly than in the other gardens. Small, diverse crowds gather for each of the handful of cool, fall workdays needed to plant the site. Although these days required significant planning by garden leaders—designing the garden, ordering bareroot trees, acquiring enormous piles of cardboard and woodchips as well as tools to share—the minimal attention the trees need as they mature—work that is also less time sensitive than annual crop care—allows for sporadic work events and translates into a more predictable burden for garden leaders.³²

Leaders try to keep track of the hours worked and amount of food produced in the gardens so they can attempt to quantify the projects' value when they request funding,

³² Public food forests, typically open for harvesting by visitors and intended to become somewhat self-sustaining ecosystems requiring relatively little care, have been popping up across the US recently, with more than 70 currently growing. Although the name suggests otherwise, food forests are often quite small. The Birch St. Food Forest, for example, grows on less than one half acre. An Atlanta, Georgia food forest, established in 2019 and believed to be the nation's largest is just over seven acres (Jordan and Gómez-Upegui 2021). As a newer phenomenon that requires significant time to mature, it remains to be seen how well they will live up to expectations.

but these accounts tend to overlook one key group. People who drop by the gardens only to harvest provide essential labor while also demonstrating the preferences and engagement of the community. At Red Hen, for example, I have most routinely seen visitors gathering okra and cowpeas. Both are highly productive crops that benefit from frequent picking, but core gardeners at Red Hen rarely spend much time harvesting them—especially okra—because other community members do it first. The core gardeners, invested in growing produce people want to eat, pay close attention to what gets picked most reliably, even when they do not see the work happening, as they plan future plantings. Nevertheless, because people often harvest when regular volunteers are not present, the work and enthusiasm of harvesters, as well as the produce they collect, remains nearly invisible in assessing the impact of the gardens.

Material

Studies of organized gardening projects routinely discuss volunteer labor as an indicator of community engagement, but far less attention has been given to how the flows of materials into and out of community gardens establish and reinforce social ties. Yet extensive material transfers create countless contacts between the gardens and a wide variety of community members. Like the similar links Colby describes among SFPers, these connections are often weak, but they position the gardens as key nodes in a network of sharing and care that frequently crosses social boundaries and begins to weave together new community configurations. Colby identifies such alignments as forming the foundation of shadow political and economic structures (2021).

Starting even the most basic garden requires some access to material resources, a problem usually treated as a financial one in community gardening literature, when

addressed at all. Many gardens undoubtedly rely heavily upon alternatives to purchasing goods and services, however, including the gardens I visited. Unfortunately, non-monetary approaches typically receive minimal discussion. Schauwecker, for example, describes securing funding as “an on-going ordeal” for the Carbondale gardening projects she surveyed, but does not dwell on the ways gardens navigate limited cash flow (2015, 67). Attempting to gather resources without money frequently prompts creative outreach, however, and can not only further community engagement goals, but also begin to address certain sustainability concerns. Different kinds of gardens and garden communities, distinct from those developed through the commonly less social and more straightforward process of buying materials, emerge when lack of funding forces garden leaders to seek other ways to meet material needs making varied styles of resource acquisition worthy of interest.³³

At the sites I visited, garden leaders and other volunteers routinely contribute materials to the gardens—from seeds and starts to tools and paving stones—but they also often draw upon a broader social network to meet garden needs. Mason Smith readily ticks off multiple examples of Washington St.’s eclectic sources of support. A local fish hatchery that raises crickets to feed their stock contributed coconut coir bedding from the cricket cages— nitrogen-rich with droppings—that became a key soil amendment in the garden’s first years. Retailer Rural King allowed an employee to share hundreds of packets of seeds that could not be sold after part of the pallet transporting them got wet. A small healthcare center adjacent to Washington St. and run by a local

³³ None of this is to say that Carbondale gardens can, should, or want to operate without any access to money. They do pursue donations, grants, and city funding and gaining some income, including one substantial private donation given during the early stages of the pandemic, has helped make activities and planning more stable and predictable.

religious group allowed the garden to use their water and a community member donated an expensive drip irrigation system.³⁴ The garden builds compost with leaves and kitchen waste supplied by many people and frames beds with donated materials. Mason was even able to piece together a small greenhouse built almost entirely from odds and ends people dropped off at Washington St.



Figure 35. A small greenhouse at Washington St. built with donated and scrounged materials. Note doors to the right, intended for cold frames. Photo by the author.

Similarly, Deb and Kate at Red Hen, who also run a sewing program together, navigate the limited funding for their projects with a combination of bartering, donations, and scrounging. When they started the garden, for example, the women wanted to plant most of their vegetables in a large, tilled plot, but they lacked a tiller.

³⁴ Washington St. currently relies on precipitation and rain barrels for water.

Deb, a long-time resident of the neighborhood, was aware of an elderly man known for growing large quantities of collards and sharing them in the community. She contacted him through her friend, the man's cousin, and he tilled Red Hen's plot using his own equipment in exchange for clothing alterations provided by Deb. Meanwhile Kate, who formerly used her sewing skills professionally as an interior decorator after retiring from coal mining, earned cash donations for both Red Hen and the sewing program by making commissioned furniture covers which doubled as demonstration projects for the sewing class. The women also enthusiastically engage in curb mining and trawling social media, including local Buy Nothing groups, to supply the garden. Their efforts have



Figure 36. Bed framed with donated logs at Washington St. Photo by the author.

yielded lucky prizes such as outdoor furniture and wood to build simple frames for several raised beds.

Just as at Washington St, a varied community also shares materials with Red Hen. A home gardener donated a bundle of healthy sweet potato slips she had nurtured just in time for planting. The Carbondale Park District provided timber bamboo—used to build the garden’s teepee trellis—trimmed from a small, dense grove in the city’s arboretum. Volunteers acquired cardboard to mulch paths from a local dairy company and the electric utility delivered truckloads of woodchips. Apprentice plumbers donated their labor to install a yard hydrant and a community member contributed all the parts. Dozens of community members not at all involved in the day-to-day work of gardening at these sites nevertheless participate materially in constructing the gardens.

Distributing resources including seeds, plants, and produce—which the gardens accomplish using multiple strategies—also extends and strengthens the garden community. The various types of things the gardens offer allow them to connect with different parts of the community and to advance different aspects of their missions.

Volunteers frequently use some of the gardens’ produce themselves, but it is available to anyone and intended to primarily benefit low-income residents of Carbondale. Sharing it, which ranks among the most basic functions of the gardens, can be a surprisingly tricky process, however, and remains somewhat inefficient in terms of the proportion of the food grown that reaches community members. All the challenges of managing harvests I describe in Chapter Five—uneven quality, unpredictable quantities and timing, perishability—also apply in community gardens but with the added difficulties of coordinating communication among many possible harvesters and consumers and trying to ensure that fresh food gets to those who need and want it most

while also attempting to provide the community appealing opportunities to interact with the gardens directly.

Red Hen and Washington St., both unfenced and always accessible to the public, allow anyone to harvest crops and gardeners also offer some free produce on stands abutting the street. Leaving crops unpicked saves volunteer labor and gives community members the chance to enjoy optimally fresh produce as well as time in the garden—experiences that gardeners sincerely value themselves and want to share—but also risks wasting food. In fact, Logan identifies “just not harvesting” as a significant problem at Washington St. that prevents the garden from sharing more food. At Red Hen, garden



Figure 37. Freshly harvested sweet potatoes at Red Hen. Photo by the author.

visitors clearly enjoy picking certain crops themselves, especially slicing tomatoes, okra, and cow peas, but routinely overlook other things, such as green beans, cucumbers, lettuce, cherry tomatoes, and root vegetables unless they are on a stand. Yet gardeners hesitate to put significant quantities of produce on the stands, knowing that it often degrades in the summer heat before anyone claims it.

Gardeners direct most produce more deliberately. Deb's neighborhood network alerts her when someone needs something, for example, and she frequently arrives at the garden with specific produce requests, which she delivers personally. Occasionally, she also hands out bags of vegetables at community events, partly to introduce the garden to more people. Crops that gardeners can harvest in larger volumes all at once—cabbages, sweet potatoes, mustard greens, beets—go mostly to two organizations that prepare free meals for people in need.

Reaching out materially to home gardeners as well, the gardens host, or collaborate with other organizations to hold, multiple events oriented around sharing seeds and plants each year. My sense, though I lack data to support the claim, is that significantly more people get seeds or plants through the gardens than obtain produce. With these distributions, the gardens serve as a hub of interaction for home gardeners in the broader community while also advancing other project goals, such as local food security.

Washington St. routinely saves seeds and gardeners there occasionally post notices on social media and set up a table filled with jars and packets of seeds on the sidewalk next to the garden to make them available to the community. The garden also co-sponsors the annual Seed Swap held each February at the winter farmer's market. In addition to donating seeds, several Washington St. gardeners, including Abbie Kruse and Jessica Lynn, participate in running the event. Study participants Jessica Allee, who

maintains a seed library housed at the Carbondale Public Library but prefers to garden alone, and Adriane also contribute to the swaps.

Although community members are welcome to bring seeds they have saved to the Seed Swap, people can—and most do—participate without bringing anything to trade to ensure that all gardeners, and prospective gardeners, are welcome. Attendees appear to embrace the opportunity to interact with other enthusiasts at the popular events, as they intently question those staffing the tables about unfamiliar crops or varieties and exchange tips with other gardeners. Volunteers at the spring 2022 exchange even connected with the next generation of Carbondale gardeners by helping kids make their own seed bombs.

For the past several years, Carbondale's community gardens have held events in conjunction with the Neighborhood Planting Project as well. The organization, also affiliated with a group of the same name in Indiana, obtains bareroot native tree saplings, most selected for their food-producing potential, from state-run nurseries to distribute for free to area residents. Going so far as to offer help planting the trees, the program is intended to encourage the adoption of edible landscaping in and around Carbondale and has given away thousands of trees since 2018 (The Neighborhood Planting Project 2022). The effectiveness of the outreach is clear at the home of study participant Renee Schwartz, where pecan and hazelnut, pawpaw and persimmon seedlings have begun taking root in her large, grassy yard.

Each spring, Red Hen also gives away countless plants at its Garden Gala. Deb and Kate solicit donations from local nurseries and garden centers, but a vast majority of the plants come from non-commercial growers throughout the community. Many things come from the community gardens and their core volunteers, of course. Washington St.

uses its greenhouse to propagate herb and vegetable starts for its own use, but also to share with the community. Various crops thinned from Red Hen's beds and transplanted into pots make an appearance at the giveaway as well. Deb shares piles of the hostas and other ornamentals that proliferate in her yard. Kate contributes dozens of tomatoes and flowers she starts from seed at her home on shelves she purpose-built and equipped with grow lights. Additional offerings flow in from all over town—trays and small pots filled with collards and cabbages; purchased six-packs of peppers and tomatoes, each with a few plants missing, leftover from starting home gardens; cucumbers and herbs sprouting in homemade pots fashioned from newspaper; bulbs, rhizomes, and divided perennials, freshly dug and piled up on tarps or gathered in boxes or grocery bags.

In addition to distributing plants, the Garden Gala—an event with visibly diverse attendance across age, race, and gender—is intended to be a means of fostering friendly, and potentially supportive, connections among community members who might not meet elsewhere. Wanting to encourage people to linger and socialize, Kate and Deb enthusiastically insist upon applying an enormous grill to the task of preparing mounds of vegetables for the crowd to enjoy together.³⁵ Though the freeform meal, served continuously throughout most of the event and consumed by attendees as they circulate around the garden and chat with one another, does not technically meet certain strict definitions of commensality, it undoubtedly enhances the convivial atmosphere of the day and provides opportunities to form or strengthen bonds (Sutton 2021).

³⁵ Because the event necessarily takes place relatively early in the growing season, most of the vegetables served are not grown at Red Hen.

While multiple motivations prompt garden giveaways, including avoiding wasting things such as extra starts, and the gardens demand no compensation, the events often serve as an opening gesture in sharing relationships. Looking at my own garden, I cannot miss the imprint of Carbondale's gardening community. Tomatoes and comfrey, anise hyssop and groundcherries, cowpeas and lemongrass all arrived at my home because of the generosity of the people in this network. In turn, the strawberries, echinacea, and bee balm from my yard are now dispersed around the town. And of course, exchanges among gardeners are not limited to seeds and plants alone. A person who picks up a cherry sapling or tomato plants from a community garden event, for example, may later contribute an old door for cold frames, leaves for compost, labor in the gardens, or something else entirely. Many of these gifts cost the giver little more than attentiveness to the needs of others and the effort to reach out. Alternatively, and equally satisfying for the community gardens, those taking plants to grow at home may offer some of what they harvest or propagate to their own social networks ensuring that the sharing practices of community initiated by the community gardens continue rippling outward.

Inclusivity and Collective Decision-making

The community gardens I visited all aspire to easygoing inclusivity.³⁶ They not only eagerly welcome volunteers from throughout the community, but also make free

³⁶ Like many community gardens, none of the three gardens offer accommodations for gardeners with disabilities, though Washington St. reports efforts to deliver its produce to elderly and disabled neighbors and Deb makes a similar effort at Red Hen (Maurer 2017; Partisan Gardens 2020).

produce available on garden stands and allow anyone to harvest produce at any time whether they work in the gardens or not. None of the gardens have fences and, despite some need for protection from deer, Jessica Lynn fervently insists that Washington St. and the Food Forest will remain unfenced to project a clear sense of openness to area residents (In This Climate 2022b). Additionally, at Washington St. and Red Hen, garden leaders express a desire for collective planning and decision-making carried out by all those “doing the work,” as Jessica puts it (Partisan Gardens 2020).

Defining and practicing inclusion and shared governance is a complex and continuous process, however. Community garden researchers cite many examples of garden projects sincerely advocating inclusiveness while also quite deliberately excluding certain individuals or even groups—sometimes by original design, sometimes only as conflicts emerge—in an effort to protect others (Staheli 2008; Nettle 2014). Such situations arise in Carbondale gardens as well. One gardener told me about a person asked to stop participating at a garden, for example, because certain gender-related attitudes the person expressed made other volunteers feel unsafe or uneasy.

Exclusion frequently also occurs for predictable but inadvertent reasons. At Red Hen, for instance, one obvious barrier to greater inclusion of the broader community in everyday garden care is the schedule. The timing of routine workdays—currently all stretching from mid-morning to early afternoon on weekdays—strongly favors retirees and people who are either unemployed or have non-standard or flexible work schedules. The hours almost certainly limit participation from others, though the intent is to suit those who are already involved and willing to commit to providing consistent care, not to leave anyone out.

Myriad elements of garden projects can affect whether community members view them as welcoming and, of course, that impression may vary among individuals. Basic garden rules can dampen participation, for example, especially if not everyone has a say in establishing or modifying them. Even close relationships among core gardeners can make a garden feel exclusionary to newcomers and many gardens become less inclusive over time (Schauwecker 2015; Gross 2018). Additionally, tension often exists between nurturing a truly diverse community and one with a strong, coherent mission. In other words, “the shared values, ideology, and daily praxis that brings some people together as part of a community gardening movement are also potential barriers to the involvement of others” and creating an inclusive community can “destabilise movement identity” (Nettle 2014, 124–25).

At Washington St. Jessica describes early conflicts between gardeners drawn to experimental methods, permaculture, and growing medicinal herbs, which Jessica prefers, and those more inclined toward what she dubs “conventional” vegetable gardening practices.³⁷ She recalls a gardener in tears after someone destroyed medicinal mugwort, either not knowing or not caring about its value to others. Jessica notes that when two of the current, small, core group of Washington St. gardeners, both of whom favor permaculture approaches, joined the garden a couple of years ago, the “vibe” of the garden changed and “it felt like we were on the same page without struggling to be on the same page” (In This Climate 2022a).

³⁷ In this context, Jessica does not seem to be using “conventional” to refer to using synthetic agrochemicals, but to indicate an emphasis on growing common food crops without applying some of the concepts she values, including polyculture, to garden planning.

Jessica does not indicate whether the shift arose more from the conventional gardeners embracing experimental approaches, or from the views of those gardeners—and perhaps their presence as well—becoming more marginal to managing the garden as the number of volunteers focused on permaculture increased. Nevertheless, the point remains that volunteers do envision the gardens differently and their varied interests and preferences may be fully incorporated, partially adopted, or disregarded in garden plans. Some gardeners may emerge from that process feeling empowered and others marginalized.

Furthermore, in some cases, preferences for certain gardening methods or styles may correspond with social categories including race and class. Working in a small Rust Belt City, for example, anthropologist Megan Maurer discovered that Black and working-class gardeners often found the permaculture-style gardens becoming popular in Whiter, wealthier parts of town distasteful (2017). In neighborhoods struggling against urban blight, gardeners thought such plantings looked unacceptably unkempt even when they supported some of the environmental rationales for the approach. My data do not speak as to whether a similar divide exists among Carbondale gardeners. Maurer's work suggests a significant potential impact of factors such as methods on the diversity of participation in community gardens, however, which warrants further attention.

Among those who do choose to participate in a garden, the details of enacting decisions collectively can be challenging, and the appearance of clear consensus can sometimes be misleading. At Washington St., for instance, every gardener I spoke to talked about and supported the basic premises that the garden should produce food and a beautiful, welcoming space for the community in an ecologically sound way. The

gardeners differed slightly in how they prioritized the goals and how they defined appropriate practices, however. One gardener told me:

We probably exceed any organic metric by quite a bit... On very rare occasions we have used the organic approved fertilizers or pest control, stuff like that. But we almost never use any of the stuff that's approved for organic. Just like, you know, compost and weeding and stuff like that.

Another gardener, also generally interested in pursuing environmentally friendly methods, paints a more complicated picture, however. Despite knowing the preferences of other gardeners, they semi-secretly fertilized fruit trees with ammonium nitrate, a synthetic product, believing the fruit trees would be unproductive and unhealthy-looking without it. They also applied Round-up to one pernicious weed.

We would never do that when some of the people are present just because of the uproar you would cause, but they love it. Their trees look great, so, but if we didn't do it, I have a very strong feeling the trees wouldn't look like they do... Don't ask, don't tell, to a degree.

Juggling various priorities—including that of abiding by group decisions—different gardeners sometimes proceed on conflicting paths.

These tensions suggest caveats to Colby's claim that orientation around practices allows more diverse networks to form than typically develop around ideology or identity (2021). SFPers form networks as they share knowledge, skills, and resources, but most

implement their practices much more independently than community gardeners do. Not required to agree with other practitioners on the details of how to accomplish specific tasks or the reasons for choosing a particular approach, they can more easily skirt ideological clashes. When cultivating a shared plot together, agreement on details matters, however. To the extent that ideological positions inform the selection of specific practices, they become more difficult to ignore in such a context.

Perhaps as a result, Carbondale's community gardens find their greatest diversity in the loose assemblies that form related to events and material flows. These networks provide opportunities for gardeners to influence and support one another in their practice of gardening without restricting anyone's behavior. Although the gardens themselves and the somewhat ideologically aligned gardeners who run them anchor the networks, these additional types of interactions allow the gardens to strike a balance between pursuing coherent goals and engagement with a broader and more diverse community.

Garden Missions

Carbondale's community gardens operate with multiple, interconnected missions in mind (Schauwecker 2015). All the gardens intend to produce food, for example, and they also aspire to be attractive community gathering places. Gardeners produce vegetables both for the enjoyment of community members and to improve access to healthy produce. While the many purposes of the gardens and the differing priorities of the people working in them can sometimes lead to conflicts, their varied missions also help the gardens engage a diverse community with wide-ranging interests.

Quality of life

Women for Change/Unity in the CommUnity (WFC), the primary parent organization of Red Hen, formed following a 2017 shooting near the home of its founder (Gaton 2021). The small non-profit pursues a diverse array of activities and projects intended to bring the community together to address issues related to violence, quality of life, and education and to promote civic engagement in Carbondale, especially in the northeast neighborhood, and to benefit low-income and African American youth. Deb and Kate, original members of WFC, both work on multiple WFC initiatives. In addition to the garden, they jointly run a sewing program at a local community center that offers participants free space, supplies, and sewing lessons. Though they started out expecting to teach adults, they decided to welcome children as young as seven. The coronavirus pandemic temporarily stymied that project—they recently relaunched it with expanded hours—but when I first met them in 2019, they had a loyal following of kids crafting with them after school.

As they develop their projects, Kate and Deb routinely think about the problems children in Carbondale face and consider ways to improve opportunities for them.³⁸ Discussing the possibility of setting aside a few garden beds for certain families they know to claim as their own,³⁹ for example, Deb says: “Oh, that would be great, ‘cause the kids would love it. They’d have something to do, and they’d love being over here, and they’d be away from the crazy near their house.” The women talk about the sewing

³⁸ I first learned about Red Hen when my son visited the garden with a Carbondale Park District summer camp. Not located on a major thoroughfare, Red Hen is easy to miss.

³⁹ Red Hen did experiment with assigning private beds, but no longer offers them. The beds often ended up neglected, but also, similar to Jepson’s (2014) experience with therapeutic gardens in Scotland, people who come to work in the garden, often prefer to do so communally.

project in similar terms. They consider it a valuable way to keep kids safe and out of trouble while also imparting a skill.

When I ask why they decided to start a garden too, Kate tells me, “The mission statement for Women for Change is to beautify, so we started with flowers and that’s why we do the plant give away,” a reference to the Garden Gala they hold each spring. Although vegetable beds now predominate at Red Hen, Kate and Deb ensure that plenty of colorful blooms greet visitors as well. They also cultivate flower beds outside the community center where they hold their sewing classes. In doing so, they follow in the footsteps of a variety of urban greening projects that link attractive, well-maintained greenspaces to community safety, or at least improved perceptions of it (Glover 2004; Gorham and Waliczek 2005; Schauwecker 2015).



Figure 38. Clockwise from bottom left, Deb, Ruth, Kim, and Kate at Red Hen Garden. Photo by the author.

At times, the importance of the gardens' visual appeal weighs heavily enough to drive management practices. At Washington St., Logan notes that some of the herbs would benefit from being cut back to the ground more frequently, "but it doesn't look cute when you do that, so it almost takes away from the garden." He adds, "Just as much as we're trying to produce food, we're trying to make a freakin' adorable" garden. Similarly, as we discuss whether to leave some dead plants standing in beds we have not cover cropped at Red Hen, Kate tells me she thinks it is better to take them out, or at least heavily cut them back, even if leaving them might be better for the soil and wildlife, to avoid the risk of upsetting neighbors with a garden that looks messy through the winter months.



Figure 39. Sunflowers at Washington St. Garden. Photo by the author.

On the other hand, gardeners must always dynamically balance the appearance of the gardens with a list of other priorities. The effort to kill Bermuda grass at Red Hen led gardeners to essentially put aesthetic concerns aside, for example, as they smothered it with carpet remnants. Both Washington St. and Red Hen, reliant on scrounged and donated materials and reluctant to get rid of anything that might be useful, pile things—building materials, tools, equipment, tree branches—around their lots in a way that probably looks untidy and unattractive to many people. Nevertheless, the gardeners do try to care for neighbors by ensuring that the lots look better than if the gardens were not there (Maurer 2017).

Items the gardens share also impact quality of life in multiple ways. The health benefits of diets centered on high quality fruits and vegetables are widely recognized, of course. Community gardens frequently cite growing nutritious, pesticide-free produce as a primary motivation because even where such produce is available to buy, which it often is in Carbondale, both cost and geography can make it inaccessible (White 2010; Holt-Giménez and Wang 2011). With a poverty rate more than triple the national average, Carbondale has many residents who struggle to afford healthy food.⁴⁰ Distance to stores and farmer's markets can also present a barrier in the small but diffuse city, which has little mixed-use zoning and offers limited public transportation, forcing residents to depend heavily on personal vehicles. The gardens, by contrast, position free produce in the heart of residential areas.

At the same time, the gardens offer sensory experiences—simple pleasures such as eating freshly picked heirloom herbs and vegetables or enjoying a beautiful bouquet of

⁴⁰ In 2021 the poverty rate was 40.5 percent in Carbondale and 11.6 percent nationwide (US Census Bureau n.d.).

flowers. One fall day, for example, a first-time volunteer eyed items on the produce stand at Red Hen and wondered aloud whether her young son would appreciate anything there. When I pointed out some cherry tomatoes, she initially hesitated, telling me she disliked tomatoes herself. She opted to try one, however, and her face immediately lit up with excitement. She had never tasted a garden tomato, she said, and had no idea they could be so sweet or flavorful. As we continued to chat about gardening and other types of produce, including how to know when to harvest green beans, a young woman wearing a sorority sweatshirt who had been picking herbs nearby piped up to ask us how we liked to prepare the beans. Asking for more detailed instructions after we shared our preferred cooking methods, she mentioned that she had never eaten green beans, but thought she might take a few home to try. Both by directly supplying produce and by distributing seeds and plants to make gardening more affordable for those able to do it themselves, Carbondale's gardens make similar experiences available to a wide range of the city's residents.

Education and enskilment

Deb and Kate believe emphatically in the value of learning all kinds of skills. A retired elementary special education teacher who was among the first Black teachers hired in Mt. Vernon, Illinois upon completion of her master's degree, Deb tells me that when someone acquires a skill, no matter how small, it builds crucial confidence in their ability to learn and do more. She clearly applies the philosophy to herself as well as others and frequently chats about skills she is developing, such as welding, or interested in exploring, including grafting trees. Kate, meanwhile, emphasizes the role practical

skills can play in supporting economic security. She views both sewing and gardening as potential ways a person can either stretch resources or earn a little extra money.

Their attitudes are neither new nor unique among Carbondale community gardeners or those elsewhere. In her survey of organized gardening projects in Carbondale, Schauwecker encountered other, earlier garden leaders similarly focused on the empowering effects of learning to grow food through hands-on experience in a garden (2015). Similarly, community garden activists in predominantly Black neighborhoods in Washington, DC and Chicago view the process as both a means of circumventing a food system that fails to meet their needs and a way to spark broader social transformation (Reese 2019; Colby 2021). In fact, Black scholars and activists, including Booker T. Washington and Fannie Lou Hamer, have long advocated developing skills of self-reliance as a path to liberation from dependence on exploitative, racist systems (Reese 2019).

Education in Carbondale's gardens—not all of which focuses on practical elements of food production—takes many forms and includes people of varied ages and skill levels. Learning occurs at planned events, but also in the course of ordinary workdays. At a Food Autonomy “skill share,” for example, gardeners offer tips on topics including processing nuts and saving seeds. A winter workshop at Red Hen focuses on cold stratifying seeds and winter sowing. At a Washington St. workshop I describe in Chapter Three, visitors learn about properties of the medicinal plants that grow there and how to prepare them.

Many of the community gardeners particularly value opportunities to teach children. A message from the public elementary school located only a few hundred feet from Red Hen that half a dozen classes of second graders would like to visit the garden

on a field trip delights the gardeners there. All strong believers in the educational value of gardens, the Red Hen gardeners, including me, struggle to narrow down the list of things we want the children to learn, do, and see during their too short visit. We decide to talk a bit about biology and ecology, but to prioritize sensory experience and exploration.⁴¹ The kids proudly identify tomatoes and watermelons on their own. We draw their attention to black swallowtail caterpillars on feathery fennel fronds and bird's nest fungus on the mulch. Encouraged to touch herbs to release their scent, one child excitedly announces discovering a plant—oregano—that smells like pizza. With Ruth Hoak, the kids dig through the compost in search of interesting insects. Deb works with the children to crush dry marigolds and the flowers of an enormous celosia inflorescence to release seeds they can take home to plant. She wants all of them to have the opportunity to witness germination and growth. More than one Red Hen gardener suggests that instilling a sense of wonder may be the most vital goal of garden education.

On regular workdays, gardeners routinely experiment with new methods, crops, and varieties. Experienced gardeners constantly learn from one another while also providing mentorship for beginners. At Food Forest workdays, Jessica Lynn demonstrates attentiveness to both education and long-term community engagement as she makes sure that neighborhood kids—arriving on their own from the low-income housing that surrounds the lot—feel welcome to participate on their own terms. The kids exuberantly intersperse periods of hard work, digging and moving heavy loads of mulch,

⁴¹ According to garden education researcher Esther do Lago e Pretti, such an emphasis cannot be taken for granted. She reports examples of school garden programs showing students soil in plastic bags and preventing them from touching it (2022).

with breaks to show off cartwheels, flips, and handsprings on makeshift mats of cardboard and woodchips or to enjoy the snacks Jessica thoughtfully provides for them. Sometimes a child pauses momentarily, curious about the trees we are planting or the methods we are using, and Jessica and other adults patiently answer their questions until they flit off again. This gentle approach to education helps ensure that the joy of being in the garden remains central to the process.

Food security and sustainability

Private and community gardeners alike often have many and varied fears about the social and environmental sustainability of American food systems. The ability of individuals to access safe, healthy food is always a central issue, of course, but the concerns extend much further. Pervasive, complex, and interconnected problems with commercial agriculture—from working conditions for farmworkers to ecological damage in the form of degraded soils, decimated insect populations, and water polluted with agricultural runoff—require widespread change in the vital sector. Additionally, as a major contributor to climate change that is also extremely vulnerable to its impacts, global food production will undoubtedly have to undergo major transformations in coming years. Attempting to begin building small-scale, decentralized alternatives to contemporary industrial food systems in order to address this range of problems is a key mission of Carbondale’s Food Autonomy projects.

Food Autonomy, the umbrella organization under which Washington St., Red Hen, and the Food Forest currently cooperate, began in 2019 as one of four sections of the activist group Carbondale Spring. Broadly interested in formulating, promoting, and implementing plans to revitalize Carbondale sustainably and equitably, Carbondale

Spring's other initiatives include advocacy for hiring care workers for the city, funding renewable energy, and establishing cooperative businesses. The organization proposes that the city government fund new programs in these categories by reducing the number of police officers in Carbondale and reallocating the savings (Carbondale Spring 2020). In fact, Jessica Lynn reports that at first, some members of Food Autonomy insisted defunding police was the only acceptable avenue for financing the group, but some of the "smarter, older" members among them pressed for a more diversified approach to acquiring funds (In This Climate 2022a). The city began providing limited funding to Food Autonomy in 2020 but rejected adoption of a decreased budget for police.

Notably, not every gardener I spoke to at the community gardens fully supports the politics of Carbondale Spring and Food Autonomy. One gardener who strongly agrees that governmental funding of care work should increase, for example, told me that directly pitting the gardens against police in competition for city funding is a mistake that may inhibit not only city money, but also volunteers and other participants, from flowing to the gardens. Similar to Colby's observations regarding SFPers, this person sees the practices of the gardens and Food Autonomy—planting flowers, sharing gardening skills, producing and distributing resources—as helpful in bridging social boundaries but regards the ideologies that might motivate various individuals to engage in them as potentially hardening barriers (2021).

The most developed of Carbondale Spring's initiatives, Food Autonomy operates with its own board and draws inspiration from food autonomy and food sovereignty activism from around the US and the world (Giraud 2021; Canfield 2022). The organization pursues projects intended to establish ecologically and socially mindful local food systems as an alternative to the "destructive" contemporary industrial model

(Carbondale Spring 2020). Often directly referencing literature on topics including subsistence, ecofeminism, anti-capitalism, and sustainability, participants in Food Autonomy and the gardens regularly center sharing and care in their descriptions of the type of local food system they hope to create (Mies and Bennholdt-Thomsen 1999; W. McDonough and Braungart 2002; Hickel 2021; Smaligo n.d.). One Food Autonomy project, for example, consisted of designing, building, and distributing a dozen chicken coops, each stocked with six hens.⁴² The coops were given to residents for free “on the condition that the chickens are well cared for and surplus eggs are shared among neighbors” (Carbondale Spring 2020).

The efforts of Carbondale’s community gardens to address food insecurity focus both on increasing local food production and establishing alternative, non-commercial modes of distribution. Critically, the projects support gardeners—through seed swaps, the Garden Gala, and educational events—in growing crops beyond the confines of the community gardens, not only within them. Hoping to spark “solidarity, not charity,”⁴³ as Jessica Lynn puts it, the community gardens attempt to model a sharing economy for Carbondale residents with these events as well as by giving garden produce away. Community members further that goal by donating or volunteering in the gardens, but also by taking plants to grow at home and perhaps even sharing the produce with

⁴² Jessica Allee, an architect, designed the coops. Adriane raised the chicks prior to their distribution to households.

⁴³ The phrase has roots in anarchist philosophies regarding mutual aid in which participants in horizontal social networks organize themselves to care for one another, especially against impacts of poverty and inequality. Mutual aid has recently been a prominent approach in social movement responses to a variety of crises including the financial collapse of 2009, multiple natural disasters, and the coronavirus pandemic both in the US and around the world (Gammage 2021; Sutton 2021).

friends and neighbors.⁴⁴ Currently, the exchanges largely resemble the shadow economic structures Colby describes among SFPers. Food Autonomy differs, however, in that it seeks direct governmental funding for its programs and aims to make community gardens an integral and more formally acknowledged part of the public local food infrastructure.

Because environmental degradation and climate change pose fundamental threats to food security, an emphasis on sustainability is central to Food Autonomy's approach to addressing Carbondale's needs. I describe their use of pro-environmental practices including composting, companion planting for pest control, and incorporating native and pollinator-supporting species into the gardens in Chapters Three, Four, and Five, for example. Additionally, although the gardens' reliance on reused and waste materials arises partly from necessity, it also reflects an effort to think intently about the full lifecycles of resources and developing new ways to manage them. Abbie, an avowed anti-capitalist who regularly gardens at both Washington St. and Red Hen, for example, reads extensively about both ecology and its intersections with political economy. She frequently talks about ideas such as degrowth and tries to work through how their principles can be applied in the gardens and her life more broadly (W. McDonough and Braungart 2002; Hickel 2021).

A final element of Food Autonomy's activism that relates to both food security and environmental concerns focuses on access to land for growing food. Explaining the value

⁴⁴ Gardeners growing and sharing food is nothing new, of course. Rather, the community gardens seek to bolster and reinvigorate a strategy that has historically been key to ensuring food security, particularly in marginalized communities (Reese 2019). Study participant Calvin and the man with whom Deb bartered to get help with tilling, for example, have both shared a great deal of produce in Carbondale's northeast neighborhood over many years.

of the gardens, Jessica Lynn expresses a general appreciation for expanding commons before adding, “A lot of people don’t have access to land, basically, and I think I want to work on that.” She attributes part of the problem to the “transience” of Carbondale’s population as evidenced by the “70-something-percent rental” housing stock in the city, most of which, including the low-income housing near the Food Forest, prohibits gardening.⁴⁵

Additionally, however, some homeowners in parts of Carbondale’s northeast side fear that food grown in their yards would be unsafe to eat. From 1902 until 1991, a facility treating wood for telephone poles and railroad ties with creosote and other toxic chemicals released toxins into the soil and water there.⁴⁶ Experiencing seemingly high rates of cancer and other illnesses, former laborers at the facility and families living nearby began calling for extensive testing and cleanup. While the EPA did investigate and mandate some remediation, many neighborhood residents believe that the testing and cleanup were inadequate (Blakely 2021; USEPA 2022). Much as in many Black and other marginalized communities across the US that have faced severe environmental contamination, many residents deeply distrust the EPA’s conclusions, but cannot afford to pay for adequate independent assessment (Checker 2016). While the gardens cannot reverse the contamination of the land near the facility, they hope to mitigate its impacts on the food security of those living on adjacent properties by giving them access to safer land to cultivate.

⁴⁵ The “owner-occupied housing unit rate 2017-2021” in Carbondale was 26.6 percent (US Census Bureau n.d.)

⁴⁶ “The former Koppers Wood-Treating site located in the northeast corner of Carbondale was at one time the largest wood-treating plant in the world” (USEPA 2022)



Figure 40. The Koppers Tie Plant monument, erected in 2021 with support from Carbondale Spring, honors residents of Carbondale's northeast neighborhood impacted by the toxic site. Photo by the author.

Conclusions

At Washington St. and Red Hen, relatively few people provide most of the basic care—seeding, transplanting, watering, weeding—and the gardens rely upon their steadfast commitment to continue functioning. The garden community develops at multiple levels, however, and the more loosely connected parts of the network are strikingly valuable in accomplishing the gardens’ missions. As they learn new practices or grow the seeds and plants the gardens share with them, home gardeners may help beautify the city, expand habitat for pollinators, or increase the supply of locally grown food. Just as importantly, they often reciprocate gifts from the community gardens, sharing their own seeds, plants, and sometimes other useful items or skills with the gardens and, by extension, the wider Carbondale community.

In her research with SFPers, Colby found that most practitioners worked hard to be good stewards of their land and employed a variety of pro-environmental practices even when they adamantly rejected the label “environmentalist”—usually because of its specific association with political activism related to climate change. As a result, she bluntly argues, “It is a dead-end to focus on fostering pro-environmental *attitudes* as there is a significant gap between how people identify and how they behave” (Colby 2021, 115). Similarly, core leaders in Carbondale’s community gardens may sometimes coalesce around issues that do not resonate with all parts of the community. Significantly, however, members of the broader network need not share the ideologies that motivate the community gardens in order to adopt their practices. A person does not need to care about the climate impact of methane releases from landfills to recognize the value of composting, for example, or to be anti-capitalist to appreciate the

free exchange of gardening knowledge and materials among neighbors. Organizing to support such practices allows the gardens to cultivate relatively tenuous but broad networks outside their borders and to connect with a truly diverse community whose members may only align with portions of the gardens' goals or may value similar practices for different reasons. In this way, the gardens can pursue the creation of alternative social and economic structures without relying on ideological conformity among participants to do so.

Carbondale's community gardens aim to perform a variety of functions, from experimenting with ecologically sound gardening methods and educating children to distributing produce and creating attractive public places. Uniting each of these roles is a fundamental interest in connecting with and caring for the wider community. Although growing produce can be viewed as a straightforward effort to achieve self-sufficiency, in these gardens the practice serves as a foundation for modelling, supporting, and celebrating interdependence.

CHAPTER 8

CONCLUSIONS

In the spring of 2022, study participant Renee Schwartz told me that she planned to participate in No Mow May⁴⁷ to benefit the pollinators the youngest students in her homeschool co-op had been learning about and to find out what kinds of organisms they would discover in her yard if the lawn were allowed to temporarily run wild. A local ordinance requires that grass and weeds taller than eight inches be cut, so Renee contacted the city to get permission for the project and the excited class made and posted a sign explaining the yard's unusually shaggy appearance. The area soon hummed with life, but a neighbor's complaint to the city forced an early end to the experiment.

Like the neighbor who reported her, Renee does appreciate orderly landscapes to some extent. In fact, in Chapter Five, I describe how a garden overgrown with weeds fills her with anxiety. Nevertheless, the combined effects of interacting with her garden ecosystem, her role as a teacher, and reports about declining pollinators have led to a willingness to embrace a temporary takeover of her yard by unrestrained plant growth.

⁴⁷ No Mow May is movement started in the UK to encourage people caring for lawns to delay mowing in the spring to improve habitat for pollinators early in the growing season when the resources insects need are particularly limited. Supporters also advocate changes to ordinances that prevent people from choosing to delay mowing (Xerces Society n.d.).

For many other vegetable gardeners, engaging in the practice similarly contributes to changing their views on what constitutes appropriate and desirable suburban landscapes. As I discuss in Chapter Five, lawn grasses can become frustrating garden weeds at times, as they did at Red Hen Garden, while a “weed” like clover provides benefits such as nitrogen fixation and attracting pollinators. Informed by their growing familiarity with the distinctive attributes of different species, gardeners often begin to question and sometimes challenge common standards of suburban yard care frequently supported by homeowner’s associations and city ordinances. Gardeners like Renee, synthesizing experiences and influences from inside and outside the garden alike, offer examples of how productive resistance to entrenched but unsustainable lifestyles might begin to take root.

The primary contributions of this project are mostly in the weeds, so to speak. An emphasis on details of material engagement provides clues about how people cultivate connectedness—whether within a human community or an ecosystem—despite living in social conditions that often invite disconnection. Attention to specific material exchanges highlights the social networks that home gardeners like Calvin, as well as all the individuals linked in various ways to Carbondale’s community gardens, create and maintain through gardening, for example. Meanwhile, moments of physical garden care, such as tending emergent seedlings, often lead humans to forge emotional attachments with their plants.

Writing from a public health perspective, Sarah Elton argues that although human health cannot be disentangled from ecosystem health, “the human dependency through food on natural systems and nonhuman nature is largely obscured from view by the productivist global, industrial food system with its foodscapes of plenty that give its

consumers with economic means the illusion of a world without limits: the seasonless supermarket, the food-court, the all-you-can-eat buffet” (Elton 2019, 2). Even among those who tend only small gardens, vegetable gardening supplies valuable alternative perspectives on commercial food systems and the position of humans within their environments. In Chapter Five, for example, I describe how the process of growing different crops can lead gardeners to think through what makes certain foods common and cheap in grocery stores and others unaffordable or otherwise inaccessible, important considerations for those interested in supporting the development of more sustainable food systems. I also demonstrate that vegetable production requires gardeners to attune themselves to nonhuman lifecycles creating a rhythm that may establish a sense of seasonality and connection to the environment.

Significantly, a gardener’s path toward ecological embeddedness does not necessarily begin with pro-environmental values. For example, Ruth Hoak’s family cultivated a vegetable garden on their rural property throughout her childhood. Her father sold synthetic agrochemicals for Ortho and his methods relied heavily on those products, but Ruth began to favor approaches distinct from her father’s long before she left her parents’ home. She specifically describes her initial interest in organic practices as arising from sensory considerations, not environmental or health concerns, however. She loathed the smell of the agrochemicals her father stored in the basement and the odor and flies caused by food scraps in the kitchen trash. Composting and other organic methods offered practical alternatives to those problems. They also led Ruth to develop the types of gardening knowledge and skills that helped inform her current committed environmentalism.

Ruth's story demonstrates just one way in which sensory perception and preferences—not just values or knowledge—can strongly influence a gardener, impacting the ongoing trajectory of their development in the practice. Of course, individual perceptions vary and emerge within the context of particular value systems. As I discuss in Chapter Four, sensory aversion to compost—often supported by contemporary suburban aesthetic and class expectations—can just as easily lead a gardener down a very different path from the one Ruth followed.

Jessica Allee started gardening in high school with instruction from a conventional farmer. She and her classmates learned to amend their soil and spray their crops with synthetic products, but as she recalls, the agrochemicals “didn't faze” her. At the time, the requirement that students plant in uniform rows with few options about what to plant, which she says lacked “playfulness,” bothered her far more. Regardless, she loved tending the plot and she remembers “a lot of joy in being able to share my bounty with people.” Those positive experiences drew her back to gardening following an extended period in which she lacked access to a place to garden. Environmentalist friends and coursework in sustainable architecture led Jessica to give more thought to the environmental impact of her gardening methods. But the deep fascination with insects she developed, which I address in several chapters, seems to have been the most important factor leading her to sharply limit her use of pesticides. The only home gardener I spoke to who straightforwardly characterized her garden as nonorganic, Jessica is also perhaps the most deeply invested in nurturing her insect populations.

Jessica's story shows that broad characterizations of practices—as organic or conventional, for instance—potentially obscure as much as they illuminate the kinds of relationships gardeners cultivate with their gardens. Specificity is key. Additionally,

Ruth began to garden leaning toward certain pro-environmental practices, even though pro-environmental attitudes were not particularly salient for her at the outset. Such practices drive certain kinds of interactions with gardens that one might expect to generate a sense of ecological embeddedness. Making compost calls attention to the process of nutrient cycling within an ecosystem, for instance, and demonstrates one way insects and fungi help support plant growth. For Jessica, on the other hand, more ecologically friendly methods emerged within her practice as she forged connections with the nonhuman species in the garden. This distinction matters because it suggests that developing such relationships does not necessarily depend on the methods gardeners use initially.

Developing a sense of ecological embeddedness does not necessarily mean someone will become an avid, long-term vegetable gardener. Renee held environmentalist values when she started gardening. As I detail repeatedly throughout this dissertation, she deeply believes in the benefits of using food gardens as teaching tools, not only as a means of building practical and scientific knowledge and skills along with an appreciation for the environment, but because of the effects of gardening in developing the capacities of children to regulate emotional and sensory experience.

Always curious, Renee loves seeking out new plant varieties, researching organic methods for managing pests, and discovering new and interesting ways to use her garden produce. After we worked together in her garden on multiple occasions spanning a growing season, however, Renee came to the unexpected realization that she does not particularly like working in the garden on her own: “I never really thought about whether I like gardening. I just assumed that I liked it. But, I mean... I like it as an academic project, or as a companionable activity, but just on its own?” Now, years later,

Renee continues to maintain her garden both for the reasons outlined and out of respect for the care her grandfather invested in it when he owned her home. She has also become increasingly committed to managing her yard in an ecologically responsible way. Over the several years I have known Renee, however, I have gradually seen her focus shift toward perennial species, grown for pollinators or food, that require less intensive care than most annual crops. She also sometimes barter for help tending them, allowing her to achieve her goals while limiting the garden's control over her time. The garden puttering prized by gardeners like Jessica and Ruth simply does not appeal to everyone.

Of course, Renee's altered approach to gardening has not emerged in a vacuum. A steady drumbeat of disturbing environmental news consistently reinforces her feeling that how she cares for her land matters a great deal. Additionally, Carbondale's community gardens have influenced her intellectually and materially as she has acquired seeds and plants at their various events and connected with some of their core gardeners. In many cases, the plants she selected, such as pawpaws and hazelnuts, remain uncommon or entirely unavailable among the offerings of local garden centers. So for Renee and other home gardeners, the community gardens effectively lower barriers to embracing certain pro-environmental practices, especially with respect to growing native, food-producing species.

Within the community gardens, interactions among volunteers also shape practices. The experienced gardeners all have familiarity with different crops and methods, and they constantly prompt each other to try new things. Mentorship of newer gardeners may be even more valuable. For example, Kim Reese's foray into gardening began with her interest in human health and nutrition, especially in low-income

communities. Because Kim had never grown food before starting to garden at Red Hen, she looked to more experienced gardeners for guidance. Volunteers including Ruth helped promote an early appreciation for the garden as an ecosystem, supporting a broad perspective on all that healthy food systems entail. Together, Ruth, Jessica, Renee and Kim demonstrate that the course of a gardener's development—often including the emergence of ecological awareness—involves complex interactions among varied elements of practice.

Further Research

I was surprised by the level of interest many gardeners expressed in native plant species, insects, and other wildlife, and it made me curious about how the fascination develops. Study participants typically grow ornamentals in addition to their crops and do not make a sharp distinction between different types of gardening. Flowers somewhat routinely appear in their vegetable beds—though often functionally to repel pests or attract pollinators—and this group of gardeners seems to be increasingly incorporating food plants into their landscaping as well. I did not interview gardeners who exclusively cultivate ornamentals, however. I began to wonder: Do ornamental gardeners take up pollinator gardening as frequently as vegetable gardeners? Are they as likely as vegetable gardeners to use pro-environmental methods such as composting? Are ornamental gardeners more likely to use synthetic pesticides uncritically?

With respect to growing pollinator plants, I believe that government and media reports about threats to pollinators, as well as governmental actions supporting native and pollinator plantings, have contributed to making the issue more visible, potentially

attracting the attention of food and ornamental gardeners alike. But I also suspect that many ornamental gardeners would engage with the nonhumans in their gardens a bit differently than the vegetable gardeners in this study do. Ornamental gardeners may include butterflies in their visions of beautiful gardens, and they may bring pro-environmental values to the practice or develop them, of course. Technically, however, they rarely need pollinators to achieve the goal of raising attractive plants. Many even avoid plants that produce fruit to reduce the work involved in keeping their gardens tidy, a decision that limits potential food sources for wildlife.

As consumers of their plants' produce, vegetable gardeners become active participants in the food web of their gardens, not merely observers or facilitators. That position may make the interdependence of humans and nonhumans more readily apparent. As one Michigan gardener told Megan Maurer, part of the appeal of vegetable gardening lies in the opportunity it provides "to nurture something that can nurture you," a statement that might logically extend to pollinators (2017, 23). Perhaps the experience of being nurtured by the nonhumans in their gardens inclines vegetable gardeners toward thinking and caring about the dependencies in a broader web of species as well. Additionally, while Colby believes that the dependence of SFPers on their land leads them to embrace pro-environmental practices, it seems equally plausible that someone worried about going hungry if a crop fails might choose a path of tighter control if it appears to protect immediate yields. Maybe the fact that most participants in this study are food secure, with or without the produce they raise themselves, makes it easier for them to develop more cooperative relationships within their garden ecosystems.

Any distinction between ornamental and vegetable gardening or subsistence and hobby food production is speculative, however, and none of this is to suggest that vegetable gardeners inevitably develop awareness of themselves as part of an ecosystem. Some food gardeners might consider gardening a process of gaining control over the landscape and the organisms in it. Certainly, many parallel developments in agriculture and suburban landscape ideals since the late 19th century gradually and significantly shaped common attitudes and practices of American vegetable gardeners, as I describe in Chapters Four and Five, and suggested that dominance is feasible and desirable.

Currently, however, widespread perceptions of risk linked to both environment and political economy appear to be nudging many people toward more ecological approaches to gardening. And as I discuss repeatedly, gardeners may adopt similar methods for different reasons. A gardener worried about declining insect populations might reject pesticides, for example. But one who considers food free of synthetic pesticides safer and healthier, and questions the rigor and enforcement of organic standards, like study participants I cite in Chapter Three, might be just as likely to do so, regardless of their level of concern for insects. Similarly, fears about resource scarcity resulting from the collapse of supply chains—which were prominent during the coronavirus pandemic—may recommend low-input gardening approaches just as pro-environmental attitudes often do. Of course, a gardener may also select a method for multiple reasons simultaneously. Many gardening decisions are multifaceted.

Why Small-Scale Vegetable Gardening Matters

Several studies touching on various aspects of human relationships with the environment have recently captured my attention. One article expresses concern that with increasing urbanization, human contact with the natural world has been declining. Lack of familiarity with nonhumans often leads to fear and disgust. This “biophobia” presents multiple problems. First, people who fear nature tend to avoid it, or even to indiscriminately exterminate species they do encounter, creating a feedback loop of increasing inexperience and fear. Second, biophobia renders people less willing and able to care for other species and to address environmental problems (Soga et al. 2023). Articles on “plant blindness” outline a related worry, that widespread lack of knowledge about and engagement with plants leads people to deeply undervalue their significance for human life even as growing numbers of plant species face extinction (Wandersee and Schussler 1999; Sanders 2019).

Additional research emphasizes the direct impact of environmental conditions on human beings more explicitly. As I discuss earlier in this chapter, for example, Elton insists that efforts to improve nutrition and public health must take ecological determinants of health into account (Elton 2019). Meanwhile, both actualized and anticipated consequences of environmental degradation are increasingly disturbing the mental health of many people. Healthcare providers report rising cases of traumatic stress related to natural disasters frequently linked to climate change such as floods and wildfires, for example. They are also seeing a surge of patients struggling with “ecoanxiety” and grief associated with impending environmental changes (Cianconi, Betrò, and Janiri 2020).

Finally, Western scientists have come to recognize over recent decades that human actions have shaped even apparently “pristine” ecosystems and did so prior to the modern era as well (Seshia Galvin 2018). Combined with a corresponding realization that “nature” remains active in ostensibly human controlled environments, the idea has significant implications for navigating emerging environmental crises, especially as concentrated human settlements continue to expand. Acknowledging the blurred boundary between nature and culture enables a shift from a paradigm in which nature simply requires protection from humans toward one in which ecosystem health entails human engagement with the nonhuman natural world, including in the places people manage most intensively. Perhaps in this spirit, some researchers have begun training their attention on how urban and suburban landscapes might fit into efforts to stem species extinctions, slow climate change, and promote ecosystem resilience (Doody et al. 2014; Aronson et al. 2017). Introducing diverse, pesticide-free plantings in these places could help address all these problems. Critically, however, although these landscapes cover vast areas, the parcels controlled by each landowner tend to be very small. Thus, transforming urban and suburban ecosystems relies on the individual decisions of millions of people (Aronson et al. 2017).

Recent publications in national and local popular sources echo both the sense of pervasive environmental threat and of hopefulness that humans have the capacity to change the trajectory of our impact on ecological systems that I found in academic literature. Prominent intertwined worries in these pieces include climate change, water use, plant diversity, and declining populations of pollinators and other insects (Mercado 2021; Root 2021; M. McDonough and Mutevellioğlu 2022; Baltz 2023). The scope of the problems is immense, yet over and over, authors encourage their readers to respond

with small, individual actions—delaying mowing, replacing lawns with drought tolerant native species, planting for pollinators, composting, and so on.

Combined with what I learned from Carbondale vegetable gardeners, these studies and articles speak to why small-scale vegetable gardens matter today, regardless of whether they produce significant quantities of food. Becoming a skilled gardener requires developing familiarity with nonhuman species, an education of attention that counters the plant blindness common in modern America (Ingold 2000). Through practice, and in a context made meaningful through rich intellectual, sensory, emotional, and social experiences, the interdependence of humans and nonhumans becomes tangible, chipping away at the modern notion of a division between nature and culture, however minutely.

But gardens do not just allow people to feel their place in an ecosystem. They also offer gardeners an opportunity to respond productively to risks that perhaps feel distant and ill-defined, but simultaneously insurmountable. When gardeners discover pollinators on the plants they have cultivated for the creatures' benefit, they know they have acted effectively. When they produce compost, they know that their waste has become an enhancement rather than a problem. Meanwhile, the heavy work and fascination involved in garden care, as well as the pleasure of sharing a garden's bounty, help to dispel anxiety and bring vegetable gardeners joy, wonder and a sense of connectedness.

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