A PRESCRIPTION FOR A HEALTHIER, MORE EQUITABLE FOOD SYSTEM: AN ETHNOGRAPHY OF COMMUNITY GARDENS IN NEW ORLEANS, LOUISIANA

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Grace Rudman, A Prescription for a Healthier, More Equitable Food System: An Ethnography of Community Gardens in New Orleans, Louisiana

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Abstract

This study is an ethnographic approach to studying urban agriculture in New Orleans, Louisiana to determine barriers to participation in community gardens by residents living in proximity to a community garden. I conducted a comparative case study of three community gardens in different neighborhoods and varying operational structure to understand how they approach engaging local residents in these gardens. This is based on discourse surrounding the unequal distribution of benefits, mediated by socioeconomic status (SES). My study uses a multimethodological approach consisting of 1) an inventory on Google Maps of actively operating, publicly accessible gardens in Orleans Parish; 2) a comparative case study between three of these community gardens involving a semi-structured interview with each primary garden leader and door-to-door semi-structured surveys of residents living within a 1/5 mile radius of each garden of study; and 3) interviews with local urban agriculture and/or food justice leaders. From the data collected, I am able to make recommendations to community gardens on how to better reach residents in their neighborhoods and contextualize findings using the urban ag/food justice leader interviews to complete my depiction on the potential positionality of community gardens in approaches to mitigate food apartheid.

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I would also like to acknowledge those doing the invaluable work of addressing the long-lasting impacts of racism on health and wellbeing.

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Introduction

This study examines the extent to which community gardening is positioned to combat food inequalities in New Orleans, LA. I am taking an ethnographic approach to capture a more holistic image of the current state of urban agriculture in New Orleans. In doing this, it has

become evident that a city's urban agriculture is a culture in itself and reflects the broader systems that shape urban gardening practices, over space and time. Thus, in my ethnographic approach, I aim to capture the efforts and impacts of local community gardens while also placing them within the context of such problems as food inequity and the politics of access to and ownership of land within the city.

The goal of this study is threefold: 1) review literature and oral histories that depict the development and manifestations of food apartheid; 2) record and depict the current state of urban agriculture by conducting an inventory of gardens and organizations, compare barriers to engagement facing residents living in proximity to a garden of study, and conducting interviews with local urban agriculture and food justice leaders; and 3) center the voices of Black gardeners and food justice activists to better contextualize the concerted efforts of local gardens and grass-roots organizations to increase the city's support of local urban agriculture.

Chapter 1: Background

1.1 Food apartheid vs. food desert

Food apartheid, first coined by Karen Washington, cofounder of the Black Urban Growers, is distinguished from previously scholarly discussions on "food deserts" (Brones, 2018). Food deserts can best be understood as areas where there is an intersection of increased poverty and decreased access to healthy, affordable foods (Brones, 2018). Following the 2008 Farm Act, the United States (U.S.) Congress directed the U.S. Department of Agriculture (USDA) to assess the prevalence of food deserts, resulting in the publication of the report *Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences* (USDA 2009). This publication sought to measure the extent to which this issue prevails, investigate potential sources and consequences of this phenomenon, and assess potential solutions (USDA, 2009). This study found that urban food deserts are most often situated in neighborhoods with higher Black and immigrant populations. Most solutions offered by the USDA in the publication were geared toward increasing the number of food vendors and supermarkets in these areas with the false assumption that increase in access will increase food security (Sevilla, 2021). The USDA (2022) now refers to formerly-termed food deserts as low-income and low-access (LI/LA) areas which are measured at the census tract level. This shift is to clarify that what is being measured is the intersection between tracts with a poverty rate of 20% or higher and tracts where a significant share of residents is more than one mile (urban) or ten miles (rural) away from a supermarket (ibid.). The insufficiency of this operationalization can be understood by examining map sets in Figure 1.1-1.4. While there seem to be few LI/LA areas, the rate of poverty and

disease in predominantly Black neighborhoods speaks for itself: food apartheid goes deeper than proximity to grocery stores. A deeper examination of the contributing factors that have resulted in these landscapes is needed, particularly as it connects to the broader, racist structural and institutional systems that have seemingly prioritized economic gain over individual and community well-being.

Figure 1.1: LI/LA area by census tract in Orleans Parish (arcGIS, 2019).

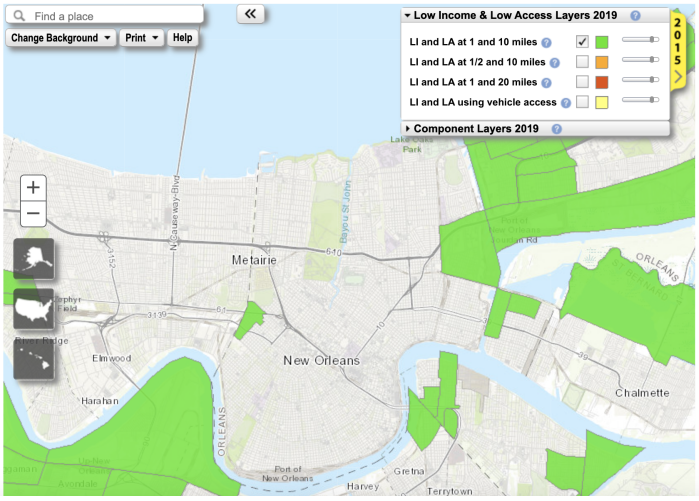
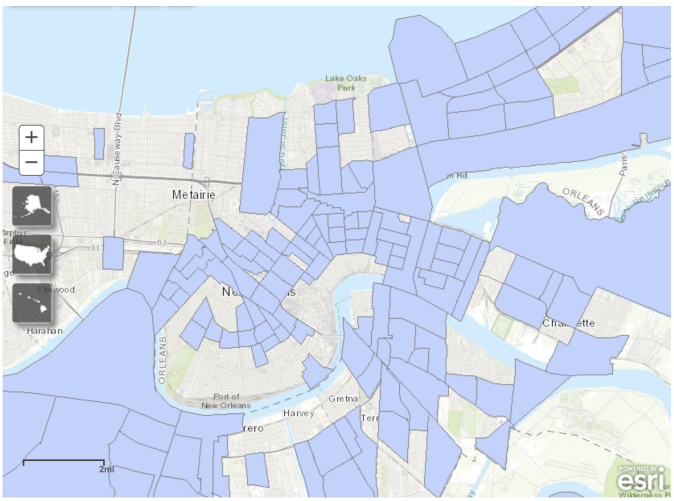


Figure 1.2: Low income areas in Orleans Parish (arcGIS, 2019).



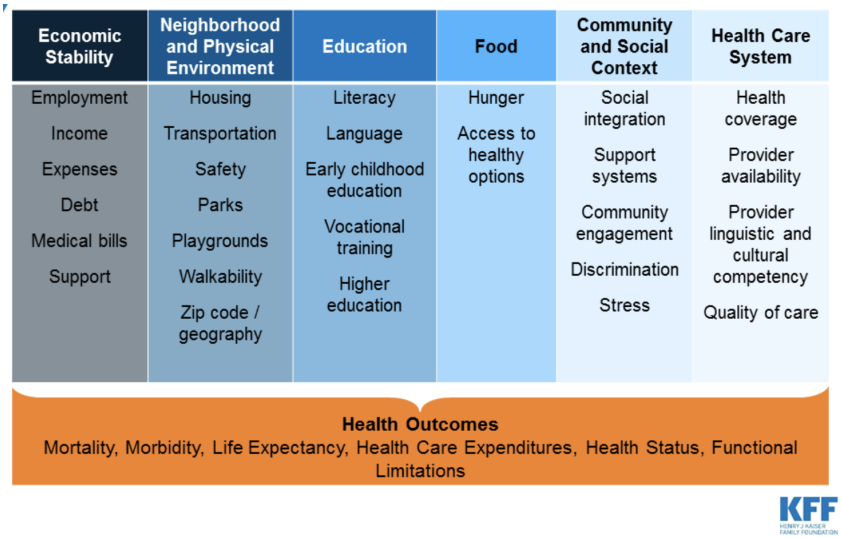
Food apartheid calls attention to the way that the corporate food regime pushes unhealthy food on minoritized communities, particularly predominantly Black and low-income neighborhoods. This can be seen, for example, by the fact that there are significantly more fast food chain restaurants and corner stores in predominantly Black neighborhoods in comparison to predominantly white neighborhoods (Block et al., 2004). These vendors sell primarily highly processed foods pumped with additives and preservatives to lengthen shelf life and maximize profit (Block et al., 2004; Gibney et al., 2014). While overconsumption of these foods are not restricted to Black or low income individuals, the abundance of processed foods and the lack of fresh, nutritious, affordable foods in predominantly Black neighborhoods specifically targets this population and contributes to health disparities (Brones, 2018). Corporation chains oversaturate these neighborhoods under the assumption that these populations are more likely to purchase their product based on the relatively cheap price for what is advertised as a complete meal. An unbalanced diet, which is the result of overconsumption of such products, contributes to preventable chronic diseases including heart disease, cancer, obesity, and diabetes (Bahadoran et al., 2016; Marti, 2019; Gibney et al., 2017; King et al., 2009). Apartheid reflects "how the geographic distribution of food is a reflection of anti-Blackness and oppression as much as it is about class and economic capital" (Reese, 2019:7).

1.2 Health disparities and socioeconomic status

Differential health outcomes and rates of disease across populations have been demonstrated to have a gradient effect in coordination with a gradient of socioeconomic status (SES). SES is a complex concept that includes a compilation of variables.

Economic status is often measured through assets, debt, and income; social status includes gender, education, occupation, and race. Phelan and Link coined fundamental cause theory to explain the connection between differences in SES and health disparities (1995). Phelan and Link (1995) outline the four characteristics of a fundamental cause. Firstly, it must influence multiple disease outcomes. For example, those who live in poverty are more likely to suffer from heart conditions, cancer, lung disease and more. Secondly, it must affect disease outcomes through multiple risk factors. An example relevant for the purposes of this study are food access, but less access to healthy foods is not the sole mechanism by which a health gradient appears. Other mechanisms that greatly contribute to health disparities are chronic stress, which is experienced along an SES gradient, and neighborhood characteristics such as higher risks of being exposed to environmental hazards and violence. Thirdly, a fundamental cause must involve access to flexible resources, which are knowledge, money, power, prestige, and beneficial social connections, and can be used to avoid risks and minimize consequences of a disease (Phelan & Link, 1995). For example, someone who is upper class is more likely to have access to and resources for transportation, health insurance, better medical care and interventions, and healthy foods and have more money to live in nicer and safer neighborhoods with more green spaces. These are all factors associated with improved health behaviors and outcomes. Fourthly, a fundamental cause is reproduced over time by the replacement of intervening mechanisms (Link & Phelan, 1995; Phelan et al., 2010). That means that when technologies, such as diagnostic tools, are renewed and updated, the higher you are on the SES gradient, the more likely you are to access and be able to afford these new technologies.

Figure 1.3: Social Determinants of Health (Artiga & Hinton, 2019)



While race is a concept separate from SES, in America, race intersects with all of the attributes of SES and also exists as a hierarchy where white has been placed at the top. Additionally, there exists a racial wealth gap which will be expanded upon in the following sections. As such, Blacks have less access to flexible resources to avoid risks of disease or minimize the consequences of disease. This can be seen in New Orleans through analyzing maps of life expectancy by zip code, Black population density by zip code, and low income zip codes (Images 1-3). Disparities are readily evidenced as it connects to a more than 25 year difference in average life expectancy between zip code 70112 and 70124. Zip code 70112 has a majority Black population and more deaths due to cardiovascular disease, stroke, and diabetes, contributing to an average life expectancy of only 54.5 years in comparison to an 80 year life expectancy of the 90% white zip code 70124 (Place Matters, 2009).

Figure 1.4: Life expectancy by zip code (Place Matters, 2012).

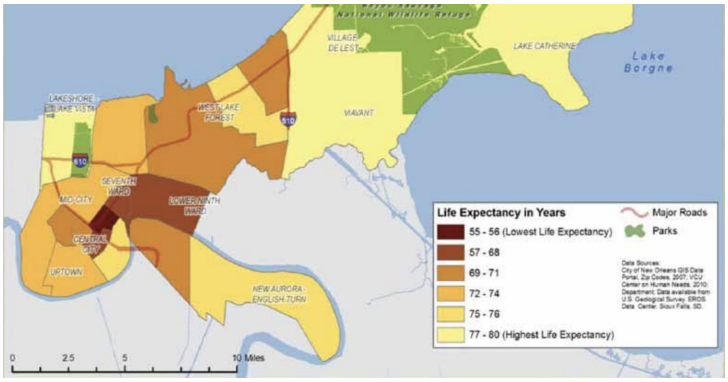
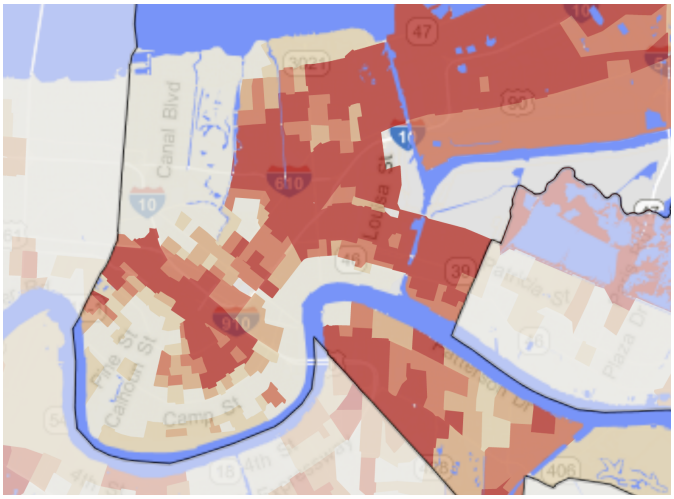


Figure 1.5: Population density of Black residents, based on US Census Data (Statistical Atlas, 2018).[1]



Covid-19 exacerbated health disparities in New Orleans; the death rate of those infected with the virus proved to be disproportionately higher for Black residents. According to the Orleans Parish Covid Dashboard, 80% of residents that died from Covid-19 infections were Black, even though Black residents make up less than 60% of the local population (Louisiana Department of Health, 2022). Considering the aforementioned disparities in Covid outcomes by race, it is essential to explore the

[1] Percentage population identifying as Black depicted by the gradient from cream to red increasing in increments of 20% from 0-100%.

potential role of gardening as a preventative medicine tool and to invest in community driven approaches to mitigate the effects of a future pandemic.

Considering that replacement of intervening mechanisms is correlated to increasing mortality gradient by SES, more attention should be given to mitigating health disparities by implementing preventative health care that does not involve the leveraging of resources for participation to decrease the SES gradient and racial disparities.

1.3 Institutional and structural racism shape New Orleans urban landscape

To understand how food apartheid has manifested in the U.S., it is first necessary to establish that the agriculture industry was built by exploitative slave labor. Africans were forcibly brought to the Americas, sold to European colonizers, and forced to do manual, skilled, and domestic labor under poor and abusive conditions for white elitists who viewed them as less than human while economically benefiting greatly by claiming ownership over their work (*Slavery and Remembrance,* 2023). New Orleans was the largest slave market in the U.S., ultimately serving as the site for the legal purchase and sale of more than 135,000 people. New Orleans became the most trafficked port for the importing of slaves, with many plantations nearby specializing in cotton, sugar, and tobacco production (*Slavery and Remembrance,* 2023).

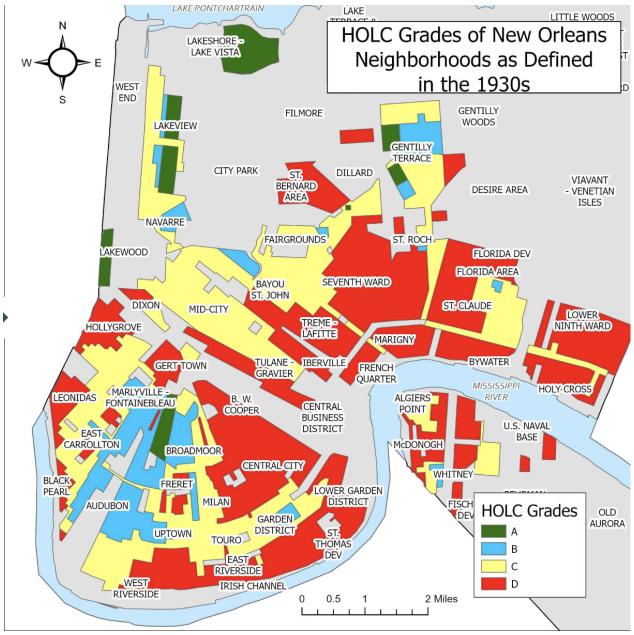
Post-Civil War, racism continued to permeate institutional and structural systems allowing for continued exploitation of Black Americans. Land is money and money is power, and wealthy, white supremacists had a goal of preventing land ownership and stifling economic gain of Black populations (ibid.). This can be readily evidenced through RBS Research Report 194 (2002) which details some of the economic and social barriers and limited civil rights that prevented Black farmers from ownership of and

independence in their farms (Reynolds et al., 2003). The Freedmen's Bureau Act of 1865 made plans for the distribution of 40 acre plots derived from former plantations to be distributed among formerly enslaved peoples, but President Andrew Johnson terminated this initiative and it was replaced with the Freedmen's Bureau Act of 1866 which, unlike its predecessor, failed to include specific terms and actions for the distribution of the 40 acre plots (ibid,). The act instead focused on how to shift from slave labor to "free" labor while preventing Black farmers from ownership of land and autonomy over what to plant and when (ibid.). Formerly enslaved peoples, having been prohibited from learning to read and write, often had no choice than to participate in sharecropping for their own security (Riddle, 1996). The termination of the Freedmen's Bureau Act and the withdrawal of Federal troops from the South in 1877 resulted in the reversion to improper compensation of labor; restrictive Jim Crow Laws prevented pursuit of independent operation of land by the formerly enslaved, effectively fostering a dependency on sharecropping due to lack of economic alternatives for Black farmers (Reynolds et al., 2003; Riddle, 1996). The history of the fight for food and land justice for Black Americans is well depicted in Leah Penniman's *Farming While Black* (2018). The peak of Black farming occurred in 1920, when 14% of all U.S. farmers were Black, owning 15 million acres for agriculture production; now, less than half a percent of existing farmers are Black (Gilbert et al., 2001). This decrease is a result of racist lending practices, with higher scrutiny and fewer loans for Black farmers compared with white farmers (ibid.). Taking back distributed farm land was also related to lack of education about taxing laws (ibid.). Understanding the development of the agriculture industry, its connection with the exploitation of Black people, and a historical pattern of land dispossession is the

foundation for understanding how unjust landscapes take form and result in fractured relations between Black Americans, farming, and food.

Racism in landownership was not limited to agriculture. Wealthy, white developers purchased higher ground in New Orleans, which would be better protected from flooding compared to low lands, and primed the segregation patterns that ensued (Silverman et al., 2012). In 1935, the Homeowners Loan Corporation (HOLC) was tasked to create maps of 239 cities to indicate to mortgage backers which neighborhoods in these cities would be a safe investment compared to which areas were declining (yellow) and which areas would be a "hazardous" investment (red) (Joyner et al. 2022; McClintock 2011). Neighborhoods in the red zone were marked as such based on whether the HOLC saw an "infiltration of inharmonious racial or nationality groups" (Rothstein, 2017). The maps were used by lenders for decades to deny Black and immigrant families access to mortgages and homes (Rothstein, 2017). Collectively, segregationist HOLC maps and racist deed covenants created massive disinvestment in redlined communities, stifling wealth accrual (Sullivan, 2019). Figure 1.6 depicts the HOLC grades of New Orleans neighborhoods which can be compared to figure This is important because the health and wealth of parents has a sustained impact on the health of their children (Berthung et al., 2022)

Figure 1.6: HOLC grades of New Orleans neighborhoods as defined in the 1930s (Mire. 2021) [2].



Furthermore, the urban renewal programs in the 1940s and 50s primarily displaced non-white families with the destruction of 10 blocks of houses located in the historical Tremé and downtown neighborhoods for the building of a culture center that ultimately failed due to lack of funding (Crutcher Jr, 2001). Additionally, the building of the I-10 overpass directly over Claiborne Avenue harmed the booming Black businesses located on that street. Prior to the building of this overpass, Claiborne Avenue was compared to the "Black Wall Street" of Tulsa, Oklahoma, described as a Black business and cultural hub. It was estimated that around 120 businesses, mostly Black-owned existed at the time of its construction; now there are just a few dozen (Gibson, 2019). The disruptions to thriving Black communities were detrimental to their businesses and sent

[2] ARC GIS map of HOLC grades for neighborhoods in New Orleans developed by Mire for "The Fate of Redlined Neighborhoods in New Orleans" (2021). Based on the 1930s HOLC map included in Nelson (2016).

these neighborhoods and Black families into economic decline (Campanella 2021). Redlining was not eliminated by the first passage in the Fair Housing Act of 1968, and its impacts are still felt to this day and can be seen in the disparities facing communities that were deemed "hazardous" (Woodward 2019). The confinement of Black Americans to redlined areas exposed them to harsher environmental hazards, such as pollution and toxic chemicals from nearby factories and flooding; Hurricane Katrina exposed these inequalities to a national audience (Pastor et al., 2006; Wright and Bullard 2018).

1.4 Benefits of Gardening

It is well understood that community gardens can lead to benefits on the individual, community, and environmental level. This section will review studies that have explored the benefits of gardening and the processes by which these benefits manifest.

i. Micro level benefits

On the individual level, gardening is found to have an impact on human health, influencing nutritional, physical, and mental wellness (Alaimo et al., 2011; Armstrong, 2000; Budowle & Porter, 2022; Garcia et al., 2018; Hale et al., 2011; Howarth et al., 2020; Koay & Dillon, 2020; Lampert et al., 2021; Tieg et al., 2009). As previously explored in section 1.2, increased access to fruits and vegetables does not necessarily mean increased consumption. So, it is important to understand the processes by which community gardens actually improve food practices, beliefs, knowledge, and attitudes.

Some case studies, one in Flint, Michigan, and another in Denver, Colorado, examined whether the eating habits of garden participants were healthier than those of non-garden participants. The studies revealed that garden participants, and even members

of a household with someone who participated in a community garden, were more willing and likely to consume the recommended daily servings of vegetables and fruits (Alaimo et al., 2008; Litt et al., 2011). This could be the result of an emotional connection to food that develops through direct involvement in the production or harvest of produce, through the use of one's own labor in either or both of these activities, effectively enhancing the value of this produce to garden participants (Hale et al., 2011). Louisiana is ranked 48th in the U.S. in terms of consumption of fruits and vegetables; 47.2% of adults reported eating less than one serving of fruit daily and 22.9% reported eating less than one serving of vegetables daily (CDC, 2019 Risk Behavior Surveillance System). Louisiana is also ranked 50th in the country in overall health. Thus, it is worthwhile to explore initiatives geared toward improving healthy eating as an approach to improving health.

Food grown in local gardens is likely more nutrient dense than produce purchased in grocery stores. This is because locally grown foods are more likely to use gardening methods that are more conducive to soil and ecological health, whereas modern industrial farming practices are designed to increase crop yields (Balmford et al., 2018). The processes by which food producers maximize crop yield depletes the nutrient density in the soil, a problem that is further complicated by the fact that this increasingly poor soil is shared between a large number of crops (Colino, 2022). For example, a study found that the protein content of wheat decreased by 23 percent from 1955 to 2016, accompanied by notable decreases in manganese, iron, zinc, and magnesium (Mariem et al., 2020). Lower to middle class income populations are more susceptible to nutrient deficiencies because of cost of and access to nutrient dense foods, but people also suffer from so-called “hidden hunger,” unaware that they aren’t getting the amount of nutrients that they

perceive to be in their food (Global Hunger Index: pg. 20, 2014). The nutrient levels in produce also decrease with time from the moment it is harvested, so growing and consuming locally would help conserve nutrients and fight hidden hunger (Barret, 2007). The truth is, most of us don't know what's in our foods or how far away it's being imported from.

In addition to nutritional health, the physical activity of gardening, like weeding, digging, and harvesting, is a form of moderate exercise (Vaz et al., 2005; Sommerfield et al., 2010). Physical inactivity can lead to preventable mental and physical disorders and is the fourth leading cause of premature death (World Health Organization, 2023). Mental health is impacted by gardening even just by being surrounded by scenes of nature (Thompson, 2018). During the height of the Covid-19 pandemic, when cities were placed under quarantine, participation in gardening activities or interest in gardening increased across the US and proved to be an effective means of alleviating stresses, improving both mental and physical health (Sia et al., 2022). Participating in community gardens is also related to food security and food cost saving. Increased food security is correlated with improved mental and physical health by way of decreasing stress related to economic hardship (Alaimo et al., 2016). The relationship between stress and health will be further explored in the following section on socioeconomic status (SES) as a fundamental cause of health disparities.

ii. Meso level benefits

Community gardens are more than just places to get produce. They create opportunities for members of a community to gather and share experiences and build relations (Ghose & Pettygrove, 2014). They can also help reconnect the consumer to food

production and restore knowledge about food and agricultural traditions and relations (Porter, 2018). Many people opt to participate in community gardens rather than or in addition to maintaining a home garden. While this is a consequence of many factors, including lack of property space or time to tend to one's own garden, another driver for community members to participate in gardens is that they create a shared space for neighbors to engage with one another in a social setting which in turn aids in generating networks of mutual support (Diekmann et al., 2020). Community gardening can strengthen communities through various social processes including the reinforcement of social connections (or similar term) and the development or intensification of reciprocal relations, alongside sentiments of mutual trust. In addition, gardening in this fashion can increase individuals' civic engagement and lay the foundation for collective decision-making processes. For example, findings attained through a survey of 20 different community members in New York found that gardens situated in low income neighborhoods were four times as likely to lead to other issues in the neighborhood being addressed when compared to gardens in more affluent neighborhoods (Armstrong, 2000). This suggests that gardens can be a location for neighborhood members to gather, and to organize around a common interest. This community organization leads to conversations with the capacity to allow for the collective identification of neighborhood problems and subsequently further organization to address realized communal issues. This is what Budowle and Porter (2022) refer to as the “sociality” of community gardening, and it is fostered through the organizational qualities of community gardens including activities such as volunteerism, leadership, neighborhood activities, and recruitment (Tieg et al., 2009).

Community gardening is also associated with increased community resiliency in the face of disaster (Budowle & Porter, 2021; Tieg et al., 2009). Community resiliency can be understood as the sustained ability for a community to withstand, respond to, and recover from adverse situations, such as environmental disasters (Otsuki et al., 2018). The relation between community gardens and community resiliency in the face of disasters helps explain the upsurge in enthusiasm surrounding community gardens following Hurricane Katrina (Kato et al., 2014). This phenomenon will be further explored in section 2.1. The relation is formed through reflectivity, a process wherein individuals reflect on their adaptive strategies and discuss those actions with others. Reflexivity facilitates this move from individual action to collective agency for resilience (Budowle & Porter, 2022; Otsuki et al., 2018). Scholarly work has revealed that community gardening can be that act of collective social action that fosters community engagement and neighborhood solidarity through the conservation and improvement of local urban environments (Ireland & Thamalla, 2011; Nettle, 2016).

iii. Macro level benefits

Practices utilized in industrial agriculture contribute to a positive feedback loop of nutrient loss, whereas more urban "green spaces" help to filter air pollution through carbon sequestration (Prentice et al., 2001). Urban gardens have the potential to reduce urban heat islands, decrease citywide carbon emissions, increase storm water retention, and provide various ecosystem services like increasing urban biodiversity (Clarke et al., 2018; Thompson, 2018).

Based on data collected between 2009 and 2021 for the Yale Program on Climate Change Communication, a majority of participants in Orleans Parish believe global

warming is happening, believe it will harm them personally, and think that citizens, local and national government officials, and corporations should each be doing more to address global warming (Yale Climate Opinion Map, 2022). This shows that despite supposed awareness and knowledge of the position of New Orleans in relation to climate vulnerability among the general public, there is an alarming level of inaction and lack of support in mitigating this crisis on the political level. The current global food system model is likely to be impacted by increasing global temperatures and a more unstable climate (Lake et al., 2012). The increasing unreliability on a global food systems model demonstrates the need for a more dependable local food production model. It is also important to consider the environmental impact of shipping foods across the world compared to consuming food in the same state or city in which it is grown. Many foods, such as leafy greens, peppers, okra, tomatoes, squash, and melons do well in the humid subtropical climate and long growing season of New Orleans (Glatz, 2023). It makes more sense in terms of climate change mitigation and adaptation to support and strengthen local food systems and increase cash flow within our community. Supporting urban agriculture endeavors is a legitimate approach to reimagine our urban landscape and make our own informed decisions about our food, but it isn't without its limitations.

1.5 Unequal distribution of benefits

It is likely that participation in community gardens is similarly mediated through flexible resources discussed in section 1.2, and is hence subject to inequalities by SES (Phelan & Link, 1995; Phelan et al., 2004). Factors that influence participation in community gardens are education on the benefits of gardening, access to a phone to follow gardens on social media, transportation to gardens, availability to participate, etc.

Thus, it is necessary to explore how gardens could increase their accessibility for those on the lower spectrum of SES.

Gardening is a practice as ancient as our own species, but urbanization and the rise of capitalism has resulted in a demographic shift, as it relates to who grows their own food (Satterthwaite et al., 2010). Growing food can be a laborious and time-consuming manner of obtaining food. Getting to a grocery store to purchase your food has been marketed as a more convenient mechanism to obtain food, but that's only if a person can transport themselves to a grocery store that has healthy and affordable options. Growing food used to be commonplace in the South; Black farmers were the dominant demographic among food growers. Due to USDA policies, enacted in the aftermath of World War II, it became increasingly difficult for black farmers to maintain their land or receive the loans or support needed to do so. As such, many fled to cities to earn a living wage (Newkirk, 2020). The shift from growing food in the South for a living, transitioned to working in the city to earn a wage to purchase your food at the market or in store. This severance has resulted in a loss of ecological knowledge across generations (Aswani et al., 2018). Those with more resources like time, money, education, connections, and space are now more likely the ones to grow their own foods, as explained by Phelan and Link's (1995) aforementioned fundamental cause theory. Increasing equitable public transportation in low-income areas to increase accessibility to fresh and healthy foods from both markets and public gardens is one approach to decrease resource barriers (Joyner et al., 2022).

While there are a number of factors to consider as it relates to health outcomes, consuming a properly balanced proportion of essential nutrients prevents long-term

health conditions and contributes to overall better human health. The human body needs a diet consisting of six basic nutrients–protein, carbohydrates, fats, vitamins, minerals, and water–for proper functioning of biological processes (Drake, 2017). The 2020-2025 Dietary Guidelines for Americans advises the consumption of 1.5-2 cups of fruits and 2-3 cups of vegetables daily, but only around one in ten Americans actually consume the recommended amount (USDA & HSS, 2020). This is generally less about individual choice than it is external sociological factors that influence human behavior. For example, studies have shown that consumption of fruits and vegetables is lower among men, young adults, and those experiencing poverty, and also that gender more closely mediates fruit intake, and poverty more closely mediates vegetable intake (Lee-Kwan, S.H. et al., 2015). As such, it would be insufficient to examine diet on solely an individual level because there are factors beyond an individual's control that influence diet such as ethnicity, culture, class, gender, and age.

Thus, in efforts to remediate health disparities, any proposed intervention should avoid leveraging the flexible resources of targeted participants while also being accompanied by resolutions to decrease differences in SES. If people must pay or leverage privileges associated with their SES to access an intervention, then inequalities will continue to persist and be reproduced.

Chapter 2: Current Study

This study consists of three main components. Given a lack of updated information concerning community gardens in New Orleans, it aimed to first create an inventory of existing gardens in New Orleans parish with information about the structure and function of each. That inventory was then used to choose three community gardens for a comparative case study to examine the operations and gauge each garden's impact on the neighborhood through surveying residents living in proximity to the garden. Finally the data were supplemented with findings obtained through interviews with local urban agriculture and food justice movement leaders. The study has received IRB approval (Study #2022-1182).

Urban gardening is often used as an umbrella term referring to the practice of growing, processing, and distributing foods grown in urban and suburban spaces to local inhabitants. Urban gardens come in many forms, but for this research, I focus on community gardens. A community garden is distinguished from a private garden if it is in some sense a "public garden in terms of ownership, access, and degree of democratic control" (Ferris et al., 2001:560). Some community gardens often provide additional organizational resources in the form of educational training, horticulture training, and garden layout assistance (Lawson, 2005)

Community gardens vary in their structure of operation. Some are considered top-down, others are bottom-up based on where governance originates from. Some studies have begun to examine which types of gardens are more successful in engaging the community (Zhang et al., 2022). A list of different types of community gardens is as follows (Urban Harvest, 2023):

- Donation Garden: grows produce for donation to a food pantry, soup kitchen, or for other methods of distribution to target population free of charge;
- School Garden: for teaching horticulture and healthy eating to school children. Usually on school grounds;
- Cooperative garden: cooperatively maintained garden from which all participants can take what they want;
- Plot Allotment Garden: a garden divided into plots for individuals to grow and harvest on their allotted plot;
- Therapy Garden: teaching that the action of gardening is therapeutic and has mental and physical health benefits;
- Market Garden: produce grown for commercial sale.

Many U.S. cities contain several different types and structures of spaces for agriculture. Community gardens are found to be more effective when functioning with "an integrated web of non-governmental organizations, public agency personnel, health care organizations, neighborhood groups, neighbors, local business partners and/or sponsors, and thousands of volunteers." (Alaimo, 2016: 303).

2.1 Research Questions

This research aims to address the following questions:

R1: What community gardens are currently operating in Orleans Parish?

R2: What characteristics of urban gardens are associated with higher community engagement?

R3: What are the primary barriers to community engagement by people living in proximity to a community garden? Do they vary by garden?

R4: To what extent do different urban gardens engage with each other, agents of the food justice movement, and agents of local government? Is the current network of support adequate?

2.2 Significance

The study is geared toward assessing the current state of urban agriculture in the city of New Orleans, including barriers for urban growers and barriers to participation in community gardens. I also explore how gardens could reach more community members as an approach to mitigating food insecurity and adapting in the face of an increasingly constrained global food system. This is important considering that more interruptions in the food chain supply are likely to occur due to increased likelihood of natural disasters and changing global temperatures (El Bilali et al., 2020). These interruptions can exacerbate existing disparities in not only food access, but also human health (Schmelz, 2021; EPA, 2021). In New Orleans, more particularly, this can be seen in how Covid-19 exacerbated health disparities in New Orleans, as the death rate of those infected with the virus proved to be disproportionately higher for Black residents. According to the Orleans Parish Covid Dashboard, 80% of residents that died from Covid-19 infection were Black, even though Black residents make up less than 60% of the local population (Louisiana Department of Health, 2022). Thus, it is necessary to discover effective ways to mitigate these disparities, and community gardening is one attractive avenue for how to work around disparate access to healthy foods along an SES gradient.

Additionally, New Orleans is a city already vulnerable to environmental degradation and hazards, which directly impacts human health (Diaz et al., 2020; Franklin and Stephens, 2013; Knopp, 2022). New Orleans has high levels of ozone pollution and particle pollution which lead to increased risk for asthma attacks, cardiovascular damage, developmental and reproductive harm, and lung disease (U.S. EPA, 2023; American Lung Association, 2023). New Orleans is home to many industrial

complexes, factories, and chemical plants that pump hazardous toxins into the air and seep into our water, characterizing the city as part of “Cancer Alley,” or what has now more recently come to be referred to as "Death Alley" (Terrell & St Julien, 2022; Verdin 2020). Increasing the number of green spaces helps to filter air pollution, in addition to alleviating some of the other effects of the climate crisis; they can reduce urban heat islands, filter local air pollution, reduce citywide carbon emissions, increase storm water retention, and provide various ecosystem services like increasing urban biodiversity (Clarke et al., 2018; Thompson, 2018). Increasing global temperatures and a more unstable climate are also likely to heavily impact global food security and nutritional quality and will require a restructuring of agriculture and food production (Lake et al., 2012). Additionally, low-income areas are anticipated to be the most vulnerable to the effects of climate change, given the inadequacies of housing and the absence of public services (EPA, 2021). Many of the root causes of climate change also increase risks of disease and pandemics; and it can be expected that continued disruption to environmental homeostasis will cause pandemics to increase in frequency and severity (Gupta et al, 2021). Thus, inequalities are predicted to continue to increase in the absence of mitigation and adaptation efforts.

Considering that the city of New Orleans is vulnerable to climate disaster and that further, it is a city in which disinvested, low income urban areas are prevalent, mitigation and adaptation are urgently needed to avoid the worst of the climate crisis and future environmental disasters that will continue to exacerbate health disparities. While strengthening the presence of community gardens is a goal of many, it’s not a solution to existing disparities in itself. This research pertains to one of several aspects of an

overarching system which should be investigated more thoroughly to diagnose the situation and develop adequate solutions. My research represents an initial effort, addressing what motivates residents to participate in urban gardens and, concomitantly, what barriers exist to participation. A more thorough investigation should assess other factors related to building community resilience in the face of climate change and wider issues of inequity.

2.3 Researcher Positionality

As an undergraduate student at Tulane University, I began volunteering at different community gardens through my Urban Gardening service learning course the Spring of my sophomore year. Through that course, I experienced first-hand the impact of gardening on my mental health, dietary patterns, and my overall relationship to the environment throughout the Covid-19 pandemic. This prompted me to look further into health benefits associated with gardening, which will be reviewed in the literature review. At that point in my research process, I viewed gardening as a mechanism for a multifaceted promotion of individual, community, and environmental health and wanted to explore why more people didn't participate in these gardens. As I volunteered in community gardens around the city, I noticed that those who were volunteering were often similar to me in that they were mostly white, middle to upper class, and an outsider to the community in which the garden is hosted which have been historically Black and low-income neighborhoods. I began to question whether urban gardens are actually delivering on the cited benefits for those most disadvantaged by the inaccessibility of fresh, affordable and healthy foods. This prompted my interest in collecting data that supports my observations on the unequal distribution of benefits of community gardens

and how whiteness is centered in local food movements meant to address these disparities. I felt at times uncertain if I was the “right person” to be conducting this research, but overall I felt it most important that attention be given to the local food justice efforts. I want to enter my voice into the conversation to amplify other voices and needs in the community and draw attention to the efforts being done so others in the research community can go forward doing the same in a manner that gives back to the community of research.

Chapter 3: Literature Review

3.1 Rise of urban gardening movements post-Katrina

On August 29, 2005, Hurricane Katrina made landfall in New Orleans and devastated entire neighborhoods due to insufficient levees that were not built to withstand this scale of a storm. Hurricane Katrina has been extensively studied for the failures of the local, state, and federal governments coordinated action toward storm readiness and response in the face of the adequate and accurate information about the storm prior to its landfall. Notably, the failure of the levee system was not unexpected, as it had been predicted and warned of for years prior to this historic disaster. (Belkhir & Charlamaine, 2007; Irons, 2006). United States Army Corps of Engineers (USACE) explained that the levees were only suitable for the protection against category 3 hurricanes due to inadequate funding. Katrina brought damage and harm to many different communities in its wake, but when the levees were breached, it was predominantly Black neighborhoods in low lying areas that were devastated (United States Congress, 2006; Harvey et al., 2016). The hurricane was as strong as it was predicted to be, and those most vulnerable to the destruction that wrought in its wake were predominantly low-income, Black, and elderly residents, none of which are mutually exclusive categories. These demographic groups were less likely to have the resources to evacuate prior to the storm. Levee failure disproportionately affected Black residents, destroying homes and complete neighborhoods. The slower recovery of predominantly and historically Black neighborhoods due to racialized disinvestment exacerbated food insecurity in the city for years to come (Rose et al., 2011; Mundorf et al., 2015).

Because most of the destruction was in predominantly Black and low-income neighborhoods, these residents returned to the city at a lower rate compared to white and wealthier counterparts (Fussell et al., 2010). Contrasting rate of return was a direct result of the misuse of federal funding by the Federal Emergency Management Agency (FEMA) as uncovered by the Hurricane Katrina Fraud Task Force (FBI, 2005). The investigation by the FBI (2005) resulted in criminal charges of fraud against 907 individuals. Additionally, the Road Home project established by the U.S. Department of Housing and Urban Development (HUD) and the Louisiana Recovery Authority (LRA) increased inequalities in rebuilding between white and Black residents. The Road Home project was tasked with the distribution of $11 billion for relief and rebuilding and claimed to be "race blind," but its allocation of emergency relief funds was designed offer a relief in a value based on the value of the home prior to the storm or the estimated value for sustained damage repair–whichever was lower (Webster et al., 2022). More often than not, the damage sustained by the properties in these low lying and historically disinvested areas would cost far more to repair than their houses were valued at. This resulted in long-term, low income, predominantly Black residents often unable to rebuild and come home. A significant displacement of Black residents coupled with an influx of mostly white, middle-to-upper class outsiders with the fair intentions to help in the rebuilding resulted in the whitening of New Orleans (Fussell et al. 2010).

The hurricane left around 44,000 lots devastated, with homes and buildings in disrepair. Turning these perceived blighted properties into gardens was viewed as beneficial to these communities, considering how the hurricane damaged and closed the already scarce number of supermarkets in affected neighborhoods (Kato et al., 2014).

However, many of these urban gardening projects were instigated by newcomers, who moved to the city to help with the rebuilding process (ibid.). These combining factors inadvertently contributed to the inability of many long-term residents to return and resulted in the whitening of New Orleans (Luft 2008; Mildenberg 2011).

Kato et al. (2014) summarized five factors acting as the main drivers in the resurgence of community gardening in New Orleans: 1. Physical destruction resulting in blighted properties and the displacement of residents; 2. Food shortages due to damages, which were notably more severe in low-income Black neighborhoods; 3. Recovery efforts caused demographic shifts; 4. National discourses surrounding gardening as a form of community redevelopment and promotion of pride in place through beautification; 5. Changes that coincided with the Great Recession and increased concerns over obesity and food safety. I expect that conversations with local urban agriculture and garden leaders will confirm Kato et al.'s (2014) conclusions when reflecting on the shift in New Orleans' growing culture following Hurricane Katrina. This change in the nature of urban agriculture in New Orleans and how it was perceived by local gardeners is essential towards contextualizing and understanding sentiments, particularly as it relates to hesitations, surrounding attitudes concerning participation in urban garden initiatives in the city.

3.2 Case studies on community gardens

Environmental sociologists and urban ecologists have been conducting case studies of urban agriculture on a citywide basis. In undertaking a thorough literature review, I was introduced to many different methodologies of studying how urban agriculture looks and behaves in different cities. One review by Draper & Freedmen

(2010) examined articles and studies conducted between 1999-2010 about urban gardens in the U.S. and their findings on the purposes, benefits of, and motivations for participating in community gardens (2010). Almost two-thirds of the case studies included in their report support findings that community gardens foster social relationships, and at least a quarter highlighted the effect of community organizing, empowerment, and mobilization. Studies included in the review also explored motivations to and barriers for participation in community gardens.

Studies conducted comparing urban agriculture in different cities have demonstrated that the culture of urban agriculture is intertwined with the socio-political development of the urban space (Anderson et al., 2019; Rangarajan, 2019). Thus, realities of the urban agriculture movement in one city may not be translatable to other cities. One recent case study of a garden in Salt Lake City, Utah, found spatial patterns between current food insecurity and socioeconomic disparities matching 1930 redlining maps (Joyner et al., 2022). The study examined a single garden against the backdrop of the city's socio-political landscape and found that although the garden was situated in a predominantly Black and low income neighborhood, most of the participants and people in leadership positions were white. The researchers concluded that justice-oriented approaches to food system reform must include reparations to displaced and disenfranchised African American and Indigenous peoples, and federal investment in agricultural land preservation and subsidized land access programs for small farmers, especially BIPOC farmers. Their findings suggest that a single city focus is essential towards the ability to fully examine the factors that shape the urban landscape as well as the culture of community on a neighborhood scale.

Other studies that inspired some of the methodology of this research include a study in South Omaha and a case study in Roanoke, Virginia. The South Omaha study highlighted the importance of understanding residents' perceptions and preferences regarding health promotion and community development (Ramos et al., 2019). The authors surveyed residents living in proximity to a garden of study to gauge support for the community gardens as well as communicate the health benefits associated with gardening. The Roanoke study, on the other hand, compared perceptions of community gardens between gardeners and non-gardeners to assess what attributes of gardens are associated with higher rates of community engagement (Kordon et al., 2022). Findings suggest that people prefer garden scenes with gathering and seating and gardens that visually looked clean and organized. Attributes such as raised beds, well-defined boundaries with clear paths, and a path leading into the garden scored higher in preference. Ultimately, the researchers concluded that in order to deliver benefits to more people over a longer period of time, these gardens should be built for longevity. One way of doing this is to make the garden appeal to gardeners and non gardeners alike. Findings were limited due to a focus solely on visual landscaping components rather than structure or function, but there was enough evidence to support that collective decision making models increased impact on the community (Kordon et al. 2022).

While gardens can not be expected to be the sole solution to the woes of a disinvested community, they can be on a more micro-level, become valuable spaces where community members can come together and connect with the land and concomitantly, grow food to sustain friends and families. Kato et al.'s (2014) findings echo the sentiment that engaging in community gardens can also be a form of political

engagement to take livelihood and welfare concerns into one's own hands, by growing one's own food and by bringing community members together to discuss how to address larger structural issues but cautions to the extent to which we should depend on community gardening to address these issues. For the study, Kato et al. (2014) compiled ethnographic data on four gardening projects in New Orleans collected between 2009-2012. These four projects are the Lamanche Urban Farm (discontinued in 2013), Hollygrove Market and Farm (discontinued in 2018), the Latino Farmers Cooperative of Louisiana (discontinued in 2015), and the Lower 9th Ward Food Access Coalition (discontinued circa 2013). The Kato et al. (2014) study represents both the most recent but also the most thorough comparative study on community gardens in New Orleans, informed through extensive on-the-ground qualitative research. Since most of these organizations/gardens have been discontinued, the need for an updated inventory of gardens and their purported aims and functions cannot be understated. It is also important to know whether these gardens are addressing the respective needs of their communities. If those needs are not being met, then the question arises as to how gardens could be better optimized to not only benefit communities more directly but also to manage the issues associated with the seemingly short life spans of urban gardens in New Orleans, as evidence by the discontinuation of the gardens included in Kato et al.'s (2014) research. A case study relevant in that regard examined gardens in City Heights, San Diego and found that community initiated, driven and managed efforts appear to be successful at maintaining a sustainable volunteer workforce and community engagement, and intersectoral collaborations yield more resources for garden managers thus making the garden efforts more stable (Musso, 2013). Although the study was situated in San Diego,

based on my own experiences with community gardening in New Orleans, it is hypothesized that my results will similarly reflect that community driven and managed gardens are the most effective at providing outreach and garnering the support of the surrounding residents.

There is no question that there are barriers which prevent or preclude local growers from actively participating in urban gardening, whether in a community garden or within one's own property. In accordance with a report compiled by SPROUT NOLA and the Greater Green Grower's Alliance (GNOGA), which consists of a collection of lived truths, heavily informed by local growers, elders, and organizers (SPROUT: Resources, State of Urban Agriculture).

The coalition identified the need for:

- an appointed **Urban Agriculture Liaison** position or two with access across city government to be a point of contact for both growers and the city.
- **Lease changes**, including more consideration for lots put to agricultural use rather than prioritizing what brings in the most money.
- Acquire legal designations for **electrical hookups** for gardens and farms with no permanent or temporary structure.
- A point of contact at the **Sewerage and Water Board** who is trained on how to designate lots with agriculture meters, considering agriculture lots should not be charged for sewerage when output is being absorbed by plants rather than going to sewerage.

- Education and more fair and transparent processes surrounding citing **blight**. The proposed Urban Agriculture Liaison would help with informing when a property is genuinely causing blight or whether it's being used for agriculture. This is important because properties or lots engaging in some sustainable methods of growing (like cover cropping) should not be troubled with $500 fees because of someone's inability to identify sustainable growing methods (SPROUT: Resources, State of Urban Agriculture).

Understanding the barriers to gardens is a great step toward implementing change on an institutional level to help strengthen support for growing efforts. Chapter 6 will further explore current efforts to address the needs identified in this report.

Chapter 4: Methodology

4.1 Inventory

i. Recruitment

Part of my methodology for discerning which gardens to select for a comparative case study involved the creation of an updated inventory of gardens in Orleans Parish that can be used as a central hub resource for those looking to get connected with a garden in the area. I found a list of gardens from the website of Greater New Orleans Gardeners Association (GNOGA) which had not been updated since prior to the pandemic. I created a spreadsheet of all the gardens, googled each one, and added any information I could find into the spreadsheet, especially if something online indicated that they had discontinued operations. In addition to this list, I typed the keywords “New Orleans,” “garden” and “community garden” into a Google search engine. I collected the names of gardens, their respective locations, and any associated contact information, generally website urls or email addresses, into a spreadsheet. I then went through the compiled inventory and reached out to each garden with contact information, either via email or phone call, to confirm that they’re actively operating. Each garden with an email listed received a recruitment email (see Appendix 1).

Gardens were then color coded on the spreadsheet by information collected. Ones with more complete information were coded green, while those with the least amount of information were coded red. Throughout the rest of the study, participants in the urban agriculture (ag) interviews were asked if they had any information regarding the gardens coded in red. This sometimes led to the discovery that the garden had either discontinued operations or were operating but didn't maintain an online presence. Toward the end of

the study, I visited the sites of gardens still coded in red to assess whether the garden was still in operation or had been terminated. Researcher discretion was used.

ii. Inclusion criteria

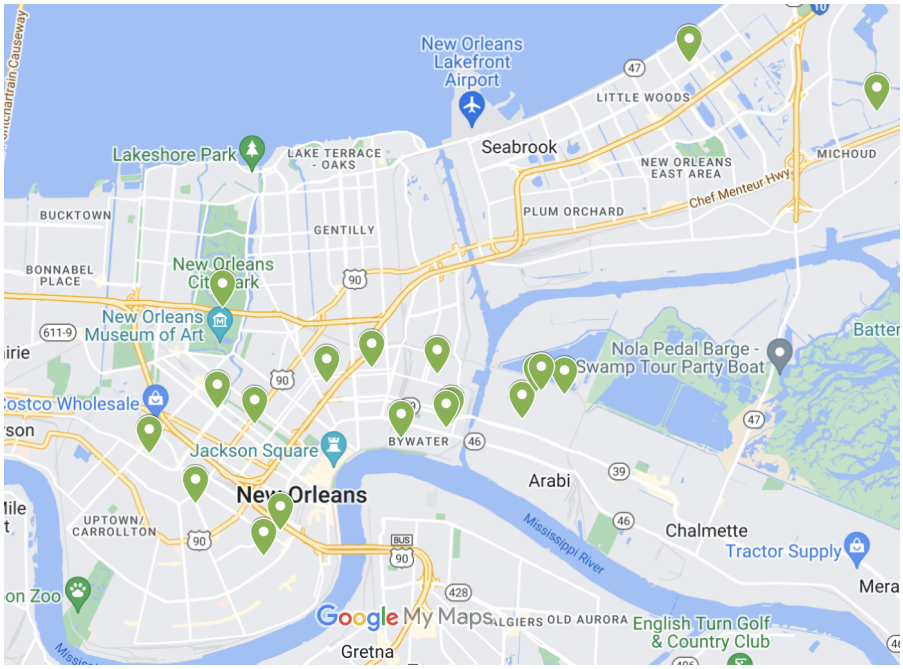
In order to be included in the inventory gardens must meet the following criteria:

1. open to public participation
2. grow foods for community consumption
3. located in Orleans Parish
4. confirmed that they are actively operating

iii. Mapping

The gardens that met inclusion criteria for the inventory were mapped using Google Maps. A spreadsheet was constructed listing the different gardens by name, with their associated GPS coordinates, the contact information of the garden leader or supervisor, along with their website and other socials, their hours of operation, and the type of garden's classification (e.g., cooperative, plot allotment, etc.) The reasoning for using google maps was so that when people type "garden" and "New Orleans" into the Google search engine, then the map would pop up in results. The map could also be embedded on the websites of various growing collaborative organizations, such as GNOGA, Recirculating Farms, and Grow Dat. These websites currently have a similar list of some gardens in the Orleans Parish, but these lists are less complete and out of date and include gardens that aren't publicly accessible.

Figure 3.1 Screenshot of inventory



4.2 Comparative case study of three community gardens

i. Recruitment and selection of 3 gardens

I anticipated that I would find out more about some actively operating gardens through conducting the inventory. Some gardens responded back to my solicitation for information for the inventory with details that made them desirable to recruit for the comparative case study component. Crown Community Garden responded that they were interested in doing some student-led research on how to increase engagement at their garden, and I didn't previously know much about the East Orleans area, and I wanted to help them find out more about why they weren't seeing the type of engagement that they hoped for. I had previously learned about Broadmoor Gardens through Dr. Cheruiyot - a Tulane professor, Broadmoor resident, and the third reader on this thesis. I visited the Broadmoor food forest for a spring garden day of service festival she coordinated. I was

really interested in the idea of studying the Broadmoor garden because of Tulane's relationship with helping start it, but also because of how unique Broadmoor is as a community and as an improvement district. This distinction will be further explained in the profile on Broadmoor since I learned about this information during the garden leader interview. Finally, SPROUT NOLA (hereafter referred to as SPROUT) felt like an obvious choice for inclusion because of my interest in examining how gardens could be connected to other organizations and an example of a more established garden that's been a part of a community for a longer time. SPROUT is the longest standing community garden in New Orleans, and it has only been around for 10 years. As such, I consider it an example of a successful garden and wanted to know more about the key to its successes.

Each garden I reached out to for participation consented to being included in the case study and the thesis. This consent process was conducted over email and they were sent an informed consent document outlining the details for participation (Appendix 2). Participation included a semi-structured garden leader interview and consenting to the researcher conducting Community Engagement Surveys within a ⅕ mile radius of the garden to gather data on engagement with and perception of the garden of study.

ii. Recruitment of Participants for Community Engagement Surveys

For the three gardens of interest, I went door-to-door accompanied by my thesis advisor to houses located within a ⅕ mile radius of the garden of study, starting at the garden. For those who answered the door, I introduced myself and explained that I was conducting a research project on engagement with community gardens and asked them if they'd be interested in participating in a quick survey in exchange for $10. Participants

were required to be 18 years or older, be a resident in the household being solicited, and speak English.

Figure 3.1 Scope of surveying for Crown Community Garden

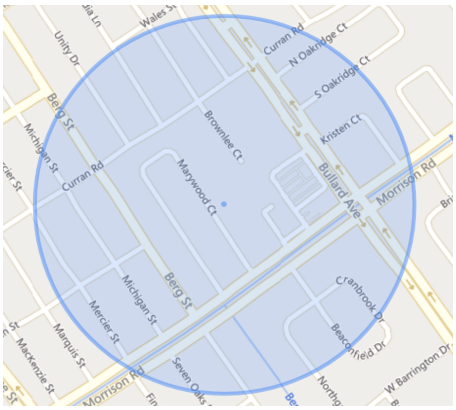


Figure 3.2 Scope of surveying for Broadmoor Food Forest

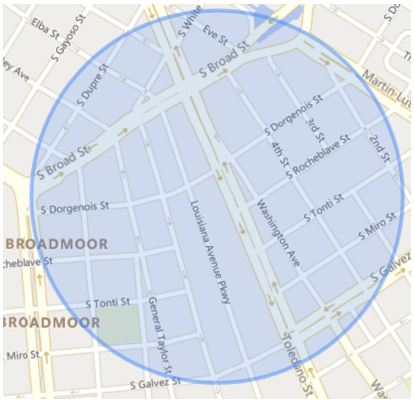
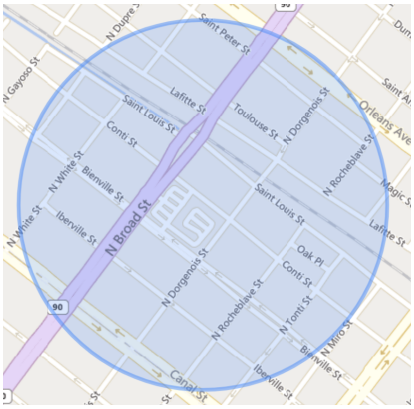


Figure 3.3 Scope of surveying for SPROUT NOLA ReFresh Community Garden



iii. Data Collection

I kept a journal to tally the number of houses we solicited and the number of surveys we conducted to later calculate a response rate. I printed out multiple copies of the survey and filled out each copy to record responses. The surveys were to assess whether residents living in proximity to the garden perceived that they are benefiting from it. If they responded to the contrary, the surveys were meant to ascertain reasons that prevent members of the household from engaging with the garden of study and gauge their interest moving forward now that they have been provided information about it. I used a list of questions to guide the survey (Appendix 5), but surveys were in the style of casual conversation, so they were more semi-structured. This structure allows for conversations to flow more naturally and evokes more trust (Bernard, 2000).

I mixed qualitative and quantitative methodology to compare participation in gardens by people residing in proximity to the garden. After collecting data via surveys, I quantified responses on a scale of 0-3 for two measurements. Researcher discretion was used for how to quantify based on participants' responses. Measures were applied to:

1. Previous engagement with the garden (0 = not aware of it, 1 = aware of it but never participated, 2 = minimally participated, 3 = participate often)
2. Interest in future participation post-survey (0 = not interested, 1 = no clear indication, 2 = maybe, 3 = enthusiastic yes).

Qualitative research methodology allowed me to search for key themes that were common to all gardens as well as unique to just one or two. I created a Venn diagram to

illustrate those similarities and differences as it relates to barriers to residential participation in each of the three gardens.

4.3 Local Urban Agriculture/Food Justice Leader Interviews

i. Recruitment and Inclusion

I interviewed people who work for organizations involved in food justice discourse and urban agriculture on a local scale. Participants had to be 18 years or older, speak English, identify themselves as having been involved in local food justice discourse, and identify New Orleans as their home. Through my involvement with the urban agriculture scene and my conversations with people leading up to this research, it was made clear that certain individuals were continuously brought up in conversation as being leaders in the local food justice and urban agriculture movement. Recruitment, in this sense, could best be defined through the method of snowball sampling (Bernard, 2000). In each instance, participants were recruited through an email invitation (Appendix 3) including the informed consent form (Appendix 4), but each individual was aware of my research endeavors in advance.

ii. Data collection

The responses from these interviews are used to supplement data collected in the garden case studies in understanding the state of urban agriculture and the current efforts being done across the city by organizations and other agents. The interviews were conducted over zoom or in person and lasted between 1-2 hours. Each participant was given a $50 check as an honorarium for their contributions to this body of work. This was funded through the Newcomb Tulane College (NTC) grant program. It was especially important to me to give back to people and organizations that are already doing

undervalued labor, and to prevent research fatigue.. Consent was received to include names in the published thesis.

Participants:

- Pam Broom (Newcorps 7th Ward Revitalization Project Manager)
- Jeanette Bell (Founder of Garden on Mars)
- Devin Wright (SPROUT Research & Policy Manager and former GNOGA organizer)
- Dimitri Celis (Recirculating Farms Outreach Coordinator and Loyola Law student)

Chapter 5: Case Studies

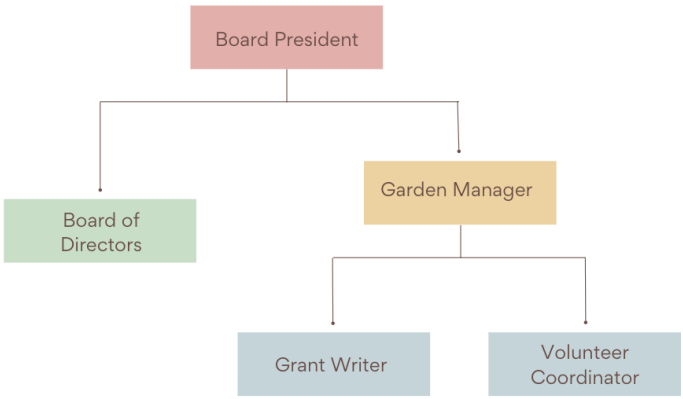
5.1 Crown Community Garden

Figure 5.1 and 5.2 Crown Community Garden (Crown: The Garden, 2023)

Crown Community Church is hosted on 2 previously vacant lots owned by the Crown of Life Church tucked away on Marrywood Ct. neighborhood in East Orleans. Jon Kehl was stationed at Crown of Life Church upon graduating seminary school in 2013. He lives next door to the garden in the church house with his wife and two boys. The kids play on the grounds and are living the childhood many people dream of being able to provide for their kids. They have the space to play in dirt and leaves, run around with other kids, and build forts in the banana mangrove. Kehl has lived there for 9 years, but is taking a new post as a pastor and teacher to 300 kids at a school in the Caribbean after

this Spring. After Kehl leaves, the temporary person of contact for the garden is Heather Schwartz, or the new director of the garden Kim Curtis.

Figure 5.3 Organizational Chart of Crown Community Garden



Kehl explained that starting out as a pastor, he didn't think he'd also take on a project like the garden, but the land was there and was a pain to mow. A few organizers from the Hollygrove garden came to visit the church, and they got to talking about the space. The next morning, they showed up and started digging. They helped start the garden, but shortly after, they discontinued their work leaving it in his care. Mr. Kehl explained he watched youtube videos and searched the internet to learn how to build and tend the garden. The garden received a grant to employ some staff horticulturalists with the expertise to tend to the plant beds and walking trails they carved out of the back lot. They get seeds from a seed bank, and have received some native trees from organizations like SOUL (Sustaining Our Urban Landscape) NOLA (https://soulnola.org/). Mr. Kehl has had relatively good success in getting grants and funding for some projects.

While there seems to be general support for the garden, Kehl says it hasn't really resulted in people coming to the garden to gather fruits or vegetables for their personal

pantries. He originally thought that if the garden was built, the people would follow and just be drawn to it, but they aren't seeing much engagement or interest by any locals of the neighborhood. The garden has a few regular volunteers, most of which got connected through engaging with the church. He says he had more success reaching the neighbors when he let people know they were putting out a donation box on the stoop of the church, but the produce wilted and spoiled in the heat too quickly, so they stopped doing it. When I met Pastor Kehl for our interview in the garden, he was building a cooling system in the shed to turn it into a fridge for storing the surplus produce, to keep it fresh until it could ultimately be donated to members of the community. He plans to install a code box on the door to prevent squatters from bunking in the shed overnight, which has been a problem in the past. Concomitantly, by sharing the code with nearby residents, they would have access to the produce to take as needed. One of the grants he received was for this project, while another was for a digital billboard advertisement. A third grant provided funding for a beehive starter kit. He explained that grant organizations are more likely to provide funding for his initiatives if he can demonstrate that the produce is reaching community members. Regardless, he noted that the grants were an unreliable source of funds and hopes that the garden can start sustaining itself through selling cut flowers. Ultimately, he desires for the garden to serve as a communal space for local residents to connect with each other in an outdoor environment and learn how to grow food and look after themselves and one another

i. Survey Findings

Figure 5.4 Crown: Participants engagement in garden

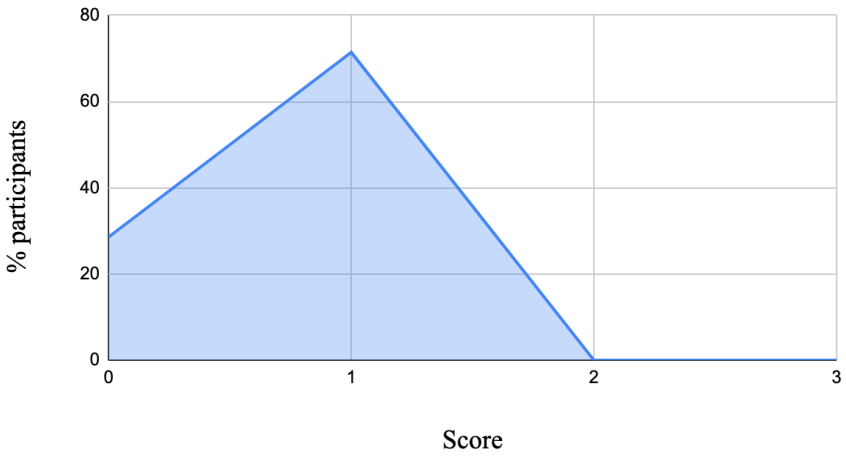
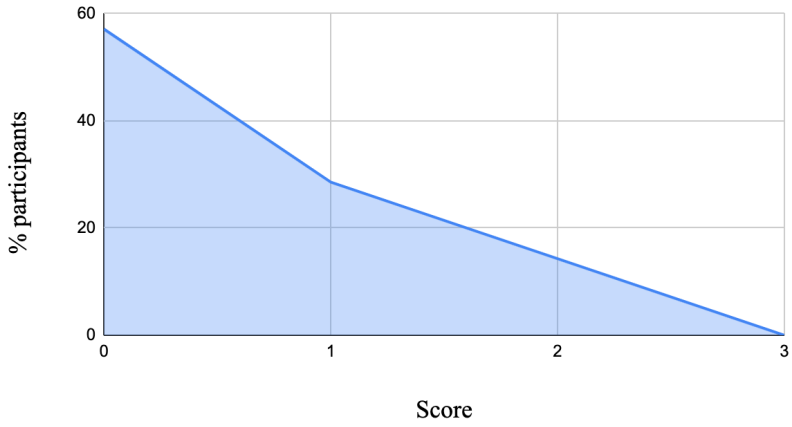


Figure 5.5 Crown: Interest in participating post-survey



Going door-to-door in the area surrounding the garden, we were met with some unforeseen barriers in our efforts to recruit interview participants. For example, some houses didn't have doorbells, some had gates that were locked so that we couldn't knock on the doors, and some had doorbells with cameras so that they could see who it was and presumably didn't answer the door if they didn't recognize who was on the other side. Out of the houses solicited for participation, only seven respondents met the inclusion criteria and granted their consent to be included in the study. Thus, results are not

representative of the neighborhood, but they can offer the garden meaningful insight into the lives of some of the residents living in proximity to the garden as well as the factors impacting the extent to which households did or did not engage with the site. Many others solicited for surveys expressed having a chronic illness or being sick as a reason for not engaging with the garden as well as for not participating in the survey. While there is grounding to support gardening to mitigate illness, it is unclear how gardening can help those who are unable to leave their house because of an existing illness.

The resident participants who knew Pastor Kehl described him as “sociable” and “a great, community-oriented man.” In my few conversations, It seemed Kehl is well liked. But, this garden received the most survey respondents who scored a 0 on interest in participating in the garden post-survey. Part of this could be due to residents heavily associating the garden with the church’s operations. There is a person on the Board of Directors who serves to connect the church to operations, the garden operates on church property, and the primary garden leader was the pastor living next door, so I do understand where some people may gather that the church goers are the primary target audience. As explained by one interviewee, “Black people have to think about what it looks like if [...] we aren’t supposed to be somewhere and we aren’t welcome. We don’t go where we aren’t comfortable because what if somebody calls the police.” More clear messaging could include signs indicating that everyone is welcome. The garden might be made to feel less separate from the neighborhood if the garden is able to involve interested residents in leadership roles. A table or bench could also be placed more visibly in the garden to signal the space as a place for people to gather.

5.2 Broadmoor Food Forest

Broadmoor Food Forest, located at 3728 Toledano St., is one of the gardens run by Broadmoor Improvement Association (BIA) and was started in 2020 with the help of Broadmoor resident and Tulane faculty member Dr. Jelagat Cheruiyot. The partnership with the Tulane Environmental and Evolutionary Biology department was an integral in the production of the beautiful garden. Student volunteers continue to maintain the grounds, as Dr. Cheruiyot brings new students each semester as a component of her Urban Agroecology and Sustainability in New Orleans service learning course have been working in the garden each semester. The Food Forest is just one of the garden locations; there is also the rain garden at 3601 General Taylor St. and the Food Pantry Garden located at 2021 S. Dupre St., next door to the Broadmoor Community Church where the food pantry is hosted. All three gardens are funded through the BIA. This study focused on the dynamics at and around the Food Forest, where the majority of the food in Broadmoor is produced. However, all three of the gardens are funded and run through the BIA.

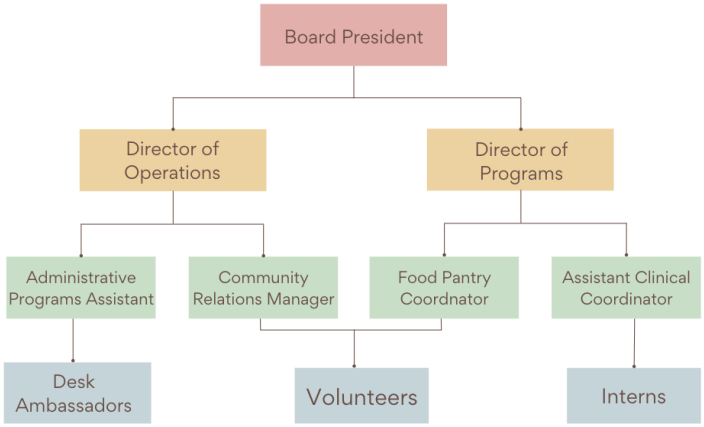
Figure 5.6: Photograph of Broadmoor Food Forest (taken March 2, 2023)

The BIA is a 501c3 non-profit neighborhood organization, founded in 1930. The BIA serves people who live, work, worship and play in Broadmoor through a coordinated network of anchor institutions, faith-based partners, businesses and community partners. Central to the BIA is the Arts & Wellness Center, which combined with the Community Center connected to Rosa F. Keller Library offers more than 25 weekly classes, meetings, and workshops available for free or low-cost to Broadmoor residents (Broadmoor Improvement Association: About Us, 2022).

Seidman's "Coming Home to New Orleans" (2013) details the long history of community organizing associated with the Broadmoor neighborhood. The book reports that after Hurricane Katrina, the BIA organized a revitalization and repopulation initiative in response to the Bring New Orleans Back (BNOB) which aimed to turn the area into a large green space in an effort to attract wealthy buyers. The Repopulation Committee of the BIA created a Repopulation Information System to include volunteer block captains, a property level database, maps, and an annual neighborhood census. The planning process for rebuilding was to divide up the neighborhood into three sub-areas to allow residents in each sub area to meet in smaller groups with their closest neighbors to identify priorities, develop ideas and proposals as they emerge. Five subcommittees for the neighborhood were urban planning, economic development, education, emergency preparedness, and transportation. While the collective approach is helpful in determining community needs and providing a platform for local residents to engage in the rebuilding process, in this particular instance, the effort was ineffective, plagued by sheer volume of voices speaking over one another, all communicating different viewpoints concerning what should be prioritized based on the limited funds (Seidman, 2013).

The BIA is managed by an Executive Director and a Board of Commissioners who are publicly elected. Board members represent the three distinct subgroups within Broadmoor as were established by the Repopulation committee. Since 2010, Broadmoor residents have consistently voted in favor of tax funding that supports the BIA's general operating needs and quality of life programs (Broadmoor Improvement Association: About Us, 2023). Each household pays an annual $500 parcel fee. The organizational approach utilized by the BIA could be considered top down. However, it does involve residents at multiple levels of leadership and values community input. One of the ways in which they involve local residents in operations is through the Desk Ambassador positions that work as receptionists at the Arts and Community Center and interface with residents looking to get involved or use services offered.

Figure 5.7: Organizational chart of the BIA



Natori Green is the current Community Relations Manager for the BIA and works to coordinate volunteers for the gardens and runs garden operations. I met with her twice to learn more about the garden. For our first meeting, we sat at a picnic table in the food forest. Through our interview, I learned about what led her to work with the organization

in this capacity. Green grew up in Broadmoor and started gardening as a youth at her local elementary school, which had an edible schoolyard. She is also a mother and an artist and has a vested interest in making the community better for residents and visitors alike. She noted how after Katrina there was a resurgence of interest in community gardening, which she attributes to the increase in vacant lots and energized well-intentioned people who wanted to help in the rebuilding efforts. Green also notes that this trend seemed to mirror a larger national discourse on healthy eating and lifestyle coinciding with Michele Obama's Healthy, Hunger-free Kids Act.

Our second meeting was at the Food Pantry Garden, located next door to the Broadmoor Community Church at 2021 South Dupre Street. The food pantry is hosted in the church and is open on Tuesdays, 10:00 a.m. – 12:00 p.m. and Wednesdays, 1:00 - 3:00 p.m. Green estimates that 75% of produce grown in the two gardens goes to the food pantry. The pantry also receives donations from grocery stores like the nearby Whole Foods. The Food Pantry also takes on its own surveying efforts with visitors to gauge which foods they have a preference for being grown in the gardens. As such, the garden can focus on growing culturally relevant foods and provide an avenue for pantry goers to have a say in their food. Green informed me the church sometimes uses the lawn adjacent to the garden for events, but partnership with the church is rather limited. She hopes to strengthen the relationship with the church in the future to engage church goers in the gardens. Natori believes that the key to a successful local food system in New Orleans would be to strengthen connectivity between gardens and organizations. Broadmoor Garden currently collaborates with Together NOLA which helped pay for and install the solar panels, with Compost Now which provides composting supplies, and Green Light

which has aided in the acquisition of raised garden beds. These organizations have helped the garden to expand in scope and scale, without becoming financially indebted. A considerable amount of the garden budget goes toward covering electricity and water of the garden and the church that allows the garden to operate on its property.

The Broadmoor Food Forest was an expansion of a garden run by Kevin O'Sullivan prior to his moving to own a farm in Mississippi. The BIA pays rent to New Orleans Redevelopment Authority (NORA) for both the Food Forest and the rain garden. The Food Forest has a fence but no gate, so it's technically open 24 hours, 7 days a week for anyone to visit at their own discretion. When asked if the open access garners any security issues, Natori assured me that if anything, they have the opposite problem: they can't get residents into the space to begin with. The garden has seen little engagement by neighboring residents aside from receipt of produce through the food pantry. Natori envisions the Food Forest serving as a community gathering space for residents to relax and connect with nature. Green estimates that around 75% of the produce grown in the gardens goes to the food pantry and 25% will get harvested and taken home by volunteer gardeners, which have been primarily local university and high school student groups. Green says that the Tulane and Xavier student volunteers have been very helpful in building parts of the garden. However, she wishes the garden engaged more local Broadmoor residents. When asked about their outreach efforts, Green says residents are updated on the gardens operations via the biweekly BIA newsletter, the Nextdoor app, the Facebook page, and in-person monthly BIA neighborhood meetings. They also have an Instagram with a linktree to information as well as a google form to sign up to regularly volunteer in the garden. Green says they even tried putting flyers up at some local

businesses, to no distinguishable avail. Given all these modes of communication, I was interested to see where the disconnect between the gardens outreach efforts and community participation lies, especially considering that the gardens are a community resource that residents are paying for.

i. Survey Findings:

Figure 5.8 Broadmoor: Participants' engagement in garden

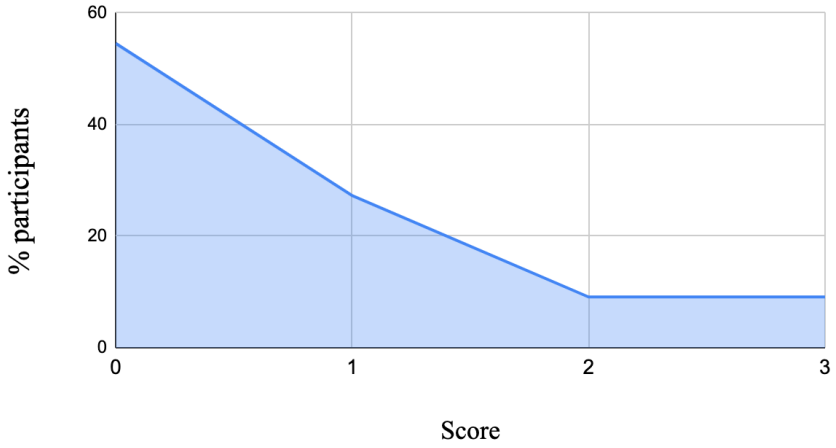
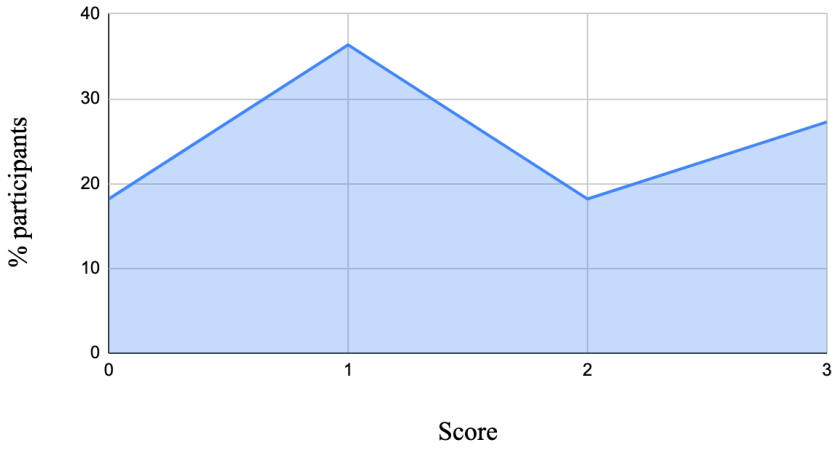


Figure 5.9 Broadmoor: Interest in participating post survey



This garden produced the lowest percentage of respondents aware of the garden and its operations. It is also the newest garden, so that may be why fewer people were

aware that it was open for residents to harvest from 24/7. Participants indicated a desire for more clear signage that indicates who is able to take from it, how much, and how to harvest correctly to not damage the plant if applicable.

Right to the city may play a role in some participants' hesitation toward the Broadmoor garden. Considering that the BNOB plan was to replace long term residents with green space to raise the value of the area, some residents may still get the sense that the green spaces are to replace them rather than it being for them. Residents may need more evidence that they are the target audience of the garden. If most of the people they see in the garden are Tulane students and other students, then that may be giving mixed messages as to who the garden's target audience is.

Since my surveying the area surrounding the garden, the Broadmoor Garden has hosted a series of gardening and art events in which participants painted signs to communicate that the garden is for everyone and to encourage people to come visit. I went to one of these events on Earth Day, and there were a good amount of people there, however it didn't seem like many of them lived in Broadmoor. Hopefully, the signs made from the event will attract more people to come check out the gardens.

5.3 SPROUT NOLA

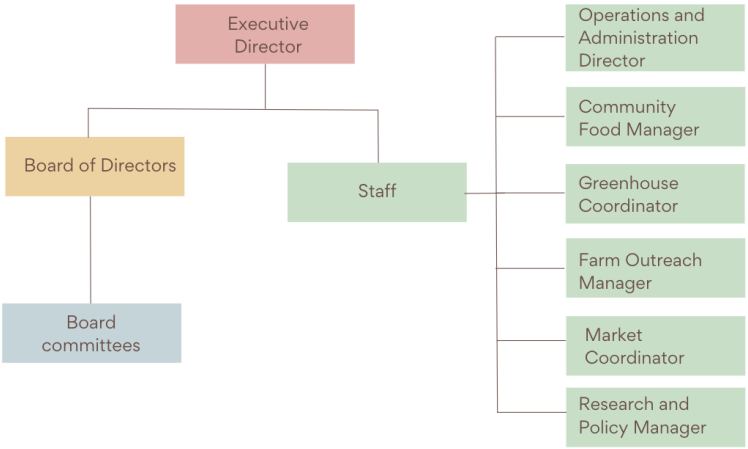
Figure 5.10 and 5.11: Photos taken at SPROUT (April 15, 2023)

SPROUT NOLA (hereafter referred to as SPROUT), also known as “the ReFresh garden” is located at 300 N Broad St. opened in 2014. as the community garden branch of The ReFresh Project, a collaborative partnership between a number of organizations working towards community wellness. The ReFresh Project is hosted in a 60,000 square foot former grocery store that sat abandoned for 5 years after Hurricane Katrina. The building now acts as a central hub for the ReFresh Project including a Whole Foods Market, Liberty Kitchen, the Goldring Center for Culinary Medicine, Broad Community Connections, and FirstLine Schools and Boys Town Louisiana. The larger ReFresh Collaborative started in 2015 as a Collective Impact Initiative of community members and organizations based in the neighborhood working together to make health equity a reality. This collaborative includes entities such as Top Box, Second Harvest Food Bank, Grow Dat, and more. The forming of the ReFresh Project was initiated by Broad Community Connections, and the garden was co-founded by Marguerite (Margee) Green and Emily Mickley-Doyle. Margee is Executive Director of SPROUT. She is a certified arborist, horticulturist, and florist and consults in various projects throughout the Gulf South and also owns and operates Fat River Farm, a wedding flower farm and floral design studio in New Orleans East. Emily serves on the board of SPROUT and is also a

founder of the Greater New Orleans Growers Alliance (GNOGA), the Louisiana chapter of the National Young Farmers' Coalition, and a member of the New Orleans Food Policy Advisory Committee (NOLA FPAC) Food Production Working Group. Emily and Margee also co-founded the Growing Local Collaborative during the pandemic.

There are 11 individuals on the Board of Directors, 5 individuals on Board Committees, and 7 individuals comprise the team of staff. The different staff positions include Operations and Administration Director, Greenhouse Coordinator, Farm Outreach Manager, Market Coordinator, Community Food Manager, and Research and Policy Manager. Figure 4.12 provides a summary of the organizational chart for SPROUT Learn more about each staff, board, and committee member and their other growing endeavors at their website (SPROUT: Our Team, 2023).

Figure 5.12 Organizational chart of SPROUT



The garden leader interview was conducted with Mina Seck, the current Community Foods Manager. Seck first got interested in growing because she wanted to be a chef. She learned how to garden through trial and error in her boyfriend's backyard garden. Seck joined SPROUT's team in 2021 as the garden coordinator. She was aware of

SPROUT prior to joining the team because of its presence in the community. It's located on the side of the Whole Foods Market, so it's relatively visible. She describes SPROUT as the aspect of ReFresh that interfaces with the community and engages them with growing food, but that the organization is so much more than about the garden. They're also focused on land reparations and power shifting (SPROUT: About Us: Black Lives Matter; 2023).

SPROUT currently has 21 families or individuals with their own designated growing space. Participants usually have to show consistent engagement and interest in the garden before they're allowed to manage a private plot, and Seck explained that they prioritize plots to people with marginalized identities. The Theory of Change chart outlines SPROUTs goals, target audience, entry point to reaching the target audience, steps needed to bring about change, and the measurable effect of SPROUT's work, in addition to the guiding principles and assumptions behind each goal (SPROUT NOLA: Theory of Change, 2023). For example, they hold the guiding principle that labor must be valued, farming must be regenerative rather than extractive, support economics based on enriching our community health and relationship to the environment, and priority of BIPOC farmers and gardeners due to barriers in place that intentionally and historically exclude them from success (ibid.).

The garden is open every Monday 2-4 pm, Wednesday 10am-Noon and Thursday 4-5:30PM. The schedule of events and classes, such as seed weaving, cover cropping, and composting workshops, can be found on their webpage (SPROUT NOLA: Events and Classes, 2023).

i. Survey Findings:

Figure 5.13 SPROUT: Participants' engagement in garden

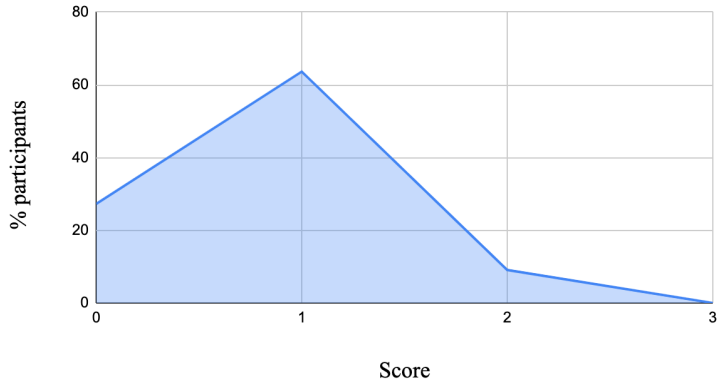
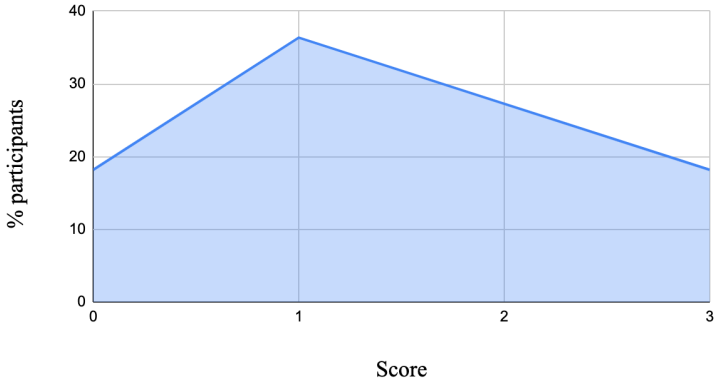


Figure 5.14 SPROUT: Interest in participating post-survey



When compared with other gardens, SPROUT had the lowest percentage of participants who were unaware of the garden. When asking those who were aware of the garden but had never participated in some way what factors prevent them from participating, some expressed that they didn't perceive themselves as having a need. Residents living around SPROUT are in close proximity to multiple grocery stores unlike residents of the other two neighborhoods of study, so if residents believe that the garden should primarily benefit those who can't afford produce from grocery stores, then they may choose not to participate.

Some of the major findings from surveying was that hours of operation, while consistent, are not at the most convenient time for many of the residents. Additionally, one participant expressed discomfort from a previous awkward experience having to do with confusion surrounding individual versus public garden beds. Having these beds more clearly labeled could help avoid awkward experiences that may discourage people from participating.

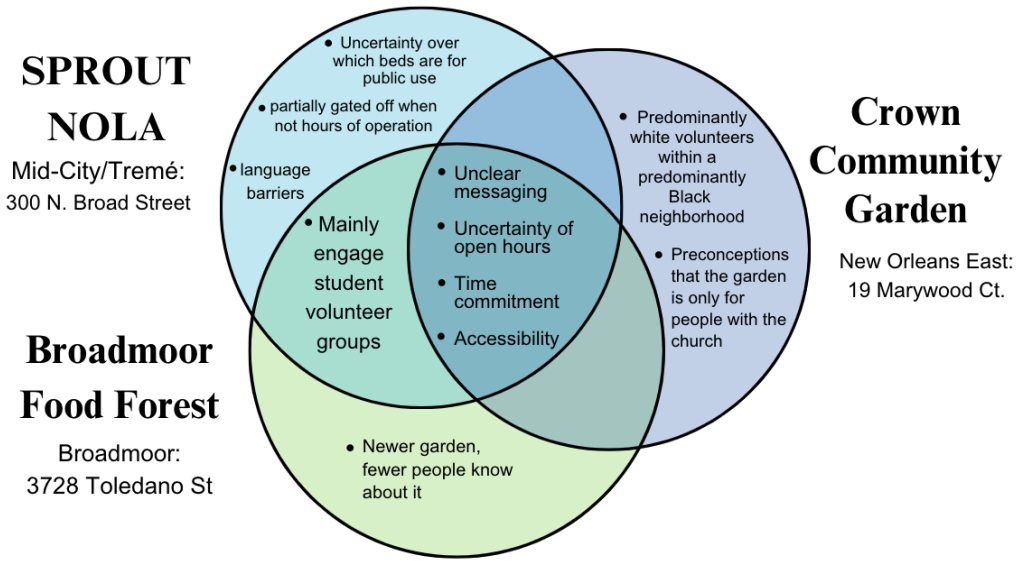
Chapter 6: Discussion

6.1 Understanding case study findings

Overall, the findings support that residents appreciate being asked their opinions about the garden operations and would be more likely to visit if they had clarity that the garden was open to them. Through going door to door, gardens can continue to understand the community's desires and needs rather than to assume what those needs may be, while also creating face-to-face connections that demonstrate how garden and community interests intersect and correlate with one another. Many of the gardens of study indicated that they had done door-to-door canvassing and surveying of their residents once every year or few years. Crown Community Garden, however, had not done canvassing since they were founded in 2014. While this may be one of the contributing factors to why survey results demonstrated that this garden seems to be the one that least engages proximal residents, it is important to remember that correlation does not equal causation. Other barriers identified specific to this garden were that a majority of the staff and those engaged with the garden on a regular basis are white, whereas the dominant demographic of the neighborhood is Black. But again, correlation

does not equal causation. See figure 6.1 for a Venn diagram summarizing how barriers to garden participation compare across the three gardens of study.

Figure 6.1 Barriers to participation by garden



There was a lack of knowledge across the board that at least some of the beds, if not all of them, are open to residents to harvest from community beds. Approaches to resolving this issue could include more clear signage at the entrance of gardens about the rules. This is especially important to consider in relation to racial policing of space, meaning that people don't want to be in a place they don't know if they're welcome. This is where politics of space and right to the city come into play (Passidomo, 2012). Messaging must be clear about who is welcome and at what times. Other barriers not included on the Venn diagram include some residents' expressions of disinterest in consuming vegetables or learning how to prepare certain produce for consumption. This suggests that healthy eating campaigns may be a beneficial component to include in gardens' messaging to increase engagement by proximal residents.

The intersection in barriers as evidenced through the case studies suggests that in spite of varying efforts to connect to surrounding residents, more work is needed to truly generate local participation. Further, the results support findings from similar studies which have demonstrated that involving members of the community into leadership positions at various levels within the garden increases local engagement (Musso, 2013; Phillimore & McCabe, 2015; Ramos et al., 2018).

While data collected through the surveys is not amenable to statistical analysis given the small sample size, I believe the feedback received is a start toward increasing engagement at these gardens. Further, while it is likely that some of the barriers to participation by local residents identified in this study may be generalizable to community gardens in the region, due to the differences between neighborhoods and characteristics of the different gardens, I recommend that each garden embark on its own community surveying to better understand their local residents' desires and needs and to form bonds with community members. This is also important because if residents know who is in charge, they know who to direct follow-up questions to and may feel as if they’re feedback is being given to someone with direct influence on the garden.

Additionally, given the sample size of respondents, I am unable to conclude whether gardens are more successful if more closely connected with other organizations in the city with similar purposes. While there is a correlation with SPROUT being the longest standing garden and the most well connected, I am unable to conclude that it is a direct result of its being well connected.

6.2 Recommendations for community gardens

The following recommendations are based on results of the comparative case study but can be generalized to other community gardens in the city:

1. Gardens may benefit from engaging in door knocking. The community gardens of study were all situated in different neighborhoods, each with their own characteristics and needs. While the survey responses depict that the three gardens share some common barriers, prioritizing local residents and catering to their wants and needs could greatly enhance engagement levels.
2. Many community gardens engage groups of student volunteers, from university and high school volunteer groups to religious group volunteers. While this is an effective source of labor, prioritizing student volunteer groups from outside of the community may send mixed messages to residents about the target audience of the garden. Including students to the extent of letting them do the heavy lifting for service and volunteer opportunities, but leaving the harvesting and food for the locals could aid in alleviating confusions concerning who gardens aim to assist.
3. Marketing is vital to increasing engagement in community gardens. Gardens could hire an amateur artist or designer to consult with on marketing. Many survey respondents expressed interest in coming to the gardens after learning more about them, however it must be made clear that these spaces are there for them. Flyers printed and dropped off on people's doors would be most accessible to elderly residents and those

with mobility restrictions. Having clear signage that states hours of operation, and indicates when gardens are open to the public, could help to quell confusions concerning garden aim and intentions and further, aid in getting fresh produce out to residents before it wilts or rots. when the garden is open, and if the garden is open to the public at all times, have signage indicating expectations associated with 24/7 access.

4. Donations are most accessible. While it is important to have people visit and volunteer in the gardens it is not a feasible undertaking for many of the local residents. Offering a box donation could simultaneously communicate about the garden's existence, put fresh produce into peoples' hands, and promote tools for healthy eating, would likely get the attention of neighbors and entice better habits without requiring extensive effort. Not everyone has the means or time to help but still deserve to benefit from a community garden in their neighborhood if they're interested. Because having the time and means to donate volunteer labor is a privileged position, making access to goods equitable is essential in addressing the unequal distribution of benefits associated with gardening. If gardens want local residents to engage, then they should be prioritized for receipt of produce rather than, for example, the surplus produce going to student volunteers or others who do not live within the target community. This is not to say that student volunteers do not play an essential role in sustaining community gardens. Community gardens have limited resources, and must understandably take help where they can find

it. But setting aside a certain amount of produce for residents who sign up for donation boxes, or appear to be in need, can demonstrate that a garden is there primarily to support the community, especially its most vulnerable residents. Donations are also another way to engage residents. Of the participants who expressed not eating enough fruits and vegetables, when asked further clarifying questions, most explained they just were not as used to eating those being grown. Donation boxes could allow for target residents to try a variety of new foods, and being free of charge, could entice experimentation with lesser-known fruits, vegetables, or herbs.

5. Gardens may be more successful when working in conjunction with other organizations geared toward food equity. Through my research, I was introduced to many organizations doing important work in the food justice movement. I have compiled a website with the inventory map of community gardens in Orleans Parish as well as a page of organizations that came up during my research process. It was encouraging to learn about so many great groups and people doing great work in the city, and I hope future research will continue to take inventory of local urban agriculture and its impacts.

6.3 Tying in guidance from the local experts:

Pam Broom, a lifelong gardener in New Orleans who currently serves as the Newcorps 7th Ward Revitalization Project Manager and runs FARMacia, a garden centering health and wellness and situated on the lot where the first Black, woman doctor in Louisiana lived, Dr. Coffey-Boute. When interviewed on the connectivity of

community gardens to organizations geared toward food equity, Broom explained that farmers farm; they know how to grow food and that's what many of them are focused on. Her remarks helped me to gain a better understanding of how much work goes into developing and maintaining a community garden, and how most garden leaders are preoccupied with meeting the immediate needs of their respective garden, thus precluding involvement in the broader food justice movement. But the two are not mutually exclusive. Broom is also a Board committee member of SPROUT, on the Board of Directors at FPAC, and founded her own nonprofit organization, Women and Agriculture Network (WandA), in 2010 to help local women agricultural producers. With all her involvements, it's easy to see why people in the urban ag community identify Pam Broom as "Queen" gardener.

SPROUT is one example of a garden that focused on connectivity between the garden and other agents of food equity from its onset. The co-founders of SPROUT also being leaders in other organizations such as FPAC, GNOGA, and Growing Local Collaborative demonstrates their continued interest in building networks across urban gardening initiatives. The variety of staff positions likely assists in SPROUT's ability to be more than just a garden efforts, as for example, having permanent paid positions like a market coordinator, a Greenhouse Coordinator, and a Farm Outreach Manager in addition to the Community Food Manager helps the garden manage hosting events, connecting with vendors for farmers markets, educating adults and youth alike, and contribute to policy efforts. The more team members, the more ability to divide aspects of the garden and the more productive a growing space the garden can be. However, funding does seem to be a common struggle with gardens and mediates the ability to have these full time,

paid positions. Gardening projects need more resources and city-wide support to sustain themselves and reach a broader audience, and this is where other agents for change must come in.

Devin Wright, a current PhD candidate in the City, Culture, and Community program at Tulane University, is the Research and Policy Manager with SPROUT NOLA and a grassroots organizer with GNOGA. Currently, she is working on A Greener New Orleans Policy Plan (previously outlined in Section 2.5). Wright shared that the group has been and continues to lobby city council members to gain support for the Greener New Orleans policy plan.

Wright explained that compiling the report was phase 1 of the plan (SPROUT: Resources, State of Urban Agriculture). The group is currently wrapping up phase 2, which consists of lobbying efforts in support of city council. Wright shared that city council members King, Thomas, Rousseau, and Harris have agreed to support the plan, resulting in a majority of the council people on board. Most recently, city council member Lesli Harris agreed to champion the plan, meaning she will serve as an ally and a point of accountability. Phase 3 is forthcoming and will focus on leveraging the support of the city council to enact the needed changes. Wright believes that the implementation of an Urban Ag Liaison position or two within the city Quality of Life committee is necessary to decrease barriers to growing projects in the city and increase city personnel in understanding proper protocol for agriculture lots. With the liaison, growers would have a point of contact through which to access information concerning the status and operations of urban gardens across the city. Such changes would help those operating agricultural lots, such as one of the urban agriculture elders I met with, Jeanette Bell.

Ms. Bell is an expert grower and started Garden on Mars in Central City in 2003. She now has five garden lots in the Lower Ninth Ward, the most disinvested district in Orleans Parish. She has many ideas when it comes to how to strengthen local production. When I interviewed her, we talked about the untapped potential of institutions of higher education in swaying the city to pay closer attention to agriculture and food insecurity and to support local producers. She believes that if the universities in the city, like Tulane, Xavier, UNO, Loyola, and Delgado, came together to create an Environment and Agriculture Committee and encouraged more local research to inform the city, then it may accelerate the rate of change and bring much needed attention to urban gardens and growers. Universities have resources that those like Ms. Bell do not; they wield significant power which can be used to produce data that increases support in local producers. and better allow for community gardens to better mitigate food apartheid and serve as spaces to practice agency over food.

6.4 Conclusion

This study attempted to capture the efforts being made in the urban agriculture movement and residential engagement with community gardens in order to draw assessments on the positionality of community gardens in addressing food apartheid. However, interview and survey findings, for this study, should be considered preliminary due to the limited sample size. Future research efforts, in that regard, would benefit from the inclusion of additional urban ag experts in the interview process alongside increased residential participation in the surveys. The study would also benefit from conducting the urban ag interviews as a group interview, wherein participants could discuss experiences, ideas, and identify collective barriers. The more connected the organizations the urban ag

leaders belong to, the more repetition one may hear if conducting interviews independently. Additionally, group interviews with the cohort of primary garden leaders could also allow people to open up about their needs and frustrations and converse about how their local community garden could better cater to their wants and desires. Conducting participant observation at multiple volunteer days or garden events could also offer better insight into the garden of study's operations and interface with people actively engaging with the garden. I would also recommend that moving forward, a research team would be better equipped, time-wise and labor-wise, to undertake a comparative case study, or conversely, that the work should focus on a single garden to make the workload more manageable and to be able to deliver context-specific solutions to that garden of focus.

In terms of the continuation of the inventory of gardens, organizations such as GNOGA, SPROUT, and Recirculating Farms could continue to update it biannually by sending out an email annually to gardens to respond if any of the information has changed. I have also created a google form for garden leaders to submit their information to have their garden included in the inventory map. While some organizations, like GNOGA, had existing garden inventories on their websites, the information was out of date. It was this very realization that prompted the creation of an inventory as part of this study. Continuing to collect data on garden initiatives, their longevity, and their approaches to operations, could provide evidence as to whether gardens are receiving the support necessary to remain in operation. Having data to evidence trends over time could inspire conversations about changes to better position community gardens to address community needs.

I am hopeful about work being done to lobby city council to decrease barriers to more growing projects, but that approach in and of itself can be slower than what is necessary. I concur with Kato et al. (2014) in concluding that gardens have limitations when it comes to achieving political change, as a garden in and of itself cannot erase the historical and contemporary impacts of structural racism that have made its existence so important, especially in New Orleans. Community gardens should continue efforts to determine how their projects can best address unequal distribution of benefits associated with participation. Through increasing engagement by locals, a community garden can be used as a site for collective action to improve a community's quality of life and for people to come together and connect with the land and their food.

Appendix 1: Inventory Invitation

Hello,

My name is Grace Rudman, and I am a senior at Tulane University conducting research on community gardens and food accessibility and affordability in New Orleans. I am reaching out because this email is listed as the contact info for (name of garden) located at (address). I am creating an inventory of all the community gardens in New Orleans in order to update online resources for those interested in finding a garden near them with which to get involved. If you would like your garden to be included in this inventory, please respond to this email to **confirm/supply**

(i) the garden's address and contact information
(ii) the name and contact information of a primary garden leader if different from (i).
(iii) confirm the garden is actively operating

By garden leader, I mean someone who is both:

- Involved in directly managing some aspect about the community garden (i.e., waitlist, recruitment, paying bills, etc.), and
- Is able to answer questions about the garden such as the characteristics of participants/volunteers and the final destinations of the produce grown.

Secondly, I would like to include information in the inventory about how your community garden could best be categorized. **Please indicate how you would best categorize your garden** from the following list (can choose more than one if applicable).

- Donation Garden (grows produce for donation to a food pantry, soup kitchen, or for other methods of distribution to target population free of charge)
- School Garden (for teaching horticulture and healthy eating to school children. Usually on school grounds but doesn't have to be)
- Cooperative garden (cooperatively maintained garden from which all participants can take what they want)
- Plot Allotment Garden (a garden divided into plots for individuals to grow and harvest on their allotted plot)
- Therapy Garden (teaching that the action of gardening is therapeutic and has mental and physical health benefits)

- Market Garden (produce grown for commercial sale)
- Other (please specify)

Feel free to include any additional details that you would like to have included in the inventory, as for example, community of focus, membership information, mission, etc.

Your response to this email indicates your consent to have information shared in the inventory. You can choose to share some requested information but not others at your own discretion. Please provide me with a contact's name, phone and/or email ONLY if that individual agrees to have this information shared. If you are not sure whether or not the contact would want information about his/her garden shared, please forward this email to that person so they can contact me. If you have any questions or concerns, please email me at grudman@tulane.edu or call xxx-xxx-xxxx.

Thank you for your time and consideration,
Grace Rudman

Appendix 2: Consent Form for Primary Garden Leaders

What is the research study and why is it being done?

You are invited to participate in a research study on urban gardens in New Orleans. The study will include a comparative case study of three gardens in Orleans Parish that meet inclusion criteria. In this study, we will ask questions about your gardening experience, characteristics of the garden you run including the structure of the garden, who the garden engages in terms of community members and volunteers, barriers to community engagement, and your personal perception on the state of urban agriculture in New Orleans and its positionality in the greater food justice movement.

You are being asked to participate in this research study because you have identified yourself as the primary leader of an urban garden in New Orleans. A total number of three garden leaders will participate in the study on behalf of their garden. Gardens for inclusion have been selected based on relative differences in structure, operations, and location. The case study of the garden will include data collected by interview with the primary garden leader in addition to inviting residents of households located within a ⅛ mile radius of the garden for their views of the garden, produce that they would like to see grown, and any barriers to their participation. We hope to collect 15-20 responses to the community engagement surveys. This data is anticipated to provide insight and feedback relating to community engagement in community gardens in New Orleans.

What will you do if you participate in the study?

You will be asked to participate in an interview that may take approximately 30 minutes to 2 hours. With your permission, the interview will be audio recorded. If you do not wish to be audio recorded, please indicate this to the researcher. With your permission, the recordings from this study will be used for inclusion in my Honor's Thesis on the State of Urban Gardening. The thesis aims to identify successes of gardens as well as barriers to participation and room for growth. If you do not agree with this, please indicate this to the researcher. By the end of this study we hope to have enough data to compile a well-rounded depiction of the urban gardening movement in New Orleans, how it has evolved over time, and where it may be headed in the future.

What are the possible risks from being in the study?

There are no foreseeable risks in association with participation other than time. Some questions may be uncomfortable or sensitive. No question is required, so you may elect to skip a question for any reason.

What are the possible benefits from being in the study?

The benefits which may reasonably be expected to result from this study are an increased understanding of community engagement and barriers at the garden of study. The results of the community engagement survey will be shared after recording and data analysis to provide the garden beneficial feedback. We cannot and do not guarantee or promise that you will receive any benefits from this study. Your decision whether or not to participate in this study will not affect your employment.

If you take part in this study, how will we protect your privacy?

If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. The alternative is not to participate. You have the right to refuse to answer particular questions. The results of this research study may be presented at scientific or professional meetings or published in scientific journals.

With your permission, your identity will be disclosed along with the identity of the associated garden serving as the case study. If you choose to remove individual identifying information and/or information identifying the garden, please indicate so when we go through the informed consent checklist so that your individual privacy will be maintained in all published and written data resulting from the study.

Your private information collected as part of the research, even if identifiers are removed, will not be used or distributed for future research studies.

Will you be paid to take part in the study?

You will not be paid to be in this study.

What if you have questions or concerns about the study?

Take as much time as you like before you make a decision to participate in this study. If you have any questions or concerns about the study, whether before or after agreeing to participate, you can email the study Principal Investigator, Grace Rudman at grudman@tulane.edu or call (913) 230-0362. You can email the Faculty Advisor, Nicole Katin, at nkatin@tulane.edu. You can reach out about any matter having to do with the study, including complaints or questions about your rights as a study participant.

If you want to speak with someone who is not directly involved in the study, you may call the Tulane University Human Research Protection Office at (504) 988-2665 or email irbmain@tulane.edu.

Appendix 3: Invitation for Urban Agriculture/Food Justice Leader Interviews

Hello,

If you didn't already know, I'm writing an honors thesis on food justice and urban agriculture in New Orleans. I plan to write a section on the evolution of urban agriculture in New Orleans over time and exploring barriers to implementing more widespread local food production and distribution, especially those in spaces experiencing food apartheid. I would love to interview you for my thesis as a local expert in urban ag and/or food justice to record your thoughts, feelings, and experiences with progressing food equity in New Orleans. Attached is the informed consent form. Please take some time to read over it and don't hesitate to reach out with any questions. If you consent to participating, I would love to schedule an interview either in person or over zoom. Let me know when would work for you!

Thank you for your time and consideration,
Grace Rudman

Appendix 4: Consent Form for Urban Agriculture/Food Justice Leader

What is the research study and why is it being done?

You are invited to participate in a research study on community gardens in New Orleans. In this study, the researcher will be examining three community gardens in Orleans Parish through interviews with garden leaders and surveying of residents in the surrounding areas of the gardens of study. In addition, the researcher will be conducting interviews with leaders in the local food justice and urban agriculture movements to contextualize data collected and to discuss how community, organizations, and government work together toward food equity.

You are being asked to participate in this research study because you have been identified as a local leader and/or expert in food justice and/or urban agriculture in New Orleans. Up to five individuals will be selected for participation in this part of the study. During the interview, the researcher will ask questions about your perception of the local urban agriculture and food justice movements and how it has changed over time, your personal experiences as a leader in community and urban agriculture development, and your thoughts on what a more equitable food system in New Orleans may look like and potential barriers that may stand in the way. This data is anticipated to contextualize community engagement in gardens in New Orleans and health disparities associated with food apartheid.

What will you do if you participate in the study?

You will be asked to participate in an interview that may take approximately 30 minutes to two hours. With your permission, the interview will be audio recorded. If you do not wish to be audio recorded, please indicate this to the researcher. With your permission, the recordings from this study will be used for inclusion in my Honor's Thesis on the State of Urban Agriculture in New Orleans. The thesis aims to identify successes of urban gardens as well as barriers to community participation. I am particularly interested in expanding local food pathways and food sovereignty. If you do not wish for the interview to be used in the thesis, please indicate this to the researcher. By the end of this study we hope to have enough data to compile a well-rounded depiction of the urban gardening movement in New Orleans, how it has evolved over time, and where it may be headed in the future.

What are the possible risks from being in the study?

There are no foreseeable risks in association with participation other than time. Some questions may be uncomfortable or sensitive. No question is required, so you may elect to skip a question for any reason.

What are the possible benefits from being in the study?

We cannot and do not guarantee or promise that you will receive any benefits from this study, aside from a $50 honorarium. Your decision whether or not to participate in this study will not affect your employment.

If you take part in this study, how will we protect your privacy?

If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. The alternative is not to participate. You have the right to refuse to answer particular questions. The results of this research study may be presented at scientific or professional meetings or published in scientific journals.

With your permission, your identity will be disclosed. If you choose to remove individual identifying information, please indicate so when we go through the informed consent checklist so that your individual privacy will be maintained in all published and written data resulting from the study.

Your private information collected as part of the research, even if identifiers are removed, will not be used or distributed for future research studies.

Will you be paid to take part in the study?

The researcher has acquired a grant through Newcomb Tulane College to offer $50 per participant in this portion of the study to give as an honorarium for their work in the community and contributions to this body of work. The money will be gifted via check and can be made out to the participant, their organization, or their garden (if applicable).

What if you have questions or concerns about the study?

Take as much time as you like before you make a decision to participate in this study. Interviews will be conducted in March-April. If you have any questions or concerns about the study, whether before or after agreeing to participate, you can email the study Principal Investigator, Grace Rudman at grudman@tulane.edu or call (913) 230-0362. You can email the Faculty Advisor, Nicole Katin, at nkatin@tulane.edu. You can reach out about any matter having to do with the study, including complaints or questions about your rights as a study participant.

If you want to speak with someone who is not directly involved in the study, you may call the Tulane University Human Research Protection Office at (504) 988-2665 or email irbmain@tulane.edu.

Appendix 5: Community Engagement Survey Questions

Community Engagement Survey
Survey # ____
House number _____

- How long have you lived in this household?
- How many people live in your household?
- Do you think you consume the recommended serving of 2 cups of fruits per day?
- Do you think you consume the recommended serving of 2-3 cups of vegetables per day?
- On a scale of 1-5, how satisfied are you with your current diet? (5 being very satisfied, 1 being not at all satisfied)
- Do you have a home garden?
- Have you ever participated in a community garden?
- Are you aware of ___ garden located at ____?
  A. If so,
    - How did you find out about it?
    - Do you know of other nearby residents who engage with the garden?
    - Have you ever participated in the garden and in what capacity?

      a. If so,

        - How many times?
        - What do you enjoy about participating?
        - Are there any changes that the garden could make that would increase your likelihood of participating?
        - What do you perceive to be the primary purpose of the garden

- What community needs do you think the garden addresses?

b. If not,

- What external factors do you think prevent your participation? (For example: time, physically disabled, don't know anyone involved)

- Are there any changes that the garden could make that would increase your likelihood of visiting?

B. If not, give introduction to garden and location *(primary leader of the garden will write info they want shared)*

- Now that you do know about the garden, do you think you would engage with it? If not, what barriers/factors prevent participation?

- Is there a specific time of the week or day when you'd be more likely to come to the garden?

- What foods, like fruits, vegetables and other plants would you like to see grown in the garden? (*record answers in journal)*

‘’

References

Alaimo K, Beavers AW, Crawford C, Snyder, E. H., Litt, J.S. (2016) Amplifying health through community gardens: A framework for advancing multicomponent, behaviorally based neighborhood interventions. *Current Environmental Health Reports*. 3(3), 302-312.

Alkon, A.H. & Agyeman, J. (2011). Cultivating food justice: race, class, and Sustainability. Cambridge, MA: MIT Press.

Alkon, A.H., Mares, T.M. (2012). Food sovereignty in US food movements: Radical visions and neoliberal constraints. *Agriculture of Human Values* (29), 347–359. https://doi.org/10.1007/s10460-012-9356-z

American Lung Association. (2023). *Particle pollution*. https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/particle-pollution

Anderson, E.C., Egerer, M.H., Fouch, N. *et al.* (2019). Comparing community garden typologies of Baltimore, Chicago, and New York City (USA) to understand potential implications for socio-ecological services. *Urban Ecosystems,* 22, 671–681. https://doi.org/10.1007/s11252-019-00855-9

Armstrong, D. (2000). A survey of community gardens in upstate New York: Implications for health promotion and community development. *Health & Place* (6), 319-327

Artiga, S., Hinton, E. (2019). Beyond health care: The role of social determinants in

promoting health and health equity. *Kaiser Family Foundation*, from https://www.kff.org/racial-equity-and-health-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/

Aswani, S., Lemahieu, A., Sauer, W.H.H. (2018). Global trends of local ecological knowledge and future implications. PLoS One.13(4):e0195440. doi: 10.1371/journal.pone.0195440. PMID: 29621311; PMCID: PMC5886557.

Bahadoran, Z., Mirmiran, P., & Azizi, F. (2016). Fast Food Pattern and Cardiometabolic Disorders: A Review of Current Studies. *Health promotion perspectives*, *5*(4), 231–240. https://doi.org/10.15171/hpp.2015.028

Balmford, A., Amano, T., Bartlett, H., Chadwick, D., Collins, A., Edwards, D., Field, R., Garnsworthy, P., Green, R., Smith, P., Waters, H., Whitmore, A., Broom, D.M., Chara, J., Finch, T., Garnett, E., Gathorne-Hardy, A., Hernandez-Medrano, J., Herrero, M., Hua, F., Latawiec, A., Misselbrook, T., Phalan, B., Simmons, B.I., Takahashi, T., Vause, J., Zu Ermgassen, E., Eisner, R. (2018). The environmental costs and benefits of high-yield farming. *National Sustainability*; 1(9):477-485. PMID: 30450426; PMCID: PMC6237269.

Belkhir, J. A., & Charlemaine, C. (2007). Race, gender and class lessons from Hurricane Katrina. *Race, Gender & Class*, *14*(1/2), 120–152. http://www.jstor.org/stable/41675200

Berthung, E., Gutacker, N., Abelsen, B. (2022). Inequality of opportunity in a land of equal opportunities: The impact of parents' health and wealth on their offspring's quality of life in Norway. *BMC Public Health* 22, 1691. https://doi.org/10.1186/s12889-022-14084-x

Block, J. P., Scribner, R. A., & DeSalvo, K. B. (2004). Fast food, race/ethnicity, and income: a geographic analysis. *American journal of preventive medicine*, *27*(3), 211-217.

Braveman, Paula A., et al. (2022). Systemic and structural racism: Definitions, examples, health damages, and approaches to dismantling. *Health Affairs Journal, 41*(2), 1 Feb. 2022, https://www.healthaffairs.org/doi/10.1377/hlthaff.2021.01394.

Brennan, M., & Berardi, M. K. (2023.). Importance of local community action in shaping development. *Penn State Extension.* https://extension.psu.edu/importance-of-local-community-action-in-shaping-development

Broadmoor Improvement Association (2023). https://www.broadmoorimprovement.com/broadmoorgardens

Brones, A. (2018). Food apartheid: The root of the problem with America's groceries. *The Guardian*, Guardian News and Media, https://www.theguardian.com/society/2018/may/15/food-apartheid-food-deserts-racism-inequality-america-karen-washington-interview.

Budowle, B. & Porter, C. M. (2022). Cultivating community resilience with agency and sociality in gardens for health and healing, *Frontiers in Sustainable Food Systems*, (5) https://www.frontiersin.org/articles/10.3389/fsufs.2021.685384/full

Bullard, R. D., & Wright, B. (2018). Race, place, and the environment in Post-Katrina New Orleans. 17–48. https://doi.org/10.4324/9780429497858-1

Campanella, R. (2020). Now forgotten, “truck farms” once dotted New Orleans, but were

overtaken by urban growth. *NOLA.com*, https://www.nola.com/entertainment_life/article_2c268b44-01f9-11eb-94bc-bb916350ce24.html.

Campanella, R. (2021). Why Idyllic Claiborne Avenue was undone by expressway, but planned French Quarter highway died. *NOLA.com.* https://www.nola.com/news/article_522fc578-9946-11eb-bf02-9b7377a75c5b.html

Centers for Disease Control and Prevention (CDC). Poor nutrition. *CDC*, https://www.cdc.gov/chronicdisease/resources/publications/factsheets/nutrition.htm.

Centers for Disease Control and Prevention (CDC). National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity. Data, Trend and Maps [online]. URL: https://www.cdc.gov/nccdphp/dnpao/data-trends-maps/index.html.

Crown Community Garden (2023) https://www.grownola.org/.

Crutcher, M.E. Jr (2001). Protecting 'Place' in African-American neighborhoods: Urban public space, privatization, and protest in Louis Armstrong Park and the Tremé, New Orleans. *LSU Historical Dissertations and Theses*. 272. https://digitalcommons.lsu.edu/gradschool_disstheses/272

Diaz, J.H., Brisolara, K.F., Harrington, D.J., Hu, C.Y., Katner, A.L. (2020) The environmental health impact of Hurricane Katrina on New Orleans. American Journal of Public Health; 110(10):1480-1484. doi: 10.2105/AJPH.2020.305809. Epub 2020 Aug 20. PMID: 32816551; PMCID: PMC7483120.

Diekmann, L. O., Gray, L.C., Thai, C. L. (2020). More than food: The social benefits of localized urban food systems. Frontiers. *Frontiers of Sustainable Food Systems.* https://www.frontiersin.org/articles/10.3389/fsufs.2020.534219/full.

Drake, V.J. (2022) Micronutrient inadequacies in the US population: An overview, *Linus Pauling Institute*. https://lpi.oregonstate.edu/mic/micronutrient-inadequacies/overview#reference18

Draper, C & Freedman, D. (2010). Review and analysis of the benefits, purposes, and motivations associated with community gardening in the United States. *Journal of Community Practice*, 18(4) 458 – 492.

El Bilali, H., Bassole, I. H. N., Dambo, L., & Berjan, S. (2020): Climate change and food security. *Agriculture and Forestry,* 66 (3): 197-210.

EPA (2021). Climate change and social vulnerability in the United States: A focus on six impacts. *U.S. Environmental Protection Agency, (EPA) 430-R-21-003*. www.epa.gov/cira/social-vulnerability-report

EPA (2023). *Air issues in Louisiana*. EPA in Louisiana. https://www.epa.gov/la/air-issues-louisiana

Ferris, J., Norman, C. and Sempik, J. (2001). People, land and sustainability: Community gardens and the social dimension of sustainable development. *Social Policy and Administration*, 35: 559–568.

Foster, J. (2009). Environmental aesthetics, ecological action and social justice. In: Smith M, Davidson, J., Cameron, L., Bond, L., editors. Emotion, place and culture. *Burlington: Ashgate.* 97–114.

Franklin, E., & Stephens, K. (2010). What New Orleans' vulnerability taught us about

public health preparedness: Vulnerability has a face and a name. *Disaster Medicine and Public Health Preparedness, 4*(S1), S15-S16. doi:10.1001/dmp.2010.5280

Fussell, E., Sastry, N., & VanLandingham, M., (2010). Race, socio-economic status, and return migration to New Orleans after Hurricane Katrina. *Population and Environment*, 31 (1–3), 20–42. doi: 10.1007/s11111-009-0092-2

Garcia, M.T., Ribeiro, S. M., Germani, A. C. C. G., et al. (2018). The impact of urban gardens on adequate and healthy food: A systematic review. *Public Health Nutrition*; 21(2):416-425.

Ghose, R & Pettygrove, M. (2014). Urban community gardens as spaces of citizenship. *Antipode*, vol. 46, no. 4, pp. 1092–1112., https://doi.org/10.1111/anti.12077.

Gibney, M.J., Forde, C.G., Mullally, D., & Gibney, E.R. (2017). Ultra-processed foods in human health: A critical appraisal. *American Journal of Clinical Nutrition.* (106) 717-24.

Gibson, C. (2019) *Tremé: How 'urban renewal' destroyed the cultural heart of New Orleans*, *wwltv.com*. Available at: https://www.wwltv.com/article/news/local/orleans/trem-how-the-i-10-destroyed-a-thriving-black-neighborhood/289-a73ddc1e-dff1-468a-97e0-00392898a658 (Accessed: November 15, 2022).

Glatz, K. (2023). What Louisiana gardeners need to know this spring. *AZ Animals*. https://a-z-animals.com/blog/what-louisiana-gardeners-need-to-know-this-spring/

Gould, K. A. & Lewis, T. L. (2016). Green gentrification: Urban sustainability and the struggle for environmental justice. New York, NY: Routledge.

Grebmer, K. v., Thompson, J., Sonntag, A., et al. (2014). Chapter 3: Addressing the challenge of hidden hunger, in *2014 Global Hunger Index: The Challenge of Hidden Hunger*, Welthungerhilfe, Bonn, 20–27.

Gupta, S., Rouse, B. T., Saranji, P. P. (2021). Did climate change influence the emergence, transmission, and expression of the COVID-19 pandemic? *Frontiers in Medicine*, https://www.frontiersin.org/articles/10.3389/fmed.2021.769208/full.

Hale, J., Knapp, C., Bardwell, L., Buchenau, M., Marshall, J., Sancar, F., Litt, J. S. (2011). Connecting food environments and health through the relational nature of aesthetics: Gaining insight through the community gardening experience, *Social Science & Medicine*, 11(72), 1853-1863, ISSN 0277-9536, https://doi.org/10.1016/j.socscimed.2011.03.044.

Harvey, D. C., Kato, Y., & Passidomo, C. (2016). Rebuilding others' communities: A critical analysis of race and nativism in non-profits in the aftermath of Hurricane Katrina, Local Environment, 21:8, 1029-1046, DOI: 10.1080/13549839.2015.1064100

Health Disparities in New Orleans (2010). New Orleans Health Department https://www.nola.gov/health-department/data-and-publications/reports/health-disparities-in-new-orleans-community-2013/.

Howarth, M., Brettle, A., Hardman, M., Maden, M. (2020). What is the evidence for the impact of gardens and gardening on health and well-being: A scoping review and evidence-based logic model to guide healthcare strategy decision making on the use of gardening approaches as a social prescription. *BMJ Open,* 10(7). 10.1136/bmjopen-2020-036923

Hung, H-C., Joshipura, K. J., Jiang, R., Hu, F. B., Hunter, D., Smith-Warner, S. A., Colditz, G. A., Rosner, B., Spiegelman, D. & Willett, W. C. (2004) Fruit and vegetable intake and risk of major chronic disease. *Journal of National Cancer Institute* 96(21), 1577–1584. doi:10.1093/jnci/djh296

Huskisson, E., Maggini, S., Ruf M. (2007). The role of vitamins and minerals in energy metabolism and well-being. *Journal of International Medical Research*. 35(3), 277-289

Irons, L. (2006). Hurricane Katrina as a predictable surprise. *Homeland Security Affairs 1*, Article 7. https://www.hsaj.org/articles/690

Jettner, J. E. (2017). Community gardens: Exploring race, racial diversity and social capital in urban food deserts, *VCU Scholars Compass,* Virginia Commonwealth University Research, https://scholarscompass.vcu.edu/cgi/viewcontent.cgi?article=5867&context=etd

Joyner, L., Yagüe, B., Cachelin, A., & Rose, J. (2022). Farms and gardens everywhere but not a bite to eat? A critical geographic approach to food apartheid in Salt Lake City. *Journal of Agriculture, Food Systems, and Community Development*, 10(2). https://www.foodsystemsjournal.org/index.php/fsj/article/view/1056.

Kant, A.K. (2000). Consumption of energy-dense, nutrient-poor foods by adult Americans: Nutritional and health implications. The third national health and nutrition examination survey, 1988-1994. *American Journal for Clinical Nutrition.* 72(4), 929-36. doi: 10.1093/ajcn/72.4.929. PMID: 11010933.

Kato, Y., Passidomo, C., & Harvey, D. (2014). Political gardening in a post-disaster city:

Lessons from New Orleans. *Urban Studies*, *51*(9), 1833–1849. http://www.jstor.org/stable/26145833

Khan, M. M., Akram, M. T., Janke, R., Qadri, R. W. K., Al-Sadi, A. M. & Farooque, A. A. (2020). Urban horticulture for food secure cities through and beyond COVID-19. *Sustainability*. 12(22):9592. https://doi.org/10.3390/su12229592

King, D.E., Mainous, A.G., Carnemolla, M., & Everett, C.J. (2009), Adherence to healthy lifestyle habits in US adults, 1988-2006. *The American Journal of Medicine*, 122(6), 528-534, https://doi.org/10.1016/j.amjmed.2008.11.013.

Knopp, E. (2022). Environmental injustice: Hurricane Ida's impact on Black and Brown communities tells a story of racial disparities around climate change. *Edison Energy*. https://www.edisonenergy.com/blog/environmental-injustice-hurricane-idas-impact-on-black-and-brown-communities-tells-a-story-of-racial-disparities-around-climate-change/

Koay, W.I., Dillon, D. (2020). Community gardening: Stress, well-being, and resilience potentials. *International Journal of Environmental Resilience and Public Health*. 17(18):6740. doi: 10.3390/ijerph17186740. PMID: 32947857; PMCID: PMC7558991.

Kordon, S., Miller, P.A., Bohannon, C.L. (2022). Attitudes and perceptions of community gardens: Making a place for them in our neighborhoods. Land 11, 1762. https://doi.org/10.3390/ land11101762

Krasny, M. E., & Tidball, K. G. (2013). Greening in the red zone: Disaster, resilience and community greening. *Greening in the Red Zone*.

Lampert, T., Costa, J., Santos, O., Sousa, J., Ribeiro, T., & Freire, E. (2021). Evidence on the contribution of community gardens to promote physical and mental health and well-being of non-institutionalized individuals: A systematic review. *PLoS One.* 16(8) doi: 10.1371/journal.pone.0255621.

Lee-Kwan, S.H., Moore, L.V., Blanck, H.M., Harris, D.M., & Galuska, D. (2017). Disparities in state-specific adult fruit and vegetable consumption — United States. *Morbidity and Mortality Weekly Report (MMWR)*. 66, 1241–1247. DOI: http://dx.doi.org/10.15585/mmwr.mm6645a1

Lindemann, J. (2014). The intersection of race and food in the rust belt: How food justice challenges the urban planning paradigm. [Master's Thesis, Cornell University, Department of Sociology].

Louisiana Department of Health, Covid-19 Information, https://ldh.la.gov/Coronavirus/

Louisiana State Museum. Accessed November 15, 2022. Antebellum Louisiana: Agrarian life. *Louisiana Department of Culture, Recreation and Tourism.* Available at: https://www.crt.state.la.us/louisiana-state-museum/online-exhibits/the-cabildo/antebellum-louisiana-agrarian-life/

Mariem, S.B., Gámez, A.L., Larraya, L. *et al.* (2020). Assessing the evolution of wheat grain traits during the last 166 years using archived samples. *Scientific Reports* 10, 21828 https://doi.org/10.1038/s41598-020-78504-x

Marti A. (2019). Ultra-processed foods are not "real food" but really affect your health. *Nutrients.* 11(8), 1902. doi: 10.3390/nu11081902.

McClintock, N. (2010). Why farm the city? Theorizing urban agriculture through a lens

of metabolic rift. *Cambridge Journal of Regions, Economy and Society* 3 (2):191–207.

McClintock, N. (2018). Cultivating (a) sustainability capital: Urban agriculture, ecogentrification, and the uneven valorization of social reproduction. *Annals of the American Association of Geographers*, 108(2), 579-590

Mente, A., de Koning, L., Shannon, H.S., & Anand, S.S. (2009). A systematic review of the evidence supporting a causal link between dietary factors and coronary heart disease. *Archives of Internal Medicine.*169(7), 659–69.

Mire, L. (2021). "The Fate of Redlined Neighborhoods in New Orleans." *ArcGIS StoryMaps*, Esri, https://storymaps.arcgis.com/stories/560d5ac6f704470587d7a9b71dcce27b.

Moore, K. (2020). Structural racism is a public health crisis: Addressing racial disparities in Covid-19. *Thurgood Marshall Institute from the Legal Defense Fund.*

Mundorf, A.R., Willits-Smith, A. & Rose, D. (2015). 10 years later: Changes in food access disparities in New Orleans since Hurricane Katrina. *Journal of Urban Health* 92, 605–610. https://doi.org/10.1007/s11524-015-9969-9

Musso, J., Lardy, E., Little, J., Madewell, R. & Valentine, M. (2013) Urban community gardening: Moving toward a sustainable future. *University of Southern California, Price School of Public Policy*, Final Capstone Report. https://socialinnovation.usc.edu/wp-content/uploads/2017/09/PPD546Week15_Team_2_Urban_Community_Gardening.pdf

Nelson, R. K., Winling, L., Marciano, R., & Connolly, N. (2016). Mapping Inequality,

American Panorama. https://dsl.richmond.edu/panorama/redlining/#loc=5/36.457/-88.242&adview=full&text=downloads.

Newkirk, V. R. (2020). *The Great Land Robbery*. The Atlantic. https://www.theatlantic.com/magazine/archive/2019/09/this-land-was-our-land/594742/

Nicola, S., Ferrante, A., Cocetta, G., & Bulgari, R. (2020). Food supply and urban gardening in the time of Covid-19. *Bulletin of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca. Horticulture*, 77(2),141. https://doi.org/10.15835/buasvmcn-hort:2020.0051.

Otsuki, K., Jasaw, G. & Lolig, V. (2018). Linking individual and collective agency for enhancing community resilience in Northern Ghana, *Society & Natural Resources*, 31:2, 151-165, DOI: 10.1080/08941920.2017.1347971

Passidomo, C. M. (2013). Right to (feed) the city: Race, food sovereignty, and food justice activism in post-Hurricane Katrina New Orleans. Ph.D. dissertation. Athens, GA: University of Georgia.

Pastor, Manuel, et al. (2006). Environment, disaster, and race after Katrina. *Race, Poverty & the Environment*, 13(1), 21–26. JSTOR, http://www.jstor.org/stable/41495680.

Peters, X. (2020). What happened to New Orleans' Black truck farming culture? *Scalawag*, https://scalawagmagazine.org/2020/04/new-orleans-black-truck-agriculture/.

Pimbert M. (2010). Transformation for food sovereignty: Reclaiming

citizenship—empowering civil society in policy-making, *Towards Food Sovereignty: Reclaiming Autonomous Food Systems*, http://pubs.iied.org/G02612.html

Porter, C.M. (2018). What gardens grow: Outcomes from home and community gardens supported by community-based food justice organizations. *Journal of Agriculture, Food Systems, and Community Development*. 19;8(Suppl 1):187-205. doi: 10.5304/jafscd.2018.08A.002.

Place matters for health in Orleans Parish - A report on health inequalities in Orleans Parish, Louisiana (2012). *Joint Center for Political and Economic Studies*. https://www.nationalcollaborative.org/wp-content/uploads/2016/02/PLACE-MATTERS-for-Health-in-Orleans-Parish.pdf

Plahe, J.K., Hawkes, S. & Ponnamperuma, S. (2013). The corporate food regime and food sovereignty in the Pacific Islands. *The Contemporary Pacific*, (25) 309-338

Prentice, I.C., Farquhar, G.D., Fasham, M.J.R., Goulden, M.L., Heimann, M., Jaramillo, V.J., Kheshgi, H.S., Le Quéré, C., Scholes, R.J., & Wallace, D.W.R. (2001). "The carbon cycle and atmospheric carbon dioxide." In Houghton, J.T., Ding, Y., Griggs, D. J., Noguer, M., Linden, P. J. V. D., Dai, X., Maskell, K. & Johnson, C.A. (Eds.), *Climate Change 2001: The Scientific Basis* (pp. 183 - 237). Cambridge University Press.

Ramírez, M.M. (2015). The elusive inclusive: Black food geographies and racialized food spaces. *Antipode*, 47 (3), 748-769. doi: 10.1111/anti.12131

Ramos, A. K., Trinidad, N., Bickford, S. H., Bickford, N., Torquati, J., & Mushi, M.

(2019). Engaging residents in planning a community garden: A strategy for enhancing participation through relevant messaging. *Collaborations: A Journal of Community-based Research and Practice*, *2*(2), 21. https://collaborations.miami.edu/articles/10.33596/coll.24/

Rangarajan, A. & Riordan, M. (2019). The promise of urban agriculture: National study of commercial farming in urban areas. Washington, DC: *United States Department of Agriculture/Agricultural Marketing Service and Cornell University Small Farms Program.*

Reynolds, B. J. (2003). Black Farmers in America, 1865-2000: The pursuit of independent farming and the role of cooperatives. *USDA*, Rural Business Cooperative Service Research Report 194. https://www.rd.usda.gov/files/RR194.pdf

Reynolds, K., & Cohen, N. (2016). Beyond the kale: Urban agriculture and social justice activism in New York City (28). University of Georgia Press.

Riddle, W. A. (1995). The Origins of Black Sharecropping. *The Mississippi Quarterly*, *49*(1), 53–71. http://www.jstor.org/stable/26475959

Robinson-Jacobs, K. (2021). Pandemic prompts more Black Americans to take up urban gardening to end 'food apartheid.' *Mother Jones*, https://www.motherjones.com/food/2021/11/food-apartheid-insecurity-gardening-black-agency-pandemic-community/.

Rosol, M. (2012). Community volunteering as neoliberal strategy? Green space production in Berlin. *Antipode*, 44, 239–257. https://doi.org/10.1111/j.1467-8330.2011.00861.x

Santo, R., Palmer, A., & Kim, B. (2016). Vacant lots to vibrant plots: A review of the benefits and limitations of urban agriculture. Baltimore, MD: *John Hopkins Center for a Livable Future.*

Seidman, K. F. (2013). Coming home to New Orleans: Neighborhood rebuilding after Katrina, New York, online edition, Oxford Academic, https://doi.org/10.1093/acprof:oso/9780199945511.001.0001

Sevilla, N. (2021). Food apartheid: Racialized access to healthy affordable food. *Natural Resources Defense Council.* https://www.nrdc.org/experts/nina-sevilla/food-apartheid-racialized-access-healthy-affordable-food.

Schmeltz, M. T. (2021). Climate change is already exacerbating current social inequities. *American Journal of Public Health*, *111*(1), 10–11. https://doi.org/10.2105/ajph.2020.306010

Sia, A. et al. (2022). The impact of gardening on mental resilience in times of stress: A case study during the COVID-19 pandemic in Singapore. *Urban Forestry & Urban Greening, 68;* 127448, ISSN 1618-8667, https://doi.org/10.1016/j.ufug.2021.127448.

Silverman, R. & Brown, M. (2012) *The history of building elevation in New Orleans*. Washington, D.C.: Federal Emergency Management Agency.

Sommerfeld, A., Waliczek, T. M., Zajicek, J.M. (2010). Growing minds: Evaluating the effect of gardening on quality of life and physical activity level of older adults. Horttechnology. (20) 705–710.

SPROUT New Orleans (NOLA) (2023). https://www.sproutnolafarm.org/

Sullivan, J. (2019) *How to 'undesign' the legacy of racism and redlining that still shapes New Orleans*, *The Lens*. Available at: https://thelensnola.org/2019/01/18/how-to-undesign-the-legacy-of-racism-and-redlining-that-still-shapes-new-orleans/ (Accessed: November 15, 2022).

Taylor, D.E. & Ard, K.J. (2015). Food availability and the food desert frame in Detroit: an overview of the city's food system. *Environmental Practice* (17) 102–133. doi: 10.1017/S1466046614000544

Teig, E., Amulya, J., Bardwell, L., Buchenau, M., Marshall, J. A., & Litt, J. S. (2009) Collective efficacy in Denver, Colorado: Strengthening neighborhoods and health through community gardens. *Health & Place,* 15(4) 1115-1122. doi:10.1016/j.healthplace.2009.06.003

Terrell K. A. & St Julien, G. (2022). Air pollution is linked to higher cancer rates among black or impoverished communities in Louisiana, *Environmental Research Letters.* (17) 014033

Thompson R. (2018). Gardening for health: a regular dose of gardening. *Clinical Medicine* (London, England), 18(3), 201–205. https://doi.org/10.7861/clinmedicine.18-3-201

Tornaghi, C. (2016). Urban agriculture in the food-disabling city: (Re)defining urban food justice, reimagining a politics of empowerment. *Antipode*, (49) 781–801. https://doi.org/10.1111/anti.12291

Treskova-Schwarzbach, M., Haas, L., Reda, S. et al. (2021). Pre-existing health

conditions and severe COVID-19 outcomes: An umbrella review approach and meta-analysis of global evidence. *BMC Med* (19) 212. https://doi.org/10.1186/s12916-021-02058-6

Ulmer, V. M. & Rathert, A. R. & Rose, D. (2012). Understanding policy enactment: The New Orleans fresh food retailer initiative. *American Journal of Preventive Medicine,* 43(3) https://doi.org/10.1016/j.amepre.2012.05.011.

United States Congress (2006). A failure of initiative: Final report of the select bipartisan committee to investigate the preparation for and response to Hurricane Katrina. *Washington: U.S. G.P.O.:* https://lccn.loc.gov/2006360984.

U.S. Department of Agriculture (USDA) and U.S. Department of Health and Human Services (HHS) (2020). Dietary guidelines for Americans, 2020-2025. *9th Edition*.

Vaz, M., Karaolis, N., Draper, A., Shetty, P. (2005). A compilation of energy costs of physical activities. *Public Health Nutrition.* (8), 1153-1183.

Verdin, M. M. (2020). Cancer alley. *Southern Cultures*, *Art & Vision*; 26(2). https://www.southerncultures.org/article/cancer-alley/

Walker, R. (1978). Two sources of uneven development under advanced capitalism: Spatial differentiation and capital mobility. *Review of Radical Political Economics* 10 (3):28–37.

Webster, R. A., Adelson, J., Hammer, D., & Chou, S. (2022). How a Katrina rebuilding program shortchanged poor residents. *ProPublica*. https://www.propublica.org/article/how-louisiana-road-home-program-shortchanged-poor-residents

Weiler, A. M., Hergesheimer, C., Brisbois, B., Wittman, H., Yassi, A., & Spiegel, J. M. (2015). Food sovereignty, food security and health equity: a meta-narrative mapping exercise, *Health Policy and Planning*, (8)30, 1078–1092 https://doi.org/10.1093/heapol/czu109

Wittman H. (2011). Food sovereignty: A new rights framework for food and nature? *Environment and Society: Advances in Research*, (2) 87-105.

Woodward, A. (2019). How "redlining" shaped New Orleans neighborhoods - is it too late to be fixed? *NOLA.com.* https://www.nola.com/gambit/news/how-redlining-shaped-new-orleans-neighborhoods-is-it-too-late-to-be-fixed/article_215014ce-0c15-5917-b773-8d1d2fdaa655.html

World Health Organization *(2022)*. "Physical Activity," *World Health Organization*, https://www.who.int/news-room/fact-sheets/detail/physical-activity.

Zhang, X., Pan, D., Wong, K., Zhang, Y. (2022). A new top-down governance approach to community gardens: A case study of the "We Garden" community experiment in Shenzhen, China. *Urban Science* (*6*)2, 41. https://doi.org/10.3390/urbansci6020041