

HOW JAPANESE AMERICAN GARDENERS SHAPED AN INTERNMENT CAMP  
LANDSCAPE: A SOIL CHEMISTRY AND ARCHIVAL ANALYSIS

by

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## Preface

Soil interaction is a product of a people's culture and environmental knowledge. Telling the story of an internment camp's soil requires physical and social understandings of space. Social factors dictate how people think about soil and how they know to modify soil. The interaction between person and soil is also guided by a soil's physical and chemical properties. Those properties are in part a legacy of formation processes for which the time of human generations is far too small a unit.

The processes by which soil exists in a location are diverse and important for understanding a landscape. Climate, organisms, relief, parent material, and time are the first five factors of Hans Jenny's well-accepted soil formation equation (Jenny, 1941). Richter et al. (2011) suggest adding a sixth influence: human activity. Recognizing the importance of human activities in determining a soil's present state, scientists also propose adding *anthrosol* to the U.S. soil classification choices (Richter et al. 2011). For an anthrosol, people, rather than factors such as climate or geologic processes, are the primary force shaping a soil. This new soil classification further recognizes the importance of human interaction with soil. Studying that interaction is a means for following the flow of nutrients in a landscape, but also exposes the philosophical roots of a society (McNeill and Winiwarter 2006). The history of a culture and the history of a soil are inextricably linked.

This thesis explores the soil of a Japanese American internment camp, how internees changed it, and why. In acknowledging soil as a force in shaping events in camp and as artifact changed by them, I add new elements to the historical narrative of

Japanese American internment. My analysis of the soil chemistry showing a legacy of camp life and an exploration of related archival material are unique additions to the story of World War II internment.

## Chapter 1: Introduction

From 1942 until 1945, a square mile in rural southeastern Colorado held more residents than ever before or since. Today most of that dusty square in Prowers County is empty of people, save the seasonally occupied agricultural labor dormitories overlapping the northeastern corner. Over the course of three years, 10,331 Japanese Americans and many federal government employees lived in that small, barbed wire enclosed space called Camp Amache (Harvey 2004). The government crowded more people into that square mile than the most densely populated area of Colorado, a suburb of Denver, holds today (U.S. Census Bureau 2011).



**Image 1.** Aerial view of Camp Amache. Taken by Joseph McClelland. c. 1942 Carousel 1, MC79, Amache Museum, Granada, Colorado. Accessed July 2010.

After the Japanese attack on Pearl Harbor in December 1941, the United States government considered all people of Japanese descent in the United States as possible threats to national security. The government moved all Japanese Americans residing on the U.S. western coast to interior locations far from Pacific ports, war-related industry and, in many cases, far from anything. Granada, Colorado was one of ten locations selected to house relocated Japanese Americans.

In preparation for construction of the internment camp in Prowers County, Colorado, the government scraped the natural vegetation, consisting primarily of sagebrush, cactus, and yucca, from the dry, sandy ground. On that cleared soil, construction workers poured concrete foundations for 348 barracks and several mess halls, schools, administrative buildings, and a hospital (Amache 1944, Harvey 2004). When World War II ended, the government opened the camp doors, told everyone to leave, and scraped the earth bare again.

Though concrete foundations remain, today the only other notable difference between the area that was Camp Amache and its surrounding landscape are trees. The camp lies in a treeless steppe biome and most of it is again covered in native sagebrush, cactus, and yucca. But rows of Chinese elm trees still mark the horizon where internees planted them outside their barracks sixty-five years ago. The tall trunks and broad branches give unexpected shade to the landscape and hint at the unusual gardens that rooted into the surrounding soil in 1943, 1944, and 1945.

This thesis explores the history of that rarely visited square mile in Colorado via its soil. First the government transformed Camp Amache's landscape and then the internees, who inhabited the government's built landscape, transformed it again. That



**Image 2.** Camp Amache sixty-five years after closing. Taken by Emily Eggleston. July 2010.

second transformation is what added trees to the land pictured in Image 2 and brings this thesis into existence. Internees living on dry, nutrient-poor soil scraped loose by government bulldozers chose to beautify the space with gardens. Gardens lined the cheaply constructed barracks, gardens beautified communal camp spaces, and gardens filled extra bits of land where internees saw opportunities to grow food to supplement the regimented mess hall diet.

### ***A hypothesis and an exploration***

The two primary contributions of this thesis are to document the effect internees had on the camp's soil and to illuminate archived materials giving context to internee interaction with that soil. First, to document the internee's effect on camp soil, I hypothesized that plant-related nutrients and organic matter would exist in higher quantities in historic garden locations than in neighboring soils. I collected soil samples during archeological excavation of the former garden locations and then compared that soil's chemistry with sites that had never been gardened. In order to give significance and cultural understanding to a possible soil chemistry legacy from internee gardens, I also searched for primary documents related to the experience of growing those gardens.

In my exploration of internment archival material, I sought primary documents from library archives and the Amache Museum and assessed the documents based on two garden-related themes: demonstration and beauty. Those two themes are informed by previous scholarly work explaining why internees gardened (Tamura 2004, Helphand 2006, Limerick 1992) but supported by new materials I found in my archival research. Beauty and demonstration are successful themes around which to organize my archival findings because they embody a cultural reaction to internment that is physically manifested in the soil.

The second chapter places this thesis into political, environmental, and scholarly context. The third chapter discusses the quantitative results of the soil chemistry analyses and implications of measured differences in soil nutrient concentrations. The

fourth chapter discusses reasons motivating internees' modification of Camp Amache's soil through an analysis of historical documents including written texts and photographs.

As a whole, these chapters represent a physical and social exploration of Camp Amache's gardens. From 1942-1945, thousands of Japanese Americans crowded into makeshift communities in a harsh environment. Using soil as a medium, this thesis constructs a unique and meaningful story about their lives in that space. The story is unique because rigorous quantitative assessment has not yet been applied to internment camp soils and it is meaningful because it refreshes consciousness of how Japanese Americans were treated during World War II.

## Chapter 2: Political, environmental, and scholarly context

### *Political context of Japanese American internment during World War II*

The political history of Japanese immigrants in the United States is critical to understanding why the government interned Japanese Americans during World War II. Forty years after internment took place, the U.S. government commissioned a report investigating factors that motivated internment and its impact on Japanese Americans. That report, *Personal Justice Denied*, found the act of internment a result of “race prejudice, war hysteria, and a failure of political leadership” (*Personal Justice Denied* 1982, 18). In 1990 President George Bush issued an official apology to each living former internee as well as a \$20,000 reparation.

Internment was the culmination of decades of racial prejudice against Japanese Americans. The Japanese did not begin emigrating to the U.S. until the second half of the 19<sup>th</sup> century. After a new empire ended Japan’s strict isolationist state in 1867, Japanese people began to traverse the Pacific. Gradually, migration to California became an extension of an increasingly common pattern in Japan, leaving a rural home for urban financial gain (Iritani 1999). Some immigrants, after years and decades of work in America, were able to increase their prosperity but racial persecution accompanied their financial opportunities. The depth of prejudice Japanese immigrants faced on the western coast of the U.S. can be sensed in a quick review of American legislative initiatives related to Asian Pacific Americans in the last part of the 19<sup>th</sup> and first part of the 20<sup>th</sup> century.

In 1875 a revised federal statute stated that the only non-citizens eligible for citizenship were people of white or African descent. That statute was used to prevent Chinese, Japanese, and other Asian immigrants from gaining citizenship. The 1922 court case, *Takao Ozawa v. United States*, explicitly asked, “Is one who is of Japanese race and born in Japan eligible to citizenship under the naturalization laws?” and the ruling was simply: no (Nakanishi and Lai 2003, 35). Under these circumstances, Japanese immigrants were considered aliens ineligible to citizenship. However, second-generation Japanese immigrants, children born in the U. S., automatically gained U.S. citizenship and over time the percentage of Japanese with U.S. citizenship rose. In 1913, California adopted laws to prevent aliens ineligible to citizenship from owning land and extended their restrictive power ten years later by making cropping contracts with Japanese immigrants illegal (Hirahara 2001). Many Japanese Americans preferred work on rural, agricultural land to city labor because they already had agricultural skills and prejudice in urban settings was more intense (Mackey 2001). Laws restricting Japanese immigrant access to land and even to contracts to work land targeted the population’s primary occupation, agriculture.

The racially biased laws placed social as well as economic impediments on Japanese integration. The Cable Act, passed in 1922 and then repealed in 1936, went as far as declaring that any American woman who married a person ineligible for citizenship would lose her citizenship as a result. As early as 1906 there were legal attempts to separate Japanese and other Asian American children within the public school systems (Hirahara 2001).

Finally, in 1924 the National Origins Act, which remained in effect until 1952, banned Japanese people from immigrating to the United States at all (Hirahara 2001). These and other laws indicate the strength of anti-Japanese sentiment in the U.S., particularly on the West Coast.

By 1920, five decades of immigration boosted Japanese American population to 111,010 (Iritani 1999). After the U.S. government banned Japanese immigration in 1924, that number increased by only 15,000 in the following two decades (Helphand 2006, Iritani 1999). When the Japanese bombed Pearl Harbor in 1941, there were 126,947 people of Japanese ancestry living in the United States and over 90% were living on the West Coast (Helphand 2006, Iritani 1999). At that time, most Japanese Americans, 69%, made a living in agriculture or agriculture-related businesses including horticultural and landscape professions (Helphand 2006). Those professions reflected their livelihoods in Japan (Walz 2001). Given gardening's importance in Japanese culture, some immigrants had specialized gardening skills (Berrall 1966, Tamura 2004). Many gardener associations for Japanese Americans existed before and after the internment period. The League of Southern California Japanese Gardeners, based in Los Angeles, was founded in 1937 and grew to 900 members in its first three years (Hirahara 2001). Japanese Americans' exceptional economic success in horticultural and agricultural professions added fuel to already fiery prejudice. Then Japan bombed Pearl Harbor.

As soon as the U.S. was at war with Japan, Japanese Americans, 63% of whom had citizenship in 1941, became "enemy aliens" (Helphand 2006, Takahara 2003). "Enemy alien" was the legal description given to any person of Japanese, German, or

Italian descent living in the U.S., but the Japanese were the most heavily pursued as wartime threats (Takahara 2003).

Seventy-four days after bombs dropped on Pearl Harbor, President Franklin D. Roosevelt signed Executive Order 9066, authorizing further political persecution of Japanese Americans descent. Executive Order 9066 empowered the U.S. military to create zones of restriction from which they could prohibit certain groups of people from entering. The order was promptly used to designate the entire western coast as an area restricted to Japanese Americans. A new governmental body formed, the War Relocation Authority (WRA), with the purpose of relocating the more than 115,000 Japanese Americans living inside the restricted zone. The WRA identified ten sites to build camps, hastily constructed barracks, and forced anyone with at least one-sixteenth Japanese heritage to either leave the restricted zone voluntarily or be imprisoned in a camp (Helphand 2006). Most Japanese Americans went to the camps because they did not have the resources or social network to relocate inland (Harvey 2004).

The ten camps were located in Wyoming, Idaho, California, Utah, Arizona, Arkansas, and Colorado, where Camp Amache was built. Many groups and individuals in Colorado, including *The Denver Post*, the mostly widely circulated newspaper in the state, heavily opposed the relocation of Japanese Americans to their state (Takahara 2003). Their opposition wasn't born out of a belief that evacuation was unjust for Japanese Americans, instead it reflected their abhorrence toward people of Japanese descent coming to their state. Other states, including Montana, Utah, New Mexico, and Idaho, also spoke out against building a camp to house Japanese Americans on their soil

(Takahara 2003). Colorado's governor in 1942, Ralph Carr was unique in his stance on accepting internees in his state. He announced that Colorado would do their wartime duty and host a camp if that is what the U.S. military needed, a very unpopular statement with the people of Colorado (Takahara 2003). In the rural southeastern corner of Colorado, the WRA found an ideal square mile for their purposes near a small town called Granada. Converting that particular square was ideal because it did not require relocating many current land users and since there was agricultural production nearby, WRA officials hoped to grow food for camp rather than purchase it. The site, originally called the Granada Relocation Center, was renamed to Camp Amache after the local Granada Post Office became overwhelmed by mail directed to internees. After the name change, internee mail went directly to camp.

This is a broad historical context of the events that brought more than 10,000 people to live in a single square mile in southeastern Colorado and create the focal point of this thesis: internment camp gardens. Since this thesis examines the natural environment to which internees came and their alteration of its physical characteristics, I will describe Camp Amache's biophysical context.

### ***Environment and Gardens of Camp Amache***

Camp Amache's vegetation, climate, and soil were a stark change for internees, who were from rural northern California or urban Los Angeles. Granada, Colorado is situated within the high plains, or Great Plains, and described as a "steppe," a treeless short grass ecosystem (Hazlett 2004). Granada's mean annual precipitation and mean

annual temperatures in the 1940s and today are nearly identical (Special Report 1942, Web Soil Survey 2010). Mean annual precipitation for the camp was ~15 inches. Mean annual temperature was ~54°F and camp administrators knew there would be a wide range of temperatures, as low as 25°F in the winter and above 90°F in the summer (Special Report 1942). One internee reflected that the large fluctuation in temperature combined with the cheaply constructed, uninsulated housing made for very harsh living conditions (Matsumoto 1995).

Vegetation native to this semi-arid place includes sand sagebrush (*Artemisia filifoli*), soapweed (*Yucca glauca*) and prickly pear cactus (*Opuntia macrorhiza*) (Hazlett 2004). Very little vegetation was intact when the internees arrived in 1942 because the ground was bulldozed and scraped bare for construction of barracks and other necessary buildings (Limerick 1992).

One of the most striking ways which internees adapted to their new life and environment in Camp Amache was by gardening. Through gardens, internees improved aesthetics of camp and grew fruits and vegetables. The three types of gardens internees used to shape the landscape of Camp Amache were entry gardens, victory gardens, and ornamental gardens. Typically grown at the entrance of a home or building, entry gardens are meant to welcome visitors with natural beauty and were common in camp (Skiles and Clark 2010). Many families grew an entry garden in front of their barracks door and students completed entry garden projects at the camp's school. Victory gardens were edible gardens, named such because of the efforts of people to grow their



**Image 3.** Camp Amache entry garden. Taken by Joseph McClelland. c. 1944 Carousel 1, MC61, Amache Museum, Granada, Colorado. Accessed July 2010.



**Image 4.** Produce displayed at a camp agricultural fair. Taken by Joseph McClelland. c. 1944 Carousel 2, MC50, Amache Museum, Granada, Colorado. Accessed July 2010.

own produce to aid the war effort. Several photographs of agricultural fairs held at Amache show displays of large succulent vegetables grown in these victory gardens (McClelland 1942-1945). Many of the internees had extensive gardening experience. While interned, those skilled people put great effort into creating ornamental and vegetable gardens. The third type of garden in Camp Amache was the ornamental garden. Ornamental gardens took on many different shapes and sizes and included many features beyond plants. Bridges, artificial ponds, uniquely shaped rocks, bonsai, and even sculptures of the landscape in miniature were found in ornamental gardens (Amache Museum 2010).

The soil on which these gardens grew makes their success particularly interesting. Of the 12 soil orders of U.S. Soil Taxonomy, Entisols surround Granada, Colorado. Entisols are limited in horizon development due to their young age or early stage of weathering, and do not have great amounts of organic matter accumulation at the surface (NRCS 2012). The majority of the soil in the camp's square mile is classified as Tivoli sand, which is a mixed, thermic Typic Ustipsamment (National Cooperative Soil Survey 2003). Explanation of each segment of the classification is given in Table 1.

**Table 1 (referenced from USDA Key to Soil Taxonomy)**

<i>Mineralogy</i>	<i>Temperature</i>	<i>Subgroup</i>	<i>Great Group</i>	<i>Suborder</i>	<i>Order</i>
<b>Mixed</b>	<b>Thermic</b>	<b>Typic</b>	<b>Ustic</b>	<b>Psamm</b>	<b>Entisol</b>
Mixed mineralogy	Mean annual soil temperature ranges between 15-22°C and winter soil temperature does not go below 6°C.	Typical	Soil moisture is limited but sometimes suitable for plant growth.	Sandy texture	Soil with undifferentiated soil profile typical of young landscapes or low weathering rates.

Tivoli sands are characterized by “very deep, excessively drained, rapidly permeable soils” and have an eolian sand parent material (National Cooperative Soil Survey 2003). In Tivoli sands the water table is more than 80 inches below the surface and the surface slopes at less than 5% (Web Soil Survey 2010).

Internee descriptions of Camp Amache’s landscape indicate a sharp awareness of the sandy nature of their environment and wind-blown soil deposition. Sand figures strongly in their accounts of challenges of their life in camp (Matsumoto 1995, Matsumoto 1996, Hida 2000). Internment occurred on the heels of the Dust Bowl and similar dust storms became a reality for residents of several internment camps, including Camp Amache. Bill Matsumoto said that sand storms were the worst part of camp life (Matsumoto 1996). Allan Hida described sand pyramids forming inside his barracks at Camp Amache. Poorly constructed windows and doors let sand slip inside and he recalled three to four inch tall mounds of sand piling daily in his family’s one-room unit (Hida 2000). Even when sand wasn’t blowing, Hida found it problematic because of its alkalinity. If bare feet and toes walked for too long on the sand, they cracked and bled. But it was blowing sand that most intensely grated, physically and mentally, on internees. One internee in Heart Mountain Relocation Center in Wyoming said that she could not open her mouth when a storm began or else it would fill with dust (Limerick 1992). “You could just barely see, and the only way to keep your eyes clean was just to cry and ... let the tears wash your eyes” the woman recalled (Limerick 1992, 1039).

The Natural Resource Conservation Service's (NRCS) Web Soil Survey gives the suitability of lands for various purposes. Its ranking of land-use suitability in "Lawns, Landscaping, and Golf Fairways" and "Farmland Classification" are of interest in knowing the circumstances internees faced in creating ornamental and vegetable gardens. The Tivoli sand in Camp Amache is ranked as "somewhat limited" for lawns, landscaping and golf fairways because it is droughty and too sandy (Web Soil Survey 2010). This land-use ranking is applicable to growing ornamental trees and shrubs as well as lawn turf (Web Soil Survey 2010). A ranking of "somewhat limited" indicates that land where internees grew gardens is currently "moderately favorable" for these purposes and would require at least moderate maintenance for landscaping (Web Soil Survey 2010). For use as farmland, NRCS rankings fall into three categories: prime farmland, farmland, and not prime farmland (Web Soil Survey 2010). Tivoli sands are rated as "not prime farmlands" (Web Soil Survey 2010). However the camp's eastern edge slightly overlaps and is bordered by soil rated as "prime farmland if irrigated" (Web Soil Survey 2010). Thus, the soils in camp are not ideal for either ornamental plants or food crops, though with modifications they could and did yield both.

Soil nutrients were a limiting factor for internee garden cultivation in the undeveloped Tivoli sand topsoil. However, a very different soil existed nearby on the banks and flood plain of the Arkansas River. Many of the soils bordering the Arkansas River in Prowers County, Colorado have a loamy, rather than sandy, texture and have a higher percentage of clay, both of which are important for plant growth (Web Soil Survey 2010). Internees understood the different nutrient levels and soil compositions

of their new landscape and transported soil from the banks of the Arkansas River back to camp for their gardens (Aido 1944).

Another limiting factor for garden growth in Camp Amache was water. With only 15 inches of annual precipitation, internees couldn't rely on rain to sustain their tender garden plants (Amache 1944). Limited access to water and the need to consistently supply it to their gardens figured largely in internee cultivation decisions and time used to care for gardens (Takaya 1944).

### ***Scholarly work on internment camp gardens***

Among the scholarly work published on Japanese American internment camps, there are a few key pieces studying camp gardens from a historical *and* environmental perspective. Limerick (1992) highlighted the attempt of the WRA to conquer Japanese Americans, not only with imprisonment, but also with nature itself. She describes the stark and overpowering contrast of the arid landscape, and speaks of the gardens as a testament to Japanese work ethic and cultural strength. Limerick's article places the gardens in a context that shows their significance to both the physical and psychological well-being of internees. Okihiro (1984) writes about internment camp gardens in terms of the cultural and spiritual importance of landscape gardening to the Japanese. He describes the gardens as showing and creating solidarity among the internees (Okihiro, 1984). Helphand details the transformation of an initially desolate internment camp landscape via "defiant gardens" (Helphand 2006). He frames the gardens as a peaceful rebellion against camp authorities that simultaneously garnered the WRA's praise and

took control of the natural conditions meant to suppress the internees. Taking internment camp garden elements of rebellion, spirituality, cultural expression, and environmental dominance in those three pieces of work, Tamura (2004) explores the diverse and complex reasons for existence of extensive ornamental gardens in internment camps. She argues that”

“camp gardens were continuations of pre-incarceration garden building traditions, human and cultural responses to the camp landscapes, restorative agents that fostered communal healing, and the results of cultural cohesion and community competition. The camp gardens illustrated and enabled levels of resistance against confinement and the War Relocation Authority (WRA) (Tamura, 2004, 1).”

Chiang (2010) focuses on the power dynamics within camps and how natural elements, from soil to weather, influenced relations between the WRA and internees. She discusses the choice of arid, uninviting landscapes as an assertion of power over prisoners and their re-appropriation of the spaces to gardens as a shift in power from the WRA to internees. Chiang points out that gardening was a manner of gaining control over spaces that were meant to dominate internees while also gaining the approval of those who imprisoned them. Most recently, Wilson (2011) wrote of Japanese American internment through a lens of environmental racism. He captures the passion of anti-Japanese public opinion in the first half of the twentieth century and the long-standing expectation of Americans that the western U.S. be a “white landscape” (Wilson 2011).

These scholars supply rich ideas about what modifying the camp landscape accomplished for those imprisoned within it. I build on their thoughts and use them to inform a new narrative for Camp Amache, supported by archived documents and soil chemistry analysis. In Chapter Three, I will share my methodology for sampling garden

soil and the result of chemistry analysis. In Chapter Four, I discuss WRA records, oral histories, and other documentation of the internee experience giving the story of internment camp gardens and their soil chemistry legacy narrative context.

The garden is a significant cultural component of Japanese life (Berrall 1966, Tamura 2004). Gardens created by Japanese Americans while interned during World War II are an interesting piece of an often overlooked story of cultural oppression and survival. These two methods of investigation, soil analysis and archival analysis, combine to create a narrative, both quantitatively and qualitatively, of how and why internees amended the camp's soil.

### Chapter 3: Soil chemistry analyses

Soil chemistry analyses of Camp Amache historic garden sites contribute data to three fields of study: archeology, history, and soil science. I collaborated with University of Denver archeologists as they excavated camp gardens. Analysis of the soil chemistry at each archeologically relevant layer of earth complements their qualitative descriptions. The resulting conclusions from my analysis will also be useful to historians working in the area of Japanese American internment and soil scientists studying similar soil or land-use patterns.

This chapter compares elemental nutrients commonly associated with plants and soil modifications for plant growth in gardened and non-gardened (control) areas. Previous soil tests at Camp Amache indicated higher amounts of carbon in gardened areas, but the analysis did not specify *organic* carbon, which is more associated with plant growth than inorganic carbon (Sanford unpublished). My hypothesis was that gardening would affect the concentration and distribution of plant nutrients and organic matter in the soil due to the decomposition of garden plants and/or fertilizer additions by gardeners. I found that former garden soils had higher concentrations of several nutrients compared with control sites. Garden soils also showed different patterns in the vertical distribution and heterogeneity of nutrients, pH and stable isotopes, which may indicate different sources of plant inputs and decomposition processes. These results suggest a long-lasting legacy of the internees on the landscape, not only aboveground with their planting of trees, but also belowground. Their effect on soil

properties is remarkable given their gardening activities were limited to 2-3 years six decades ago.

### ***Soil Collection***

The goal of soil collection was to compare soil characteristics of internment camp gardens to uncultivated soil inside and outside of the Camp Amache boundary. The location of Amache's historic boundaries are well documented and the camp buildings' foundations, most of which are intact, provide an excellent reference for the internment camp's geography. The two primary archeological digs completed at Camp Amache in summer 2010 targeted a former entry garden in front of a barracks door and a former community vegetable garden in a space on the edge of camp, pictured below.



**Image 5.** Victory garden (lower right corner) excavated and sampled in 2010, shown here at time of internment. Unknown photographer. Photo supplied by Bonnie Clark, archeologist at University of Denver.



**Image 6.** Ornamental garden excavated and sampled in 2010, shown here at time of internment. Image supplied by gardener Mataji Umeda's (pictured above) family.

I collected soil samples from the two gardens in Images 5 and 6 at various depths according to archeological context. I also sampled three control, or non-garden, locations, one off camp and two within camp. Control 1 was dug in the camp's old athletic field, Control 2 was dug in an area within camp but on its perimeter (that upon excavation we found had been used as a construction dump), and Control 3 was dug outside the camp's boundary. Since archeological excavation involves strategic removal of soil, sampling frequency within each excavation unit was necessarily limited. As error bars on graphs in this section indicate, the variability between units and gardens is wide, but additional sampling of gardens was not feasible given the constraints of archeological investigations at this National Historic Landmark site. Details on soil

sampling methods are presented in the Appendix. Control pits were sampled by soil horizon while garden soils were sampled based on levels of archeological contexts i.e. importance.

### ***Soil Analysis Methods***

Both the pH and several plant-associated nutrients were measured because adjusting both are the most likely modifications gardeners would make to the soil. First, the pH of the soil was measured in 1:1 (volume) soil:water slurry with a Sartorius Professional Meter PP-20 pH electrode (Bigam 1996). In order to test the concentration of various nutrients in the soil samples, all soils were dried and then finely ground with a Spex SamplePrep 8000D Mixer/Mill. Concentrations of nitrate, ammonium, available phosphorous, exchangeable calcium, exchangeable magnesium, exchangeable sodium, and exchangeable potassium were analyzed at the University of Wisconsin-Madison's Soil and Plant Analysis Lab (SPAL). Nitrogen in the form of nitrate ( $\text{NO}_3\text{-N}$ ) and ammonium ( $\text{NH}_4\text{-N}$ ) were extracted with potassium chloride (KCl) and analyzed through flow injection (Ruzicka 1983, Lachet 1995). Plant available phosphorous (P) was also extracted from the soil samples and the concentration of P was determined colorimetrically or by UV-Vis spectrophotometer (Bray and Kurtz 1945, Munter 1988, Frank et al. 1998). Four different cations were analyzed, calcium ( $\text{Ca}^{++}$ ), magnesium ( $\text{Mg}^{++}$ ), sodium ( $\text{Na}^+$ ) and potassium ( $\text{K}^+$ ). The four cations were extracted with ammonium acetate ( $\text{NH}_4\text{OAc}$ ) and then analyzed with atomic absorption spectrophotometry (Thomas 1982, Warncke and Brown 1982).

I also wanted to compare the concentration of organic carbon in all sites, a process complicated by the presence of inorganic carbon in the form of carbonates ( $\text{CaCO}_3$ ). To assess the concentration of organic carbon, inorganic carbon in the form of carbonates were removed by acid fumigation following the approach of Harris et al. (2001) and Walthert et al. (2010). Elemental (C,N) and stable C and N isotope concentrations were analyzed on an Elementar Vario EL Cube elemental analyzer interfaced to a PDZ Europa 20-20 isotope ratio mass spectrometer at the University of California – Davis Stable Isotope Laboratory. Samples were combusted at  $1000^\circ\text{C}$  in a reactor packed with copper oxide and lead chromate. Following combustion, oxides are removed in a reduction reactor using reduced copper at  $650^\circ\text{C}$ . The helium carrier then flows through a magnesium perchlorate water trap.  $\text{N}_2$  and  $\text{CO}_2$  are separated using a molecular sieve adsorption trap before entering the IRMS. All samples were run in duplicate with replicate error  $< 10\%$ . Total C (%) and  $\delta^{15}\text{N}$  (‰) concentrations were determined on unfumigated samples, while organic C (%) and  $\delta^{13}\text{C}$  (‰) were analyzed on fumigated samples as the presence of carbonates is known to affect the C isotopic composition of soil (Harris et al. 2001). Stable isotopic compositions are expressed in  $\delta$  notation (‰):

$$\delta^{13}\text{C} \text{ or } \delta^{15}\text{N} = [(R_{\text{sample}} - R_{\text{std}}) / R_{\text{std}}] \times 1000 \quad \text{Equation 1}$$

where  $R_{\text{sample}}$  is the ratio of the heavy to the light isotope ( $^{13}\text{C}/^{12}\text{C}$  or  $^{15}\text{N}/^{14}\text{N}$ ) of a sample and  $R_{\text{std}}$  is the ratio of a standard (Dawson and Brooks 2001).

The figures presented contain data from three control sites and two garden sites. The garden sites each had three archeological units. Two samples were taken from two

opposite corners of each archeological unit for each archeological context layer in both garden sites (see Appendix), which were then averaged to calculate a mean and standard error for each garden site which represented a different type of garden. The three non-garden pits, which were sampled by horizon, were averaged to provide a reference profile against which to compare the garden soils. Due to the differences in sampling methods and replication given the constraints of working at an archeological site, standard statistical analyses are not appropriate. Data presented here include standard errors of different site and sample replicates. The variability of the data is a function of two factors: limited sampling due to archeological restrictions and the inherent heterogeneity of garden sites (Image 7 is a good example of this heterogeneity).

One figure is included without averaging the three control plots into a single line (Figure 1). This figure shows that all three control plots have lower concentrations of exchangeable magnesium but are also quite heterogeneous in their concentrations and depth distribution compared to each other (Figure 1). We dug control pits on the camp's former athletic field, in a former construction dump and outside of the camp boundary. This wide variety of control sites was chosen in order to compare the gardens to a representative range of non-garden sites. The trade-off of that comprehensive comparison is range of nutrient concentrations and distribution among the control pits (Figure 1). Given that variability, that the garden sites consistently have higher nutrient concentrations than the averaged control sites is notable. Soil data was compared

visually by assessing overlap between standard error bars and assessing patterns in variability with depth.



**Image 7.** Ornamental garden created by internees in Camp Amache. c. 1944. Unknown photographer. Amache Museum, Granada, Colorado. Accessed July 2010.

## ***Results***

### Soil nutrient concentrations

Nutrient concentrations of control plots and the entry and victory gardens differ. The victory garden site had higher concentrations of  $\text{NH}_4\text{-N}$ ,  $\text{NO}_3\text{-N}$ , P, Mg, K, and organic C (Figures 2, 3, 4, 6, 8, 9). The entry garden site had higher concentrations of  $\text{NH}_4\text{-N}$ ,  $\text{NO}_3\text{-N}$ , P, K, and organic C (Figures 2, 3, 4, 8, 9). In the analyses of  $\text{NH}_4\text{-N}$ ,  $\text{NO}_3\text{-N}$ , P and K (Figures 2, 3, 4, and 8), concentrations were notably higher beginning at the buried garden surface than at similar depths in non-garden locations (Figures 2 and 8). Exchangeable Mg was higher in the victory garden than in both the control and entry

garden sites (Figure 6). The control sites, which were not gardened, have uniform Na concentrations throughout the profile, with very small standard error. In contrast, both gardens sites show large variation in Na concentrations throughout their soil profiles (Figure 7).

#### Vertical distribution of soil nutrients

In addition to higher nutrient concentrations, the gardened areas also have patterns of concentration distinct from the surrounding environment (control pits). The nutrient concentration as it descends through the soil profile, is distinctly different from the control locations (Figure 2, 3, 4, 5, 7, 8, and 9). The difference is primarily that the nutrient concentrations show greater variability with depth in the garden sites than the control sites.

#### Soil pH

Soil pH across all control and garden site was above 7.6 and therefore alkaline. There was not a large difference between garden and non-garden pH measurements, though the entry garden pH varied more with depth than other sites (Figure 10).

#### Stable isotopes

Both garden sites contain less  $\delta^{13}\text{C}$ . The garden sites both ranged from -23 ‰ to -15 ‰, while the control sites ranged between -21 ‰ and -17 ‰ (Figure 12). There was not a strong pattern of more or less  $\delta^{15}\text{N}$  in gardens, but there was more varied distribution of  $\delta^{15}\text{N}$  in garden soil profiles as compared to control pits (Figure 11). Both control and garden sites had  $\delta^{15}\text{N}$  of greater than 3 ‰ at all depths. Garden sites ranged

from 4 to 7 ‰ with sharp changes between the highs and lows, whereas control sites curved smoothly between 3 and 6 ‰ (Figure 11).

### ***Discussion***

There are notable differences between the nutrient concentrations and patterns of nutrient concentrations in the control and garden sites. At shallow depths, nutrient concentrations are similar across all sites, this is the layer of soil deposited since the camp was abandoned. In arid regions with sparse vegetation, significant accumulation of wind-blown material can occur, especially in the sixty-five years since the camp was in use, effectively burying what had been at the surface at the time of the gardeners' activities. Moving down the soil profile one moves back in time.

At 20-30 cm into the soil profile, the archeologists encountered what they believed to be the garden surface and subsequently the earth that would have been affected by the horticultural practices of internees. At that depth and below, the historic garden surfaces show distinct differences in soil chemistry. The two primary differences are that plant-associated nutrients exist in higher concentrations in garden sites than in control sites and that garden sites often showed greater variability in nutrient concentration with depth than did the three control sites. The strong variability in gardens as compared to the three non-gardened pits is notable because the control sites were at much greater distances from each other and had different (though non-garden) histories. These results strongly suggest that human gardening activities had a large influence on the spatial heterogeneity of soil nutrients.

Outside of those two trends, higher and more varied nutrient concentrations, a couple other observations are worth noting. Exchangeable Mg does not show a definite trend of higher concentrations in exchangeable magnesium in the entry garden, the victory garden *does* have notably higher concentrations. This is possibly the result of non-living garden features present in the photograph of the garden (Image 6). Bridges, rocks, and other non-vegetative features are common in Japanese gardens but wouldn't add or require higher nutrient concentrations in soil. The wide variation in exchangeable Na in gardens sites, though not consistently higher in amounts, was quite different than the uniform distribution of exchangeable Na with depth in the control sites. This may be attributable to plant and fertilizer inputs, but another factor to consider is the interaction between the soil and the additional water needed to sustain many plant types in this semi-arid landscape. If water used for plant irrigation was high in salts those salts may increase sodium concentrations of the water. It is possible that, though water left the soil after internees applied it to their plants, the sodium from salts stayed behind. Accumulation of salts in irrigated arid soils is very common (FAO 1985).

For the two stable isotopes analyzed,  $\delta^{15}\text{N}$  (‰) and  $\delta^{13}\text{C}$  (‰), changes in the concentration of the isotopes in garden soil profiles could indicate altered composition of vegetation. The lower  $\delta^{13}\text{C}$  observed in garden sites indicates a different ratio of C3:C4 plants than control sites (Krull and Bray 2005). C3 and C4 plants have different photosynthetic pathways that result in C4 plants concentrating more  $^{13}\text{C}$  than C3 plants. In soil where carbon is primarily added by C4 plants, the  $\delta^{13}\text{C}$  value is -13 ‰ on average. In soil where is carbon is primarily added by C3 plants, the  $\delta^{13}\text{C}$  value is lower, -26 ‰, on

average (Deines 1980). The garden sites both ranged from -23 ‰ to -15 ‰, while the control sites ranged between -21 ‰ and -17 ‰. The garden sites likely had a higher ratio of C3 plants since garden produce seen in photographs of camp were C3 plants. The wide range of  $\delta^{13}\text{C}$  displays a difference in land use, however without knowing the specific plants grown in each sampled location it is challenging to attribute the variation to specific vegetative changes beyond the general act of gardening. Increase in  $\delta^{13}\text{C}$  with depth is seen in control pits as well as garden plots and is probably due to microbial action which leads to isotopic fractionation with decomposition, not vegetative changes (Ehleringer et al. 2000). The presence of carbonate could also influence  $^{13}\text{C}$  signature but carbonates were removed with the HCl fumigation process and should not be present in these measurements.

The slightly higher and more sporadically fluctuating  $\delta^{15}\text{N}$  in gardens could be a result of manure fertilizer application, which has been shown to raise soil  $\delta^{15}\text{N}$  (Senbayram 2008). Since plants fixing atmospheric nitrogen have an  $\delta^{15}\text{N}$  close to zero and the gardens are somewhat high  $\delta^{15}\text{N}$  it is likely that it was fertilizer rather than vegetation influencing this isotopic signature.

One final observation is that all sites sampled have alkaline soil, which is expected of arid regions with high salt and carbonate concentrations. These pH measurements, almost all over a pH of 8, corroborate the internee's observation that the sand was alkaline (Hida 2000).

### ***Conclusions from Soil Analysis***

The soil chemistry data supplements archeological data through a quantitative analysis of the impact internment camp gardens had on the soil of Camp Amache. Increased concentrations of plant-associated nutrients and variability of those nutrient concentrations in former garden locations are an imprint of the internee modification of the landscape. One common legacy effect of past human activities in soils is increased patchiness in the spatial distribution of soil nutrients (Fraterrigo et al. 2005, Foster et al. 2003). This type of legacy is present in Camp Amache.

Given the limited duration of Japanese American internment in Camp Amache, three years or less at most, their long-term legacy on the soil chemistry is noteworthy. These nutrient concentration measurements are interesting for soil scientists thinking about long-term impact of land-use change. The motivations for such intensive soil modifications by internees are explored in Chapter Four with the discussion of my archival research.

### ***Figure Legends***

**Figure 1.** Unaveraged exchangeable magnesium (Mg) concentrations of three control sites and victory garden archeological units

**Figure 2.** Mean (and standard error) ammonium nitrogen (NH<sub>4</sub>-N) concentrations (ppm) in control, victory and entry garden site soils at Camp Amache.

**Figure 3.** Mean (and standard error) nitrate nitrogen (NO<sub>3</sub>-N) concentrations (ppm) in control, victory and entry garden site soils at Camp Amache.

**Figure 4.** Mean (and standard error) available phosphorous (P) concentrations (ppm) in control, victory and entry garden site soils at Camp Amache.

**Figure 5.** Mean (and standard error) exchangeable calcium (Ca) concentrations (ppm) in control, victory and entry garden site soils at Camp Amache.

**Figure 6.** Mean (and standard error) exchangeable magnesium (Mg) concentrations (ppm) in control, victory and entry garden site soils at Camp Amache.

**Figure 7.** Mean (and standard error) exchangeable sodium (Na) (ppm) concentrations in control, victory and entry garden site soils at Camp Amache.

**Figure 8.** Mean (and standard error) exchangeable potassium (K) (ppm) concentrations in control, victory and entry garden site soils at Camp Amache.

**Figure 9.** Mean (and standard error) organic carbon (%) concentrations in control, victory and entry garden site soils at Camp Amache.

**Figure 10.** Mean (and standard error) pH in control, victory and entry garden site soils at Camp Amache.

**Figure 11.** Mean (and standard error)  $\delta^{15}\text{N}$  concentrations (‰) in control, victory and entry garden site soils at Camp Amache.

**Figure 12.** Mean (and standard error)  $\delta^{13}\text{C}$  concentrations (‰) in control, victory and entry garden site soils at Camp Amache.

Figure 1.

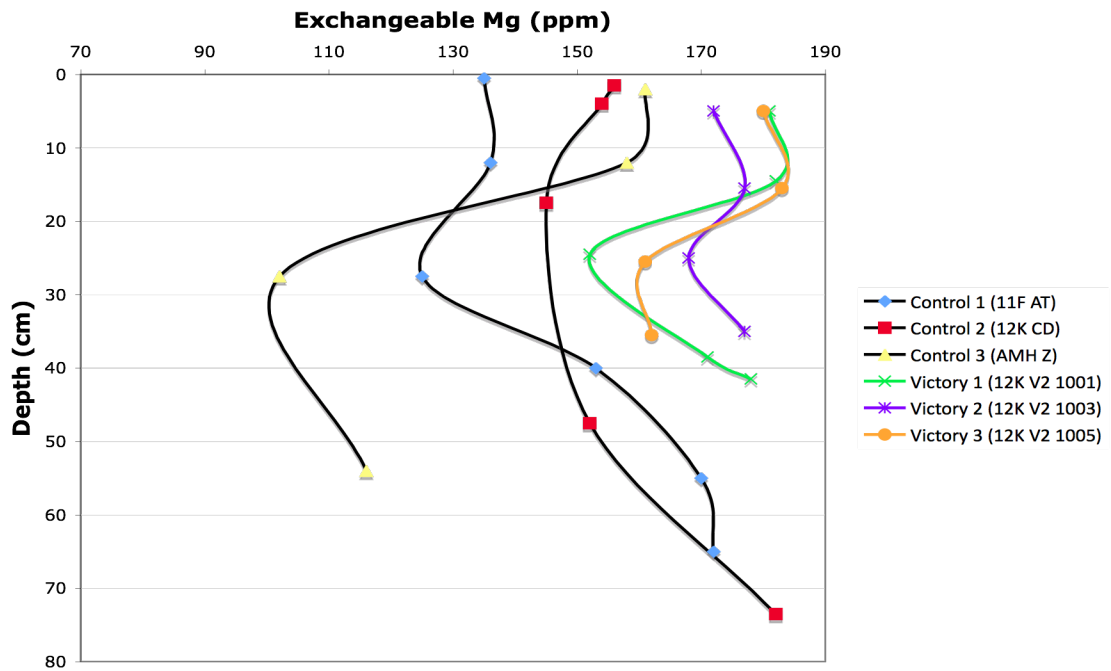


Figure 2.

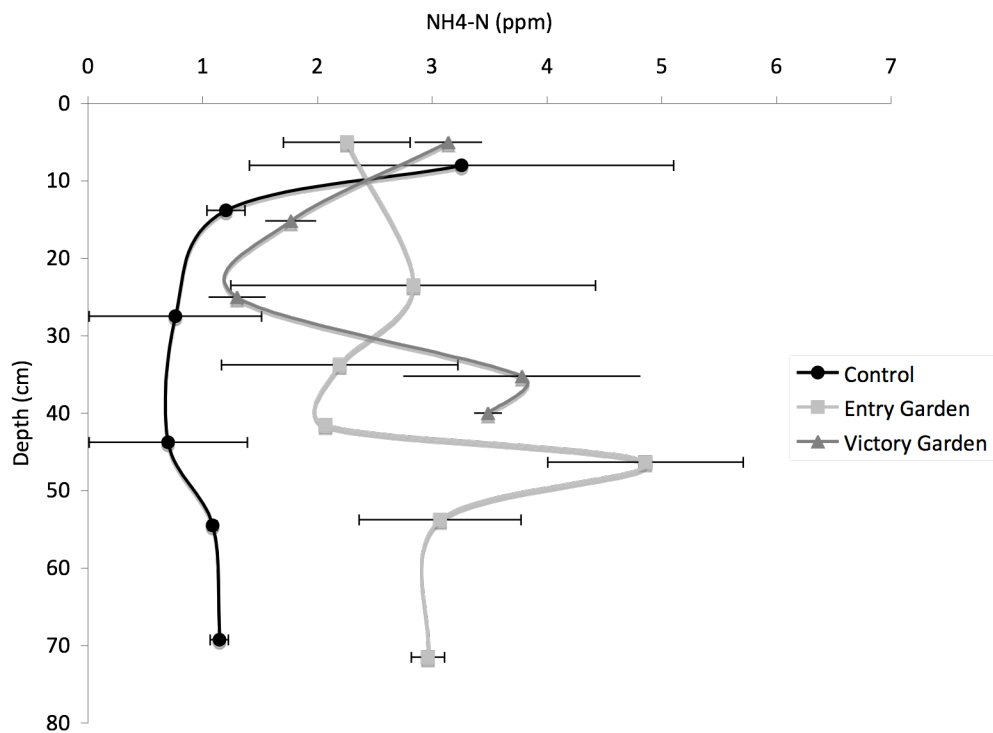


Figure 3.

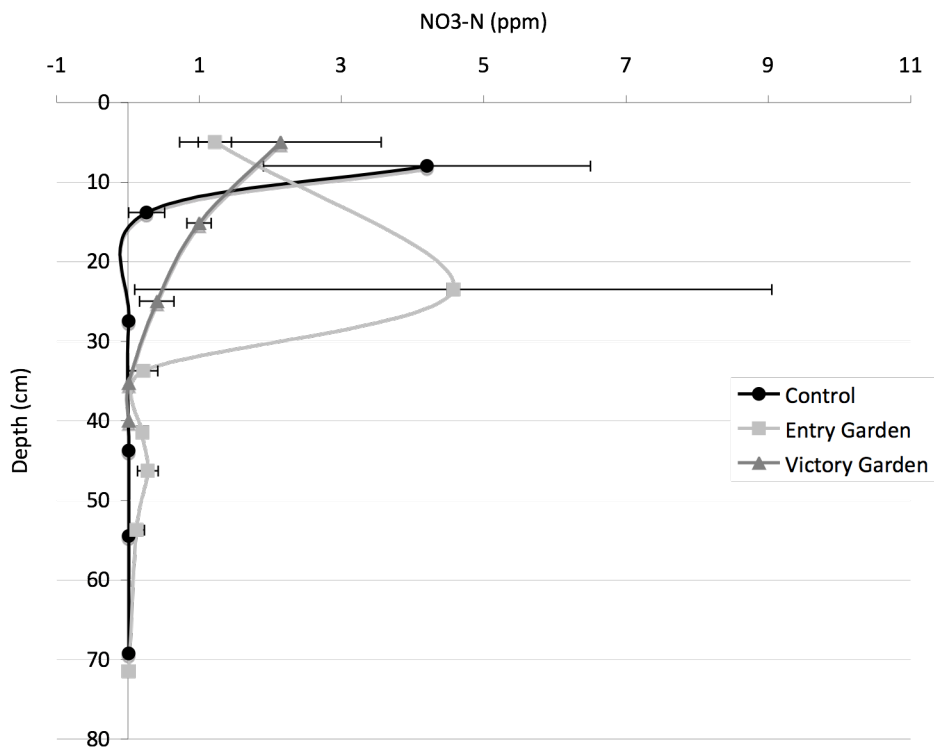


Figure 4.

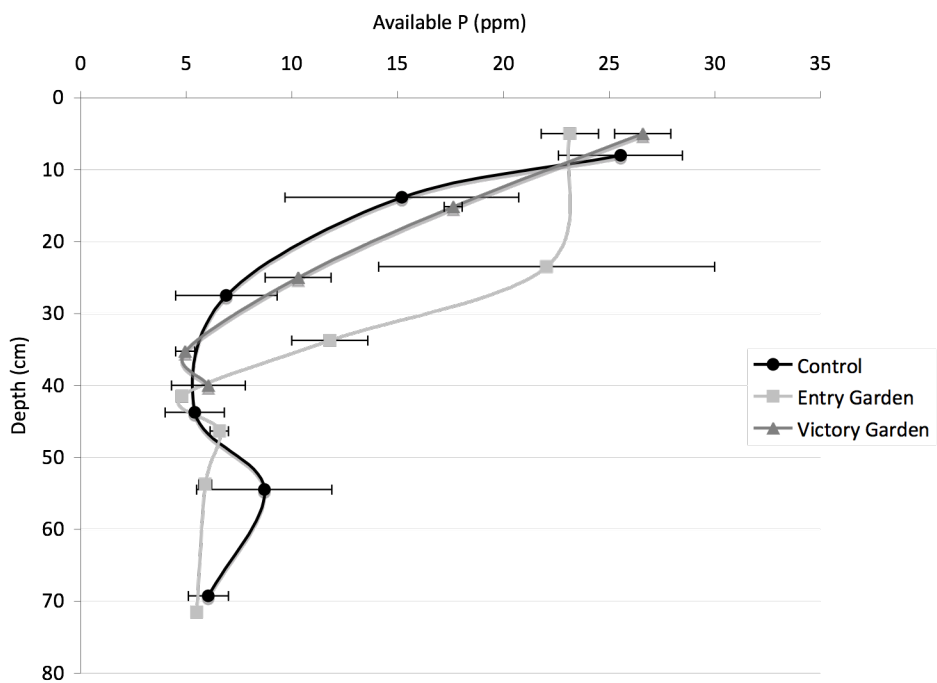


Figure 5.

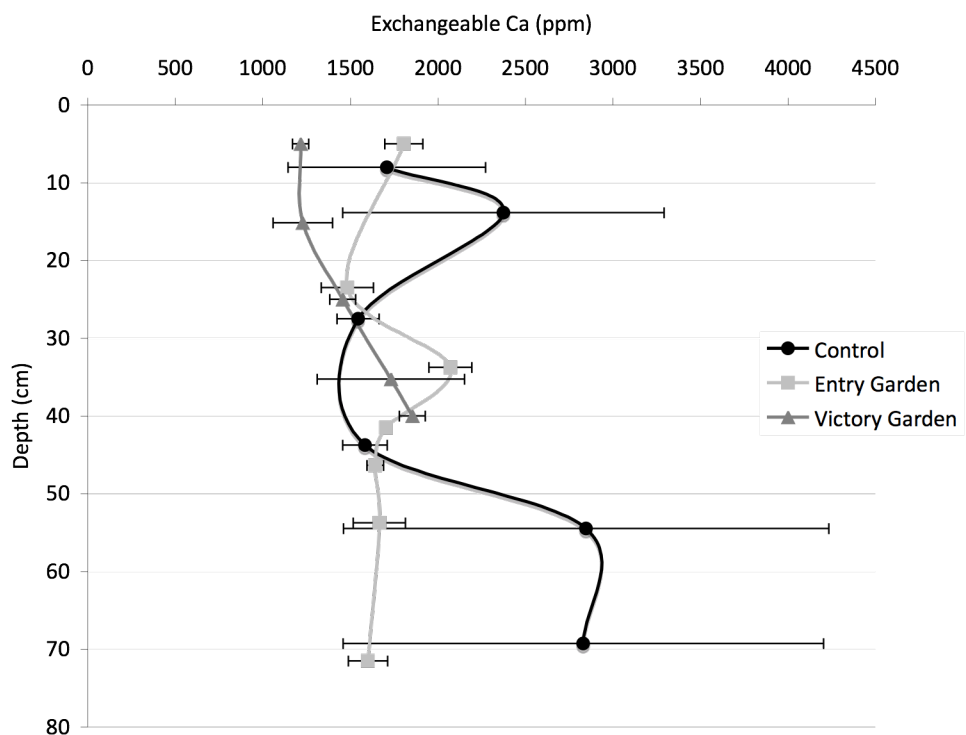


Figure 6.

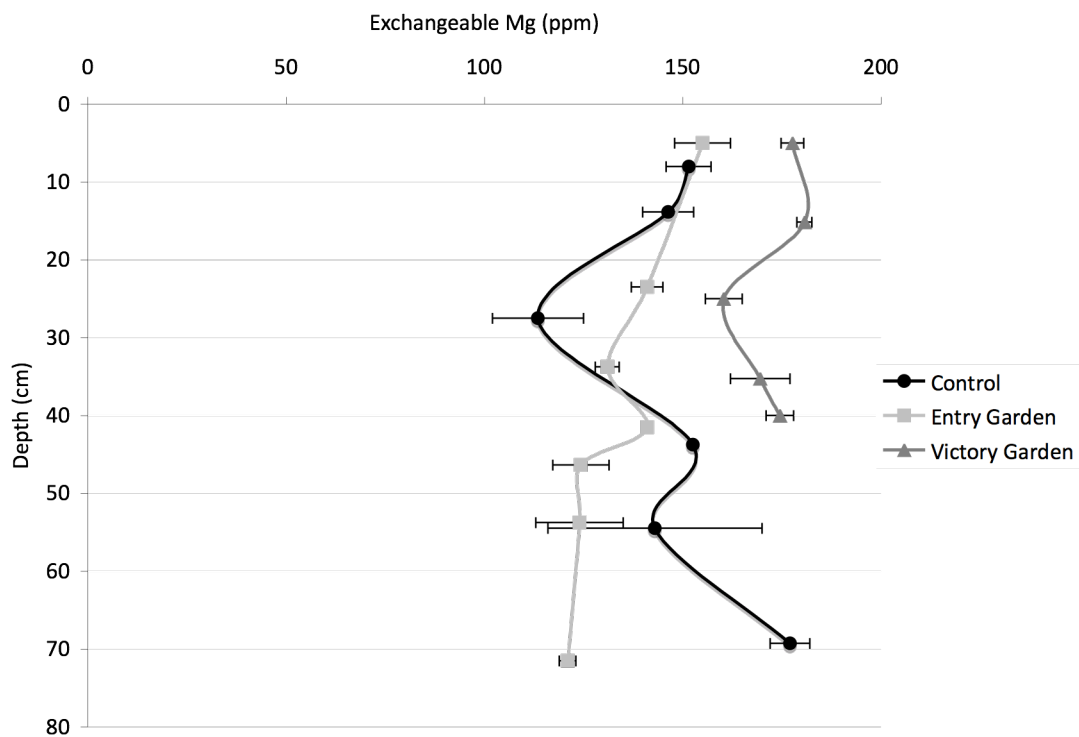


Figure 7.

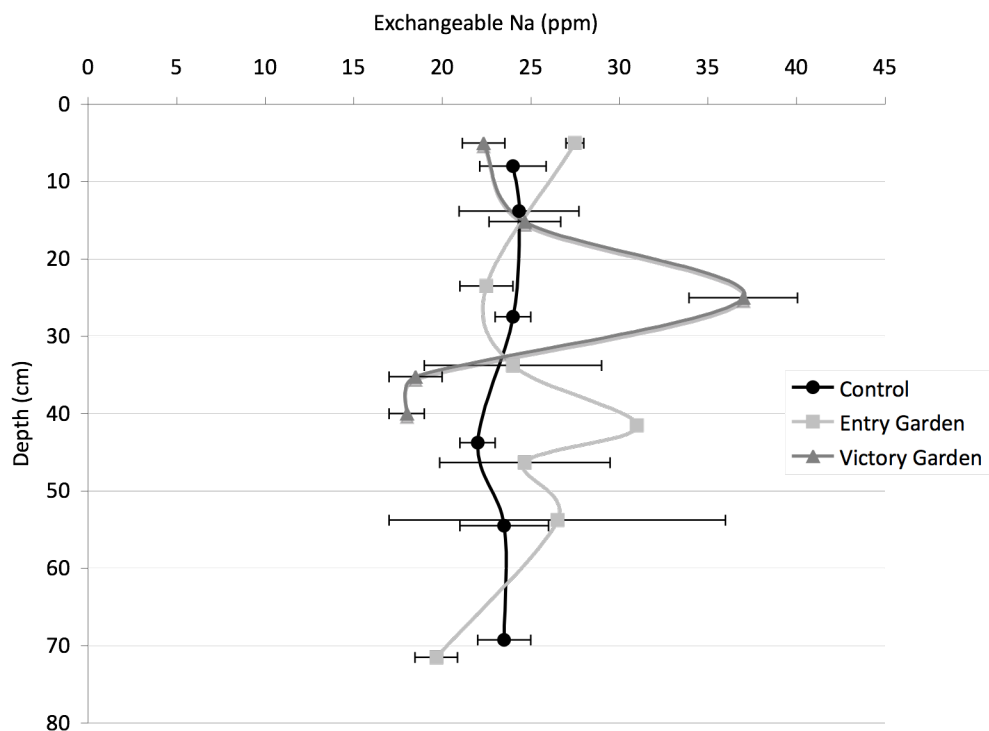


Figure 8.

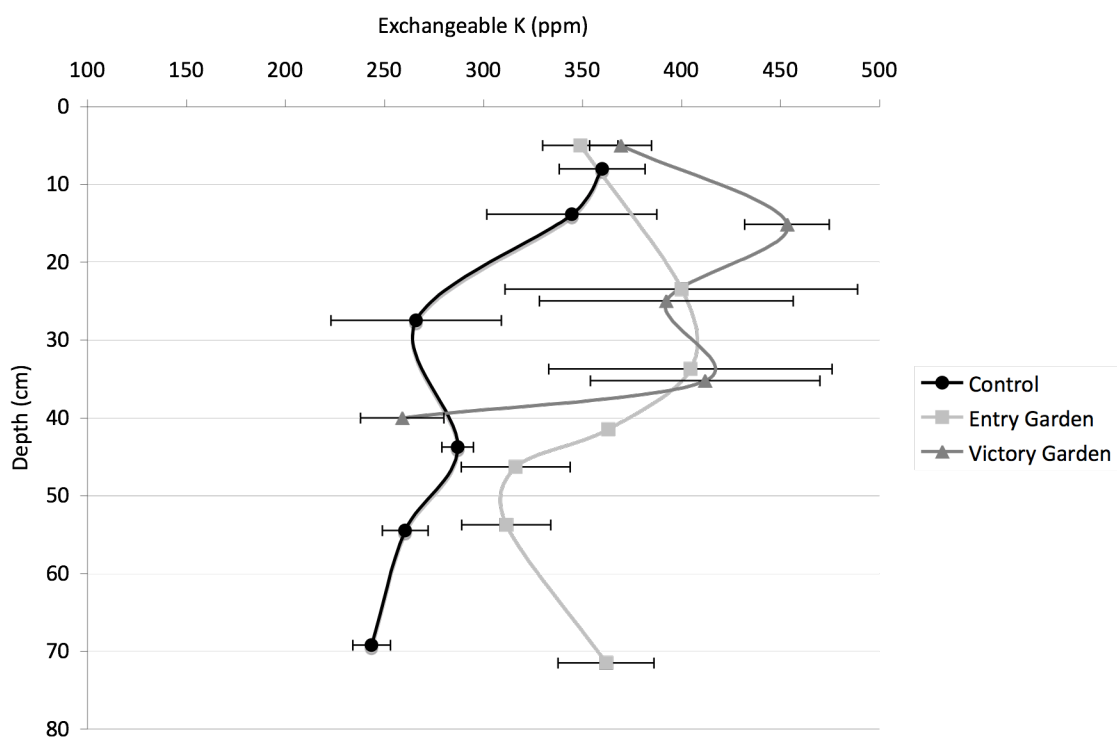


Figure 9.

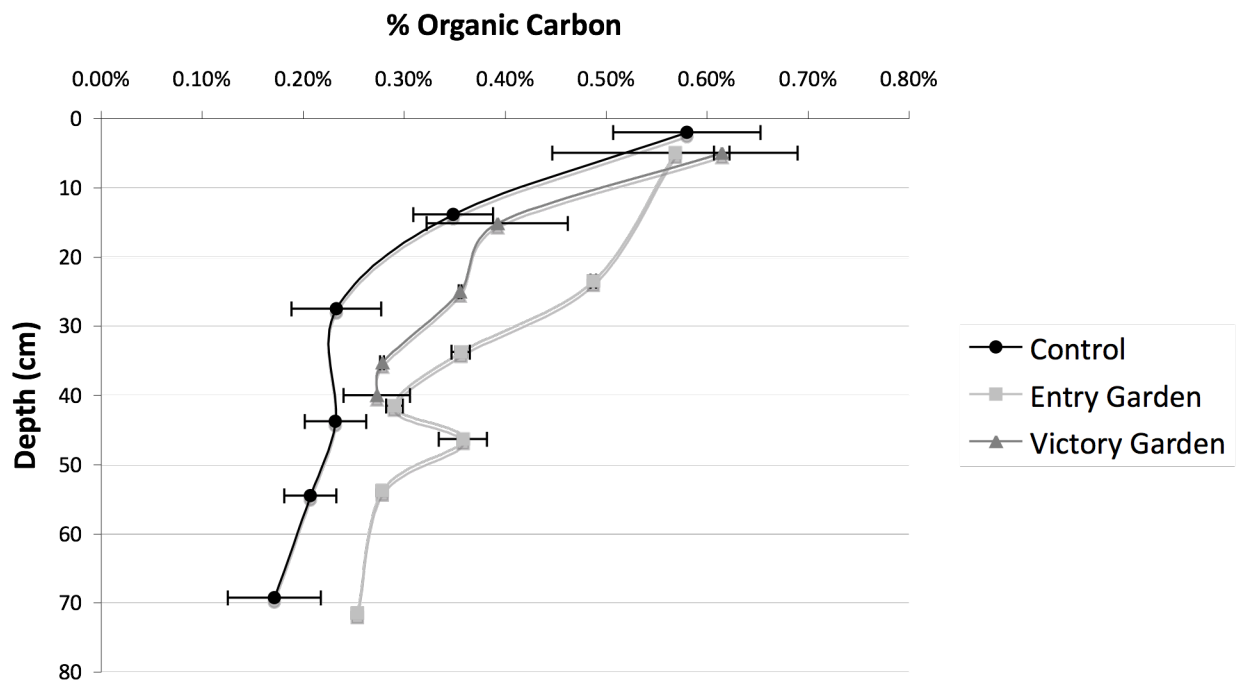


Figure 10.

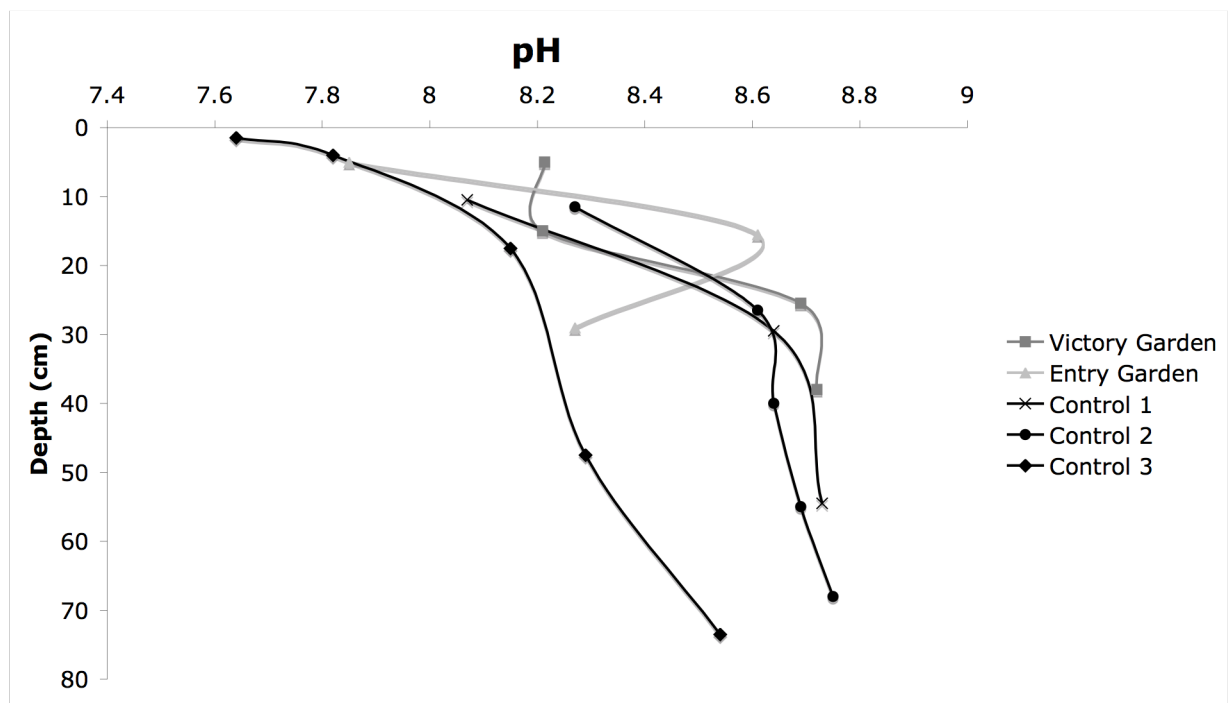


Figure 11.

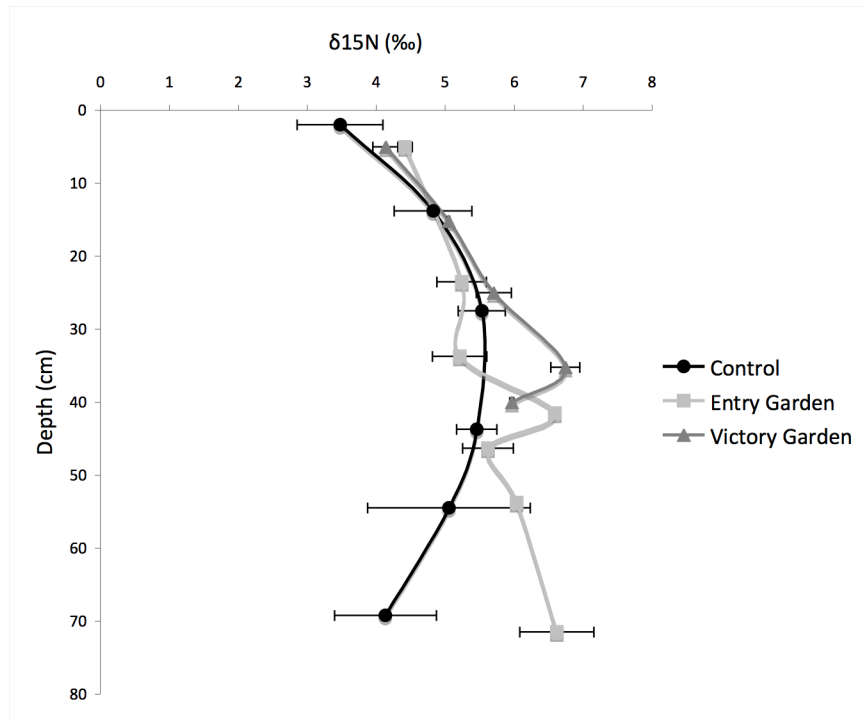
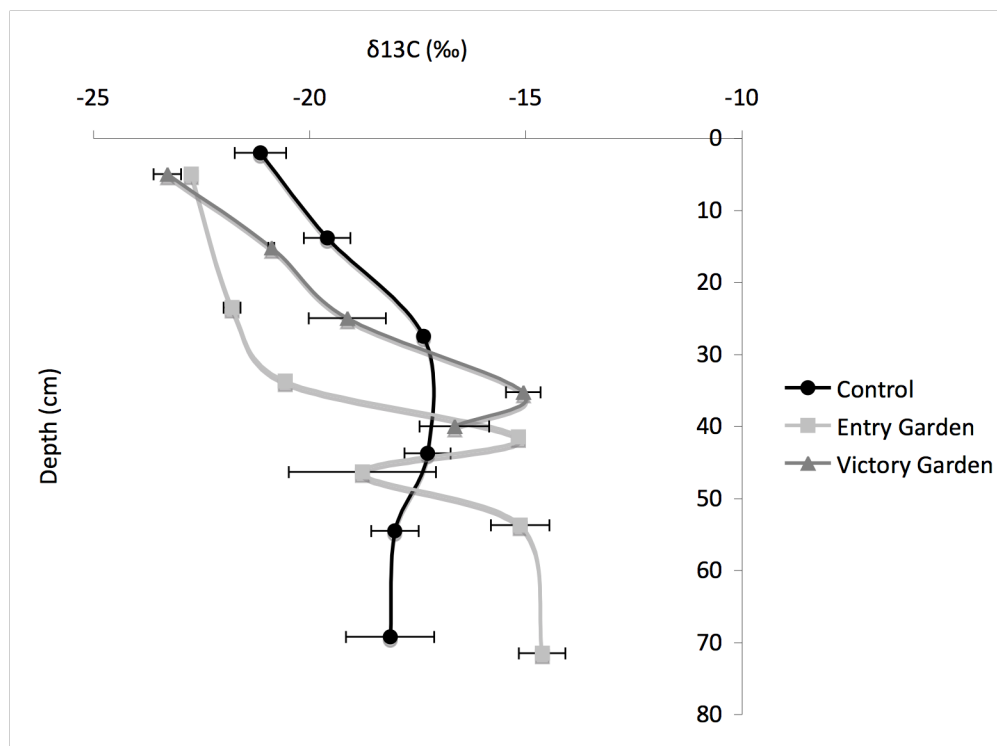


Figure 12.



## **Chapter 4: Archival supplement to soil analysis**

To complement my soil chemistry results, I searched archival records for information about Camp Amache's gardens. I approached my archival search with an understanding of other scholars' (discussed in Chapter Two) thoughts about the role gardens played in the daily lives of internees and why Japanese Americans chose to garden while imprisoned. In the archives, I sought evidence to make their scholarly narratives specifically relevant to Camp Amache and to create new narratives about the cultural and environmental significance of Amache's gardens.

Many rich archival resources are available for studying Japanese American internment during WWII. The WRA's numerous reports, correspondence, and organizational documents were archived and are publicly available. The WRA commissioned a photographer to document each camp and those photographs are available in digital archives. Camp Amache produced a community newspaper, school newspapers, and other printed materials of which many were saved and archived. Oral histories and written memoirs about Japanese American lives before, during, and after World War II are also available. I accessed these and other primary documents to conduct archival research on Japanese American internment in Granada, Colorado.

In addition to digital archives accessible online, I explored the contents of three collections in person: Amache Museum in Granada, Colorado, California State University-Sacramento, and the University of California-Berkeley. Amache Museum is a valuable resource for understanding life at Camp Amache and the internment

experience in general. Amache Museum shared digital copies of the entire collection of WRA commissioned photographs documenting the camp. The museum also holds every issue of the camp's internee-produced twice weekly newspaper and several other valuable documents and artifacts for this research. Special Collections at California State University – Sacramento's library holds oral histories given by 120 formerly interned Japanese Americans, along with many other unique documents, such as an unpublished memoir by the founder of the League of Southern California Japanese Gardeners. At UC-Berkeley, Bancroft Library's archives contain the War Relocation Authority's (WRA) records. The WRA's administrative correspondence, camp data reporting, and internee-generated document collection provided a wealth of information about life within camp and the government's perception of internees.

I chose two themes to guide my discussion of archived materials about camp gardens and gardeners, *demonstration* and *beauty*. I'll elaborate on each theme before delving into archival findings:

### **Demonstration**

Interpretation of gardens as a demonstration is my distillation of the combined assessment Limerick (1992), Helphand (2006), Tamura (2004), Chiang (2010), and Wilson (2011) make about the significance of the internment camp gardens and environment. Demonstration as one of my guiding themes uses three definitions of the word as given by the Oxford English Dictionary (Oxford English Dictionary 2012). The first definition, demonstration as an act of showing or expression, is clearly invoked here. The gardens are a visual representation of internee desires to transform space and

work ethic. Helphand (2006) and Tamura (2004) interpreted internee gardens as demonstrations of another kind, mass public displays of political opinion. My discussion of archival materials as demonstrations points indirectly at this definition because I recognize the gardens embodied internee reaction to political and physical treatment of Japanese immigrants. However, my archival investigation does not seek to support this definition explicitly. Rather, I highlight the gardens' purpose as a *passive* public assertion that internment was a misplaced punishment. This is different in the nature of reaction to political wrongdoing because the unspoken, drawn out assertion made by gardening doesn't assume the fervor that a typical demonstration, for example a war protest, would. Finally, my use of demonstration invokes a third definition: "an indisputable proof" (Oxford English Dictionary 2012). The gardens were a method for internees to prove the strength and validity of their desire to be accepted and to be treated fairly. The gardens were an important space in which to demonstrate in this manner because Japanese Americans were not allowed to affirm these desires verbally.

To combine these three ways of defining demonstration, my discussion of archival material treats gardens as a means by which internees underscored a desire for fair treatment via passively manifesting political and personal reactions to American opinion of Japanese immigrants in gardens.

### **Beauty**

Japanese cultural value of gardens is motivated in part by Japanese appreciation of beauty (Ito 1972). For the Japanese, beauty exists in nature and a skillful gardener, rather than creating beauty, reveals what is already there (Ito 1972). Garden creation in

Camp for the purposes of beautification is apparent in both the scholarly literature and the historical record of Japanese American internment. When internees arrived in the semi-arid interior of the American West, the environment greatly contrasted with their coastal homes along the West (Limerick 1992). In an unpublished memoir, interned Japanese American gardener Shoji Nagumo recorded a deep worry regarding the perceived ugliness of Heart Mountain Camp in Wyoming:

“When I thought about children being raised in the desert without grass or trees, I was sure they would become human beings who would not feel joy or pleasure in anything. They might grow up not understanding the beauty of nature (Nagumo 1982).”

While he was not writing about Camp Amache, he gardened in similar environmental circumstances in Heart Mountain and his thoughts influenced my archival research. More than one camp director came to realize the importance of beauty to internees through their activities in confinement (Chiang 2010, Lindley 1945). Less than a decade after the camps closed, a folk art expert published a book titled Beauty Behind Barbed Wire detailing the prolific artistic undertakings of Japanese Americans during internment (Eaton 1952). The wide range of art completed in camp included gardening, constructing miniature landscapes, woodcarving, arranging flowers, and writing poetry (Eaton 1952). As I sifted through archived materials, I searched for documentation of beauty within Camp Amache, both as it related to gardening and more broadly. Understanding the Japanese cultural value of beauty that permeated internee activities in camp helps contextualize the importance of their gardens and interaction with the soil.

The context archival research brings to soil chemistry analyses strengthens the significance of internee gardening techniques' legacy on the soil. Tamura (2004) notes that despite plentiful resources, scholarship specifically related to internment camp *gardens* is limited. The following exploration of demonstration and beauty as motivators of Japanese American internee gardening brings highlights some of the rich resources available to future scholars for such study.

### ***Gardens for Demonstration***

Here I present archival evidence related to gardens as demonstrations to support the idea that internees were expressing two primary desires with gardens: acceptance into American society and fair, unprejudiced treatment.

#### *Desire for acceptance into American society*

The extent to which Japanese Americans complied with the internment process speaks to their desire to find acceptance in the U.S. Internees could have complicated camp administration for the WRA but instead they chose to work within WRA rules to influence their circumstances instead of directly against them. Far from obstructing war efforts, a fear that led to their imprisonment, internees supported the U.S. military. While interned, 445 men living in Camp Amache joined the U.S. Army; 31 of those died in service (Amache Museum 2010, Harvey 2004). Many internees contributed to the war effort from their barracks. They worked in optional Camp Amache positions and cultivating victory gardens. Growing victory gardens, whose purpose was to supplement domestic supplies and provide food for international military engagement, was an

affirmation of Japanese American allegiance to U.S. war efforts (Helphand 2006). Internees even formed a Boy Scout troop in camp (McClelland 1942-1945). I interpret their cooperation and many displays of patriotism as expressions of their desire to be accepted into American society.



**Image 8.** Boy Scout troop raising American flag. Taken by Joseph McClelland. Carousel 2, MC24, Amache Museum, Granada, Colorado. Accessed July 2010.

*Desire for fair, unprejudiced treatment*

Though WRA officials praised gardens, they were also a way for internees to resist the prison in which U.S. political forces placed people of Japanese descent (Tamura 2004, Helphand 2006). Japanese lifestyle as adapted to American society had

little basis for the reprimand it received from the American people (McFarling 1944, Mackey 2001). Indeed, the horticultural and agricultural expertise fueling careers for many internees matched and was sometimes superior to American counterparts (Mackey 2001). The resulting economic competition and sometimes triumph for Japanese Americans rubbed sorely on an already prejudiced public opinion (Mackey 2001). Once isolated from economic competition and confined in harsh camp environments, Japanese American gardening prowess was less criticized and more impressive. In fact, internees at Camp Amache were dispatched across the state of Colorado to share their expertise with local agriculturalists (Granada Pioneer 2010).

These two desires had the potential to spur conflicting impulses to both cooperate and push back against unfair treatment. Demonstration of both cooperation and dissatisfaction is evident in the elementary school newspaper. The Amache Elementary School produced a monthly newspaper that mentioned the camp's gardens frequently. Often children wrote the newspaper's text and via their innocence and simple words were able to express sentiments about which adults, constricted by cultural shame and embarrassment for being imprisoned, were less emotive (Sakuta 1986, Nagumo 2011).

Children, for instance, expressed joy at the idea of leaving Camp. In the March 1944 issue, one student wrote that, "Robert Moriguchi is one of the happiest boys in our class because he is going to Utah with his cousins...They are not coming back." In that same issue, a class mentions planting a victory garden in a window box of their classroom. They are not simply planting flowers or decorating, the student writes that

they will plant vegetables in addition to flowers and that it is specifically a *victory* garden. These two entries, nearly side-by-side, show a willingness to be a part of the war effort though not in the manner the WRA has thrust upon them. The elementary school's following issue exemplifies the Japanese American reaction to these conflicting sentiments, showing that they sought through civic action rather than condemnation to change their circumstances.

On the editorial page of the April 1944 edition, five of the six entries are of interest in understanding what the camp's gardens may have demonstrated for internees. Two entries speak of landscaping the school's grounds. The students are going on an excursion to find yucca and a teacher is planning to plow the school grounds in order to plant grass. Landscaping the school is a task that required much effort and a student writes to thank "the teachers for building up our school" (Takaya 1944). The effort taken to improve the makeshift school building simultaneously demonstrates internee dissatisfaction with living conditions and willingness to participate in changing them. Another entry on that editorial page speaks directly about the school's victory garden. The entry describes the garden's location, explains that every class will take part in gardening, and ends by enticing student readers with "So let's do our share!" Again, this is a demonstration of the Japanese American desire to participate in and be accepted by American society.

Japanese American youths showed enthusiasm to assist American war efforts with actions beyond gardening as well. A fourth entry on the same editorial page requires students to buy war stamps at school. The writer states that every Tuesday

each student needs to buy one war stamp, that there are posters in the hallways to remind them, and that the school is publicly graphing student war stamp purchases. The previous Tuesday, the graph showed that not every student had made the required purchase. To be clear on why this purchase is necessary, the editorial states: “We buy war stamps to beat the Axis so everyone should help” (Hinoki 1944).

Internees held fairs to display their garden produce. They took great care in the arrangement of their fruits and vegetables, neatly stacking their bounty. Sometimes they even used the colorful produce to construct designs. In one such effort, internees used the victory garden harvest to create an American flag , an unmistakable display of patriotism to reassure the country that imprisoned them of their benevolence.

In another issue, May 1944, of the Amache Elementary School newspaper, the 3<sup>rd</sup> graders write that they visit the victory garden every Monday, indicating the school has followed through with their gardening plans. One student even wrote a poem about the victory garden, the second stanza states:

“Dig, dig, dig,  
Plant the seeds,  
Pull the weeds,  
Gather the vegetables,  
And can them too.  
This will help me  
And it will help you.”

The poem’s referral to gardens helping, though likely meaning the war effort, unconsciously speaks to the help internees required in changing American attitudes towards people of Japanese descent.



**Image 9.** Produce at agricultural fair. c. 1944. Taken by Joseph McClelland. Carousel 2, MC54, Amache Museum, Granada, Colorado. Accessed July 2010.

Though Japanese Americans did not obstruct war efforts before the relocation initiative, their words and actions were not enough to convince the rest of the U.S. that they were not a threat. Therefore, internee actions within camp may be seen as emphatic demonstrations of their cooperative and peaceful intentions. At the same time, internee dissatisfaction with the internment camp shows in the attempt to alter their regimented lives via gardens and other methods.

Gardens balanced those impulses. Beautifying land with gardens was an improvement both Americans and Japanese recognized and accepted (Berrall 1966, Limerick 1992, Tamura 2004). In the space of internment camps, Japanese immigrants' deployment of effort and knowledge necessary to achieve landscape transformation relayed a message for internees whose words and even civil rights were silenced.

### ***Gardens for Beauty***

The garden is an important cultural component of Japanese life (Berrall 1966, Tamura 2004). A well-executed garden embodies Japanese cultural reverence for beauty found in nature (Berrall 1966). That reverence for the elements of nature shown within the relocation camp's boundaries, sharply contrasts with the WRA's treatment of Camp Amache's environment. A United States Commission issued an explanation for the internment in 1983, stating that it had been a result of "racial prejudice, wartime hysteria, and a failure of political leadership" (Personal Justice Denied 1982). In the face of unfairly wrought hardship, continued internee creation and admiration of beauty is noteworthy.

When internees arrived to Camp Amache, it was far from inciting feelings of comfort or beauty. The ground had been scraped bare, leaving chalky dust to fill the paths and the air. Hundreds of cheaply made barracks, constructed in a single month, were the same lifeless color as the dust that soon filled them (Harvey 2004). The landscape for a new arrival was monochromatic and organized into prison blocks for which aesthetic was not a concern.

To this treeless, colorless landscape, the Japanese American internees brought their cultural value for beauty. As the internees began gardening, the barracks became places of color and life. Images 10, 11, and 12 display the visual transformation of Camp Amache.



**Image 10.** Camp Amache as it appeared in its first months. 1942. Taken by Joseph McClelland. Carousel 2, MC96, Amache Museum, Granada, Colorado. Accessed July 2010.



**Image 11.** Camp Amache after internee landscaping. c. 1943. Taken by Joseph McClelland. Carousel 1, MC63, Amache Museum, Granada, Colorado. Accessed July 2010.



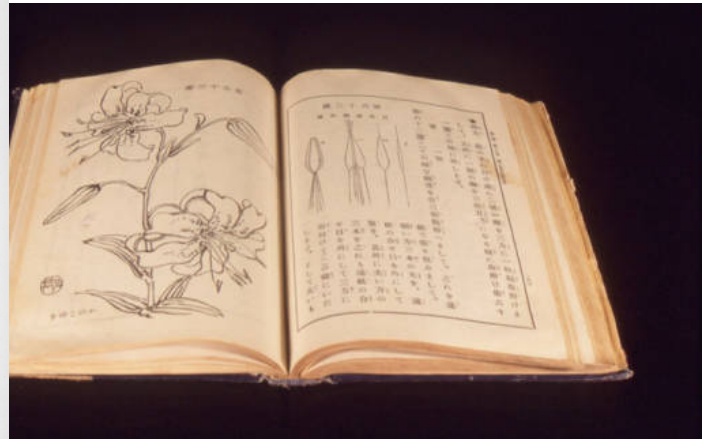
**Image 12.** Camp Amache with internee-cultivated morning glories. Taken by Joseph McClelland. Carousel 1, MC56, Amache Museum, Granada, Colorado. Accessed July 2010.

Internee value of beauty was visible on the outside of the barracks in the form of gardens and also on the inside of the barracks, in how internees spent their time together. Internees initiated an adult education program that had five broad categories of class, of which the most popular was “creative development” (Quarterly 1943). Eleven courses were offered: English, Japanese, public affairs, commercial, sewing, woodcarving, flower arrangement, flower making, music, art crafts, math, and miscellaneous (Quarterly 1943). A report on class enrollment issued in March 1943 indicated that of the 1570 adults taking these courses, a combined 32% were enrolled in flower arrangement and flower making (Quarterly 1943). That 500 adults spent their leisure time in Camp learning to create and arrange flowers speaks to the desire to learn

skills for beautifying their surroundings. Flowers, artificial and real, were particularly valued for camp funerals and celebrations (Kato 1989).

Camp Amache's artificial flower making courses and their instructor give insight into the cultural roots of beauty and artistry valued by internees. Koto Kato was 46 years old when she was interned at Camp Amache (Kato 1989). She grew up in Japan, and prior to moving to the U.S. at age 18, her schooling focused on the arts (Kato 1989). Artificial flower making was her greatest skill. After arriving in the U.S. and marrying her previously arranged husband, she spent most of her married life performing agricultural labor (Kato 1989). At Amache, Mrs. Kato used her arts education to teach flower making for the three years she lived there. In her oral history, she recalled an artificial flower exhibition on a snowy winter day, which over 300 people attended (Kato 1989).

Outside of teaching in Camp, Mrs. Kato spent much of her time making wreaths for grieving families in Amache. Her husband used sagebrush to make a base for the wreaths and she decorated them (Kato 1989). The resourceful nature of Mrs. Kato's artistic works in camp is evident in the way she spoke about her material sources. Beyond using sagebrush for wreaths, a plant ubiquitous in the landscape around camp, Mrs. Kato's most well-documented project at Amache was also made from scavenged materials. The project, that she called a "tiger craft," was constructed from unused building materials her husband gathered from the camp and yarn that Kato dyed herself. A photo of the tiger craft is in the University of California digital archives along with photographs of Mrs. Kato's art-related tools and the book on flower making she brought with her from Japan.



**Images 13 and 14.** Kotono Kato's tiger craft and artificial flower making book from Japan (See Kotono Kato in References for image sources).

Mrs. Kato is only one of many internees who had artistic training and highly valued art. Mrs. Ninomiya, whose first name is undisclosed, had learned the art of *bon-kei*, miniature landscape creation, in Japan and taught the skill to many internees (Eaton 1952). The sand that invaded her life at Amache also was her raw material for *bon-kei* (Eaton 1952). Her first camp creation rested in a tray re-made from a vegetable crate and after internees saw her skill, more than 90 pupils requested her guidance to learn *bon-kei* (Eaton 1952). A folk art expert who set out to document the prolific artistry in relocation camps remarked that "here...in a War Relocation Center, was shown probably the most extensive display of *bon-kei* ever seen in the Western world" (Eaton, 1952, 16).

Photographs of woodcarving, painting and other creative endeavors in camp, even of how internees remade the inside of their barracks is evidence of their cultural and aesthetic values. This documented focus on artistic expression among Japanese Americans, even during internment, is evidence to the role beauty had in shaping camp activities.

### ***The beauty of demonstration***

Internees cultivated Camp Amache's gardens for many different reasons. At their simplest, they provided fresh vegetables that were lacking in the internees' diets and provided green in a dusty, brown landscape. To descend further into the motivations of internee gardeners is to see that the gardens are a product of complex cultural, situational, and personal factors. In the March 1944 elementary school newspaper issue, one teacher described a discussion in her classroom. She wrote: "We know it is not especially beautiful here and not as comfortable as it might be so we want to make up for all that by acting especially nice. We want everyone to have a good opinion of the Japanese American children and they will if we live up to all these rules." By beautifying the Camp's harsh landscape, internees acted on their cultural impulse to add beauty where none was evident. They also demonstrated that the landscape they had been forcibly relocated to was undesirable and that they had the knowledge and determination to change it.

Camp Amache's gardens are an almost flawless metaphor for the reaction of Japanese immigrants to American life. J. Ralph McFarling, a WRA community analyst,

wrote in a memo on December 20, 1944, less than a year before the camps would close, about how Japanese Americans perceived their situation. Upon immigrating, he explained, the Japanese understood industry and frugality to be highly praised American values (McFarling 1944). Since those values were already present in Japanese culture, the Japanese practiced them religiously in order to gain acceptance in their new country and also become financially stable. McFarling wrote that Japanese expected “American people will be proud of us, they will point to us and say, ‘see what fine people these are, they are truly Americans’” (McFarling 1944). The Japanese were very strict about their children’s behavior and school achievements, wanting in every way to be good citizens of their new communities. Instead, they found Americans unwilling to offer their new neighbors social equality and instead of admiring, resented their economic advancement. In the first half of the twentieth century, both political and social racial prejudice against Japanese Americans was forcefully present.

“It was only left to them to accept the fact of rejection on a racial basis and to continue in competition with the Caucasian population on an economic basis; a sort of economic armed truce which they felt the Caucasian population won due to the intervention of the government at the time of evacuation.” (McFarling 1944)

This view makes it possible to see continued garden cultivation and expression of cultural values within internment camps an impressive exhibition of persistence. Evidence of internee gardening for the purposes of demonstration and beauty is an important context to build around the soil analysis in Chapter Three. Internee gardening efforts are still visible today in the chemical imprint of their practices of beautifying and

demonstrating on the soil. The significance of the imprint is more fully understood when paired with these archived materials.

## Conclusion

A person walking down a row of barracks in October 1942 would have seen brown buildings, bare soil, and likely would've returned from their walk covered in dust. By contrast, a first grade student wrote of a class field trip around the Camp in April 1944: "One day we went for a walk to see green things growing. We saw green grass, some trees with tiny green leaves, and some rows of flowers" (Junior 1944).



**Images 15 and 16.** Building before and after internee landscaping. Taken by Joseph McClelland. Carousel 1, MC 07-08, Amache Museum, Granada, Colorado. Accessed July 2010.

In the above photographs, the physical transformation gardeners brought to camp aesthetics is clear. Not only did they add plant life and color, their trees added shade, a needed respite from the harsh sun in the steppe. Today, the only aboveground remnants of internee gardens are the trees. With the soil chemistry analysis presented in Chapter Three, we can say that remnants of the garden still exist belowground as well. Archival evidence presented in Chapter Four supports the assertions that internee gardens were an expression of cultural values and a passive resistance of unfair treatment by American government.



**Image 17.** Archeology crew rests in shade of remnant Chinese Elm planted by internees in Camp Amache. Taken by Emily Eggleston. July 2010.

The physical and chemical changes wrought by internees on Camp Amache's soil held great significance for them and still hold great significance in telling the story of Japanese American internment.

As important as the Camp's environmental transformation was for individual internees, perhaps its most striking effect is seen in how other people viewed internees, particularly the director of Camp Amache. Camp Director James G. Lindley began his WRA position in 1942. In May of 1943, he delivered a speech to internees, instructing them on good behavior in Camp and urging them to forget their self-pity and "Be Americans!" (Lindley 1943). By the time he wrote his final report, the transformation in

Mr. Lindley's opinion of internees was more marked even than the color and life Japanese American gardens brought to their dusty, ugly prison. He wrote:

"A paragraph is necessary to express my feeling toward the evacuees. I have a lasting and deep regard for them. It is hard for one to visualize any other group of people who would be so well behaved under similar conditions. In close contact with them over three years I can only admire their cheerful acceptance of unfair treatment; their overcoming of fear, resentment, and frustration; their willingness to give their time and effort to make various phases of the WRA program work...They are people, even as you and I. Capable of assimilation into our western civilization they bring to it a love of beauty, a time factor for which we westerns are in danger of ignoring, a recognition of the need of courtesy and politeness in our everyday dealings" (Lindley 1945).

Internees brought beauty to camp with their gardens, and in doing so, respect to themselves.

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## Appendix – Soil Sampling Method

### Sampling Horizontal Contexts

Two soil samples from each unit should be taken as each new context begins. The samples should be collected from the predetermined opposing corners of the unit, diagrammed on page 3.

1. Fill out the label on the cloth bag. Write the date and sample bag number at the very top of the label. Samples taken from 12K VG2 (Victory garden 2) should begin numbering samples at 100 and 7G WY (entryway) should start at 200. An example label for each site is shown below:

**7/Day/10                      #100**  
 Company EMS + EE  
 Lease Name AMH 12K VG2  
 Well No. 12K 007 NE  
 Sec \_\_\_\_\_ Twp \_\_\_\_\_ Rge \_\_\_\_\_  
 Depth \_\_\_\_\_ to \_\_\_\_\_  
**1001N/996E**

Besides Date and Sample #, the only changes from label to label are Well No. and the unit identification at the bottom of the label:

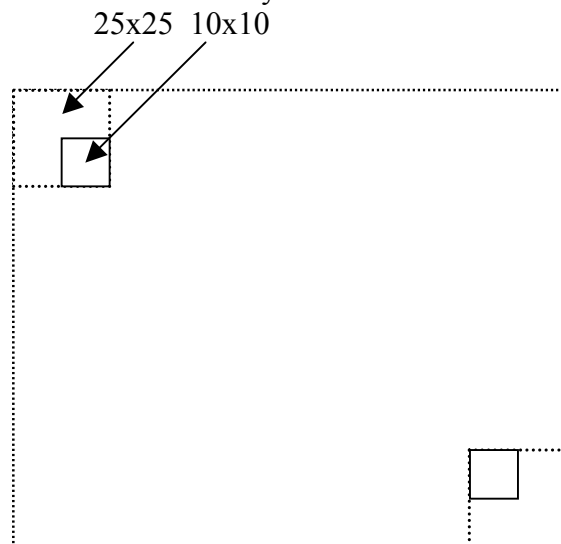
**7/Day/10                      #200**  
 Company EMS + EE  
 Lease Name AMH 7G WY  
 Well No. 7G 007 NE  
 Sec \_\_\_\_\_ Twp \_\_\_\_\_ Rge \_\_\_\_\_  
 Depth \_\_\_\_\_ to \_\_\_\_\_  
**2001N/2001E**

Well No: [Block] [Context Layer] [Corner Direction]

Make sure to note from which corner of the unit the soil sample is extracted (NW, NE, SW or SE).

Remember to identify your unit at the bottom of each label.

2. To take the sample, measure 25 cm from the edge of the selected corner. Then, make a 10x10 cm box with the corner of the square closest to the center of your unit aligned with the 25 cm measurements. Make sure to brush any soil or debris from the previous context away from the surface of the 10x10 square.



After you have delineated the 10x10 square, scrape out the soil within to a depth of 3 cm. Place that soil in your bag and loop tie the strings around the top of the bag to prevent spillage.

\*\*If a feature is present in the usual sampling space, offset the 10x10 square. Try to remain in the vicinity of the usual place.

3. Lay sample bags out to air dry in a protected and aerated spot.

### Sampling Vertical Soil Profiles

After each unit has finished their excavation, soil samples should be taken from one of the exposed walls. One sample bag should be collected from each visible soil horizon (or context layer). Take a photo of the entire profile with a measuring tape in view for visual matching of horizons and their depths.

1. Fill out the cloth bag labels, you will need one bag for each horizon. Write the date and sample number at the very top of the label. Samples taken from 12K should begin numbering samples at 300 and 7G should start at 400.

**7/Day/10                      #400**

Company EMS + EE

Lease Name AMH 7G WY ← *OR AMH 12K VG2, depending on the site.*

Well No. Horizon 1 ← *Beginning at the top, number the visible horizons.*

Sec \_\_\_\_\_ Twp \_\_\_\_\_ Rge \_\_\_\_\_

Depth \_\_\_\_\_ to \_\_\_\_\_

**2001N/2001E** ← *Identify the unit.*

2. With a paper, pen and measuring tape, look at the entire visible profile of soil. Decide where there are different layers or horizons. A new horizon can vary in color, darkness, texture, moisture, compactness and more. As you determine where horizons begin and end, measure the thickness of the layer. On your paper, write down Horizon 1, 2, 3, etc. and detail the attributes of each horizon. It is especially important to record the depth of a horizon. An example description is below:

Horizon 1- Brown, sandy, moist with many roots 0-15 cm

Horizon 2 – Lighter brown, still sandy, less moisture 15-36 cm

Horizon 3 – Yellowish tan, less sandy, more silt, compact 36-49 cm

Horizon 4 - Light tan, very compact, small white flecks, 49-65 cm

3. Starting at the top, fill a different bag with soil from each horizon. First, scrape the vegetation from the top of the profile and discard it. Scoop enough soil from Horizon 1 to fill  $\frac{3}{4}$  of the sample bag, then tie the strings around the top. Try to get some soil from the entire depth of the horizon. Before filling a bag with soil from Horizon 2, remove all of Horizon 1 from the area where you are collecting the sample. Fill a bag  $\frac{3}{4}$  full with soil from Horizon 2, again making sure to collect some soil from the entire depth of the horizon. Repeat the steps until a sample has been collected from each visible horizon.
4. Lay sample bags out to air dry in a protected and aerated spot.

### Location of Horizontal Context Samples

