

Inch-by-Inch, Row-by-Row



Sacramento's Edible Schoolyards

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Inch-by-Inch, Row-by-Row:
Sacramento's Edible Schoolyards

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Abstract

This is a research project on Sacramento's edible schoolyards. The research collected for this project will include information on current groups affecting the edible schoolyard programs in the area such as Greenwise, Joint Venture, Healthcorps, The Edible Schoolyard Foundation, and Sacramento Slow Food. Case studies were performed on a select group of existing schoolyards to better understand the inner workings of edible schoolyards, how an edible schoolyard can be incorporated into existing curricula, and how edible schoolyard programs are funded. The purpose of this project is to find which similarities are most important in order to provide general guidelines for consideration to existing and future programs. Each case study is different in scale, use of curriculum, and design; however, the similarities that are shared within these case studies can hold valuable information. Sacramento Waldorf School (SWS) provides information on the importance of a farm curriculum in K through 12th grade through an interview with farm educator, Steven Payne. Farmer Steve connects farm curriculum with the children's physiological development. Grant Union High School's use of grants to sustain their edible schoolyard, and its GEO Academy, sheds light on the importance of planned funding and community involvement. Alice Birney Elementary School provides a closer look at the start-up of an edible schoolyard through the use of the garden in Mrs. Beth Lee's 3rd grade class. The Grant Union and SWS case studies were conducted as interviews, Alice Birney Elementary School is a participatory case study done by the author.

Dedication



For my son, Caelen Fox, you are my heart, my soul, my purpose, my inspiration.

Acknowledgements

This project would not have been possible without the help of the edible schoolyard community. I would like to thank Steven Payne for his assistance in understanding age appropriate curriculum and information on components necessary for a sustainable schoolyard farm. His excitement and passion was a true inspiration. Ann Marie Kennedy was instrumental for understanding the funding challenges schools might face in the creation of an edible schoolyard, and challenges school might face when creating a cross-curricular academic program. I would like to thank Mrs. Lee and her third grade class for inspiring this project; the work we have accomplished at Alice Birney has re-sparked my interest in community development and urban farming. Thank you Gerrie Robinson and Gayle Totton for your patience and guidance through this process; I needed it. Thank you my parent helpers Kim and Corina, the garden would not have been possible at Alice Birney Elementary without you.

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Introduction

The demand for edible schoolyards is increasing as many schools, along with local and national organizations, are beginning to recognize the garden as an instrumental educational tool which complements existing curricula of school-aged children. This research will look at 3 Sacramento schools; Sacramento Waldorf School (SWS), Grant Union High School, and Alice Birney Elementary, which currently have edible schoolyards, to uncover the necessary elements in creating an edible schoolyard. Each case study will include a brief history of the school, garden structure, curriculum, funding, and a closer look at the individuals involved in these edible schoolyards. This paper will also take a close look at some local businesses interested in sponsoring edible schoolyard projects. In addition, current local organizations positively influencing schools in the Sacramento area will be investigated.

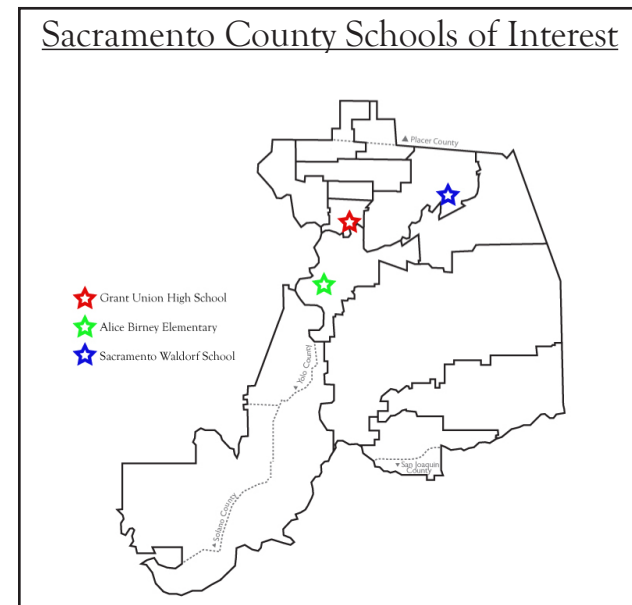


Figure 1.1

History

Agricultural practices have influenced human culture for over ten thousand years, and have often inadvertently shaped our learning process. As time has progressed, the central role of agriculture in everyday human life has decreased. In the United States, the Industrial Revolution saw many rural populations relocate to urban areas for work. As a result, the connection to the land, and to agriculture, was severed. During this time a trend of urban relocation began creating a separation between society and its agricultural past (Carter, 2009). Society began to recognize the need for deliberate reintroduction of farm-based learning, and the benefits that work, outdoor activities, and fresh air have on one's physical and mental health. This trend was further exemplified in WWI and WWII with the use of victory gardens, some of which were edible schoolyards, grown to support the war efforts and boost the country's morale (Carter, 2009). Citizens were encouraged to grow victory gardens to support the country's agricultural needs. Currently, edible schoolyards are created to enrich the curricula of school age children. In the last ten years, interest in edible schoolyards has increased eightfold across the nation. In California, edible schoolyards have increased from 40 to approximately 3000 statewide (Garden Based Nutrition Education (FSNEP), 2012).



Figure 2.1



Figure 2.2



Figure 2.3



Figure 2.4

Current Projects in Sacramento:

Sacramento is located in the Central Valley, the agricultural hub of California. To date, Sacramento County public schools have incorporated 37 gardens, different in scale and function, into their existing landscapes, some of which are ornamental, others edible. This is a current roster of Sacramento public schools that have working gardens (U.S. Green Building Council, 2012). This list does not include private schools that have gardens.

- AM Winn
- Abraham Lincoln
- Camellia
- Crocker-Riverside
- David Lubin
- Fruitridge
- Golden Empire
- Hollywood Park
- Bancroft
- Cohen
- Jed Smith
- Maple

- Oak Ridge
- Erlewine
- Phoebe Hearst
- Pony Express
- Sequoia
- Sutterville
- Tahoe
- Theodore Judah
- Washington
- Woodbine
- Alice Birney
- Caleb Greenwood

- Didion
- Leonardo Da Vinci
- Martin L King
- Fern Bacon
- Kit Carson
- Will C Wood
- Health Professions
- McClatchy
- Kennedy
- Burbank
- Rosemont
- Carver

Alice Waters, author of *The Edible Schoolyard: A Universal Idea*, includes personal testimonies about the creation of a seasonal edible schoolyard at Martin Luther King Jr. Middle School in Berkeley, California, where her season working urban farm provides food for its students through the school cafeteria (Waters, 2008). The garden also serves as an educational tool for the school's students, faculty and staff. The Alice Waters Edible Schoolyard Foundation plans on expanding this program to ten California schools (Leavenworth, 2012). The model will be much like the ed-

"We are calling for a revolution in public education, a delicious revolution. Where the hearts and minds of our children are captured by a school lunch curriculum enriched with experience in the garden, sustainability will become the lens through which they see the world."-Alice Waters

ible schoolyard program Alice Waters helped to create in Berkeley, California. Sacramento's Mayor, Kevin Johnson, is currently consulting with Alice Waters to implement a farm-to-table program in the Sacramento Unified School District. The edible schoolyard program in Sacramento will take the cooperation of many organizations, local business owners, contractors, landscape architects, designers, and project managers in order to create a program that will incorporate school-grown food into the current school lunch system.

Greenwise Joint Venture Group is responsible for managing Sacramento's Edible Schoolyard pilot program. Funding for the project came from a large donation made by an anonymous Sacramento philanthropist, who has also agreed to fund the project for one year (Leavenworth, 2012). Greenwise Joint Venture (Green-



Figure 3.1

wise) was created by Mayor Kevin Johnson in 2010 in hopes of creating a greener Sacramento; increasing community awareness, green building/design, boosting the local economy, and creating green job opportunities. The Greenwise initiative is allocating funds into grants for local schools in order to retrofit their existing school infrastructures with more sustainable green design strategies. In addition to infrastructure retrofits, Greenwise is supporting the Sacramento's ESY pilot program, and were responsible for hiring individuals to work on this project (Leavenworth, 2012).

In 2008, Greenwise, and Sacramento area schools, were awarded the Center for Green Schools Fellowship from the U.S. Green



Figure 3.2

Building Council, and are in the process of building 15 LEED certified schools, whose design will incorporate school gardens (The Center For Green Schools, 2011). Edible schoolyards both

benefit from, and are boons to such programs. The gardens foster healthy life-choices and sustainable living through educating children about fresh foods and outside work, while at the same time greening existing landscapes and creating, or supporting, local ecosystems.

The Healthcorps, a non-profit created by talk show host Dr. Oz, and his wife, Lisa Oz, is on a mission to enhance the national educational system with a mind, body, and spirit-based curriculum. This incorporates health inspired classes and edible school-



Figure 3.3

yard programs to help raise awareness and combat the increasing childhood obesity rates in this country. Healthcorps has recently opened headquarters in Sacramento, where it is currently sponsoring three local High Schools: Sacramento Charter, Luther Burbank, and Hiram Johnson. Healthcorps has successfully implemented their program in 53 High Schools across 13 States, and plans to extend the program to 100 schools across the Country (Healthcorps Hits Sacramento, 2012). In May of 2012, Healthcorps and Dr. Oz hosted the "Journey to Oz" gala at the Sacramento Memorial Auditorium, to help generate interest in their growing programs. The attendees included health-based organizations, health care professionals, along with local and national businesses, all in support of alternative learning programs that support agricultural learning and a health-based curriculum. Healthcorps' project at Hiram Johnson High School, along with

other edible schoolyard programs in the area, is getting the attention of Sacramento organizations.

In June 2012 Slow Food Sacramento, a local, seasonal food group will be hosting the Fourth Annual Urban Agriculture Fest. Slow Food was created in 1986 with 80,000 members in over 100 coun-



Figure 3.3

tries whose goal is to support local, sustainable agriculture and the biodiversity in our food system, through education and community support (Slow Food Sacramento). The Fest has invited local edible schoolyard participants to attend in order to raise awareness and funding for Sacramento garden programs and to create



Figure 3.4 Slow Food Sacramento Urban Ag.Fest,2012.

a K-12 school garden coalition. This event will include a dinner for its guests showcasing a student grown salad bar, and also guest speaker Delaine Eastin. In 1995, California State School Superintendent, Delaine Eastin, mandated “A Garden in Every School” in order to create school communities that inspired children to make healthy lifestyle and eating choices, by reconnecting them with their environment and agriculture (Garden Based Nutrition Education (FSNEP), 2012). This sweeping mandate ceased in 2007, but directly influenced many edible schoolyard projects across the State and in Sacramento. Local schools and sponsors

- Rosemont High School Green Academy - Teichert, Inc.
- O.W. Erlewine Elementary School Ecology Center- Lippe, Gaffney, Wagner LLP and Marguerite Roth
- Grant High School GEO Environmental Science and Design Academy- Art and Susan Scotland
- Luther Burbank High School- David & Maga Triche
- Alice Birney Elementary School Mennemeier - Glassman Stroud
- Sam Brannan Middle School - Kingbird Farms
- Sequoia Elementary School - David & Maxine Clark
- Theodore Judah Elementary School- Tony & Joan Stone
- Leonardo da Vinci K-8 - Porter Scott
- Fruitridge Elementary - Sponsorship Pending

Sacramento Edible Schoolyard Case Studies



Figure 4.1 Farmer Steven Payne.



Figure 4.2 GEO Mural



Figure 4.3 Fava Harvest.

Sacramento Waldorf School

Sacramento Waldorf School (SWS) was selected for this research because of its use of an on-site farm-based curriculum. SWS is located on 3750 Bannister Road, in Fair Oaks California. The school site is a 22-acre lot adjacent to the American River Parkway where it has a 3.5-acre biodynamic school farm. Started in the 1950's, and after a beginning of moving from one location to another, SWS purchased its current location overlooking the American River and San Juan Rapids in 1971 (Sacramento Waldorf School). The SWS site was the last property purchased on the American River before the river was put under protection for the existing American River Parkway recreational bike trail. The property was purchased with the intention of having a country school, where children would participate in garden education. At the time many people were interested in the 1960's ideology of coming back to the land, and a garden school would provide the



Figure 4.4 Aerial Map SWS.

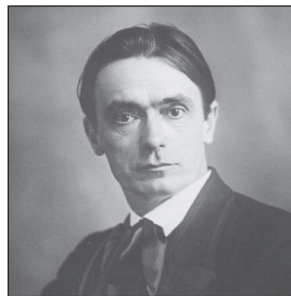


Figure 4.5 Rudolf Steiner.



Figure 4.6 SWS Farm.

atmosphere that could serve this purpose for families in the area (Payne, 2012).

The campus is mixed-use, and is home to several animals that are an important part of the farm and garden curriculum. Resident biodynamic farmer Steven Payne tends all vegetable gardens, fruit orchards, herbs, animals and native plant gardens on site. Biodynamic is a spiritual-ethical-ecological approach to agriculture, food production and nutrition created by scientist, philosopher, and educator, Rudolf Steiner (1861-1925) in Austria (Biodynamic Farming Association). In the biodynamic farm model, the farm is treated as an organism, all of its parts must be sustainable with in itself and work as a balanced ecosystem. Biodynamic farming is used in a variety of environments and is considered sustainable agriculture.

“Biodynamic was created by Rudolf Steiner in Europe. At the time a number of farmers contacted him about the state of the soils, and plant reactions to conventional agriculture, using commercial chemicals. They started to notice new challenges and asked Steiner to speak to them about those challenges in a series of 8 lectures. From the lectures grew a whole movement. Biodynamic is an idealistic approach to the soil being fertilized and sustained by its self, its “Own” self, by everything below and above its location. So you almost always have to have an animal component, and certainly a diversity of plants. Crop rotations and human components help to make it all happen (Payne, 2012) (Sacramento Waldorf School).”

Payne began working at Sacramento Waldorf School in 2001 after many years of working in agriculture and farming. Steven Payne graduated from Central Connecticut State University with a B.S. in Business Marketing but found his passion working as a farmer in Sonora California where he worked in organic farming and as a market garden business owner for over ten years. Currently, Steven Payne lives on the SWS campus with his wife and two daughters, where he manages the farm.

In this model of garden curriculum grades K through 10 participate in farm work. For the first three years of elementary school the garden, is used as a tool for discovery and investigation. The children take tours of the garden and familiarize themselves with their surroundings. During the 3rd grade the children begin working with items from the garden to do hand work and crafts. For the hour it took to prepare a homeopathic treatment for the farm, Farmer Steve explained to me the Waldorf curriculum in an informational interview.

(See appendix)

Farmer Steve explains to the older classes that the importance of the class is to just “work”. In the process of working, the students



Figure 4.7



Figure 4.8 Greenhouse



Figure 4.8 C.S.A Farm SWS



Figure 4.10
Agricultural
Homeopathy.



Figure 4.11 Farmer Steve

connect themselves as a group, which is all leadership training for what is to come in the future. If children learn the importance of work early, and build early leadership skills, it can help them to be more successful cooperative workers and leaders in the future. Seeing a job through and having pride in your work also helps teach work ethic and accountability. In the high school years students begin receiving grades in the garden work. Prior to high school there is no grading only written observations of the student's experience (Payne, 2012).

The farm houses many animal that the farmer, along with the students, care for. A lot of work goes into building compost piles, which are comprised of manure, straw and greens, this helps sustain and build the soil's fertility. A significant portion of the yearly funding goes toward the care of its animals. SWS farm is funded privately by the school in the amount of \$14,000 per year in order to maintain the animals on the farm and keep the grounds in working order (Payne, 2012). SWS is a bag-lunch school and does not use what is grown in the farm for school lunches. The students do enjoy what is grown in the garden and Farmer Steve

chooses the vegetable palette each year by what is growing best and what can be sold to sustain the farm. Organic farming and local foods have been gaining popularity in the area, and because of this SWS has been able to break even on their farm overhead by holding a weekly farmer's market, supplying produce to local seasonal restaurants, and running a 12 member summer C.S.A (Community Supported Agriculture).



Figure 4.12 Fava crop



Figure 4.13 Student bench



Figure 4.14

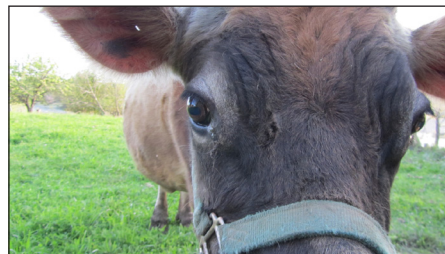


Figure 4.15 School cow



Figure 4.16 SWS Compost Pile

Grant Union High School

Grant Union High School was opened in 1932 on 1400 Grand avenue in North Sacramento. The high school is composed of 2200 students, 100 teachers, and support staff with diverse cultural and ethnic backgrounds (Grant Union High School). Similar to the challenged neighborhoods surrounding Grant, the school grounds are in disrepair with the exception of a small area of the west campus dedicated to its edible schoolyard. Ann Marie Kennedy started Grant Union's student and faculty run edible schoolyard over twelve years ago. At the time Kennedy was working on Grant Union's small garden as a community project for the University of California at Davis as an International Agriculture Development Research Assistantship. After finishing her Master's degree at U.C. Davis, Kennedy decided to pursue her teaching career and returned to Grant Union, where for the last seven years she has been transforming the once small garden into a more holistic garden curriculum (Kennedy, 2012).

Today, Grant Union's school garden has grown to incorporate a working garden and environmental education program called the GEO Environmental Science and Design Academy. Grant Union students choose to participate in the GEO Academy in the ninth grade taking all required course work with other students in the program. The GEO Academy also has its own teaching kitchen used by its students and outside organizations. The GEO Academy has approximately 150 students and six teachers, three of which are strictly GEO instructors. Grant Union alumni and U.C. graduates are often hired to work in the garden and to run classes in the school's teaching kitchen. The edible schoolyard at Grant Union has transformed into a living lab for its GEO Academy participants; first starting as a group of elective classes and later growing into the academy it is today (Kennedy, 2012).

Currently the edible schoolyard at Grant Union covers less than 2 acres of land with educational signage, native gardens, composting, outdoor classrooms and a student built hoop house (greenhouse). It requires full student participation to keep the garden



Figure 5.1 Grant Union High



Figure 5.2 GEO Garden



Figure 5.3 GEO Garden

running. Tending the beds, testing soil, earthworm sampling, soil ecology, propagation and plant anatomy, are all included in the curriculum and all are college preparatory courses. During its days as an after school program the student-designed garden consisted of 10 ground level vegetable beds. Today the garden has grown significantly, consisting of cinder block lined rows, shade structures, murals, and more. This edible schoolyard has a designated area for vegetables used in the teaching kitchen, which include, but are not limited to, tomatoes, peppers, eggplant, lettuce, broccoli, carrots, chard, fava beans, spinach, herbs, and soil fixing plants which help improve soil structure. Having the intention of cooking what you grow can be a positive addition to supporting children's good eating habits. Four student teams maintain the garden, choose the plant palette, and tend beds for the year. The majority of the plants for the GEO Academy are propagated in the student hoop house. At times the school buys adult plants, which the students take grafts of for future propagation (Kennedy, 2012).

Ann Marie Kennedy admits that incorporating agricultural stud-

ies into the standard curriculum can be difficult; she remedies this by including books that are cross-curricular such as Omnivores' Dilemma, by Michael Pollen and Carbon Diaries, by Saci Lloyd. Kennedy is an environmental science teacher with classes focusing on food systems, environmental horticulture, plants, and soil sciences. Her students are primarily in the 10th grade, but Kennedy also teaches agricultural science to the Seniors of Grant Union. In addition to the environmental sciences, Grant Union has also incorporated environmental design/drafting classes taught by Daniela Tavares, U.C. Davis Landscape Architecture graduate later getting her Masters at U.C. Berkeley. These classes focus on greening the school grounds with student run projects, including an outdoor straw bale classroom project with shade-sails as part of a design class funded by the Grant Advisory Board for Youth (GABY) grant (Sacramento Region Community Foundation). The GEO Academy landscape architecture classes are also responsible for creating a native plant garden with educational signage highlighting animals and plants in the area. The Academy is currently designing an additional native garden on the campus for educational purposes.



Figure 5.4 Hoop-house



Figure 5.3



Figure 5.3 Native Plant Garden

Kennedy is a strong supporter of incorporating a community element into the school garden. Grant Union’s student garden includes a community garden area, donated to women participants in the local government program for women, infants, and children “W.I.C”. Garden space for adults can promote community relationships for the children through interaction with the adult garden participants, and provides a space for the community to grow food and support healthy eating choices. The neighboring communities have a huge need for a garden space in the area. Kennedy has experienced tremendous support from the community garden participants who help tend for the student gardens during the weekends and breaks; weeding, harvesting, watering, and this active participation helps prevent would-be vandalism of the school garden. The community participants have become the GEO garden’s biggest advocates. Since maintenance is one of the school’s largest challenges, their participation is greatly appreciated. Kennedy encourages schools considering creating an edible schoolyard to start small and include an adult garden area. Including this community aspect to the garden design can help make the garden more sustainable over time and may open doors

for grants to fund the garden that the school might not otherwise be considered for. According to Kennedy most gardens fail because of limited parental support over time, and a lack of funding; adding a community garden may help school gardens to prevent this trend (Kennedy, 2012).

The GEO Academy’s school garden is funded primarily by the Department of Education with a grant in the amount of \$7,500 for general maintenance. Kennedy believes that it would take at least \$20,000 per year to effectively manage a school garden with general maintenance and a garden coordinator. The teaching kitchen was created with a \$65,000 grant from The Kaiser Foundation, and is used by many area head-start programs and in the school’s health education cooking classes. Grants from the USDA have funded the kitchen program for the past three years. A United Way grant will fund the teaching kitchen for the next four years, but to sustain the kitchen the Academy will have to apply for grants continuously, because it can be difficult to find long term funding, and the school district does not currently fund the GEO Academy kitchen classes. Kennedy is responsible for the majority



Figure 5.6 Community Garden



Figure 5.7 L.D.A Plant Stakes



Figure 5.8 Teaching Kitchen

of the grant writing for the GEO program, with the exception of the cooking kitchen grant, which was written in partnership with the Health Education Council. The Sacramento Tree Foundation has also assisted through partnering with Kennedy for other applicable school grants. The Sacramento Area Regional Community Foundation annually awards the “GABY” grant to area schools (Sacramento Region Community Foundation). Multiple GABY grants have been awarded to Grant Union, helping to build native gardens, outdoor classrooms, and illustrative murals. Recently Grant Union has applied for an Urban Greening grant, supplied by the Department of Natural Resources, to help beautify their campus, they are awaiting response (Kennedy, 2012).

March 17, 2012, Kennedy received the Leavey Award for excellence in Private Enterprise Education for her student-run business program, “E.A.T. from the Garden.” Seniors in the GEO Academy are included, start to finish, in the process of running the business, which entails producing jarred salsas made from garden ingredients and bringing the product to the general public in local markets, grocery stores, and student-run community events.

Seniors in the GEO Academy are included in the start to finish process of running this business, also participating in bringing the product to the general public in local markets, grocery stores, and student-run community events. Kennedy was one of 15 teachers across the United States to receive this award. In addition to this honor, the recipients were awarded \$7,500 for their respective programs. (Grant Union High School).



Figure 5.9 Decorative Signage



Figure 5.10 Worm Compost



Figure 5.11 L.D.A. Studio



Figure 5.12 Student/Kitchen Garden

Alice Birney Elementary School

In 1997, John Morris Elementary and Rudolf Steiner College jointly applied for a grant provided by the Center for Eco-Literacy, supporters of “A Garden in Every School,” to create a school garden at John Morris Waldorf inspired Magnet School, in Sacramento, California (Ranney, 1998). The grant was awarded in the amount of \$300 to create an outdoor garden, and classroom, that enhanced the Waldorf based curriculum of this public school. Project designer, and garden educator, Nancy Ranney, created John Morris’ first school garden. She then documented her successes, and the apparent benefits of the school garden for its students and the school’s neighbors. According to Ranney’s

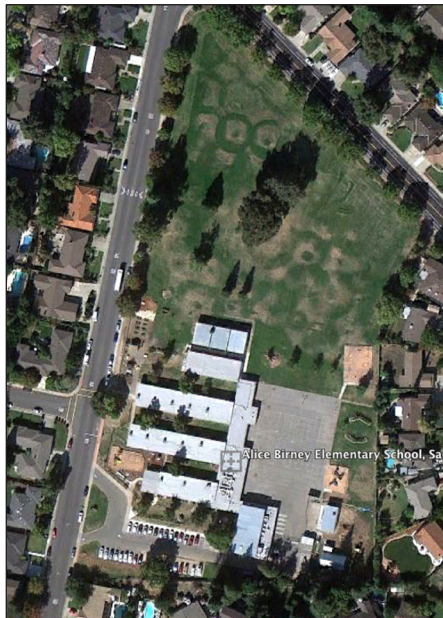


Figure 6.1 Alice Birney Elementary

experience, the garden educational atmosphere beautified the neighborhood, created relationships between faculty, parents, and students, created environmental awareness, and improved academic and artistic growth. This experience holds true for the school’s new campus and garden, where the importance of garden education continues.

In 2009, John Morris relocated to Alice Birney Elementary. Alice Birney Waldorf Methods Magnet Elementary is located on 13th Avenue in South Sacramento. Alice Birney Elementary School’s campus sits on 14 acres of land in the South Land Park suburb of Sacramento. The land has a large number of mature trees but lacks the gardens and outdoor classrooms John Morris offered its students. The faculty, students, and parents, at what is now Alice Birney Elementary, are dedicated to recreating a new and improved landscape that mimics what they left behind at John Morris. One of these parents, Peter Quady, also known as “Q”, is a licensed landscape architect and has volunteered his services to create a master plan that fosters the school’s garden needs. In addition to designs offered by “Q” other parents and teachers have made efforts to write grants creating revenue for campus renovations. One such grant was awarded by the U.S. Dept. of Fish and Wildlife in the amount of \$5,600 to design and build a native pollinator hedgerow around the perimeter of the campus. An additional grant, in the amount of \$1,000, was awarded to the school to build and improve an educational garden for the 3rd grade classes as a part of the school’s curriculum. In addition to

grants, individual classes have ongoing fundraising for the class fund, which is also used to build the garden. The school applied for the ESY pilot program and is awaiting response.

During the summer months of 2011, Tiffanie Simpson, “Q”, and parent and student volunteers participated in taking a visual analysis of the campus and discussing possibilities for the new garden area. In the previous year, the garden was built in an area unsuitable for growing, and failed to accomplish what all had hoped for. The pre-existing beds were located in an area that was heavily waterlogged for most of the year, due to the location of the school’s irrigation. To the 3rd grade’s dismay, the garden did not grow. During the visual analysis it was decided that the location adjacent to the existing garden would better serve the school as a permanent garden area. In late August the work began to create an eight-bed garden with an outdoor classroom on approximately ½-acre of the school grounds. Parent and student volunteers began removing turf, leveling soil, and installing bender board around the perimeter of the garden; raised beds were built, and fertile soil was trucked in to fill the new garden beds.

The majority of this research follows Mrs. Lee’s class during the 2011-2012 school year. In Mrs. Lee’s class the garden lessons take place between 10am-12pm every Tuesday and Thursday. Mrs. Lee incorporates the garden into what she calls the “psycho-socio” aspect of the 3rd grade curriculum. The 3rd grade’s studies focus on cultures and farming around the world. The idea behind the “psycho-socio” studies is that the children learn how to be self-sufficient by building living structures, and learning how to grow and cook their own food.

On any given day of the week students, parents, and volunteers work to enjoy this garden area. The children return from recess where they then sit in a tree stump circle under a Sweet Gum tree outside their classroom. After they have finished putting on their work boots, Mrs. Lee instructs the students to recite a verse they will repeat at the beginning of each garden class for the remainder of the year. The voices of 30 nine-year-old children begins,



Figure 6.2 Moving Soil



Figure 6.3 Third Grade Garden



Figure 6.4 Fertile soil

*“This is the land, on which I stand,
So straight, and tall, and proud.
This is the land, that treats us well,
May my work be at its command.”*

During the fall months of 2011 the students began their garden classes. Although volunteers had completed a tremendous amount of work during the summer, the garden still required more to get it in working order. This presented the opportunity to teach the children proper and safe use of tools and garden equipment. In addition to filling the beds, they began weeding, and leveling grade in order to fill the existing landscape with woodchips in what would otherwise be a dirt plot. Cover crops were then introduced to the garden and added to the curriculum by giving the children an explanation about the nitrogen process and the importance of using crops to sustain the health of the soil during

the cold season. Fava, buckwheat, winter wheat, and native flowers were planted in existing concrete beds that were filled with sub-standard growing soil. Combinations of fall and winter crops were planted in the new garden planter boxes and within weeks were ready for harvesting. Cover-crops and grains were planted in the garden to connect the student’s core studies about agriculture practices around the world in their garden work.

In addition to the plants grown outside the classroom, I incorporated individual indoor terrarium greenhouses to prorogate future plants. From the beginning I also asked the class to keep an illustrative journal for their garden lessons. In every garden class one child was chosen to artistically document what they had experienced during that day. In the first weeks of the garden I approached biodynamic farmer, Gabrielle Dietrich, and asked if she would come to Alice Birney to teach the class about the function and importance of composting. The children were instructed on how to identify harmful weeds, what elements make successful and healthy compost, and how to know when the compost is ready to use. Since then the children have vigilantly composted and



Figure 6.5 Sweet Gum Tree



Figure 6.6 Preparation For Mulch



Figure 6.7 Mulching

have even instructed others on what they are doing; i.e. parents and other students.

It became apparent in the beginning of teaching the garden class that the students were more likely to correctly complete the work given to them if they had a more complex understanding of “why” they were doing the task at hand. While I began the garden class with no understanding of how to teach a class, I quickly learned that structure was of absolute importance if I wanted the students to learn as they gardened.

During the fall months I gained clarity of what was necessary for the garden time to be a successful learning environment. It became my goal to create an experience for the children that empowered their critical thinking; it was important that they ended their 3rd grade year with the knowledge necessary to create their own gardens and give them adequate care. Every day the children began with their verse followed by an instructional and educational tour of the garden. In the fall and early winter much of this was having the students take analysis of their surroundings. As the

months progressed I began incorporating more horticultural and science aspects to the class. A great deal of time was spent talking about soil science, plant science, and learning the basics of plant families and the qualities they share.

Soon the class was able to harvest some of the vegetables planted, at which point, when possible, the children prepared meals for their harvesters. Other times the students took home their bounty to share with their families. The class made weekly salads and meals with the vegetables they had harvested. Their interest in different vegetables increased as the year progressed. The parents were grateful for the garden experience and were continuously amazed their children had begun eating vegetables they would not touch at home.



Figure 6.9 Art Journaling



Figure 6.10 Compost Lecture



Figure 6.11 Grading



Figure 6.12 Terrariums



Figure 6.13 Barrel Compost

Some plants were started indoors; others in the beds, and some were purchased. As the seasons changed so did the plant palette some of which were the following: potatoes, leafy greens i.e.: lettuce, chard, kale, arugula, spinach, and mustard, cabbage, broccoli, cauliflower, celery, radish, carrots, beets, fava beans, and peas. In winter many of the same plants continued growing and some started self-sowing for spring. Winter work consisted mainly of maintenance and indoor propagation. Towards the end of winter the students began reworking the soil and planting spring and summer crops. Spring and summer crops consisted of the following: tomatoes, peppers, carrots, many varieties of squash, beets, leafy greens, strawberries, blueberries, calendula flowers, lavender, sunflowers, fava beans, radicchio, herbs, pumpkins, corn, winter squash, and beans. Planting the Native American trinity garden, corn, beans and squash, created an opportunity to discuss the relationship between plants and the native history of the United States- again connecting the students to their humanities curriculum.

I found through my experience that the class was excited and en-

gaged by using body parts to measure distance and depth, often using all of their senses to describe what they were experiencing in the garden. They began to understand the symbiotic relationship between plants, animals, insects, and themselves. In the indoor terrariums the children could observe the stages of plant life and in the garden they experienced the death of plants and life cycles of others. The children began to inquire about the charts, Latin names, growing areas on the back of the seed packet, and began to ask the question “why,” which allowed for numerous conversations about geography, geology, science, math, humanities, history, community, ecology, reading, writing, art, and language. Many of the students brought their lessons home by creating their own back-yard gardens. All of them are convinced they have what it takes to create and give adequate care to their own gardens.

The garden is sometimes quiet; other times there is singing and laughter. Sometimes the garden is joyous, while other times chaotic. There are often moments of conflict between children, and opportunities for growth and healing can happen organically, challenging the volunteers and garden educators to help guide



Figure 6.13 Winter Beds



Figure 6.14 Students



Figure 6.15



Figure 6.16



Figure 6.17

the students in creating better relationships and communication. The use of hard work can sometimes help the students release aggressions and get out hyper energy while doing aerobic exercise. The class is successfully building a relationship, appreciation, and sense of pride for their garden, and, hopefully, their environment. Every experience in the garden has been beneficial to creating an exciting learning environment for the students and adults.

When the day's work ends the students, volunteers and teachers gather again around the tree in a stump circle. Mrs. Lee leads the class in their closing verse. After almost a year of reciting an entry and exit verse for their garden work they are beginning to understand the importance and relationship the words they speak have with the work they have been doing in their seasonal, educational, edible school garden.

*“Put your head down in peace,
Put your hands down in peace,
Put your feet down in peace,
Now your head is peace,
Now your hands are peace,
Now your feet are peace,
There is peace all around,
Peace, Peace, Peace.”*



Figure 6.18 Illustrative Journal Entry



Figure 6.19 Making Salad



Figure 6.20 Trinity Garden



Figure 6.21 Building Tomato Cage

Analysis

Sacramento Waldorf School farm requires the constant care of an on-site farmer. The program is privately funded and supported by parents who believe the garden is instrumental in their children's curricula and spiritual development. A community supported agriculture (C.S.A.) model is used successfully to subsidize the farm budget, however this farm is supported by the school regardless of profit earned. SWS is committed to the farm as part of its role in providing an element for a country school. The farm design is successful in providing the space and resources for this education. The garden design was intended to provide a country school appeal. This design is successful in what it was intended to provide.

Grant Union High's school grounds are in extreme disrepair. The small area dedicated to the GEO Academy garden is a small and life lab for its students. The grounds attract local wildlife, and create ecosystem for its students to study. The use of the community garden is a unique addition from which those considering ESY can learn. Students participating in GEO are involved in all aspects of the garden and garden design. The teaching kitchen provides an environment where children can eat what they have grown and supports healthy diet and lifestyle choices. The garden has become a specialized learning program for the school, attracting recognition and support from U.C. Alumni, and former Grant Union students. Funding for the GEO Academy program requires constant efforts primarily by Ann Marie Kennedy. As the garden does not receive full support from the school community, its staff is tasked with obtaining funds to keep their project running. If Kennedy were to leave the program it may suffer tremendously.

Alice Birney Elementary school is just beginning their new third grade garden. The funding for the creation of this garden was made possible by dedicated parents and teacher, and through small grants. Every year this garden is maintained by a new group of third grade parents. Each new group decides what they want the garden to become and how to use the garden for an educational tool. The Alice Birney garden would benefit by having a garden community to oversee the garden from year-to-year to insure continuity in regard to maintenance. In June 2012, Alice Birney was awarded \$350,000 towards the school's infrastructure. Many parents support a larger school farm similar to SWS. Since the money allocated includes irrigation and regrading of campus areas, it would be wise for the school to make a decision regarding a larger farm so they can plan efficient use of these available funds.

Supporting Agencies

- * Dept. of Fish and Wildlife
- * Center for Eco-Literacy
- * SACOG
- * Sacramento Tree Foundation
- * Sacramento Region Community Foundation "GABY"
- * United Way
- * USDA
- * The Kaiser Foundation
- * Home Depot
- * Lowes
- * Department of Education
- * U.S. Green Building Council
- * Dept. of Natural Resources
- * Heathcorps
- * Sacramento Slow Food
- * Greenwise Joint Venture
- * Local Businesses
- * Captial Nursery
- * Trader Joes

Synopsis and Guidelines for Consideration

Funding:

- * Funding can be the biggest challenge for schools considering edible schoolyards.
- * If a design incorporates elements that benefit the community, environment, and/or ecosystems, the school might be considered for grants it would not otherwise be considered for.
- * If your school is considering a large project it may be beneficial to create partnerships with outside organizations for the grant writing process.
- * Create a weekly farm stand. Parents will often buy what their children have grown or created in the garden.
- * Local businesses are often happy to donate and give discounts to edible schoolyard programs; ask for help.
- * xIf you have the participation necessary, your school's edible schoolyard can run as a seasonal CSA to fund the program.

Participation:

- * Any size garden requires constant participation.
- * Projects need care and maintenance; organization and scheduling of participation is a must, without this, the project will fail.
- * It's important to remember there should be one volunteer, teacher, or parent to every six children, ten at the very most. Large groups of children are hard to handle. Furthermore, frustration and poor organization can hinder the productivity of garden activities.
- * Involve local businesses. Often local businesses are happy to provide plants and garden tools at a discount, and sometime for no cost at all.

Garden Model:

- * In order to design a successful garden you must decide what purpose your respective garden serves.
- * Large gardens that incorporate animal husbandry may require specific permits and live-in help.
- * Gardens that support specialized school programs such as the GEO Academy require a project coordinator that is willing to facilitate constant investigation of annual funding in order to keep a program running.
- * Start small. Smaller gardens may be able to function with only dedicated school staff and parents, but will require fundraising and district approval.
- * Consider adding a community aspect to a garden of any size, your area and social demographic may have a need for garden landscapes and learning.

Curriculum:

- * Curriculum is relative; each school can choose what level of curriculum works best for them.
- * The goal of any garden curriculum is to use the garden as a tool to connect its students to their environments.
- * The garden can enhance a variety of subjects.
- * Public schools hoping to include a garden curriculum in their current program are required to maintain school district curricular standards. Finding a way to integrate the two may take

parental and administrative support, dedication and planning.

- * If the garden depends on volunteer instructors it is not necessary the volunteer be a gardener.
- * It's important to step back and find a way to relate the garden to what you know best; make the garden work for you and the students.
- * Ask questions and find answers. You are creating future adults.

Maintenance:

- * Weeding is the biggest aspect of garden maintenance; there is no escape!
- * Periodically, structures (benches, garden boxes) mulch, compost, and soil will all need periodic rebuilding.
- * If your garden does not have a built-in irrigation system, daily hand watering is required. A regulated drip irrigation system is the most efficient watering solution for most edible schoolyards.
- * If animals are present on your site they will also need year-round daily care.
- * Use your waste and compost! It directly connects the children to the earth, sciences, and to their waste.
- * Worm composting and bin composting are manageable for small children; older children are able to maintain compost piles.

Conclusion

Interest in edible schoolyards is on the rise in Sacramento. Local communities and corporations are beginning to acknowledge the edible schoolyard trend, and are working to provide more schools with the resources necessary to create environments for garden learning. Without private or public funding many schools require constant searches for new resources, donations, and grants to sustain the maintenance and participation necessary for an edible schoolyard to succeed. As outlined in the case studies, continual community support for these programs can help future programs thrive. Schoolyard garden projects depend on volunteers from the educational sphere along with parents, businesses, and the wider community in order to survive. With this support, the edible schoolyard can be an instrumental tool in providing an enriched curriculum and educational environment for all school-aged children.



Figure 7.1



Figure 7.2



Figure 7.3

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Appendix:
Interview with SWS Farmer Steven Payne
Farm curricula:

“With the Waldorf curriculum 1-12th and certainly 1-8th there has almost been a passing down of what Rudolf Steiner indicated to be very important for what years and what span development the child is in, but there was no curriculum for the garden. In the first schools there were indications that the place was beautiful and that the kids were out helping to maintain the grounds but there were was no garden curriculum “this is what you do now”. But we see here that this farm is such a supportive aspect to all they are learning that depending on where they are, what class, and what grade; what they are studying that year the farm can be a place that they come out, and what they have been studying in their head can come alive on the farm. We try to support where they are by having that hands-on experience.”

“In 4th grade we have them work with animal husbandry the entire year. It’s not the only thing we do but it is the main avenue of engagement. They are broken up into groups once a week. They are cleaning up pens, brushing cows, cracking grains for the chickens, and doing all sorts of animal husbandry jobs. We also connect with some of their California studies and pioneer history with craftwork that we do with living, natural products here on

the farm. It’s also a year in learning about the animals that they are learning about themselves, and how different they are from the animals. What does it mean to be human? A great deal of time whether it is animal husbandry or we’ve collected a whole other set of jobs, is that we break them up into teams. Working with each other becomes a big lesson about cooperation, about being helpful, and inclusion, all these things that make us different than animals. Most of all how do we better ourselves from week to week, how do we look at our world, and how do we then improve our world. That makes us entirely different from the animal because we have the power to learn and improve. We can look back and consider our friends and the animals because we can consider both, and see “how can I do that better?” It goes beyond the study of animals and becomes the study of man.”

“In 5th grade they start botany. The students do 90% of our greenhouse seed stock. They not only get a feel for the soft loose soil but the different types of seeds, germination, true leaves, monocot and dicot leaves. They learn how to start determining growth habits. As a part of studying botany they care for the herb garden. In car-

ing for the herb garden, they learn the plants as well as the uses and properties of the herbs. We make tea once a week. Making tea and sharing tea allows them to learn and appreciate what the herbs are good for. We use herbs in crafts by making infused vinegars, balms, salves, at some point during the year.”

“Everything changes in 6th grade. Prior to 6th grade we try to keep light hearted in the curriculum because it’s really about discovering, and the space, and connecting to the outdoors. In the younger years just exploring and discovering is a big part of what we do. In 6th grade they are now in a whole new body type. They are developing muscle tone; they are getting heavy in the bones, now they are ready and needing work. It becomes a work driven and work ethic filled curriculum. We have a job to do, and we have to get it done, it’s less light hearted then it used to be. It’s hard to see the kids leave with less joy then they used to, but they really need to learn the importance of work.”

“History, business math, soil science and geology are integrated in the farm work. Working with tools is almost a hand’s on aspect answering the questions “where did we come from” and connects us to the past of agriculture. They are harvesting the crop, making the salad, keeping inventories, using scales, making cheese, all that business required for selling the products at the school farm stand. All of the money goes back into the farm indirectly. Daily harvest records, accounting for what was sold and not sold, give them a perception

of how to monitor. A businessman is still a scientist looking at whom, how, where, why, when, a businessman looks at how much. Involvement in harvesting is hard work and the accounting allows them to see the importance of that hard work.”

“6th and 7th grade become the main force behind the vegetable production. There is no harder work. Which means, they get out their hand tools and do a lot of digging; a lot of the digging, ripping up, and building compost, and hauling it all over. It becomes a connection to their geology as well. At some point we take the time to sample the soil in jars, add water, shake it up, and look at the layers and components of soil. Comparing soils from different areas and giving them an example of sand, silt, and clay and where it all comes from in relation to the area. We are a silty, sandy soil selection. It helps connect them to where we are located: at the bottom of the foothills, clay in the river and living near the flood plain.”

“7th grade they do a lot of the same work plus anatomy, physiology, and health. We will have them work but do less harvesting. Instead once a week we take them into our commercial kitchen, and cook. One group cooks for the other groups while they are working; at the end we all come together and eat together. This is hands on connection to what are the main studies of that year, which is health. You begin supporting good healthy food choices, which is what we hope to accomplish. We eat every week, and

cook every other week depending on which group you're in. We keep a record of everything we cook, and we make cook books at the end, with tidbits about the items of interest in the recipes. They really seem to enjoy it."

"By 8th grade they have grown tired of years in the vegetable beds. They are tired of digging and composting and all the things necessary. They are tired and growing, and all they want to do is sleep. So we try to encourage a whole new set of experiences, to re-enliven their interest. Maintenance of the farm, whether it be light carpentry work, building benches, fixing roofs, building barns, fixing fencing, building fences, wood spitting, and often painting. They love the sense of something really hard if it's new; if not, the tired feelings come up again. Weeding is something they do in the beds, they can be social which they very much are in 8th grade, and low impact while being busy and getting something done. The main aspect is identifying native plants. This connects them to some of their geographical studies, showing them where they are in the world. They start to understand themselves in a more regional aspect. California native plants help them to focus on this. Their main studies include California native plants. This grade cares for our native garden and does some book work of mapping the native plant garden. They can choose and identify native plants and write about what they have found through research. We also study invasive non-native species as well as remove them. This allows them to use picks and axes and they sure are interested in

chopping down trees."

"Garden curriculum stops in the 10th grade according to Dr. Steiner and so do we. What is important to 9th and 10th graders is the transition in identity. They may be saying goodbye to old students and friends and welcoming new students and friends. They become responsible for our tree pruning at this point, and this can help connect them with what they are going through. It relates to the pruning they may be doing as well. Entering High School definitely has a maturing quality and pruning matches with what they are doing. The oldest kids take care of the oldest plants. They learn about perennials, what they're used for, what they're good for, how to maintain them. Working with perennials it is necessary to project three to five years what you want this bush or tree to look like. You are training this not just for one season, weeks, or months, but also for a longer span of time, and that is exactly what we want them to start to do, is to project their future, and start planning for what they want to do, and who they want to be in the future. Working with perennials can really bring out that inner work: where are we and what do we need to do to branch out into the future? Whether they realize it or not it can all help them grow. We also tend to our native oak tree nursery. We plant oak trees throughout the campus."

