PROPOSAL INFORMATION

Project Title: UGArden Keyhole Garden Diversity Project

PRINCIPAL STUDENT INVESTIGATOR (PROPOSER) INFORMATION

Name: Sarah Bess Jones
Email: sbj93@uga.edu
Phone: (678)-346-0880
Degree Program / Graduation Date: BA in Anthropology, May 2014

FACULTY / STAFF SPONSOR INFORMATION

Name: Dr. David Berle
Email: dberle@uga.edu
Phone: 
Title / Department: UGA Professor, Horticulture Department

ADDITIONAL PROPOSAL INFORMATION

The proposal includes the following fields (check all that apply):

- [X] Education
- [X] Research
- [ ] Service / Social Entrepreneurship
- [ ] Campus Operations

Summary of Budget:

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel Funding</td>
<td>$ 550</td>
</tr>
<tr>
<td>Equipment</td>
<td>$ 0</td>
</tr>
<tr>
<td>Supplies / General Expenses</td>
<td>$ 520</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$1,070</td>
</tr>
</tbody>
</table>

Campus Sustainability Grant Application – Compliance Form

Please answer all of the following questions, and explain in full where required.

Will this project require compliance review in any of the following areas?
Please place an “X” on the appropriate line to indicate “Yes” or “No” for all three compliance areas.

1. Animal Use
   ____ Yes
   ____X____ No
If “Yes,” please reference the section and page number in the proposal describing animal use:

   For more information contact:
   706-542-5933

2. Biohazardous Materials
   ____ Yes
   ____X____ No
If “Yes,” please reference the section and page number in the proposal describing biohazardous material use:

   For more information contact:
   706-542-9876

3. Human Subjects
   ____ Yes
   ____X____ No
If “Yes,” please reference the section and page number in the proposal describing human subject use:

   For more information contact:
   706-542-5318

Name: Sarah Bess Jones
Title: Project Manager
Date: 10-23-13

_____ By placing an “X” on this line, I certify I will fulfill all requirements pertaining to compliance if this grant is approved.
Campus Sustainability Grant Application – Budget Sheet

Complete all sections.

I. Personnel **

<table>
<thead>
<tr>
<th>Number</th>
<th>Amount/Person</th>
<th>Total Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractors</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>UGA Staff</td>
<td>1</td>
<td>UGA Facilities Management- delivery of concrete rubble</td>
</tr>
<tr>
<td>UGA Student</td>
<td>1</td>
<td>Sarah Bess Jones, Project Manager ($10/hr) estimated 5 Week project at 10 Hours per week</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>$</td>
</tr>
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</table>

Total Amount: $550

II. Equipment**

<table>
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<tr>
<th>Type of Equipment</th>
<th>Length of Use</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>1. Concrete Mixer</td>
<td>On UGArden property</td>
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<tr>
<td>2.</td>
<td></td>
<td>$</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>$</td>
</tr>
</tbody>
</table>

Total Cost: $ |

III. Supplies/General Expenses**

<table>
<thead>
<tr>
<th>Type of Supplies</th>
<th>Comment</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Lime and Fertilizer</td>
<td></td>
<td>$200</td>
</tr>
<tr>
<td>2. Concrete Mix</td>
<td></td>
<td>$200</td>
</tr>
<tr>
<td>3. Chicken Wire, Compost, Soil</td>
<td>UGArden Donation</td>
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<td>4. Informational Signs</td>
<td>UGA Facilities Management</td>
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</tr>
<tr>
<td>5. Recycled Bottles/Cans</td>
<td>UGA Facilities Management</td>
<td>$0</td>
</tr>
<tr>
<td>6. Assorted Plants</td>
<td>UGArden Donation</td>
<td>$0</td>
</tr>
</tbody>
</table>
Campus Sustainability Grants Program - Application Form 2013-2014

Attach the following additional proposal components to this application:

- Project Overview (Attach; 2-page limit)
- Implementation Plan (Attach; 4-page limit)
- Communications Plan (Attach; 1-page limit)
- Faculty / Staff Sponsor Letter of Support (Attach; 1-page limit)
- Additional Supporting Documents &/or Recommendations for Future Support (Attach; optional)
- List of Anticipated Grant Project Metrics (Attach; 1-page limit; see Campus Sustainability Grants Program – Reporting Guidelines for reference)

Thank you for applying for a Campus Sustainability Grant.
We look forward to reviewing your application!
Proposal Overview

The UGArden Keyhole Garden Diversity Project intends to provide a hands-on educational opportunity for UGA students to learn about alternative means of sustainable agriculture. Keyhole gardens are a commonly used agricultural model to alleviate food insecurity in the international community, especially in climates that are not well suited for agriculture (Romero-Daza, Himmelgreen, Noble & Turkon, 2009). These gardens can survive these climates because of their innovative, yet very simple, design. This design will be a key addition to the UGArden because it challenges the traditional, linear agricultural model and facilitates students learning about today’s innovative sustainable solutions.

A 6-foot diameter outer wall surrounds an inner 1.5-foot diameter inner composting ring (Fig. 1). Because of the raised bed style of the garden, the garden can exist independent of soil conditions. The inner composting ring allows for sustainable disposal of food waste into compost while simultaneously fertilizing the garden. This creates a highly efficient, natural, and self-sufficient means of creating fertilizer. Three types of keyhole gardens will be built on UGArden: one with a perimeter of recycled concrete, one with a perimeter of recycled granite rubble, and one using a combination of poured concrete and recycled bottles (plastic and glass). The multiplicity of styles will help students to understand the variability in reusable materials design.

Figure 1.
The keyhole garden exhibit is primarily an educational opportunity for students to learn, UGArden to grow, and the university to support creative, diverse means of creating and composting foods. It allows for university students to think on multiple spatial scales about sustainability. The keyhole garden facilitates patterns of creative, systems-based thinking within sustainable agriculture. It combines the ideas of personal food systems, composting, and organic agriculture into one efficient structure. The multiple types of keyhole gardens to be built on UGArden will give students several models of sustainable, reusable materials. The story of the keyhole garden, how it came to be and its benefits for the international community, allows students to think about the worldwide impacts of our sustainable solutions. The keyhole garden is a fascinating example of a seemingly small and simple sustainable design that now aides in the alleviation of a global crisis. These are the types of sustainable solutions University of Georgia students must learn to create.

The creation of the Keyhole Garden Diversity Project exhibit will allow for the participation of students from multiple disciplines and areas of the university. The project will be open for volunteers to help create and maintain the keyhole gardens. Partner organizations/departments include: UGArden, the Horticulture Department, Campus Kitchens, Real Food at UGA, and the Material Reuse Project. Volunteer opportunities will be open to these relevant organizations and departments, as well as being open to all other UGA departments for interested students. The relative simplicity of the creation process will create a learning opportunity for students to understand how they can easily implement their own gardening-composting systems in their back yards. It is expected that the keyhole gardening project on the UGArden campus will be a springboard for further expansion of simple, easy, and sustainable models of agriculture to alleviate food insecurity in the Athens community.
References:

Implementation Plan

Acquisition and Design Phase:

The UGArden Keyhole Garden Diversity Project implementation will begin in January 2014 with the collection of materials for the keyhole gardens. The goal is for all of the materials used in the keyhole gardens to be repurposed. UGArden will be providing the granite rubble, plants, compost, soil mix (to get the keyhole gardens started), plant debris, and fencing/wire materials. Recycled concrete will be provided by the Material Reuse programs and delivered by the UGA Grounds Department. UGA Facilities Management will donate recycled bottles, which will be sorted and set aside. Concrete mix, fertilizer, and lime will be purchased. The College of Environmental Design has been contacted and is currently considering the possibility of CED students creating the keyhole garden designs. Students will be asked to submit designs by the February 3rd. Other options for student involvement in the design phase include the Ethnobotany department or the Peace Corps Master’s International program in Agriculture. These designs will be evaluated and the staff and UGArden and Sarah Bess Jones will choose the most efficient and creative design. After the design has been chosen, a space on the UGArden website will be created by the project coordinator, Sarah Bess Jones. This space will feature an “About the Gardens” page to inform students of the purpose of the project, a “Volunteer” page allowing any student to assist, and a “See the Project” page with photo and video documentation of the creation process.

Volunteer Participation Phase:

Volunteers enrolled in the spring 2014 Horticulture 2000 (Horticultural Science) and Horticulture 3300 (Sustainable and Organic Gardening) classes will be contributing their 4-hour volunteer requirement to the project. The UGArden Facebook page will also advertise supervised volunteer workdays for students who want to get involved in the construction outside of the HORT 2000/3300 classes. These workdays will occur beginning February 10\textsuperscript{th} and continue until February 24\textsuperscript{th}.

Building Phase:

Volunteers will begin by building the outer structure of the keyhole gardens. The recycled concrete and granite rubble structures will be built first followed by the poured concrete/recycled bottles structure. These will have a 2-foot wall forming a 6-foot diameter enclosure. Volunteers will build a small walkway to the center of the enclosure to ensure easy access to the composting ring (1.5 ft diameter ring). Once the outer wall has been built, the floor of the keyhole structure will be filled with drainage debris (twigs in the outer ring and rocks in the inner composting ring). Amended soil will be put on top of the drainage layer.
Planting/Composting Phase:

Plants will be donated from the UGArden and spring/summer plants will be placed in the keyhole gardens. Possible vegetables include: asparagus, assorted bean varieties, broccoli, collards, cucumber, kale, okra, tomato, and assorted peppers. Each keyhole garden will contain approximately 25.6 ft² of planting space. Depending on the available vegetables, these gardens can hold anywhere from 25-40 plants. Estimated vegetable yields are anywhere from 15lbs to 25lbs per garden. Johannah Biang and Sarah Bess Jones will supervise the volunteer’s planting and tending to the vegetables.

Compost will be retrieved from the materials delivered to UGArden by a previous Office of Sustainability grant recipient, Aaron Joslin. Using this compost will allow multiple Office of Sustainability grants to interact with and assist each other. Allowing volunteers to participate in the construction of this composting ring will give them access to education on alternate means of composting e.g. composting directly in the garden. Volunteers will also learn about the importance and ease of composting.

Education and Outreach Phase:

Dexter Adams in Facilities Management will provide metal signs that will be posted throughout the keyhole garden exhibit. These signs will feature information about the purpose of the keyhole gardens, the process of creating the gardens, suggested sustainable solutions for students, as well as directions to the UGArden Keyhole Garden Diversity Project’s website. Post-construction, students will have continued access to tending the gardens through UGArden volunteer sessions, which are advertised via Facebook on the UGArden page. Multiple classes across disciplines will use the keyhole gardens as a teaching tool for creative, sustainable problem solving. ANTH/PBIO 4300 (Ethnobotany), ANTH 4400 (Green Culture), HORT 2000 (Horticulture Science), and HORT 3300 (Sustainable and Organic Gardening) have all expressed keen interest in using the gardens as a part of the curriculum. Sarah Bess Jones will head the efforts to contact professors each semester in sustainability-related classes who would be interested in field trips to the UGArden Keyhole Garden Diversity Project campus. After Sarah Bess Jones graduates, this effort will be continued by one of the UGArden interns.

UGArden has a partnership with Clarke Middle School will expose the students to the keyhole garden exhibit during their annual fieldtrip. This will allow the keyhole garden exhibit to not only reach UGA students but also young community members. Many Athens-Clarke county residents themselves.
experience food insecurity. This grant hopes to begin the alleviation of that problem through educating and empowering community members to consider the merits of sustainable gardening solutions. The UGArden Keyhole Garden Diversity Project hopes to be the springboard off which students and community members decide to begin their own journey towards becoming sustainable through personal gardening. Because of the project’s long-term community goals, it is suggested that the Office of Sustainability consider creating an intern position specifically for management of the keyhole gardens and for the continuation of efforts to connect the problem of food insecurity in Athens-Clarke County with the project.

The vegetables from the keyhole gardens will the sold in UGArden’s weekly produce stand. This produce will also be used by Campus Kitchens to deliver local, sustainable produce to low-income families in the Athens area. Thus, the products of this garden will provide means for students to buy local produce on a budget and for low-income families to acquire healthy, sustainable produce in Athens-Clarke County, where food deserts are extremely common.

**Educational Aims:**

The Keyhole Garden Diversity Project aims to increase awareness of alternative gardening styles, alternative composting styles, and innovative solutions to food-insecurity. The keyhole garden is an example of a sustainable solution that exists in dual contexts: global and local. The exhibit encourages students to simultaneously think about global solutions to food insecurity and personal, sustainable life choices thereby empowering them through personal responsibility and global citizenship. The keyhole gardens allow for education on multiple spatial scales; Students are learning how to garden and create their own food, how to compost, and how to connect local solutions to global problems. University classes as well as community members will be able to use these gardens as an educational tool.

**UGA 2020 Strategic Plan:**

The UGArden Keyhole Garden Diversity Project will aid the university in achieving integration of sustainability into student’s experiences. As an educational tool, the gardens will demonstrate the university’s commitment to creating space for students to form meaningful, concrete bonds with sustainable efforts in the Athens area. The keyhole gardens are also in line with the university’s projected commitment to sustainable solutions, the growing local foods market, and proper use of water and waste. The gardens create an incredible combined example of material reuse, composting/waste disposal, local
foods, and reduction of water usage. These are all points in line with the UGA 2020 Strategic Plan’s goal to infuse sustainability into the lives of students and community members.
Communications Plan

The UGArden Keyhole Diversity Project will communicate its goals, process, and sustainability at UGA through the creation of a space on the already established UGArden website. It will feature an “About the Project” page, which will inform users what a keyhole garden is, its purpose for sustainability, and the purpose and uses of the keyhole gardens at UGArden specifically. The “Volunteer” page will include information about how to get involved in the keyhole project. A link will direct visitors to VolunteerSpot.com where volunteer hours will be posted. The “See the Project” page will include pictures taken at all phases of the project as well as a video. A short video will be produced to show footage of volunteer work and report on volunteer’s experience in participating in the project.

The project will use social media to advertise the project and let interested students know how to get involved. The UGArden Facebook page has 949 Facebook users who receive posts from the page. We will use this already established page to create awareness of the project and allow volunteers outside of involved UGA classes. Pictures of the project in progress will also be posted on this Facebook page and shared with followers. The project will also utilize the Weekly Sustainability Update, a widely used listserv, to advertise the creation of the project and post volunteer hours. This will give access to volunteers who are not in participating classes or who do not follow UGArden on Facebook.
Anticipated Grant Project Metrics

- **Materials Recycled**: UGArden will compile a list of the amount of recycled materials utilized in the making of the keyhole gardens. This will be measured in cubic yards of recycled material.

- **Water Conserved**: Because keyhole gardens use less water than traditional gardens, UGArden will track the liters of water used in the maintenance of the keyhole gardens.

- **Waste Averted**: Composting materials will be weighed and the amount of waste saved from landfill will be reported in cubic yards.

- **Social Benefits**: The number of volunteers involved and the number of classes involved will be reported.
November 3, 2013

Dear UGA Campus Sustainability Grants Committee,

I am writing this letter in support of Sarah Bess Jones and her proposal to build demonstration keyhole gardens at UGArden. Ms. Jones interned at UGArden this past semester, working in the medicinal herb garden. Ms. Jones is an excellent intern and has made a huge contribution to the herb garden. The UGArden staff and I have come to rely on her to come to work on time, work hard and do a thorough job.

Ms. Jones has discussed her ideas for building keyhole gardens as a way to educate other students interested in urban gardening, particularly in third world countries. I believe her idea to build several versions of a keyhole garden, using different materials, is an excellent way to demonstrate the re-use of materials and will serve to inspire others to try building one of their own. I have agreed to assist her in gathering the materials and building the keyhole gardens at UGArden and offer to help recruit students to help construct the gardens.

In my opinion, this project is a perfect fit for the Sustainability Grant program in that it not only demonstrates the principals of reusing building materials, but also encourages composting in a creative and innovative manor. The concept of a keyhole garden is a low-tech solution to composting, gardening and recycling all in one project. I encourage you to consider her request.

Sincerely,

David Berle, Associate Professor
University of Georgia Horticulture Department