



# FOUNDATIONAL DOCUMENT



March 2016  
The Moab Bee Inspired Gardens Initiative  
[www.beeinspired.usu.edu](http://www.beeinspired.usu.edu)

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## Acknowledgements

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Dr. Roslynn Brain

### Photographs

Photos in this document were taken by Jeff Adams, Dr. Roslynn Brain, Jeremy Lynch, Laura Haley, Rhonda Gotway, Vicki Zoller, Kara Dohrenwend or Claire Core. If we wish to contact the photographer, please contact the Bee Inspired website listed below.



Sundancer daisy (*Hymenoxys scapopus*).

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Moab Bee Inspired Gardens Initiative  
[www.beeinspired.usu.edu](http://www.beeinspired.usu.edu)

## *Moab Bee Inspired Gardens*

Moab Bee Inspired Gardens (BIG) is a collaboration between public entities, non-profit organizations, businesses, and community members inspired to celebrate and expand the network of pollinator-friendly, water-wise, and perennial-edible landscapes in and near Moab.



### Purpose of Document

The document was created with the intention of using it as a guiding document for the members of Moab Bee Inspired Gardens Initiative as well as a reflection of what we have done already. Interested parties can use this document to understand the work of the Moab BIG. Within these pages you will find the mission, vision, goals, and background information about Moab BIG.

### Mission

To inspire efforts toward pollinator health, water conservation, and food and forage systems using gardens, workshops and resources in a way that benefits our community and ecosystems.

### Vision

Moab BIG encourages the improvement of pollinator habitat, conservation of water through appropriate plant choices and water harvesting techniques, and the inclusion of plants that are also a food source for both pollinators and humans.

### Our Goals

- Moab BIG will support the growth of a healthy network of resilient landscapes using BIG principles throughout the Moab Valley and beyond.
- Moab BIG will identify local examples and compile local and regional knowledge about how to use landscapes to increase pollinators and their positive benefits to the environment and humans.
- Moab BIG will demonstrate and inspire through workshops, informational sheets and community events.
- Moab BIG encourages exercising extreme caution before using pesticides in order to protect the lives of pollinators and wildlife. Moab BIG demonstration sites showcase how companion plantings, cover crops, correct timing and amount of irrigation and other techniques will often prevent pest infestations without resorting to chemical controls.

### The Three Pillars of BIG

There is a set of overarching principles to which all BIG gardens adhere.

Our overarching principles include:

1. Pollinators: promote pollinator health, forage availability, and habitat.
2. Water wise: manage water as an essential, precious resource.
3. Food: foster the establishment of resilient community food systems.





#### Pollinators

Moab has a variety of pollinators, including beetles, flies, butterflies, birds, the European honey bee and hundreds of native bee species. Unfortunately, drought, disease, pests, pesticide use and lack of forage have created the need to provide safer environments for bees and other vital pollinators. These facts have inspired old and new residents to help sustain this diversity through growing perennial, drought tolerant, and native plants. Moab Bee Inspired Gardens will inform and inspire the Moab community about the importance of pollinators and ways to support them.

#### Water

Moab is a part of the high desert ecosystem in the second driest state in the nation. Moab's average annual rainfall is 6-10 inches a year with most moisture coming in spring and in irregular late fall monsoon events. According to the US Geological Survey's 2010 Water Use Report, Utah residents have the second highest water use per capita of any state.

Drinking water originates in springs and wells fed through an aquifer that is recharged by snowfall in the nearby La Sal Mountains. This connection to our local watershed, the drought we've experienced, and the increased water usage are all facts that demonstrate the role of landscapes in the watershed and our dependence on water as a precious resource. Moab BIG seeks to increase watershed health through the use of appropriate plants, effective and efficient irrigation systems and water harvesting techniques. With these practices, we can all help our community be more resilient to change and more able to support a diverse and abundant ecosystem.

#### Flowers, Food & Forage

Like many places in the West, Moab was once self-sufficient. At the turn of the 20<sup>th</sup> century fruit grown in the valley traveled by rail to markets in the east, and every yard produced food; Mill and Pack Creeks provided irrigation water for small and large agricultural and livestock operations throughout the valley. The economy first turned towards extractive, and then towards tourist and recreation based economies. Currently, the and visitors in Moab depend on food delivered from warehouses stocked from around the world and delivered by truck and a large percentage of local culinary water is used mostly for decorative landscaping.

The symbiotic relationship between pollinators and food we eat is important. Most crops in small vegetable gardens, and in larger agricultural fields, relies on pollinators to produce fruit and pollinators rely on the landscapes in and around these productive areas for food, shelter and water. Improving pollinator habitat throughout the valley for native insects and birds, as well as for honey bees, improves our own food production. Mulching where appropriate, plants selected that thrive in our hot dry climate without becoming invasive, and grading to encourage water infiltration into the landscape are important cornerstones to improving soil health and creating effective landscapes.

#### *Who is Involved?*

Moab BIG was born out of the Grand County Conservation District's Pollinator Workshop in February 2013. Soon a larger collaboration was solidified with the inclusion of:

- MoabBees
- Wildland Scapes
- USU Extension Sustainability
- Youth Garden Project
- Community Rebuilds
- Moab City
- Rim to Rim Restoration
- Bureau of Land Management
- Natural Resources Conservation Service.
- TerraSophia

These parties launched the initiative in the spring of 2013.



#### Active Members

Jeff Adams: TerraSophia, LLC

Roslynn Brain, PhD: USU Extension Sustainability

Rhonda Gotway Clyde: East Bee Farms & Grand Conservation District

Claire Core: Utah State University

Kara Dohrenwend: Wildland Scapes, LLC, Rim to Rim Restoration & Grand Conservation District  
Heila Ershadi: Moab City Council & Canyonlands Watershed Council  
Jeremy Lynch: In Transition Permaculture  
Jess Oldham: Farm Yard  
Delite Primus: Youth Garden Project  
Pamela Riddle: Moab Bureau of Land Management  
Jerry Shue: MoaBees  
Beekeepers

#### *Garden Projects*

The first official Moab BIG project was installed in early 2014 at Rotary Park with support from Moab City. Since then, a number of other BIG projects were installed at USU Moab, Canyonlands Field Institute, Community Rebuilds' intern campus, The Youth Garden Project, BLM Goose Island Campground, Mayberry Native Plant Propagation Center, Moab Charter School and the Aarchway Inn.

#### Impacts of Program as a Whole

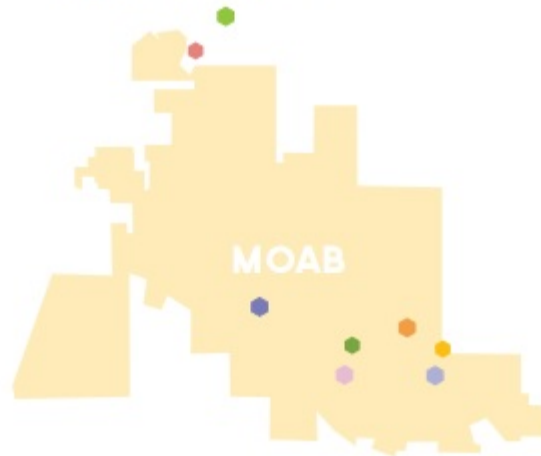
- There are several resources that have been developed and more are in the works. They can be found at the following web addresses or by clicking on the links if you're using this online.

[Fact sheet](#):

[beeinspired.usu.edu/wp-](http://beeinspired.usu.edu/wp-)

## BIG LOCATIONS

-  **Aarchway Inn**  
1551 U.S. 191, Moab
-  **Canyonlands Field Institute**  
**Professor Valley Field Camp**  
Mile 19, Hwy 128, Moab
-  **Community Rebuilds Intern Campus**  
808 Mill Creek Dr. Moab
-  **Goose Island**  
Bureau Of Land Management Moab, UT-128
-  **Moab Charter School**  
358 East 300, South Moab
-  **Rotary Park**  
680 East Mill Creek Drive, Moab
-  **USU Moab**  
125 West 200 South, Moab
-  **Youth Garden Project**  
530 Fourth East Street, Moab



[content/uploads/2015/03/BeeGardensFactSheet.pdf](#)

[Brochure](#) : [beeinspired.usu.edu/wp-content/uploads/2015/02/Bee-Brochure-.pdf](http://beeinspired.usu.edu/wp-content/uploads/2015/02/Bee-Brochure-.pdf)

[Website](#): <http://beeinspired.usu.edu/>

- Projects can be visited on a walking tour, as each project has signage identifying them as a Moab BIG project. The garden map can be found on our website and in the brochure. See appendix item II.
- Moab BIG is working towards the inclusion of BIG principles into new Moab City plans.
- Received RCDE grant and USU Extension grant (total \$15,000.00) to hire research assistants who helped plan workshop series tied to the gardens.
- Awards received by National Association of Community Development Professionals for “Bee Inspired Gardens” initiative, June 2015, for “Excellence in Community Development”. Winner in both Western Region and National categories.
- Given Bee Inspired Gardens effort, local resident Ray Alger, with the help of local beekeepers Roy Vaughn and Tim Walsh, planted a full acre of bee-friendly San Foin on his property.
- Community impact examples following attendance in one of our BIG workshops:
  - “our wash after the last storm....works wonderfully. The new stream went way past our property on down the wash. Fantastic! Thanks for all your help.” – Deb Walter
  - “After attending a second workshop in February, 2015 on Urban Water Harvesting...we made major changes in our gutter design. This was so timely that we were able to put the underground infrastructure in for harvesting all the water from our 5,000 square feet building roof into a cistern. Had we not attended this workshop we would not have this system in place” - Cheri Major, ACT Campground



#### Rotary Park Bee Inspired Garden

- First Bee Inspired Garden.
- Hundreds of people walk past and enjoy the garden yearly and may read one of two BIG signs that are placed at the Rotary Park garden.

#### Utah State University Bee Inspired Garden

- Three community workshops with 75 people in attendance total.
- Garden was featured in The Permaculture City by Toby Hemenway.
- Signage created to educate public and students on rain garden features.

#### Canyonlands Field Institute Bee Inspired Garden

- Every year, over 400 adults and children participate in naturalist programs at CFI and interact with the garden.
- Garden is a part of the curriculum for classes based at the field camp.

#### Community Rebuilds' Intern Campus's Bee Inspired Garden

- Every year, 32 interns live at the house where the CR BIG is located and are able to interact with the garden
- Garden was installed with the help of interns, community members and permaculture designers, Lillian and Jacobo from Hopi.

#### Youth Garden Projects' Bee Inspired Garden

- Every year, hundreds of people attend workshops in the garden
- The garden was installed with the help of over ten volunteers.

#### Moab Bureau of Land Management Goose Island Campground Bee Inspired Garden

- Over 10,000 visitors use and pass by gardens at Goose Island yearly.
- Locals, tourists and international visitors camp, bike & walk past these gardens annually and may read one of two BIG signs that are placed here.
- Canyon County Youth Corps helped the BLM and Rim to Rim Restoration install the first set of gardens.
- Campbell Hall School of North Hollywood California helped the BLM & Rim to Rim install the second set of gardens.
- Different design methods are being used to identify the best methods to manage native plants in this area with minimal watering & weed control.
- Future plans will include signage of native plants once plants are established.

#### Mayberry Native Plant Propagation Center's Bee Inspired Garden

- A propagation and research center for regionally sourced Colorado Plateau plant materials
- Bee plant and milkweed will be grown out for seed collection here in 2017
- Various areas serve to demonstrate efficient irrigation methods and timing, as well as areas revegetated with pollinator plants receiving no supplemental water.
- Vegetation response to tamarisk removal projects is being monitored at three locations on the property
- Planting technique demonstrations have been installed and are being monitored including longstem vs traditional planting, use of different container sizes at planting (and monitoring establishment rates and growth rates over time).
- Areas are available for research and demonstration plantings.

#### Moab Charter School's Bee Inspired Garden

- Every year, each child in every grade has a chance to learn in the garden as the teacher's include the garden into their curriculums.
- 100+ students attend the Moab Charter School.
- Moab Charter School to implement a pesticide-free policy on their grounds.
- Moab Charter School Principal Emma Weiss reported that the school was able to recruit the teacher they wanted due in part to the school Bee Inspired Garden. This teacher was apparently "extremely excited" to incorporate the garden into her class.



#### Aarchway Inn's Bee Inspired Garden

- Five community events with a total approximately 65 participants
- Involved 6 staff in process
- Planted 30+ species of native/ climate appropriate plants (approximately 175 individual plants, plus wildflower seed mix)
- Thousands of visitors to the hotel and its grounds yearly.

#### Old Spanish Trail Arena

- This garden is located at an event center that provides for a large array of events that attract local, regional and nationwide participants.
- Participants and spectators will park in front of these gardens and may read BIG sign and enjoy the native plants that are planted here.
- Future plans will include signage of native plants once plants are established
- The 8th grade Science Class of 2015, Grand County Middle School installed this garden.

#### Events and Participants

- 2016. *BIG Workshop Series*. 60 participants throughout 6 workshops.
- 2016, March. *Early Spring Pollinator Garden Clean Up*. Extension and TerraSophia event at the Moab Charter School. Moab, UT. (12)
- 2015, December. *World Soil Day: Celebration of our soils*. Extension/TerraSophia/USGS workshop at USU Moab, Moab, UT. (27)
  - "I just wanted to say what a fabulous time I had at World Soils Day! Wonderful job pulling together really great activities, talks, and other soils fun. I thought it was awesome."
- 2015, November. *Bee Inspired Gardens and Extension Sustainability*. Educational table at the Moab Folk Festival, Moab, UT. (148)
- 2015, October. *General Wealth & Sustainability, Bee Inspired Community Gardens*. Talk given at the Colorado Permaculture Convergence. Cortez, CO. (30)
- 2015, October. *Garden grand opening*. Extension/TerraSophia workshop and Bee Inspired Garden celebration delivered at Aarchway Inn, Moab, UT. (54)
- 2015, October. *Planting a Bee Inspired Garden*. Logan Alternative Fall Break, Aarchway Inn, Moab, UT. Extension/ TerraSophia workshop.(18)
- 2015, September. *Hands-on water harvesting workshop*. Extension/TerraSophia workshop delivered as part of Moab Bee Inspired Gardens movement, at Aarchway Inn, Moab, UT. (17)
- 2015, September. *Introduction to permaculture design: Principles & practice*. Undergraduate course and public Extension/TerraSophia workshop taught at USU, Logan, UT. (15)
  - Implemented earthworks at the USU Logan permaculture garden site as part of the workshop.
  - Following the workshop, USU Blue Goes Green [posted online](#) "We're in love. The USU Extension Sustainability permaculture garden is looking good after last week's class."
- 2015, July. *Bee gardens bike tour 2*. Extension/TerraSophia/ Moonflower program presentation delivered in Moab, UT. (10)
- 2015, July. *Plant communities*. Extension field day delivered at Youth Garden Project, Moab UT (youth grades K-6). (24)

- 2015, June. *Bee gardens bike tour 1*. Extension/ TerraSophia/ Moonflower program presentation delivered in Moab, UT. (12)
- 2015, June. *Water harvesting and watershed management*. Extension/ TerraSophia/ In Transition Permaculture presentation delivered at the Castle Valley Library, Castle Valley, UT. (30)
- 2015, May. *Introduction to Permaculture: Hands-on installation*. Extension workshop delivered with Community Rebuilds in Moab, UT. (15)
- 2015, April. *Life in the garden: A bee inspired workshop*. Extension workshop delivered at Utah State University, Moab, UT. (20)
- 2015, April. *Slow, spread, sink: Permaculture pollinator gardening on public and private lands*. Extension/ TerraSophia workshop delivered at Aarchway Inn Hotel, Moab, UT. (12).
  - Implemented water-wise, pollinator-friendly, perennial edible garden at a popular hotel in Moab, UT.
- 2015, April. *Charter School garden planting day*. Extension/TerraSophia workshop delivered at the Moab Charter School, Moab, UT. (40)
- 2015, March. *Pollinator party*. Extension educational tables and garden fundraising event delivered at the Moab Arts & Recreation Center, Moab, UT. (150)
- 2014, October. *Building rain gardens: A hands-on permaculture workshop*. USU Moab, Moab, UT. (41)
- 2014, October. *Bee Inspired Gardens: Permaculture design event*. Aarchway Inn, Moab, UT. Extension/ TerraSophia. (20)
- 2014, February. *Urban rainwater harvesting through a permaculture lens*. USU Extension Sustainability workshop. USU Moab. (33)
- 2012-2015. *Honey Bee Presentation*, Jerry Shue to Melissa Roy's class at the Moab Charter School (80)

So that's 20 + events with a reach of over 800 people!

#### *Media Coverage*

Lynch, J. (2015, Summer). ["Planting Rain in the Desert"](#). *Permaculture Design Magazine*.

Marcello, M. (2015, Fall). ["Completed Bee Inspired Gardens project celebrated at Aarchway Inn"](#). *The Times Independent*. (4413+ views)

Herndon, R. (2015, Fall). ["Bee Inspired Gardens at Aarchway"](#). *Moab Sun News*.

Moonflower Community Co-op. (2015, Summer) ["Bee Inspired Gardens"](#). Moonflower Co-op Calendar.



Moonflower Community Co-op. (2015, Spring). "[5% Day for Moab Bee Inspired Gardens](#)". Moonflower Co-op Calendar. Fundraiser for the Moab Charter School BIG.

Utah State University Extension. (2015, Winter) "[Moab Bee Inspired Gardens](#)".

Herndon, R. (2014, Spring). "[New garden project aims to 'bee inspired'](#)". *Moab Sun News*. (2366+ views)

Thompson, T. (2014, Spring). "[Welcoming the birds and the bees](#)". *Moab Sun News*.

Marcello, M. (2015, Spring). "[Permaculture rain garden at USU-Moab helps teach about water use](#)". *The Times Independent*. (3598+views)

Lynch, J. (2015, Summer). "[Building community through permaculture](#)". *Moab Sun News*.

Marcello, M. (2015, Fall). "[Grand council passes measures to protect, strengthen Grand's honey bee colonies](#)". *The Times Independent*. (2756+ views)

Marcello, M. (2015, Fall). "[County considers protecting local honey bees](#)". *The Times Independent*. (4489+ views)

Marcello, M. (2014, Fall). "[Workshops help local residents apply permaculture principles to landscapes](#)". *The Times Independent*. (3331+ views)

Kovash, J. (2015, Winter). "[Campus Permaculture Project Gets Exported to Moab](#)". *Utah Public Radio*.

Marcello, M. (2015, Spring). "[USU-Moab permaculture garden receives wildlife habitat certification](#)". *The Times Independent*. (2790+ views)

Haley, L. (2014, Fall). "[Group expands plans for local 'Bee Inspired Gardens'](#)". *Moab Sun News*. (1639+ views)  
[http://moabtimes.com/view/full\\_story/25868585/article-Group-expands-plans-for-local-Bee-Inspired-Gardens-](http://moabtimes.com/view/full_story/25868585/article-Group-expands-plans-for-local-Bee-Inspired-Gardens-)

#### *Action Plan*

- Workshop/ Lecture Series: Description and draft outline found here: [Workshop series](#)
- Garden Certifying: *What makes a Bee Inspired Garden?*
  - 1) Indicators of Landscape Health by Jeff Adams, or
  - 2) [Pollinator Assessment Guide](#) from the NRCS
- Pollinator Safety: Pesticide reduction in Moab valley and beyond.
  - Example Initiatives: [PAN](#) and [Xerces](#)

## *Resources*

### *Moab Bee Inspired Gardens website*

For additional information about us and our work visit our website.

<http://beeinspired.usu.edu/>

### *Ecoregional Pollinator Guides*

Type in your zip code for a custom list of pollinator plants for your ecoregion.

<http://www.pollinator.org/guides.htm>

### *Pollinator Conservation Resource Center*

Information about pollinator plantings for every ecosystem in the United States.

<http://www.xerces.org/pollinator-resource-center/>

### *Pollinator Habitat Installation Guides*

Regional guides for installing habitat for pollinators.

<http://www.xerces.org/pollinator-conservation/agriculture/pollinator-habitat-installation-guides/>

### *Habitat Assessment Guide*

A guide to gauge the health of your landscape for pollinators.

<http://www.xerces.org/pollinator-conservation/habitat-assessment-guides/>

### *Introduced, Invasive and Noxious Plants*

A state-by-state guide of weedy plants.

<http://plants.usda.gov/java/noxiousDriver>

### *Gardening for Native Bees in Utah and Beyond*

Explanation of native bees and the plants they prefer in the high desert ecosystem.

<http://extension.usu.edu/files/publications/factsheet/plants-pollinators09.pdf>

### *Watershed Regeneration and Permaculture Selected Resources*

Rainwater harvesting, permaculture, and lists of relevant organization and references.

<https://docs.google.com/document/d/1bZaNWzvS722-pgLhnZ9hO6qSQ-3azgDoV9G55N87g20/edit?usp=sharing>

### *Honey Bee Nectar and Pollen Plants for Southeast Utah*

Created by local Moab honey bee inspector, Jerry Shue, this document is the beginnings of a collaborative data sharing project. It includes plant, blooming period and pollinator value. Gain information as well as add to it throughout your years of observation.

<https://drive.google.com/file/d/0B9tohx1Ch6YLDUhXQzA2Z1JabTJ3b19UVkJqMklmeXk0bVl0/vi?usp=sharing>

### *Models for BIG*

This document includes a list of programs that are similar to BIG and may be an inspiration for us and other projects around the country.

<https://drive.google.com/file/d/0B9tohx1Ch6YLDWjldmFxQ0p0WE1UVVYtVmw2UVVpODY4Q21R/view?usp=sharing>



*Plants for Pollinators: (Northern Utah)*

List of pollinators plants with blooming time included.

<https://drive.google.com/file/d/0B9tohx1Ch6YLcDA1aFVUOGR6eHlhVDhaR29rdGZibDgwcVBF/view?usp=sharing>

*BIG Curriculum*

Activities related to BIG-related principles for young learners. Compiled by Roslynn Brain and Claire Core.

<https://docs.google.com/document/d/1-MtREnMn0BaY6Y7cWZGDT8bWuy-FZRvu2noOs7UsQFs/edit?usp=sharing>

*Pollinator Research Action Plan.*

A White House initiative to boost pollinator health.

<https://www.whitehouse.gov/sites/default/files/microsites/ostp/Pollinator%20Research%20Action%20Plan%202015.pdf>

*Pollinator Conservation Resources- Intermountain West*

A great list of bioregionally appropriate pollinator resources.

<http://www.xerces.org/pollinators-mountain-region/>

