Häagen-Dazs Honey Bee Haven 2019 Annual Report

University of California Department of
Entomology and Nematology

November 2019

In Memoriam

In memory of a respected colleague, mentor, and friend to all bees.

Dr. Robbin Thorp
1933 – 2019

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University of California Department of Entomology and Nematology

Prepared November, 2019 by Christine Casey, Academic Program Management Officer

SUMMARY

This year was one of highs and lows at the Haven. The good news: we had record visitor numbers, offered two new classes, added new interpretive displays, and received more donated funds than in any year since our inception.

The not-so-good news: due to the ending of a grant and the unavailability of bridge funding the Haven lost half our financial support as of October 1. A fundraiser and 10th anniversary celebration held September 28 raised operating funds to carry us into FY2020, but salary support is still lacking. Special thanks go to the Sacramento Area Beekeepers Association (http://www.sacbeekeepers.org/) for their GoFundMe campaign in support of the Haven, and to Sola Bee Farms (https://solabeefarms.com/), who donated a portion of their September honey sales to the Haven.

The Haven remains open full-time and we will continue to do our best to provide education and inspiration about bee gardens with more limited resources. We continue to seek grants, donations, and foundation support. Thank you for your continued support.

SUPPORT

Financial

The Haven continues to rely on grants and donations for our funding. Classes and guided tours also bring in operational funds. Operating expenses in FY2019 were $5493.75. This is a small budget for a garden of our size; we are able to operate efficiently thanks to the work of our volunteers.

A breakdown of FY2019 expenses is shown in Appendix I. As is appropriate for our mission, 70% of expenses were for plant material and educational programs. We continue to rely on grants to cover my salary and that of our student interns. Funding was provided by the USDA-NIFA Specialty Crops Research Initiative (https://bit.ly/2KXBYnF) and the California Department of Food and Agriculture's (CDFA) Specialty Crops Block Grant Program (https://bit.ly/2XZ90Jz) as well as the UC Davis College of Agriculture and Environmental Sciences (http://www.caes.ucdavis.edu/).

As of October 1, 2019, Haven salary support comes from the USDA-NIFA Specialty Crops Research Initiative (https://bit.ly/2KXBYnF) and the UC Davis Department of Entomology and Nematology (http://entomology.ucdavis.edu/). Class and guided tour fees, along with donations, cover our operating expenses.

Volunteers

The Haven volunteer team continues to grow, with work taking place weekly on Tuesday mornings and monthly on the second Saturday (Saturday work days ended in October due to loss of funding). The growth in volunteer service to the Haven is shown in Fig. 1. Through November,

volunteers contributed 369 hours to the Haven in 2019: 271 hours of garden maintenance and 98 hours of outreach. This has an in-kind value of $9111 based on the national volunteer average labor rate of $24.69 (https://bit.ly/2OnAJAf). Volunteers with 25 or more hours of service are recognized in the garden.

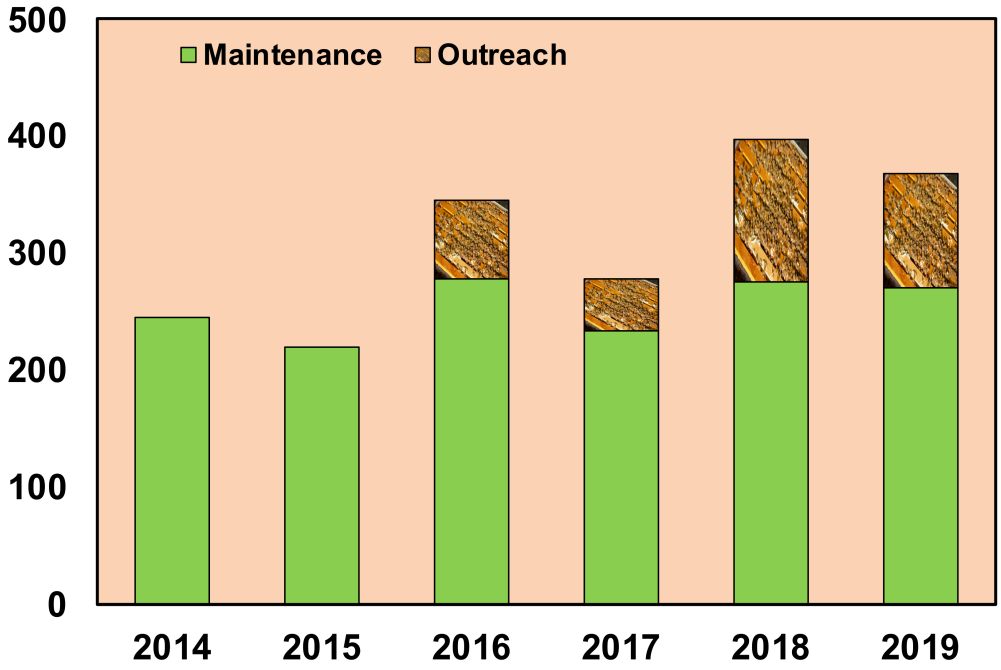


Figure 1. Volunteer hours donated to the Haven 2014 to 2019. Green portion of the bar represents garden maintenance, and honey bee portion of the bar represents outreach programs. Bars in 2014 and 2015 represent combined hours for maintenance and outreach.

GARDEN OUTREACH PROGRAMS

Events and guided tours

In addition to public events, guided tours are given from mid-March to mid-October. In 2019, 2295 visitors attended events and tours at the garden; the affiliation of visitors is shown in Appendix II. This is a 9% increase from 2018.

Off-site events

The Haven also participated in a number of off-site programs in 2019; we reached 2307 visitors via these programs. Program details are listed in Appendix II. This is a 29% increase from 2018.

Media coverage

The garden was covered in print, radio, and blogs in 2019. Links to each are given in Appendix II.

New exhibits in 2019

Four exciting new exhibits opened this year in the Haven. A volunteer-led project is an analemmatic sundial, which is unique in the Sacramento region according to the North American Sundial Society's registry. This was designed, donated, and installed by volunteer Rick Williams, who also donated the interpretive sign for the display.

Figure 2, below. The completed sundial.

Figure 3, right. Sundial creator Rick Williams with the dial's interpretive sign.

I'm also excited to be report the completion of a screen cage for our bee hive, which will allow us to open our hive for public viewing. Funding for materials was provided by the Sacramento Area Beekeepers Association and Stephanie and Darrin Ogletree, who did much of the construction.

Figure 4, left. Screen cage for bee hive under construction.

We also added a series of interpretive signs to the garden. These were funded partly by a grant from the California Department of Food and Agriculture and partly by a donation from Haven volunteer Betty Warne. Sign topics include gardening for bees, bee biology, and bee identification.

Figure 5, left. Volunteer Betty Warne with one of the interpretive signs her donation made possible.

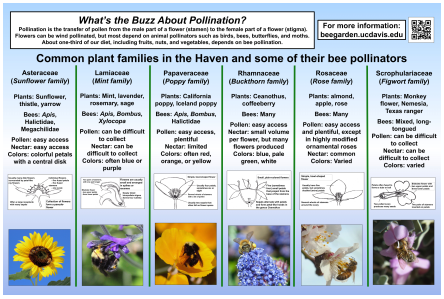


Figure 6, right. Example of another interpretive sign added to the garden this year.

Our final new display introduced this year is our Little Free (Bee) Library. Constructed from recycled bee hives and redwood fencing, our books focus on gardening, bees, birds, and other animals seen in the Haven. We have both children's and adult books.

Figure 7a, far left. Our Little Free Library was constructed from discarded honey bee hives.

Figure 7b, left. Some of the books in our library.

Bee gardening classes

I continue to teach classes for the public about bee gardening. Two new classes – *Bee Watching for Beginners* and *Pruning the Bee Garden* -- were added in 2019. *Planting the Bee Garden* was offered three times this year to meet demand. Attendance at Haven classes is documented in Appendix III.

Children's bee gardening

The children's activity area is being well-used. A bee gardening program for children 12 and under was debuted in 2019 and was a great success, with 123 attendees.

VIRTUAL HONEY BEE HAVEN

Social media

New to our social media portfolio in 2019 is Instagram (#hbhgarden). Our Facebook page (https://bit.ly/2XWI39i) and Bee Gardener blog (http://ucanr.edu/blogs/thebeegardener) are updated regularly and serve as additional sources of bee gardening information. A California Specialty Crops-Bee Connection blog (http://ucanr.edu/blogs/SpecialtyCropsandBees/) related

to our California Department of Food and Agriculture Specialty Crops grant is also available. Although this grant has ended, this page will be maintained for as long as possible.

Web resources

The garden web page (http://beegarden.ucdavis.edu/) is updated regularly and serves as another source of information for bee gardeners. It is also the online portal for garden tour reservation.

RESEARCH

Beginning in 2017, a significant new area for the Haven was research. We are now in the third year of our largest research project, "Protecting Pollinators with Economically Feasible and Environmentally Sound Ornamental Horticulture," which is part of a national effort. Teams from around the US are studying the ornamental plants commonly sold in their region to determine bee foraging preferences. This information will be used by nursery growers to market "bee friendly" plants. While this designation is often used now, depending on the location or vendor there may be little research data to back up these claims.

Sampling continues in both in the Haven and in a field plot about two miles from the Haven. The latter consists of five replications of fifteen plants arranged in a randomized design. Sampling begins each year in May and continues into September.

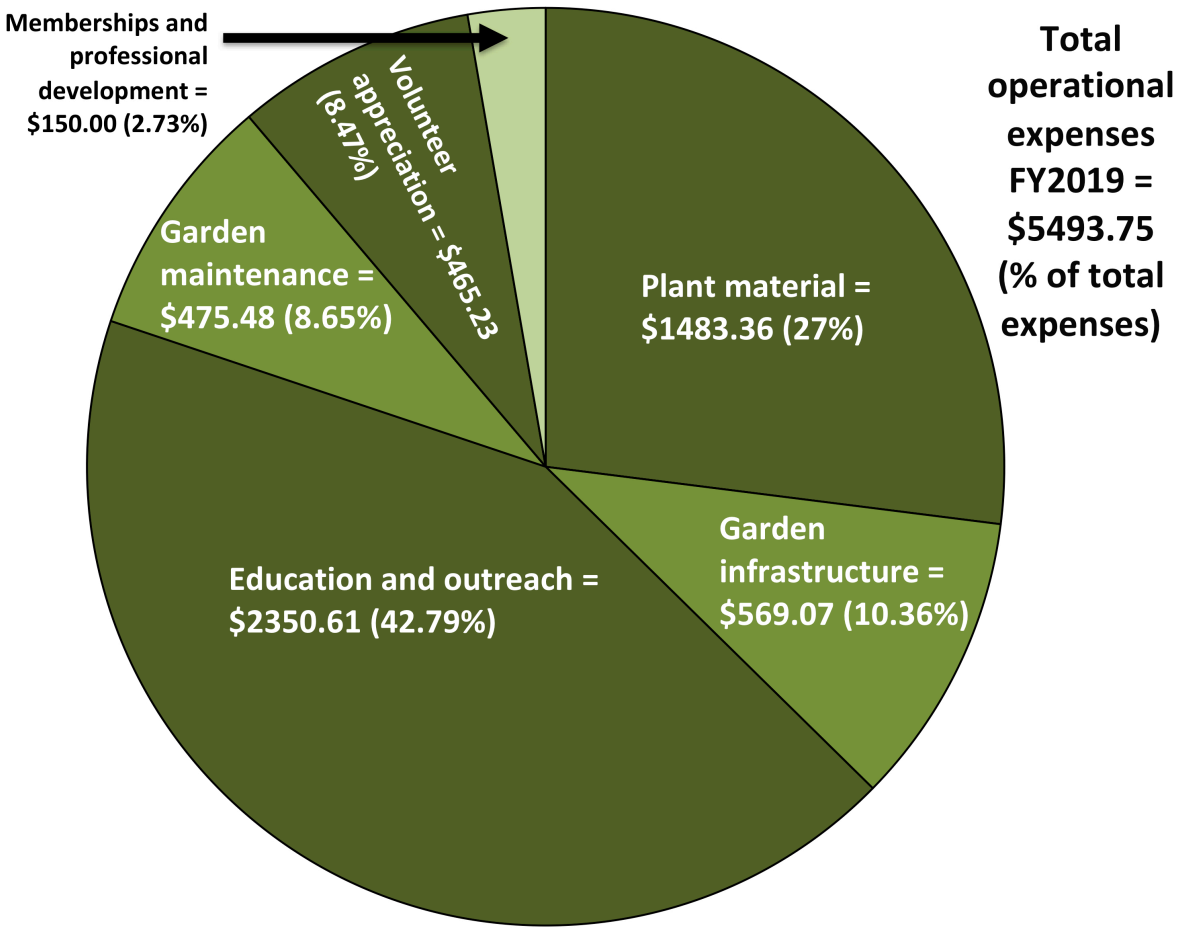
Summary results for 2018 and 2019 are shown in Appendix IV. Student interns Summer Cortez, Alicia Ruan, and Andrea Suarez and Citizen Science volunteer Better Warne (left to right) did the data collection in 2019.




CONCLUSION

The Haven's 2019 was marked by record visitor numbers, record temperatures, and expansion into new programs and areas. Thanks to all our volunteers and supporters for making this possible. We could not do it without you! While we face an uncertain financial future, I will continue to do the most I can with our limited resources to continue to educate and inspire about the role of gardens in bee and insect conservation.

Appendix I. Honey Bee Haven FY2019 financial report



In addition to salary, it cost $5493.75 to run the Haven in FY2019. The categories cover expenses as follows:

Plant material: All plants and seeds used in the garden
Garden infrastructure: Construction and maintenance of garden facilities including fencing, raised beds, and pathways
Education and outreach: Handouts, signs, and other display materials
Garden maintenance: Tools, soil amendments, and other supplies needed to maintain the garden
Volunteers: Refreshments and safety supplies for volunteers
Memberships and professional development: Professional memberships, fees and travel costs associated with training for garden staff, advertising

Appendix II. Honey Bee Haven guided tours, offsite events, and media coverage in 2019

Affiliation of garden event and guided tour participants

Alumni	25
Educator training	15
K-12 students	596
Master gardener volunteers	48
Professional society meeting	67
Public	1262
Public class	106
Teachers	87
UC Extension	9
UC employees	27
UC undergraduates	33
Visiting scientists	20
TOTAL	**2295**

Attendance at our largest public events featuring the Haven and bee gardening

Biodiversity Museum Day	618
CA Honey Festival	1733
Marin County Master Gardeners pollinator training	65
Yolo/Solano County Master Gardeners pollinator training	45
Woodland Library Science and Society program	28
Harvest Day	350
TOTAL	**2839**

Media coverage in 2019

UC Davis California Aggie	https://theaggie.org/2019/02/27/haagen-dazs-honey-bee-haven/
San Jose Mercury News	https://www.mercurynews.com/2019/04/16/why-bees-swarm-and-what-you-should-or-shouldnt-do-about-them/
Sacramento Bee	https://www.sacbee.com/news/local/education/article232687592.html
Sacramento Digs Gardening	https://sacdigsgardening.blogspot.com/2019/08/honey-bee-haven-could-use-hand.html?fbclid=IwAR2-DQy1Dj_Gs3tTq73UOxI6iMRGCAjfW1NfUvsg-OC-iPm3L5XT60sQvzY
Sacramento News and Review	https://sacblog.newsreview.com/2019/08/07/a-haven-no-more/
Woodland Daily Democrat	https://theaggie.org/2019/02/27/haagen-dazs-honey-bee-haven/

Appendix III. Classes for the public offered by the Haven

Class	Dates offered (number attending)	Topics covered
Planting the Bee Garden	March 16 (27) April 6 (20) June 22 (15)	Common bees in gardens Bee and plant interactions Bee garden design and maintenance Plants for specific conditions Overview of the top 50 plants of the Haven
Bee Watching for Beginners	April 6 (19)	Insect structure and what distinguishes bees Recognizing common bees Bee structures useful in identification How bees use plants Review of collecting resources and microscopes Practice bee catching Observe and identify bees on plants Bee photography
Pruning the Bee Garden	September 28 (25)	Physiology behind plant pruning Basic pruning techniques Pruning demonstration, tool and safety overview, and pruning practice in the Honey Bee Haven garden

Appendix IV. Plant bee attractiveness research results

Bee attractiveness in replicated field plot study 2018 vs. 2019

	Mean honey bees/10min ± SE					Mean other bees[1]/10min ± SE			
Plant genus	**2018**	**2019**	**2018 rank**	**2019 rank**	**Plant genus**	**2018**	**2019**	**2018 rank**	**2019 rank**
Achillea	0.85 ± 0.52	0.67 ± 0.38	13	13	*Achillea*	4.68 ± 1.22	5.60 ± 1.24	13	12
Echinacea	6.00 ± 2.83	10.41 ± 5.71	10	9	*Echinacea*	21.00 ± 4.18	6.12 ± 2.31	8	11
Erigeron	2.68 ± 1.38	1.08 ± 0.53	12	12	*Erigeron*	42.32 ± 7.00	24.05 ± 3.23	5	5
Gaura	31.95 ± 3.79	41.72 ± 4.12	4	4	*Gaura*	80.22 ± 4.24	34.93 ± 2.94	2	4
Hylotelephium	10.52 ± 2.45	40.98 ± 11.37	8	5	*Hylotelephium*	13.61 ± 2.71	52.68 ± 12.47	12	3
Nepeta	87.08 ± 5.71	134.61 ± 7.18	1	3	*Nepeta*	44.15 ± 4.71	15.62 ± 1.62	4	7
Penstemon	10.38 ± 4.69	35.37 ± 4.4	9	6	*Penstemon*	13.85 ± 4.47	19.58 ± 2.76	11	6
Perovskia	60.54 ± 5.03	190.04 ± 10.06	3	2	*Perovskia*	72.70 ± 4.27	53.49 ± 4.74	3	2
Salvia	12.13 ± 1.73	21.26 ± 5.53	7	7	*Salvia*	14.17 ± 2.01	10.19 ± 2.13	10	9
Symphyotrichum	25.59 ± 6.6	9.92 ± 1.98	5	10	*Symphyotrichum*	233.66 ± 11.29	338.9 ± 18.94	1	1
Teucrium	86.67 ± 6.01	199.83 ± 11.04	2	1	*Teucrium*	31.04 ± 3.31	11.69 ± 1.88	7	8
Verbascum	5.59 ± 2.67	3.36 ± 1.00	11	11	*Verbascum*	14.55 ± 2.37	7.01 ± 1.76	9	10
Verbena	20.85 ± 2.32	12.41 ± 2.47	6	8	*Verbena*	35.55 ± 3.06	3.52 ± 0.92	6	13

[1]Other bees = bumble bees, carpenter bees, leafcutter bees, longhorned bees, and sweat bees

Replicated field plot study site

Bee attractiveness in Haven observations 2018 vs. 2019

	Mean honey bees/10min ± SE					Mean other bees[1]/10min ± SE			
Plant genus	**2018**	**2019**	**2018 rank**	**2019 rank**	**Plant genus**	**2018**	**2019**	**2018 rank**	**2019 rank**
Bulbine	159.31 ± 25.58	125.00 ± 14.33	6	7	*Bulbine*	13.33 ± 4.62	15.00 ± 3.68	8	5
Calamintha	287.73 ± 37.22	305.51 ± 26.33	2	1	*Calamintha*	31.36 ± 7.77	2.45 ± 1.47	4	9
Echinacea	12.27 ± 5.46	37.50 ± 9.40	11	12	*Echinacea*	9.55 ± 3.05	0.00	10	13
Erigeron	6.67 ± 4.41	16.67 ± 7.26	12	13	*Erigeron*	0	36.67 ± 12.02	14	2
Eriogonum	165 ± 36.52	265.29 ± 27.65	5	5	*Eriogonum*	2.5 ± 1.73	1.20 ± 0.84	13	10
Gaillardia	80.32 ±16.77	80.94 ± 11.04	7	11	*Gaillardia*	59.03 ± 11.68	26.04 ± 4.20	1	4
Helianthus	0	216.92 ± 30.03	13	6	*Helianthus*	30 ± 0.00	55.38 ± 18.56	5	1
Nepeta	304.29 ±25.30	287.34 ± 17.56	1	3	*Nepeta*	11.47 ± 3.11	0.95 ± 0.67	9	11
Perovskia	225.52 ± 30.39	296.81 ± 37.59	4	2	*Perovskia*	8.28 ± 3.29	0.64 ± 0.64	11	12
Salvia	53.81 ± 9.68	85.00 ± 8.50	9	9	*Salvia*	15.5 ± 2.98	29.72 ± 3.38	7	3
Teucrium	246.92 ± 36.74	281.54 ± 53.56	3	4	*Teucrium*	33.46 ± 8.86	8.40 ± 3.25	3	7
Verbascum	70.91 ± 17.49	103.64 ± 22.31	8	8	*Verbascum*	46.36 ± 7.31	9.55 ± 4.99	2	6
Verbena	17.37 ± 7.3	81.33 ± 13.30	10	10	*Verbena*	23.14 ± 5.51	7.17 ± 1.91	6	8

[1]Other bees = bumble bees, carpenter bees, leafcutter bees, longhorned bees, and sweat bees