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February 2016

W.A.S. Journal

Journal of the Western Apicultural Society of North America

Almond orchard in bloom (Almond Board photo)

2016 WAS memberships became due January 1. Membership form page 38.

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PRESIDENT'S MESSAGE ...

Rolling out the 2016 WAS Conference

Mark your calendars for mid-October 2016 and the 2016 WAS Conference, planned for the Ala Moana Hotel in beautiful Honolulu, on the island of Oahu, Hawaii!

The Ala Moana is situated at the end of Waikiki Beach and just two blocks from the famous Ala Moana Beach Park. The hotel is a local favorite with over 1000 newly renovated guestrooms. It was chosen for its central location with lots of things to do, and for being adjacent to the Ala Moana Center, the largest shopping center in Hawaii.

The 77-acre Ala Moana Beach Park offers jogging trails, picnic areas, tennis courts, ample sandy area and is great for swimming. Hotel amenities include a Fitness Center with state-of-the-art equipment, sauna and steam room; three restaurants (including a newly opened Starbucks), a nightclub on the property and close to 100 places to dine, from fast food to fine dining in the immediate vicinity; a Business Center equipped with computers, a printer, fax machine and accessible 24 hours; and an outdoor pool.

Parking is expensive ($20 - $25 per night) so car pooling or use of public transit is advised. There are a number of shuttle and taxi services that you can use to get to and from the airport and the hotel. Speedi Shuttle (877-242-5777, maui@speedishuttle.com, www.speedishuttle.com/reservations) and Ilima Tours (800-713-0146, reservations@ilimatours.com, ilimatours.com/reservations-air) offer competitive and affordable rates from the airport to the hotel.

Room rates are $159 per night in the Kona Tower, $179 in the Waikiki Tower. For photos of rooms and other information on the Ala Moana Hotel, see next page, or visit www.alamoanahotelhonolulu.com. Rooms must be booked by September 12 for the conference rate. Book by phone (808-955-4811) or online (http://www.alamoanahotelhonolulu.com). Tell them you are with WAS. A code will be issued shortly.

The conference theme announced in November is "Beekeeping in Hawaii: New Insights into Old Questions". The distinct islands, each with their own set of pests and parasites, provide researchers with natural laboratories in which to study the effects of the mite on colony health. The work conducted in Hawaii has opened the doors to new perspectives with respect to virus evolution, varroa's impact, and colony management.

The program will include professionals and students who are working on these research programs, many unique to Hawaii's beekeeping experience; a look at the effect of honey bee problems on other pollinators; and a teaching component to help elementary and high school teachers provide their students with learning opportunities related to pollinators - "teach the teachers"!

Saturday workshops and tours will combine visits to tropical farms, apiaries, and a look at the gorgeous island scenery.

We look forward to sharing the cultural and biological diversity of these islands with all of you!

WAS President, Dr. Ethel Villalobos
Director of the University of Hawaii Honeybee Project
College of Tropical Agriculture and Human Resources
University of Hawaii at Manoa
Honolulu, HI

(Top to bottom) Outside view of Ala Moana Hotel, lobby, banquet dining room, guest room

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2013 Melanie Kirby (New Mexico)
2014 Jerry Bromenshenk (Montana)
2015 Beth Conrey (Colorado)
2016 Ethel Villalobos (Hawaii)

Obituary

George Steffensen

1928 - May 4 2015

George Richard Steffensen ll, 87, was born in San Pedro, CA. After a short time in the Air Force during the Korean conflict, he began to build a career in aerospace. In 1988 he completed 32 years with NASA's Jet Propulsion Laboratory. The need to be employed while getting his degree prevented him from getting a degree in Physics, which he loved. Labs weren't available at night, so he eventually completed his degree in Mathematics at Cal State University, Los Angeles, where he met his future wife, Jane - in Philosophy class. ("JPLers had to take it as part of the curriculum, Clueless engineers! He needed help, and he picked on me"). They retired to Grants Pass, Oregon in 1988.

As he looked toward retirement, Jane asked what he'd like to do as a retirement hobby. He immediately responded, "Bees". Who knew?

George and Jane had built their retirement home previous to 1988 and she was already living there when an old beekeeper put about 50 hives on the market. George took them back to California and began his new hobby, putting them into the avocado groves near Santa Barbara. Thus began his long time love affair with bees - very much hands on. He loved the science, nature, and activity of these creatures. They challenged him, and he loved it.

When he was 75, Jane convinced him to hang up his spurs. He had only about 10 hives left when a momma bear and her cub, living in their forest, got wind of the sweet stuff and destroyed those last hives two nights in a row. Decision made.

Though not much involved with the Oregon Beekeepers Association, George became deeply involved with WAS, probably at the time he moved to Oregon. He served as the Oregon rep to WAS from the summer of 1996 to the summer of 2008, and as WAS Treasurer from 1999 to 2008, one of the most memorable characters to grace our ranks.

George was everyman, yet one of a kind. It could be said his favorite sport was arguing. He relished it like an athlete. It drove others crazy, but kept him sane. He had the simplicity of the single-minded, and the confidence of the mathematician who knows that two and two make four.

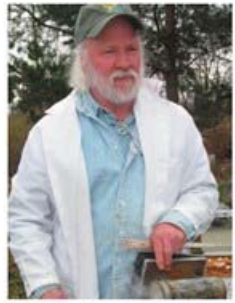
George was 50 years a Mason. With only a single brother, he loved the idea of belonging to a Brotherhood.

A memorial Mass at St. Anne's Catholic church and a Masonic service at Chapel of the Valley were held May 29th.

He is survived by his wife of almost 35 years, Jane, and two sons, Richard and Robert, in Southern California. His only brother, Robert, died a few months before him.

Honey Bees -- They Are What They Eat, Too!

Peter Loring Borst



The origin of pollen and prehistoric flowers

With the discovery of fossils, people realized that that life has been going on for millions of years and was quite different in the past. In the Mid-Mesozoic, primitive insects called scorpionflies fed on early plants such as conifers, cycads, and ginkgos, which did not have true flowers. The period beginning about 125 million years ago is called the Cretaceous explosion because of the incredible variety of plants and animals that appeared. Studying fossils shows how plants and animals have co-evolved. Adaptations in one group has been accompanied by adaptations in others. Hence, bees developed physical characters like long tongues and pollen baskets to gather their main food sources, nectar and pollen. As pollinating insects proliferated, so did flowering plants. These developed adaptations such as attractive petals with colors, odors and flavors to entice pollinators. As Steward Brand famously said, 'All evolution is coevolution.'

The nutritional quality of pollen

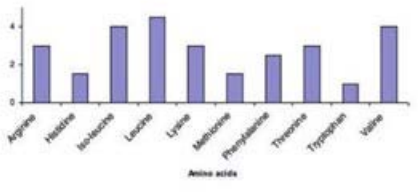
One of the great beekeeping pioneers, Johann Dzierzon lived from 1811 to 1906. Among Dzierzon's discoveries are his observation of the influence of intensive pollen feeding on the fat body accumulation of young bees preparing themselves for the winter season and his experiments on pollen-substitute collection and its use. He observed bees gathering flour and other powdery substances including dust and spores. Pollen is a unique substance which flowers produce to carry out the process of fertilization.

Pollen is one of the most nutritious foods available despite the fact that it is not produced by plants as a food. Plants have evolved many types of fruit which function solely as food, but pollen is very clearly produced to enact pollination. Still, it contains the ten essential amino acids required by bees for proper growth and development. It also contains lipids, vitamins, and other critical nutrients. Pollen generally is about 20 to 25 percent protein, made up of varying amounts of each of the amino acids. Pollen from some sources, such as poplar and apple, contain much more protein while others like corn and dandelion contain much less. Bees can compensate for low protein content by gathering more. However, the balance of amino acids is not the same, with some pollen being especially deficient. They compensate for this by collecting from a variety of sources.

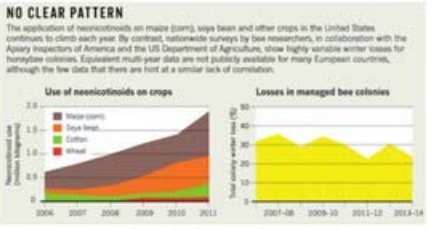
Supplemental bee feeds and their relative merits

Much research has gone into determining the dietary requirements of bee colonies and many supplemental feeds have been tried. Much of this work was done by Lonnie Standifer, entomologist at the USDA's Agricultural Research Service, Tucson, specializing in honey bee physiology and nutrition. According to Standifer: 'Various materials, including brewer's yeast, soybean flour, dry skim milk, and egg albumin, mixed with honey or sugar water, have been fed to bees, but the colony stimulation is minor compared to that derived from fresh pollen. There is no substitute for pollen.'

Despite this knowledge, the quest for the ideal food supplement continues. There are many commercial products on the market and beekeepers make up their own to replace natural food sources or to stimulate colony growth at certain times of year. It's clear that having bees on a natural food source is cheaper than feeding them, and that natural food sources are superior. Heather Mattila at Guelph showed that feeding protein in the fall did not improve overwintering success.



Ideal ratio of Amino acids (g per 16g N) — from de Groot



Bee nutrition, disease and pesticides

An incredible amount of new research has been done in the past decade. Special focus has concentrated on the interplay between nutrition, disease, and pesticides. Bees have always been plagued by diseases, but pesticide use began to be a serious problem early in the twentieth century with the introduction of arsenic sprays to control insect pests. These sprays were devastating to bees and beekeepers, and led to laws prohibiting the spraying of flowers when bees are present. Later problems arose with increasingly toxic formulae and the adoption of aerial spraying. This type of mass bee killing has all but disappeared with strict laws controlling the application of pesticides, and newer more targeted chemicals. Research continues to look at the effects of these chemicals on bee health.

It is clear that there is an interplay between nutrition and pathogens. Well fed colonies tend to be able to ward off infections, while diseased colonies may have difficulty obtaining and digesting food properly. Add chemical pollution to the mix, and it becomes nearly impossible to separate these influences.

Ongoing research

I mentioned the work of Heather Mattila, who now has her own lab at Wellesley College. Other key researchers include Christina Grozinger of Penn State, who helped develop The Center for Pollinator Research - a dynamic group of 25+ independent faculty in multiple departments and colleges, all committed to studying the factors impacting pollinator health and developing creative approaches to pollinator conservation.

The USDA Lab of Gloria DeGrandi-Hoffman is focused on topics such as 'Understanding Honey Bee Microbiota to Improve Bee Nutrition and Colony Health' and 'Determining the Impacts of Pesticide- and Nutrition-Induced Stress on Honey Bee Colony Growth and Survival.' Last but not least, Marla Spivak has provided leadership and authority to the ongoing study. Her stated goal is 'To promote the health of bee pollinators. We work as a team to provide the richest learning environment for students at all levels and from all backgrounds.'

Agriculture as the Solution to World Problems

Dr. Jonathan Lundgren

Our planet faces numerous large scale problems, including climate and land use change, invasive species, pollution, and human disease and environmental health. It can be argued that many of these problems can be linked directly or indirectly to reductions in biodiversity. We often hear about pollinator declines, but the issue is much bigger than just a bee problem. We are undergoing a biodiversity crisis in the United States and around the world. Many habitats and groups of plants and animals are in a precipitous decline.

These problems are inherently linked to our food production system. Representing 40% of the land surface of our planet, agroecosystems are the largest biome on planet Earth. Because of the scale, decisions made on these agroecosystems affect nearly every other habitat and species.

But even diversity within agroecosystems is in steep decline. We have experienced major shifts and perturbations to our food production system since 2007. Soybeans are produced at a similar rate, but nearly every other crop is planted on substantially less acreage than it was. What is replacing these crops? Corn has increased in acreage by 14% of its 2007 levels and this single plant species is currently planted on 5% of the land surface in the US.

There are consequences to this simplification. Corn, soybeans, and cotton are planted on 9% of the land surface of our country - three species where once there were hundreds. And all are genetically modified to resist pests. All are treated with herbicides and chemical fertilizers. And nearly all are treated with neonicotinoid seed treatments. These inputs are the only way that these simplified systems can remain productive. We have replaced biodiversity with technology.

I question this paradigm of food production. I question the simplification of our landscapes. I question the unnecessary use of insecticides and GM crops. And I question the use of corn for ethanol. As a result of this, everyone that I care about was attacked either directly or indirectly. Our spirits were crushed. And I was punished for conducting science that questioned this paradigm.

But in my exploration for the truth I have discovered something that is both amazing and gives me a tremendous feeling of hope. I have come to see that nearly every problem that we face as society can be solved through better management of our food production systems.

Conceptually, farm productivity and environmental health can be fostered with two simple concepts. Increase diversity. Reduce disturbance. Disturbance means things like reducing or eliminating tillage and pesticide use. Biodiversity can accomplish many of the things we rely on inputs for in our current paradigm. Plant diversity is particularly important in and near farmland.

Food production in nature's image is not simply in my imagination. There are farmers, ranchers, and beekeepers around the country that are already doing this and they have become my friends. So I don't need a crystal ball to see the future of farming. I can go to the farms where the future is already happening.

But what is alarming is that science is not supporting these innovative producers. Quite the opposite. Because the farmers on the leading edge of regenerative agriculture are doing things on their farms that science says can't happen. And because the scientists can't figure out how to produce crops ecologically, the scientific data is thrown down as a hurdle that impedes innovation. Because much of the science that is going on is conducted to support the current monoculture-centric paradigm when what we should be creating is an entirely new one.

We require a transformational shift in food production. And transformational changes do not come from the government and they do not come from large research institutions. Transformation of this nature comes from the bottom up. And it is happening right now.

To support this incredible innovation, I have a vision for the future. A network of research, education, and demonstration farms across the country. This network would link the top agroecologists in the world with the leading producers in regenerative agriculture to create centers for excellence in biodiverse farming. This network could respond to local needs and circumstances to be as relevant as possible, while upholding the central philosophies and practices of regenerative agriculture. And this network of farms would also be learning centers where the next generation of students/farmers/scientists can learn and see the new paradigm in food production.

In summation, we can produce food AND conserve the environment. I have seen it. And I will devote the rest of my life to supporting it. I don't consider this courageous; it is just the right thing to do and the right time to do it.

CONFERENCE 2015 ...

Treating Wounds with Honey

Drs. Allen and Jane Dennison

Beekeepers know that honey is good for a variety of wounds so any talk in this area is preaching to the converted. Ancient barrel hives have been discovered in Mesopotamian archaeological dig sites dating active beekeeping back to 2000 BC. Sir William Osler, founder of the Johns Hopkins Hospital and Medical School quipped in about 1908, that " The chief feature that distinguishes man from animals is the desire to take pills."

Early medical practitioners were no less diligent making topical skin treatments such as creams, ointments and poultices in written history and likely before that. Honey found undegraded in the tombs of the Pharaohs were not just for oral consumption in the after-life, but also for regular reapplication of this important component of embalming fluid.

Early caregivers would have found immediate success in treating wounds with honey and were likely as skillful as we are today, it being the only modality before systemic antibiotics for wound infections. What we can offer today is more understanding of the multiple parallel molecular mechanisms by which honey accelerates wound closure. These mechanisms function so wonderfully together that the theologian will invoke "intelligent design" and the biologist "Evolution." Brown University Biology Professor Ken Miller, a Catholic scientist, proposes that "God set evolution in motion" and we can dispense with trying to control school teachings on the subject and just admire the chemistry.

Honey is the bank account of the bee hive. Through evolution, mechanisms to protect the honey from degradation have emerged. Most of them help protect the wound from infection, scabbing and scarring. It appears that man and bees have co-evolved in the same way as all domestic animals, with passive and active selection of desirable traits, one of them being the use of honey to heal wounds. Bernard Descottes (1943-2009) Chief of Surgery at a hospital in Limoges, France used local honey of different nectar sources, thyme in particular, in deep and superficial wounds with success. He combined it with dried seaweed to absorb tissue water to prevent dilution of honey into a fermentable state. But when my wife and I were rotating third year medical students in 1979, only the gynecologists seemed to know about using honey to close wide excisions on vulvar cancer resections. We were dispatched to the supermarket to buy Sue Bee Honey which we drizzled onto these miserable geometrically awkward and contaminated wounds with good results. When my wife became a beekeeper after our four boys swarmed elsewhere — to Boulder, Colorado, Seattle and New York City, we attended monthly meetings of the Rhode Island Beekeepers Association.

Several older beekeepers told me about success with Medihoney from New Zealand manuka nectar. They encouraged me to try this on patients and I was intrigued. My first patient was an 80 year old lady living alone who sat in a chair ond got dependent swelling and ulcers on her shins. I issued her a plastic honey bear and instructed her to drizzle the honey on her legs twice a day. At body temperature it ran down her shins and ruined her shoes and socks. She ate the honey up and that was the end of the empiric clinical trial. When I complained at a meeting of the RIBA, the older lady said, "So sorry, you have to mix it with Aquaphor™ to make it stay on the wound." It has been steady clinical success since then in hospital and out.

The critical technology has been with new absorbent and non-absorbent dressings and the recognition over the last 10 years in the field of wound care that daily debridement with "wet to dry" gauze dressing is not helpful. In 1978, I rounded on patient lower extremity wounds and hastened to give morphine to the patient before the surgical resident ripped the dry dressing carrying healing wound elements with it. This behavior now carries fines from Medicare against the hospital and is discontinued.

Honey is an 80-85% sugar gel, half glucose and half fructose. It stops most bacteria and yeast in their tracks with osmotic stress, sucking cytoplasmic water through the semipermeable membranes of the cell. At the same time, it sucks edema from injured tissue, relieving pressure and pain. This permits increased circulation of blood carrying oxygen and nutrients to the wound elements, the fibroblasts, myofibroblasts, lymphocytes, macrophages. The sugars directly feed and activate the healing cells to lay down proteoglycans and collagen to create the scaffold for healing "ground substance" which we now know is not infected pus requiring scrubbing out with brushes and caustic cleaners. Honey is a good thermal insulator and after some initial stinging on application, soothes raw nerves of, for example, road burn in a high speed tricycle accident by a howling four year old child. Age four is a good time and place to try to gain the confidence of the public in doctors and nurses and Obamacare in general.

Honey has an acid pH about 5.8. Acid has a bacteriostatic and cidal effect and for this reason is used in pickling food. Chronic wounds, defined by Medicare as showing no progress after 30 days, have analkaline pH of about 8. Blood pH is close to 7.4, which is optimal. When honey is applied to chronic wounds, the pH drops. Gethin and colleagues of a wound research unit in Dublin, Ireland can correlate this drop with progression of wound edge closure. Acid hydrolyzes dried protein which lay people call "scab" but we medical professionals call "eschar" which the new ICDM codes (Version 9 to 10, just in effect on October 1, 2015) is 334.89. My response to this crisis of nomenclature was to avoid the office and seek the company of more congenial beekeepers.

Scabs, although an understandable result of unsupervised oozing and drying of a wound, prolong wound closure and promote scar and contracture formation. Dr. Dennison's Rule of Medicine, if I may be so vain, is that everyone picks their scabs — even doctors and nurses, who well know better! Educated people make a mess of themselves in their sleep and they cannot help it so there is no point in putting them down as bad patients.

Dr. Roger Lebrun, Chairman of the Department of Entomology at the University of Rhode Island elucidated the reason for Dennison's law: "It is a cross-species universal instinct written into the DNA, understood to be of survival value in removal of ectoparasites." We beekeepers understand the importance of removal of ectoparasites, especially Varroa mites.

Honey and all occlusive dressings prevent drying and scab formation from the beginning. Proteins in honey protect the honey and interact positively with wounds. Antimicrobial proteins are primordial forms of the immune systems of all animals and plants. They have the capacity to recognize foreign invaders and to puncture their cell walls, destroying the cell. Honey has such proteins. Honey has enzymes, the best studied being glucose oxidase. The enzyme facilitates the conversion of water and glucose into small amounts of hydrogen peroxide. This is toxic to bacteria, particularly to anaerobes which can grow to cause gas gangrene. Hydrogen peroxide also appears perhaps to be "chemotactic", which is to say the messenger which calls in immune cells and growth of new blood vessels into the ground substance to complete the infrastructure of new tissue filling in a gouge in the skin with local honey. As a protein, the peroxide effect is destroyed by commercial heating and filtering of honey.

I briefly reviewed the history of New Zealand's manuka honey. Dr. Peter Molan died this year after a lifetime of research showing the safety and effectiveness of manuka honey in closing wounds. The definition of UMF - which turns

out to be a small three carbon molecule, methylglyoxal - was a major breakthrough. This heat-stable molecule confers special antiseptic quality to manuka honey. A new book "Manuka", by Cliff Van Eaton, Exisle Publishing, 2014, provides a definitive history of these investigations and business development.

I reviewed two articles, one from Malawi showing less pain and more rapid healing with local honey versus table sugar. Table sugar is often used as a dressing in war and disaster zones when dressing supplies run out and military rations still leave packets of sugar at hand. The second article shows histologic evidence of more rapid healing and reduction in edema in a mouse model comparing local Iranian honey versus beef tallow. The Iranian scientists living under a western embargo cannot obtain standard western medical and scientific supplies. They did an admirable job in documenting differences in interim cellular response as well as a better and quicker outcome in wound healing with honey compared to beef tallow. The reference list is available at Dr. Dennison's website www.honeyointment.org.

My clinical conclusion after eight years of honey in clinical practice is that honey of any source beats any other wound dressing for cost, speed of healing, prevention of infection and odors, symptom reduction and reduction in cosmetically objectionable scarring. In hospital practice, physicians and nurses stick to the use of Medihoney™ because of high risk of treatment failure in critical patients and the need to use an FDA-approved treatment in case of medical liability. For superficial wounds, most honeys will give great wound closure. How much of honey's ability to heal is due to its antiseptic quality versus its chemical support of wound elements, remains a fascinating unanswered question. We can take this gift to our patients either way. Honey can be used alone or mixed with ointments such as lanolin and petroleum jelly.

In the Q&A session that followed, one questioner asked me if I find physicians receptive to using honey. While old habits die hard, I have found active interest in my lectures to young physicians in training at Brown University Medical School and wound care nurses at Rhode Island and Miriam Hospitals where Medihoney™ has been on the formulary for four years. Physicians collaborate with nurses on wound care. Nurses have to do the work and feed back what they find effective. Nurses usually drive the choice of dressing and the docs simply sign the verbal orders they request. There is an excellent review of honey dressings in a nurse practitioner journal on the reference list in my website. Doctors are more collaborative with patients now. You can feel comfortable in asking the doctor if Medihoney™ will work well on your wound. Different visiting nursing agencies will have experience treating chronic wounds and will call the treating doctor to advocate using honey on a complex wound at home. I have one agency I use preferentially and find we can avoid referral to expensive and time-consuming hyperbaric oxygen centers — although I am on the staff of one in East Providence.

CONFERENCE 2015 ...

Audubon ROCKIES 'Habitat Heroes'

INTRODUCTION

Jamie Weiss, Audubon Rockies' Habitat Heroes Coordinator, is based out of the regional office in Fort Collins. Habitat Heroes are people who practice a form of landscape stewardship called 'wildscaping' - landscaping designed to attract and benefit birds, pollinators and other wildlife, large and small that help create bird-friendly communities. Whether the landscape you tend to is a residential yard, a few pots on a balcony, a public park or schoolyard garden, Habitat Heroes believe in growing a healthy community. By combating the loss of open spaces and creating green corridors that link your wildscape to larger natural areas by providing habitat for wildlife, we can feel good about doing something positive for ourselves, the environment and our wild friends.

AUDUBON PLATFORM

Audubon Rockies is a regional office of The National Audubon Society, an organization that has championed the protection of birds and their habitat for over a century. Working across the 4 flyways Audubon looks at landscape-scale conservation through the lens of birds. Through science, education, advocacy, and on-the-ground conservation, we protect birds and their habitat. Our philosophy is 'where birds thrive, people prosper.'

WHY CREATE WILDSCAPES

The #1 cause of endangerment to species in the US is habitat loss. Your backyard (of any size), although a private oasis is connected to the larger landscapes. So as a homeowner, apartment dweller, rancher etc...you have the power to help protect birds and other wildlife by creating habitat and can help bring conservation home, one wildscape at a time! To combat the loss of open spaces, Habitat Heroes contribute a positive impact to the community by increasing natural areas, providing homes and food for wildlife, and connecting to larger green spaces. This helps to restore a fragmented ecosystem, through the implementation of wildscaping - landscaping designed to minimize water consumption and provide habitat for birds, bee and wildlife, large and small.

WAYS TO GET INVOLVED

- Workshops - Attend one of our workshops to learn wildscaping tips and techniques, how to attract wildlife in an urban environment, planting a Habitat Hero Demonstration Garden, and more! These events are designed to appeal to both the new-to-the-scene gardener and veteran alike.
- Youth Programs - Our goal is to connect young minds with nature and have them become the ultimate Junior Habitat Heroes! Activities are designed to spark a sense of curiosity of the world around them and to learn about the other creatures we share it with.
- Volunteer - Whether you are a plant buff, want to get your hands dirty at a planting event, or enjoy connecting with community members – we would enjoy your helping hands.

• Blog/Website - Visit our website to learn gardening tips and techniques and hear from a variety of guest bloggers, view recommended plant lists based on your wildscape zip code, and find the most up-to-date information on upcoming events and news (http://rockies.audubon.org).

• Community Plantings/Demonstration Gardens - Members of the community have the opportunity to lend a helping hand in shaping the place where they live by planting a garden in an area of town that needs some sprucing up – whether a park or a roadway median. We partner with city agencies, schools, nurseries, home owner associations, Community Supported Agriculture programs, and other municipalities to plant Habitat Hero Demonstration Gardens that offer both environmental benefits and are aesthetically pleasing.

• Awards - From August thru October apply to become a Habitat Hero to receive recognition on your outstanding wildscape! Winners receive an all-weather garden sign to display, gift card to High Country Gardens and a Colorado/Wyoming Wildscapes book – plus the added bonus of bragging rights! Top garden/gardens will be featured in the 2016 spring catalog of High Country Gardens.

WILDSCAPING BASICS

- Water Conservation - use less water (and thus less energy) by planting natives & regionally adapted plants;
- Protect Water Quality – keeping our local water sources clean by not using pesticides & eliminating harmful runoff;
- Eliminate Chemical Use—make for a more sustainable and healthier world for all of us;
- Plant Natives – replace turf grass areas with a variety of native perennials, shrubs, grasses and trees;
- Control Invasive Plants – that degrade habitat in and beyond our yards;
- Support Wildlife – Plant bird and butterfly-friendly species for year-round food, cover and shelter.

SUPPORT WILDLIFE

Provide Habitat = Food, Water, Shelter

Plants offer a variety of food sources from fruits, berries, grains, seeds, nuts, acorn, to nectar etc... Plants should be primary food sources for birds and other wildlife as they have coevolved alongside one another for years and can be easily recognized via smell, color, unique markings/patterns, specific bloom times and offer a more complete meal than bird feeders! Offer food year round in a consistent manner so as not to leave wildlife disappointed which leads to dispersal to look for more full time provisions.

• Berries - Great summer food source when food should be most bountiful. Nature's way of ensuring enough food thru winter when provisions are scarce by having some berries be less palatable. Rich in antioxidants and sugar. Plant example – Golden currant.

• Insects - Great springtime food source. 96% of terrestrial birds feed their young on insects. Great organic control method of pests. Full of protein to aid in development and growth. Plant examples – Bur oak & hawthorns host a variety of insects.

• Nectar - Great food source for the shoulder seasons (spring/fall) for insect pollinators and birds! High octane fuel. Plant examples – Rubber rabbitbrush and penstemons.

• Seeds - Great winter food source when provisions are most scarce. High in fat and protein to help bulk up bodies to endure the harshness of winter. Plant example – grasses and coneflowers.

BOTTOM LINE

Help stitch back the landscape one wildscape at a time!

• It takes a lot of time, money, reduction of our water supply and potentially puts everyone's health at risk just to maintain yards that do not fit into our environment.

• Diversity, Diversity, Diversity! This is the key to maintaining a wildlife habitat that is attractive to wildlife. You need to introduce diversity in structure, food, and cover.

(Clockwise from top left) Fall colors in Rocky Mountain National Park near Boulder; ABF Executive Director Regina Robuck and Honey Queen Gabrielle Hemesath; Saturday night game saw the score tied 17-17 at the half. Final Score: Oregon 41 Colorado 24; Pheasants Forever booth, John Miller (far right); New WAS President Dr. Ethel Villalobos introduces herself to members of her new board. (National Park and game photos by Kevin French)

Boulder, Colorado 2015

(Clockwise from top left) Stuart Shim and Paul O'Neill with Beaver Plastics, Alberta, Canada; Dr. James Wilkes and HiveTracks; the ladies at Harlequin's Gardens, Boulder, Colorado; attendees at the Farm to Table Dinner, Saturday night in Boulder; Kevin French, Massachusetts, and Jacquie Keenan, Alberta.

Next Generation Beekeepers

(Clockwise from top left) Bee Girl Sarah Red-Laird in action; beer by Full Sail Brewing; music by Jim Deeming; and Bernardo Niño makes a point on the serious side

Next Generation Beekeepers Initiative Breakout Session ....
Finding the Bright Spots in Beekeeping

By Sarah Red-Laird, "Bee Girl"

About twenty five people got together under one roof in Boulder, Colorado during the 2015 Western Apicultural Society Conference. We were different in most ways: career paths, education, location, some men, some women, some older, some younger, but all had one common thread, our honey bees. The goal of the Next Generation Beekeepers Initiative is to provide a space for beekeepers, newer to the profession, to find guidance, connect with each other, and to identify current issues, and brainstorm solutions using "colony" mentality in an open discussion format.

Before we got down to brass tacks, we were treated to live acoustic guitar music from renowned finger picker and beekeeper, Jim Deeming. Beer and delicious honey-based snacks provided by Full Sail Brewing and Honey Stinger, Inc., and a perfect and relaxed space donated by CSBA beekeeper, Theresa Beck, made the night.

After a couple of hours milling about the porch and bathing in tunes and sunset, we headed inside where I welcomed the crowd, and introduced the facilitators. John Miller was our resident "wise elder" of the night and gave a powerful introduction on the realities of beekeeping. John asked us to think about what "kind" of a beekeeper we want to be, "industrial" or "artisanal"? He then explored the definitions of each side. Does big business excite you? Running a crew, a fleet of equipment, trucking, the two or three state nomadic life. Or is it more about connecting with every hive? Running a few hundred, or a couple thousand hives with one or two partners. Less money? More stationary. Better quality of life?

Life, and living it to the fullest is one thing co-facilitator, Dan Wyns, knows about. Currently on the Oregon BIP team, Dan shared his fascinating tale of how he came to know bees in the backcountry of New Zealand. Dan recounted his last few years, including a 7 year "stay" in New Zealand, where he started moving hives for pollination, and then progressed to the position of apiary manager for Kerikeri Pollination, a diverse beekeeping operation running ~2200 colonies for kiwifruit pollination, manuka honey production, and queen rearing as well as running his own colonies for avocado pollination and acting as regional apiary inspector.

I asked each co-facilitator to share what they see as a "bright spot" in our industry, e.g. something that is working brilliantly, and could be repeatable by others. Working with many commercial beekeepers through BIP, Dan recounted the possibility to both have a manageable number of hives (where two or three partners can access and provide the best care for each hive) and still have a successful business, making good money, and having a sustainable work/life balance.

"The 'best' outfits operate like families-- they have high continuity in key staff and are real students of the craft of beekeeping, always on top of new developments/threats in industry and accepting of science and technology advancements in an otherwise 'binary' trade. Commercial beekeeping is a true 'lifestyle gig' requiring hard physical work, erratic schedules, nomadic existence. There are plenty of easier ways to make a living -- you have to genuinely love and be fascinated by bees to do it well. Investment in training/mentoring/retaining beekeeping staff means an owner can send a crew out and the bees will get the highest level of care as opposed to cheap labor 'robotic beekeeping' (crack lid--> feed in-->patty on--> strips in . . .) without really looking at what's happening in individual hives or on an apiary level. Several of the best operations have some sort of equity/profit sharing/hive ownership scheme for key staff which encourages them to keep standards high rather than just going through the motions.

"Beekeeping really is a people business -- a bit of a throwback in that way but it's a small enough industry that your name and a handshake still mean something. Strong relationships with growers, orchardists, and land owners is essential so they understand issues facing beekeepers (sprays, forage, etc.) and beekeepers understand the importance of providing quality bees on time for pollination and respecting the privilege of access to apiary sites."




Our final co-facilitator, Bernardo Niño, sees the "bright spots" every day, as part of his new appointment as a Staff Research Associate in Dr. Niño's Lab at University of California, Davis. To him, the best example of what is working well, and can continue to thrive is research. More specifically young people in research. More specifically young women in research. He sees the next generation of women scientists coming into the field as a force to be reckoned with. They are sharp, they think outside of the "box," and they love bees. Seeing as how I got my start in research, then moved into education, I have to agree. I have a troupe of female colleagues who I know will change this world for the better. Bernardo has faith that funding will continue to come in from US Government programs, private donors, and beekeepers to employ the next generation of scientists to understand varroa, make forward steps in bee genetics, etc.

The bright "spotlight" then turned to the group, and we held a "town hall" style meeting where the co-facilitators answered questions, addressed concerns, and the group naturally settled on a few topics to delve into. The beekeepers in the room were primarily "backyard" beeks with 5-30 hives. Many of them were looking to grow their operations and take their honey to retail markets, others were interested in taking a step into commercial beekeeping, and some were interested in research and technology. Many held leadership positions in their communities (beekeeping associations, etc.).

Our discussion settled on three main topics:

1. How to get financial assistance to start small operations (where is the startup capital)?
2. How do Next Gen Beekeepers get into the commercial beekeeping industry?
3. How do we mentor all of the new beekeepers (too many newbees, not enough of us!)?

Here are ideas gathered from the group using "colony" mentality, as well as some research I've done since.

1. How to get financial assistance to start small operations (where is the startup capital)?

- Grants: USDA's Rural Business Enterprise Grant, Conservation Innovation Grant, Farmers Market Promotion Program, Rural Business Opportunity Grant, Beginning Farmer Loan Program.
- Donations: Local, regional, statewide, or national corporations, banks, and tribes.
- Crowd funding: Go fund me, Kickstarter, Indiegogo, Crowdrise, etc.
- Loans: Kiva, Small Business Administration (SBA) and Certified Development Company (CDC) microloans, USDA Farm Service Agency.
- Start a program modeled after UM Bee Squad's "Hive to Bottle" program. Raise money for your business by taking care of bees for other people!
- Start a "Honey CSA", i.e. "Community Supported Agriculture" where customers invest in your business and get a "share" of the "crop."

2. How do Next Gen Beekeepers get into the commercial beekeeping industry?

- Start turning a profit by selling locally adapted nucleus hives.
- Create a "match.com" for beekeepers who need workers and next gen beekeepers who want to work for a commercial beekeeper (someone said they started a version of this, still waiting on the link).
- Find a WWOOF farm to work on that has bees (World Wide Opportunities on Organic Farms).
- Attend meetings and conventions to network and find a good match for mentorship.

3. How do we help mentor all of the brand new beekeepers? There is an influx of beekeepers right now, so how about "reverse mentoring", e.g. teaching someone that is our "elder." But we are busy, have families and jobs, how can this be sustainable for us?

- Recommend online master beekeepers courses (University of Montana)
- Begin a mentorship program through local beekeeping clubs/associations. Establish vetting principals for mentors, connect them with a mentee, and offer the mentor an honorarium (for time, gas, etc.)
- Begin an apprentice program, e.g: Growing Gardens (Boulder), Brooklyn Grange (New York), New York City Beekeepers Assn. (example: http://www.growinggardens.org/beekeeping). Again, vet and compensate your instructors.

We wrapped up the evening with more delightful guitar strumming, brews, exchanging of business cards, reflecting and processing of ideas presented, smiles, selfies, and hugs. It was a splendid evening and I am so thankful for (my mentor) John Miller's wit, leadership, and truth, co-facilitators Dan Wyns and Bernardo Niño, our musician, Jim Deeming, and our donors and sponsors Honey Stinger, Inc., Full Sail Brewing, A&O Forklift, Theresa Beck, the Western Apicultural Society, and the Colorado State Beekeepers Association.

REGISTRATION IS NOW OPEN

for the University of Montana's Master-Level Beekeeping On-Line course to be held March 28 -May 20.

Visit URL: www.umt.edu/bee <http://www.umt.edu/bee>.

In this 8-week Master Beekeeping course, learn about bee pheromones and genetics, anatomy and reproduction, bee flight, hive products, bee nutrition, basic principles for conducting your own experiments, record keeping, and other advanced bee management topics.

This course is only open for registration to students who have successfully passed/completed one of the sections of our Journeyman online classes.

This fully online course is the third and final level in the Master Beekeeping Certificate Program offered by UM with instruction by Dr. Jerry Bromenshenk, Scott Debnam, and Phillip Welch. It will be offered for Certificate for 3 University level, Academic Credits.

In addition to UM instructors, we will have guest experts for the Nutrition and Experimental Design Topics.

We are currently testing online, live Q&A sessions in our new Apprentice Section beginning this coming Monday. If successful, we plan on having our guest experts available to the Masters level course students at a scheduled time to address the entire class, field questions in a live, face-to-face format.

This will be the first section of our courses to use Moodle's new, SNAP format. It should be more intuitive, easier to navigate, and it should be accessible on devices such as tablets and cell phones- in addition to desktop computers, laptops, and larger tablets. **Fair warning, this first section of the Master's Course will test new features. Please note, we have increased the number of credits for this course - we expect it to be challenging.**

J J. Bromenshenk
Bee Alert
Missoula, MT

Honey Bee Health Coalition Report

by Dewey M. Caron, WAS representative to HBHC for 2015 & 2016

The Honey Bee Health Coalition (HBHC) semi-annual meeting, with over 30 members in attendance, was held at the American Farm Bureau Federation in Washington, D.C. Our meeting concluded with a high-profile reception atop the Department of Interior Building in Washington, partnered with the North American Pollinator Protection Campaign (NAPPC). The reception underscored the progress being made on the Coalition's network with policymakers and allies working to strengthen honey bee health. Both efforts are highlighted in the White House's National Pollinator Health Strategy as key examples of public-private partnerships.

HBHC showcased a video about the Coalition's mission and progress to-date, introduced by George Hansen, ABF representative, at the reception. The video highlights the Coalition's mission and ongoing work to promote honey bee health through collaborative strategies. (See 4th Quarter HBHC newsletter for hotlinks to HBHC membership, the video and our progress on Bee Health - http://honeybeehealthcoalition.org/category/newsletter)

Following the DC meeting, WAS representative Dewey M. Caron, with the support of Coalition member Bayer CropScience, participated in a media tour to inform diverse DC media outlets about Coalition activities. This tour, not intended to produce actual media coverage, was organized to provide information on Bee Health activities. With the Bayer representatives Dr. Becky Langer and Dr. Ian Kelly, Dr. Caron visited reporters in the offices of National Public Radio (NPR), InsideEPA.com, Politico, CQ (Congressional Quarterly) Roll Call, Bloomberg News, Agri-Pulse, THE HILL, and the Bloomberg Bureau of National Affairs (Bloomberg BNA).

The conversations gravitated around the Coalition's mission and recent activities, including a summary of progress of our four working groups and the release of our Tools for Varroa Management Guide. Dr. Caron, who was principal author of this document, explained how this resource, with its emphasis on sampling and IPM, presents a best management approach to assist beekeepers and those utilizing bee colonies in pollination to combat the negative impacts of Varroa mites and the viruses they transmit. Dr. Langer and Dr. Kelly spoke to some of the contributions Bayer CropScience has made in the area of honey bee health, including their membership in the Coalition, their Healthy Hives 2020 initiatives, and a number of their new products.

The HBHC is partnering with the U.S. Environmental Protection Agency (EPA), the U.S. Department of Agriculture (USDA), and the National Association of State Departments of Agriculture (NASDA) to bring key Managed Pollinator Protection Plan (MP3) stakeholders together in early 2016. The member states of WAS have completed (Utah for example) or have yet to start (Oregon for example) development of this Plan.

The Tools for Varroa Management Guide will again be updated to include new information and update its comprehensive and approachable content. New information on Hopguard II, including a federal Section 3 label, will soon be incorporated. The Tools guide is accessible at: http://honeybeehealthcoalition.org/varroa/.

The Coalition has received a grant from the National Honey Board to produce a series of how-to-do videos to assist beekeepers to better utilize the information in the Tools Guide on monitoring for varroa and use of chemical and non-chemical treatments. Production will take place in early 2016, likely in a PNW apiary. Videos should be available by mid-2016.

The next HBHC meeting will be in May in Saint Louis. WAS voted to continue its support for the Coalition's efforts at our 2015 Meeting in Colorado.

Regional News

HAWAII - *no report*

UTAH - *no report*

ARIZONA - *Zack Funke*

The weather range around this time of year in the Tempe/Phoenix area where I keep my bees is 37-60F. This limits the flight time of the colonies from late morning to late afternoon when temperatures will peak above 50. Upon visiting the main colony site today, Jan 15th around 11AM, I saw bees entering four of the Langstroth hives. The 5th hive had no signs of activity but I wasn't suited up to determine if the colony was still viable. I don't feed my bees at all so the hardiest hives survive year to year. This year I left an average of 20 lbs of honey on each hive in the super boxes. I rarely pull honey from the brood nest unless I know 100% it was freshly drawn out and has no brood in it.

There are three configurations of 10 frame Langstroth hives at the apiary currently, (1) two deep brood, queen excluder, honey super (2) one deep brood, one shallow brood, queen excluder, one honey super (1) 2 shallow, queen excluder, one honey super (1) one deep brood, queen excluder, one honey super.

The hive where I didn't see any activity was the last hive listed. Note that the honey super and shallow brood boxes are the same dimensions. One hive is on the new better bee hive stand, three of the hives are on pallets, and one hive is on 2x4's affixed with nails to a homemade bottom board. I have fence posts staked into the earth around each hive with two ratchets running horizontally around the body of the hives. I have had hives tip at this site due to wind gusts and this has remedied the problem entirely. There is also a top bar hive that had a few bees entering. They had completely sealed the mesh holes with propolis and filled the entrance with propolis down to an entry hole the size of a single bee.

The mesquite trees were defoliated at the farm, which has primarily lettuce, kale, and onions growing. The cacti on the neighboring cacti farm had styrofoam cups covering the tips of many of the varieties. I did see some wild sunflowers blooming near the edge of the road as we pulled in. The nearby pecan orchard should be blooming in February, providing a nice first flush of nectar. Citrus normally starts blooming in March, though there is not a high enough concentration of citrus around the hives to make pure citrus blossom honey. We had three days of straight rain a week ago so that should encourage good tree health.

Regional News

The Buzz from NEW MEXICO - *Jessie Brown*

Greetings from the Land of Enchantment. 2015 brought exciting developments in the area of Education, Outreach and Advocacy, and Beekeeper Professional Development.

Education - The Certified Beekeepers Backyard Beekeeping Program, celebrated the graduation of it's first class. We honor Susan Clair a for her dedication in the development of this program.

In 2015, the New Mexico Beekeepers Association hosted two events, bringing in nationally renowned speakers. In February, we heard from McKnight Scholar, Dr. Marla Spivak, as well as Loretta McGrath with Pollinator Partners. The Mid Annual Meeting was a traveling event, celebrating National Pollinator Week. Speaker Les Crowder, visited Santa Fe, Albuquerque, and Las Cruces and spoke about the ecosystem as a whole, and pollinators place in it.

Outreach and Advocacy - The New Mexico Beekeepers Association traveled to four Counties around New Mexico to visit with county extension agents, general public, policy makers and beekeepers. Locations visited were Otero County (Alamogordo), Valencia County (Los Lunas), Grant County (Silver City), and San Juan County (Farmington). There was a total of 85 attendees to these classes and meetings across New Mexico. Subjects covered were plants for pollinators, alternative pollinators, and beekeeping basics. The following educational materials were developed and produced for the series; 1. NM Plants for Bees; 2. Plant and Seed Sources; 3. Native Plant Seed Balls; 4. Beekeeping Basics; 5. Swarm Prevention; 6. Kid's Coloring Page; 7. Bee Facts.

Anita Amstutz is making a push for Bee USA Designation for the City of Albuquerque. Many city departments are working together to implement Integrative Pest Management solutions.

Beekeeper Professional Development - The National Honey Bee Disease Survey was conducted in 24 apiaries around NM, with additional pesticide sampling for the NM Department of Agriculture. Results of these tests should be coming out soon for each individual beekeeper, and at a state level.

2015 also brought an influx of beekeeping groups to our state. There is a beekeeping group just formed through the University of NM. As I was writing this article, I just heard about another beekeeping group forming in the city of Clovis, NM. Best of luck to them in the development of programming.

Regional News

COLORADO beekeeping wrap - Miles McGaughey

After an amazing fall in the Colorado region, bees and beekeepers have both hunkered down for the winter. Honey flows were good this year with adequate rain and subsequent snow. Extraction was completed late due to the festivities with the WAS conference being in our region. By all standards President Beth Conrey had the largest, best attended conference in WAS history. The plethora of speakers brought together honey bee and human health in an enlightening and useful format. Ground breaking speakers like Dr. Jonathan Lundgren, USDA, served as reminders that our position on neonicotinoids and systemic pesticides in general has been vindicated as these agro-chemicals have been proven deadly to bees even in parts per billion. The subsequent whistleblower status sought and awarded Dr. Lundgren gives credence to his statement,"... that USDA management is ignoring their own science."

The best part of this season, in fact the best part of my beekeeping experience in general, has been happy times spent with friends and fellow beekeepers from other places. My wife Rosa and I would like to personally thank everyone who honored us with their attendance. None greater than the honorable gentleman I had the good fortune to meet at the great WAS conference in Santa Fe, Archie Mitchell. The California WAS director stayed on after the conference and made my season by fishing with me and enjoying the Colorado outback. His visit and visits from others, like Melanie Kirby, past president and host in Santa Fe, will be memories we cherish forever. Thank you one and all!!! We look forward to seeing you in Hawaii!

NEVADA - *Debbie Gilmore*

Beekeeping in Nevada is alive and well. Timely rains in the summer of 2015 were helpful in producing a successful honey crop. The majority of honey harvests were reported to be above 2014 levels.

More and more people express an interest in becoming beekeepers or a general interest in the decrease of honey bees. The Northern Nevada Beekeepers Association (NNBA) in Reno and the Mason Valley Beekeepers (MVB) in Yerington continue to be active in mentoring new beekeepers. A new group was recently formed in Carson City - the Great Basin Beekeepers. Beekeepers are increasingly being invited to participate in opportunities to educate adults and children on bees and the importance of bees to our food supply.

The MVB are going into their seventh year with a current membership from eight rural Nevada communities. In February 2016, they will host their two-day 6th Annual Mason Valley Beekeepers Conference in Yerington. Over 125 adults and youth are expected to be present to hear speakers including Dr. Lawrence Connor and Randy Oliver. Registration and additional information for the conference can be found at www.masonvalleybeekeepers.org.

Nevada beekeepers were involved in the Nevada Department of Agriculture's creation of the draft form of the Managed Pollinator Protection Plan which is expected to be put into effect in early 2016. MVB continues to coordinate with conservation programs in creating pollinator habitats. Beekeeping groups worked with mosquito abatement districts to educate each other on their challenges and how they can work together to achieve each other's goals. Nevada Department of Wildlife bear experts educated beekeepers on bear behaviors and how beekeepers can best protect their apiaries from bears. Workshops for new beekeepers and field trips were held. Beekeepers attended queen rearing workshops, regional and national conventions.

With the above average snow levels, beekeepers are hopeful for more available irrigation water to farmers and ranchers and an increase in spring wildflowers. Nevada beekeepers are looking forward to another productive year in 2016.

Regional News

SASKATCHEWAN - *Doreen Bradshaw*

The 2015 beekeeping year started with an early, warm spring in Saskatchewan. The first extractions for some beekeepers were in late June to extract dandelion honey. However, dry weather until near the end of July had an adverse effect on the fields of flowering crops as well as smoke from forest fires on the canola crops. Bees do love the hot sunny summers though and did provide a somewhat average crop. Rain in August through to September extended the flowering season and the long fall with no frost helped with the bees' collection of pollen right into November. The average loss of hives in the spring of 2015 in Saskatchewan was 16%.

The Regina and District Bee Club had another successful year at Canadian Western Agribition. The Agriculture Education booth was well attended by students and visitors. New interactive projects are being introduced for students to participate in. The Club is near the 30-year mark in participating in this event. The Regina and District Bee Club also enters a booth to sell honey and other bee products packaged by Club members. The Club's involvement in Agribition has been possible over the years with the support of the Saskatchewan Beekeepers Association.

Pollination demands are increasing in the province, which is good for the growth of the industry. Varroa levels are low this year, however, the Small Hive Beetle is becoming a bigger issue.

Research that is taking place:

- Varroa mite treatment, timing, type, and their effects on overwintering honey bees.
- Teratogenic and Behavioral effects of Thiamethoxam on Honey Bees,
- Potential DNA Markers for selection of Varroa Tolerant Honey Bee Phenotype,
- Sub lethal effects of Neonicotinoids on Reproductive Fitness of Honey Bee Queens, and
- Comparing Wild Versus Managed Bees as Pollinators of the "Hascap flower".

Hives generally went into winter with a good food supply and to date the winter has been mild. Hopefully, the good weather continues and enables a great start to beekeeping in 2016.

Regional News

ALBERTA Highlights - *Robert Keenan*

The Province of Alberta continued to be the top producing area in Canada with a contingent of commercial producers (approximately 1100) located mainly from Edmonton north to the Peace River Region famous for canola & grass seed production. According to Statistics Canada, Alberta produced 42.8 million pounds of honey in 2015 – a 20% increase from 2014.

The continuing trend to urban beekeeping growing in North American cities is evident in Alberta as well with viable clubs increasing memberships in Edmonton, Red Deer and Calgary.

The Calgary club, for example, has a total of 275 members and& added 114 new members in 2015. Many of these people were informed by the club's website and the opportunity to partake in the two courses offered this year for beginning beekeepers as well as to join the club and participate in the package bee purchase program. The two courses begun in 2015 brought in 71 new members. In the year 2014 – 2015, members purchased 75 packages and for the 2015-2016 year so far 67 packages have been ordered for April delivery. The supply all comes from New Zealand.

The club also conducted a honey judging competition and participated in three fairs, including Aggie Days at the Calgary Stampede and a Science Fair for young people. The club also promotes a multi-faceted Integrated Pest Management program which was recognized with one of seven Awards of Distinction by the VITA Bee Health Initiative out of the United Kingdom. The prize included a microscope for club use. We also purchased a refractometer for members' use.

Another initiative organized in 2015 for club members is a sterilization program for bee boxes against pathogenic organisms using electron beam radiation. The program is expected to be an annual service.

CALIFORNIA - *Archie Mitchell*

As we start this new year, I reflect on my years of association with the Western Apicultural Society (WAS) and the wonderful memories of our travels to the WAS conferences held at various locations across western North America. WAS membership is invaluable! I particularly treasure the last conference in Boulder, Colorado where I was able to extend my stay and see some of the wilderness and backcountry of Colorado. Thanks to Miles McGaughey of Mountain Warrior Honey (www.mountainwarriorhoney.com) and his family for their hospitality.

I have found that there are no strangers among the beekeeping community - just many friends whom we have recently met or those we will meet in the future. Beekeeping seems to break down any barriers that may exist between so-called strangers. From my experience, just mention the words "honey bee" to anyone and the conversation can become endless. Everyone wants to know what is going on with the bees and what they can do to help bees and other pollinators.

The good news from the Great State of California is that there is a Master Beekeeping Program currently being developed by the UC Davis Honey and Pollination Center at the Robert Mondavi Institute (RMI) and the E.L. Niño Bee Lab. The Apprentice Level will launch in the Fall of 2016. Apprentices will work with local beekeepers while taking introductory course work, then progress to Journeyman and finally to Master Beekeeper. This unique program will bring together the resources of UC Davis and the skills of California's established beekeepers and bee clubs. Participants will have access to the Official UC Davis Study Guide and graduates will become honey bee ambassadors in their own communities.

Check these sites - The Pollinator Education Program (PEP) for elementary school students at UC Davis Haagen-Dazs Honey Bee Haven Garden: www.elninobeelab.ucdvis.edu launching in the spring. RMI programs and events: www.honey.ucdavis.edu/learn

WASHINGTON - *Jim Smith*

Hello from WA State! In the last few years WA state has been working hard to educate not only the public but also the lawmakers on every level, including planning boards, and they continue to do a remarkable job in this area. The legislation committee has been front and center on issues that affect beekeepers. That being said, there were still reports of spraying being done during the bloom season which makes continued education and getting onto local planning boards so important. There are quite a few success stories around the state, from Pierce County designating 4.5 acres from a Nature Preserve to a Pollinator Preserve, and the City of Wenatchee passing an ordinance allowing beekeeping within their city limits, along with so much education on every level from high school to the public which is still very interested in "how the bees are doing". It was such a dry year that honey production was limited and wild fires continue to be problematic.

Looking back over the last year, I tentatively believe that our pollinators are doing better, largely due to all of the hard work and perseverance of so many beekeepers and others who have a passion for our bees.

Have a prosperous 2016. See in you in Hawaii!

Regional News

MONTANA - *Jerry Bromenshenk*

Montana beekeepers are concerned about dropping honey prices. The 2015 honey crop varied from great to subsistence or less. East of the Continental Divide, many yields were good to very good, and much of the landscape remained green into the fall. West of the Divide, from Missoula north, conditions were dry to severely dry. Missoula scored the second worst drought on record. Microclimate effects were obvious. Our own research colonies near Missoula struggled on subsistence resources; yet a few miles away near Lolo, and south of Missoula, honey crops ranged from adequate to good. With the drought came early and increased varroa mite problems, as colonies were quick to rob infested colonies starting in July.

Overwintering sheds are becoming more popular, with at least two new ones constructed this year. Unlike Canada, most of the Montana sheds are being used for temporary storage of colonies. Colonies go into the sheds in October and are shipped in January to CA for almond pollination. I had the pleasure of spending some time with Bill Fluke and his crew in Arlee, while they sorted and prepared colonies in his new shed before loading onto trucks headed west. It was a good time for all of us to explore both how to use and the pros and cons of using Infrared cameras for inspection of indoor hives. I wrote an Introductory article on IR technology, published in the January issue of Bee Culture. The March issue will feature IR for inspecting outdoor, wrapped colonies, and indoors in Arlee Apiary's wintering shed.

Finally, our (University of Montana's) Online Beekeeping series will launch the 3rd level, Master course this spring. To date, our online courses have reached all but a few of the states in the US, most of the Canadian provinces, and twelve foreign countries.

OREGON - *Sarah Red-Laird & Dewey Caron (OSU)*

We are having our first "real winter" here in Oregon in a while. Snow and ice storms and freezing temps hit with a blast and haven't let up! We are crossing our fingers for a good long broodless period to give the girls a break from the mites and a sunny, wet spring to bring the bees out of winter on a strong nectar flow that lasts past June!

USDA reports 71,000 hives producing honey in Oregon last year, up from 2014 and a steady increase over the last 10 years. The average yield per hive is 40 lbs, or 2.18 million pounds produced in Oregon in 2015. In 2013 the average was

35 lbs, 32 in 2012 . Years ago the average was 48 lbs per hive.

The Oregon Master Beekeeper Program is the winner of the 2015 OSU Search for Excellence award! The OSU SE program recognizes an outstanding extension education effort, demonstrating innovation and impact. Applications for both team and individual success stories are considered in a wide range and scale of deserving programs from county to multi-state efforts, and presented at the annual Extension Conference.

New bee position at Oregon State. A search for a PhD. level, 100% extension, tenure-track faculty position focused on pollinator health is underway. It will be a 9-month appointment based at the OSU campus in Corvallis. Two months of summer salary will be provided on a fixed-term, recurring basis for the first three years, when the appointee will be expected to provide leadership in implementing Oregon House Bills 3361, 3362 and 2653. Full text of this legislation, passed in 2015, may be accessed at: https://www.oregonlegislature.gov/bills_laws. Thereafter, the faculty member will be expected to generate two months of summer salary (an arrangement increasingly common for Extension professionals).

The new hire is to develop a nationally recognized Outreach and Extension Program related to pollinator health to promote adoption of best practices that will have a positive impact on pollinators, and support agricultural and environmental sustainability. The appointee will be expected to conduct scholarly work appropriate to the position's research and outreach work in pollinator health and produce publications, websites or programs that have been peer-reviewed and vetted.

Two technician positions funded: Ramesh Sagili, Assistant Professor at OSU announced at the annual OSBA meeting that as a result of passage of yet another bee-related House Bill 3360, the honey bee research program at OSU will receive funding to support two research assistant positions to enhance the bee health diagnostic services. Further, the honey bee lab will also receive about $200,000 to purchase additional lab equipment such as RT-PCR to expand the diagnostic services for honey bee viruses and bacterial diseases.

Beekeeper funding of OSU Bee Lab: At the OSBA business meeting, the OSBA Board pledged $15,000 unrestricted support to the OSU Bee Lab. GloryBee, as part of their Save the Bee Campaign, matched the first $10,000 bid at the auction Saturday evening which will form the basis of next year's contribution to the honey bee program at OSU.

WYOMING Beekeeping Update for 2015 - *Catherine Wissner*

From the Wyoming Department of Agriculture: we have seen a 7% increase in beekeepers and hives at hobbyist level since 2014. At the end of 2015 there was a total of 61,335 hives, with 206 beekeepers - 102 are commercial level. All Wyoming bee yards appear to be healthy. From the inspectors: "Some EFB and minor chalk broad in hives returning from California, varroa mites were higher in hobbyist and lower in commercial hives, and more varroa issues in commercial operations from Colorado. Honey production was up, abundant spring moisture and large fields of sweet clover contributing to the higher yields. Some challenges facing the Dept. of Agriculture are: registration compliance and disease identification by hobbyists, and out of state apiaries not complying with Wyoming registration requirements.

The Wyoming Beekeepers Association held their annual meeting Dec. 4 and 5 at the Ramada Riverside in Casper, with 21 people in attendance. President Don Bryant brought the meeting to order and introduced a great line up of speakers. Brian Debolt from the Wyoming Game and Fish spoke on bears and bee yards. Cindy Fulton, Wyoming Dept of Ag pesticide office and state honeybee inspector Kim Decker discussed Wyoming's Managed Pollinator Protection Plan (MP3). The Bee Informed Partnership Tech Transfer Team member Katie Lee outlined how the program works and why it's important to beekeepers at all levels. Rob Trowler from Sioux Honey discussed current market prices and issues along with domestic and foreign trends in honey consumption and sales.

In Laramie, "The Bee Chat" - an informal group, reports a slight decrease in honey yields due to mid-summer drought, but overall hives at this high altitude city were faring well.

The Casper Beekeepers meet the 2nd Thursday of the month, have about a dozen active members and a swarm collection group working with the local metro animal shelter. We helped get beekeeping ordinances redone so we can now keep bees within Casper city limits! We don't charge dues or have elected officials...just volunteers getting the work done!

We have a web and Facebook page - http://ncbees.org/wiki/index.php/Honeybees_in_Natrona_County and https://www.facebook.com/groups/649498415156424.

The Cheyenne Beginner Beekeeper Support Group meets the 2nd Tuesday of the month with hands-on workshops - weather permitting - or short educational programs in winter. Both Sheridan and Gillette are starting beekeeping groups. Southwest Wyoming Beekeepers have started a group called Save The Buzz (www.savethebuzz.org) and Southeast Wyoming Beekeepers are becoming a 501-c-3 organization of around 30 charter members. Cheyenne and SE Wyoming groups are both spin-offs from the Wyoming Bee College.

Regional News

ALASKA and the birds and bees - *Joe Carson*

This year we had record-breaking forest fires which was a problem for beekeepers with hives in the affected areas. Smoke was horrendous. 5,049,661 acres burned into the ground. We saw production down by as much as 25%. The good news is that we should have over 5 million acres of fireweed - our primary nectar source. It takes about 10 years for the new growth to block out the fireweed so we hope for excellent honey crops in the near future.

The winter has been very similar to last year - fickle. Incredible winds, cold - warm, cold - warm and then 50+ mph winds. Not the best conditions for wintering hives out of doors.

The number of beekeepers in the state has increased, based on packages sold. My straw poll survey of package suppliers in the state indicates approximately a 15% increase over 2014.

There is a push for going all-natural in pest management. Only one package supplier I know of still advertises their packages as being treated with a Fumagillin product.

Conclusion: A definite increase in overall number of beekeepers in Alaska. Summer weather was fair at best. Wildfire smoke affected many hives and honey production. Future looks good for fireweed honey production due to the forest fires. Fall and winter weather has been fickle and potentially detrimental to overall winter hive survival. Wind has been so hard that this week I was mushing my dog sled team and came across sea birds freezing to death on the river ice more than 50 miles from the ocean.

BRITISH COLUMBIA - *Ian Farber*

British Columbia's 2015 summer honey crop had its start with the very mild winter of 2014/2015. Overwintering success rates were generally good throughout most of the province. Unseasonably warm weather meant spring crops were two to four weeks ahead of typical development. Record high temperatures and little rain brought early honey flows. Then, sustained heat coupled with little rain caused many field crops to burn off. Honey flows in many areas stopped in mid July. Hives at higher, and therefore cooler elevations produced some good honey crops. Location was the explanation for the size of honey crops this year. Urban beekeeping produced larger crops but on a limited scale. Two local urban bee hives each produced about 160 pounds of honey, while hives on alfalfa fields only 60 km away produced about 20 pounds per hive. A late honey flow started as temperatures cooled in mid August, providing much needed winter food stores.

Bears appeared in urban areas as early as late August as they were foraging for food to fatten for winter hibernation.

Small Hive Beetle was found in five locations in the Fraser Valley, very close to the Washington State border. Apiaries within a 5km radius of the positive finds were put under a "movement restriction" (or quarantine) which was repealed in early October. This quarantine was to facilitate further testing on the prevalence of the beetle in the area. The Small Hive Beetle issue will likely lead to much discussion in the coming months. On a more positive note, pollination contract prices remain strong in favour of the beekeeper, as there is a need for more bee hives for pollination in BC.

Regional News

IDAHO - *Steve Sweet*

Idaho's sideliner and hobbyist beekeepers are represented by several active organizations. Their state association, containing the commercial elelemt, is now a member of WAS.

In 2015, the Beekeepers of Southeast Idaho/Upper Snake River Beekeepers (Idaho Falls) list nearly doubled to 438 members on their Facebook page.

Pocatello hosts a loosely organized group of approximately 50 and meets once or twice per year. The group continues to participate in a spring-time nuc-making workshop with 75-100 participants at 2J Honey Farms.

The Magic Valley Beekeepers meet every other month in the Twin Falls area.

In Northern Idaho, the majority of the hobbyist/sideliners participate in the Inland Empire Beekeepers Association in Washington State.

The Treasure Valley Beekeepers Club counts over 250 dues-paying members across Southwest Idaho and Eastern Oregon and supports an active web presence with 1) a site at www.idabees.org, offering local monthly recommendations on best management practices, and 2) regular contributions to a Club FaceBook page, underling TVBC's hallmark commitment to education. In 2015, Club members taught four "Introduction to Beekeeping" classes through the local school district and eight education sessions outside of scheduled meetings, focusing on hive component construction, queen cell installation, neonicotinoids and Varroa mite management. Twenty-seven members of the TVBC participated in the OSU Master Beekeepers Program at the Apprentice and Journeyman levels. Members also established six beehives at Boise City's Foothills Learning Center, staffed a very active booth at the Western Idaho State Fair, and participated in the Idaho Botanical Garden's annual "Bug Day," where the emphasis is on introducing local kids to the magic of entomology. Working with local queen producers, TVBC distributed approximately 200 WSU queen cells to club members, thanks to Dr. Steve Sheppard and Dr. Brandon Hopkins.

A highlight in August was Governor Butch Otter proclaiming Idaho Honey Bee Awareness Day, promptly followed by a 3-day event celebrating National Honey Bee Day and tests for seven Journeymen students.

Closing out 2015, a full house of 80 hobbyist beekeepers listened with rapt attention as Ellen Topitzhofer, OSU Crop Protection Agent, spoke of good bee management practices, giving tips and techniques for raising healthy bees that she's acquired working alongside successful beekeepers across the Pacific Northwest.

The TVBC closed out 2015 as another banner year, successfully emphasizing education and community involvement. The Club is poised to bring the same energy and excitement to 2016.

Above left, Ellen Topitzhofer holds a "yard bee," complete with a magnetic mite, presented as a thank you by TVBC president Karla Kimball. Above right, Ellen with OSU colleague Carolyn Breece who works in their bee lab. Right, full house for a great evening!

Feb 26 - 27: Utah Beekeepers Convention, Best Western CottonTree Inn, Sandy. Info www.utahbeekeepers.org/convention.

Feb 26 - 27: 2016 Mason Valley Beekeepers Conference, Pioneer Crossing Convention Center, Yerington, Nevada. Speakers include Randy Oliver and Dr. Lawrence Connor. Info Debbie Gilmore, 775-463-2757 or www.masonvalleybeekeepers.org.

Feb 26 - 28: 9th Annual American Organic Beekeepers Association meeting, YMCA Triangle Y Ranch Camp and Retreat Center, Oracle, Arizona. Info Keith Malone 907-688-0588, and Ranona/Dean at 978-407-3934 or Dee Lusby for information/registration at 520-398-2474 late evenings.

Mar 5: Audubon Rockies presents "Habitat Heroes - Gardening for Beauty and Birds Workshop", half day beginning 9 a.m, Prairie Room, Boulder Country Parks and Open Space, 5201 St. Vrain Rd, Longmont, CO. $15.00/person. Visit www.brownpapertickets.com keyword – Habitat Hero or http://www.brownpapertickets.com/event/2467945.

Mar 19 - 20: Wyoming Bee College, Laramie County Community College, with speakers from Penn State, Michigan State University and University of Montana. Beginning beekeepers course and much more. Info www.wyomingbeecollege.org.

Mar 28 - May 20: University of Montana'sMaster-Level Online Beekeeping Course for those who have successfully passed/completed one of the sections of our Journeyman online classes. Visit http://www.umt.edu/bee.

May 7: 2nd Annual Bee Symposium, U.C. Davis Honey & Pollination Center. Info 530-754-9301 or aharris@ucdavis.edu or http://honey.ucdavis.edu/events.

Oct 13 - 15: Western Apicultural Society 39th Annual Conference, Honolulu, Hawaii. Watch for information as it becomes available in this and later issues of the WAS Journal and on the website westernapiculturalsociety.org.

For more Beekeepers' Events items, visit the Global Beekeeping Calendar, courtesy of the Florida Beekeepers Association & Malcolm Sanford at http://www.my.calendars.net/bee_culture

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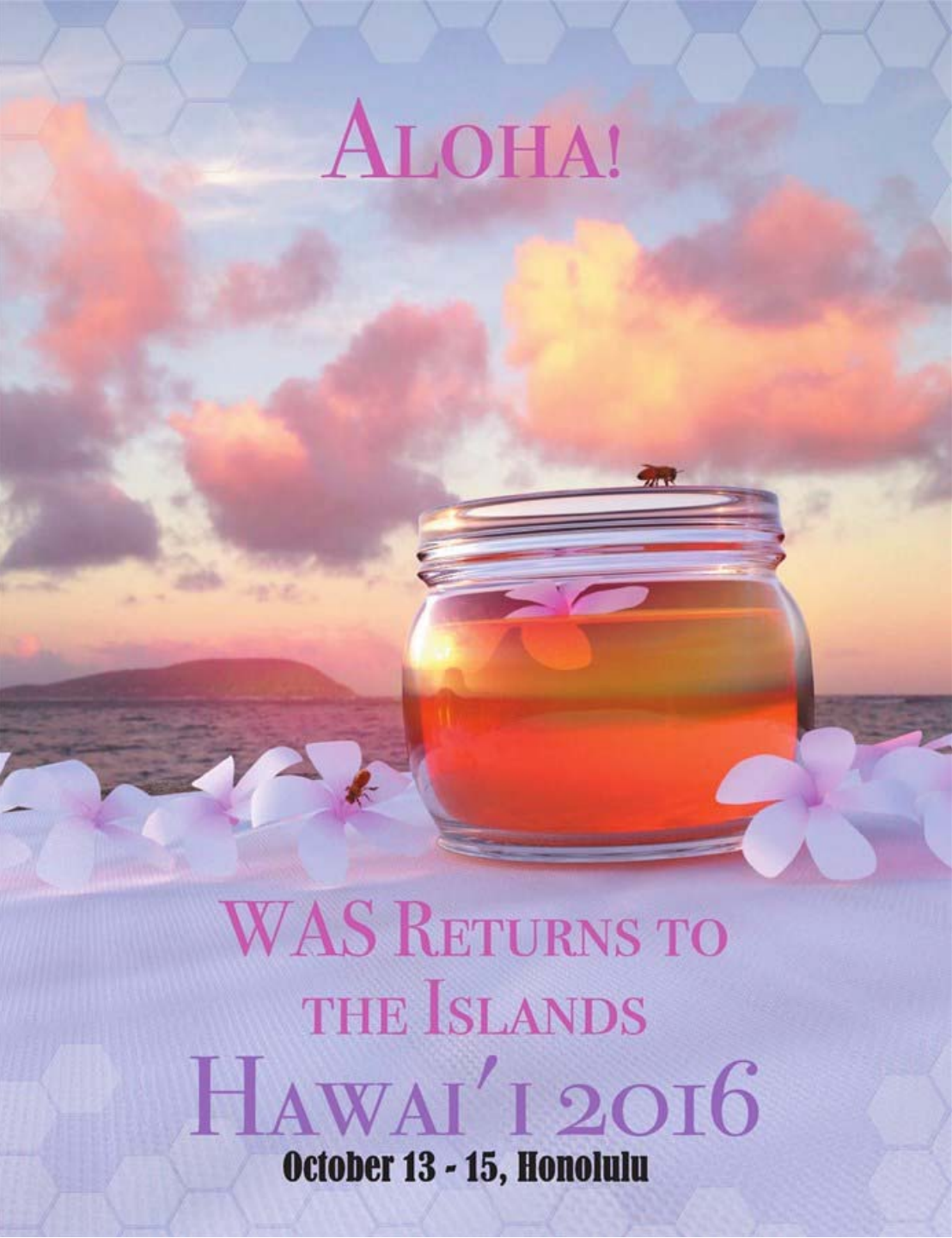
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