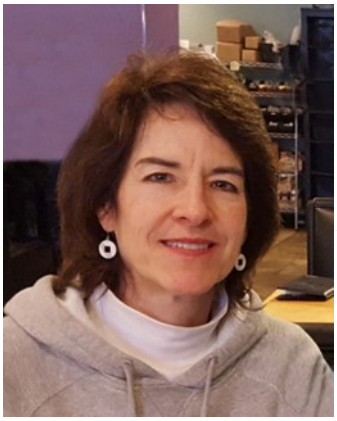
Fall 2018

MCCB NEWS

Letter from the President

Have you heard the news!! Astronomers have traced a source of neutrinos to a black hole using an observatory buried in tons of ice at the South Pole. What? First, neutrinos are the most abundant, energetic cosmic particles in the universe. They travel through space in straight lines and are unaffected by matter, radiation or gravity. Neutrinos provide high energy cosmic rays that produce x-rays and electromagnetic radiation when they hit the earth's atmosphere. A galaxy called blazar, 4 billion light years away, is where they originate. (Is it just me or does this sound like a sequel to the Star Wars franchise?) This discovery caps 20 years of work by over 300 astrophysicists and astronomer at the South Pole station. The Ice Cube, the largest detector contains over 5,000 electric-optical sensors, which start at over 4,500 feet below the surface in the South Pole ice. (Wall Street Journal, 13 Jul 2018, page A3)



Have you heard the other news!! MCCB is awarding one year's free membership for all adjunct faculty at Michigan Community Colleges. MCCB is inviting them to investigate the benefits of our organization. Many of you already know this is the only professional organization dedicated entirely to all aspects of teaching biology at the community college level. The MCCB web site helps members communicate about things they are interested in like, available teaching positions, current research, related professional meetings, and colleague forums. Check it out at www.mccb1.org

Inside this issue

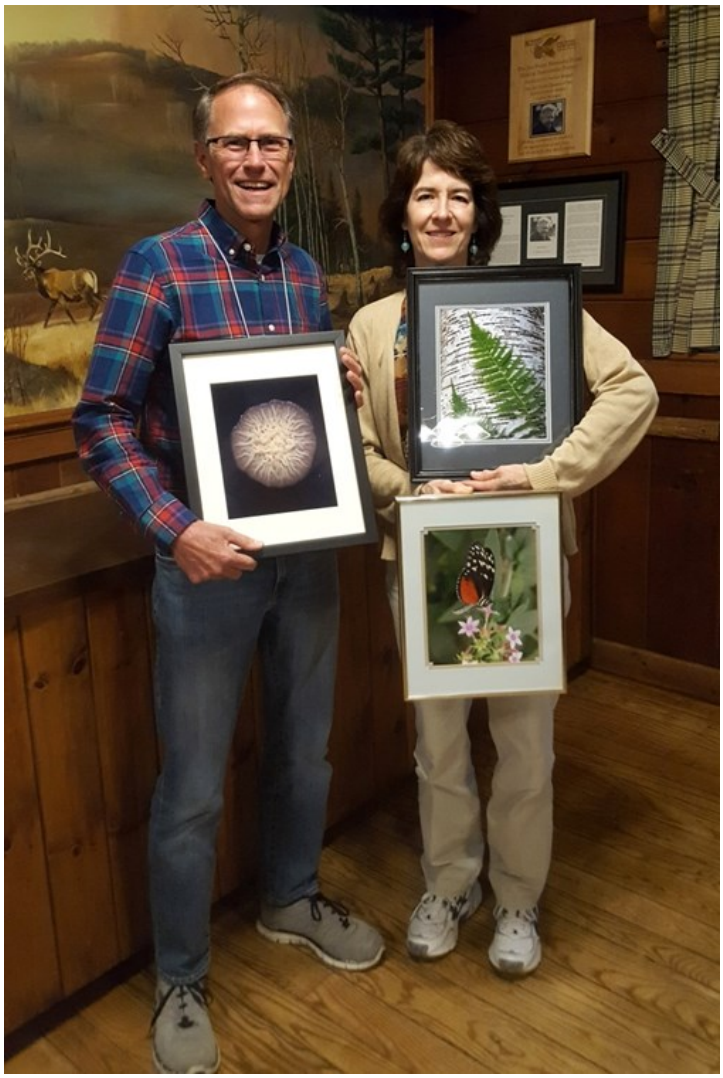
Letter from the President Continued

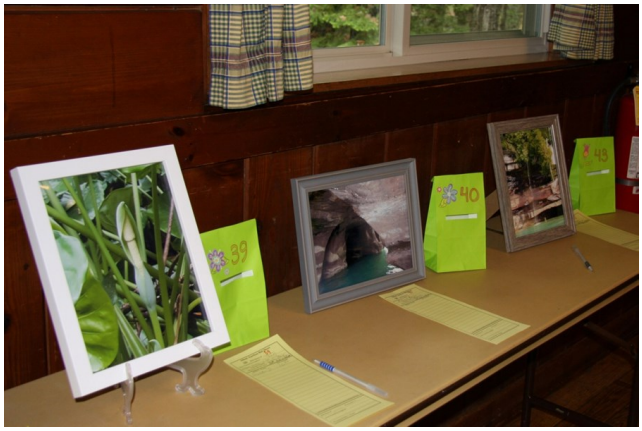
Any adjunct faculty may reply to this announcement by emailing me their name, phone number and mailing address to make you an active MCCB member (skidmore823@yahoo.com). MCCB looks forward to hearing from you soon and hope to see you at our next conference: Oct. 19 & 20 at Jackson Community College.

Lynnda Skidmore
MCCB President

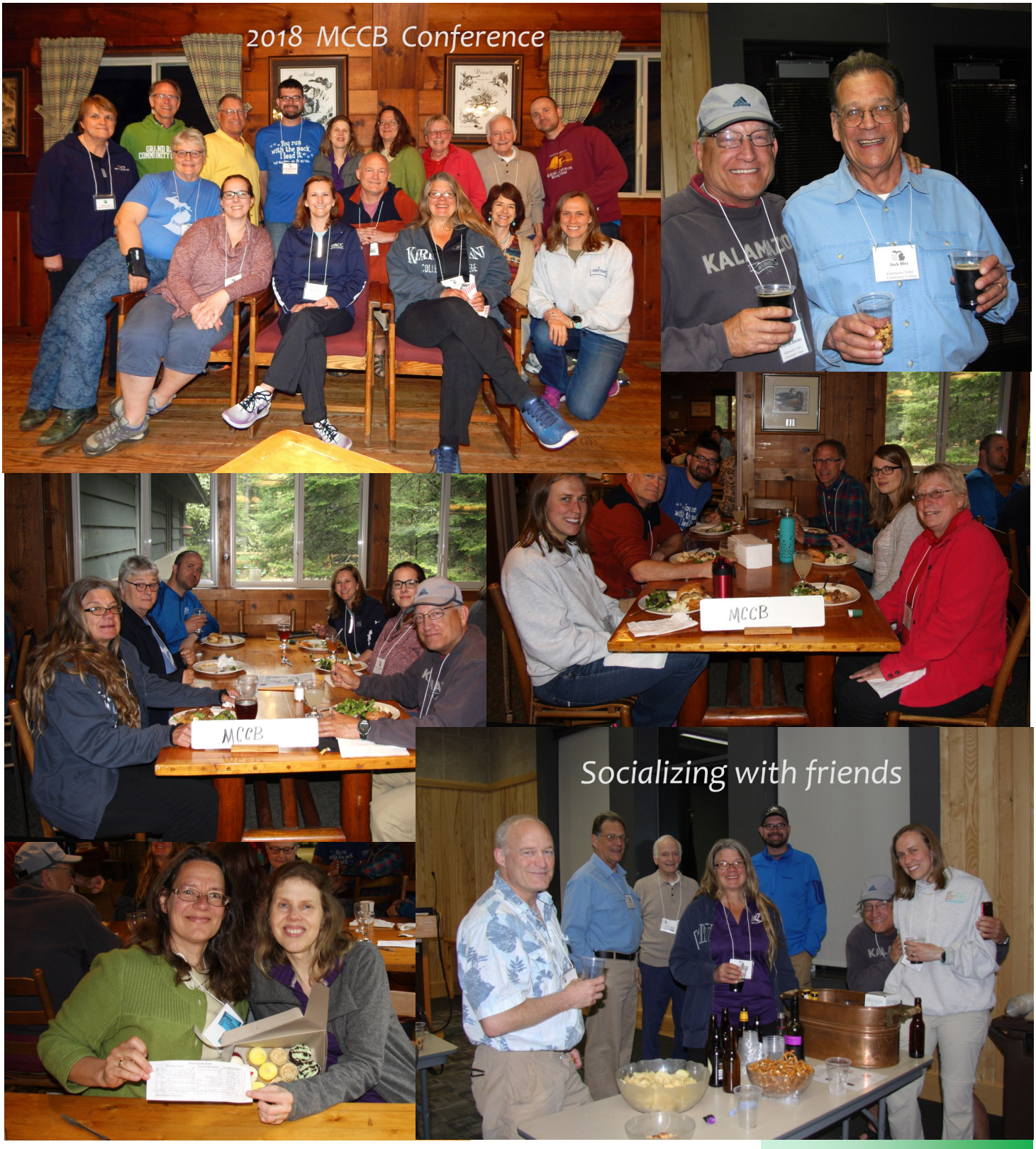
Fall MCCB Photo Contest Winners

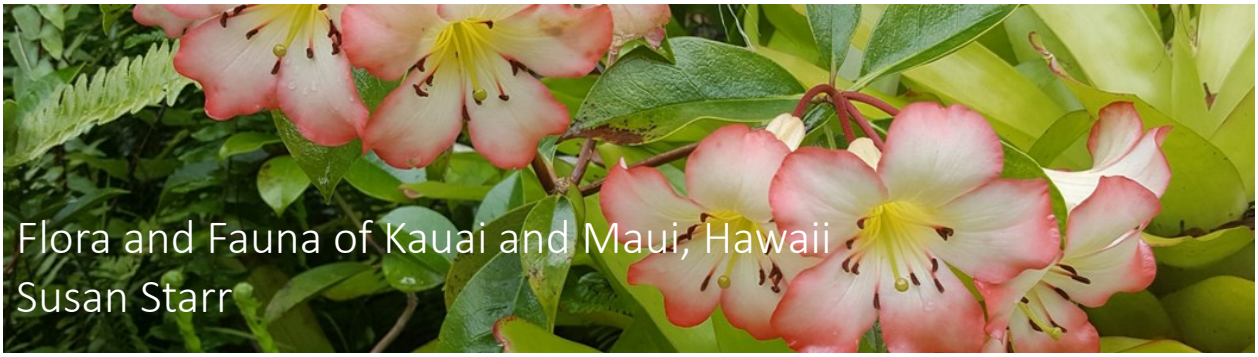
The fifth MCCB Photo Contest was held at the Spring Conference. As usual, there were a variety of interesting subjects submitted. First place was a photo of Ferns on Birch by Lynnda Skidmore. Second place was a Bacterial Colony Close-up by Bob Leunk and third place was a Long-wing Butterfly by Lynnda Skidmore. Prizes were awarded for the three places. The Photo Auction was fun, with much lively participation, and some bid wars taking place. The highest bidders for each photo went home with some great photography.





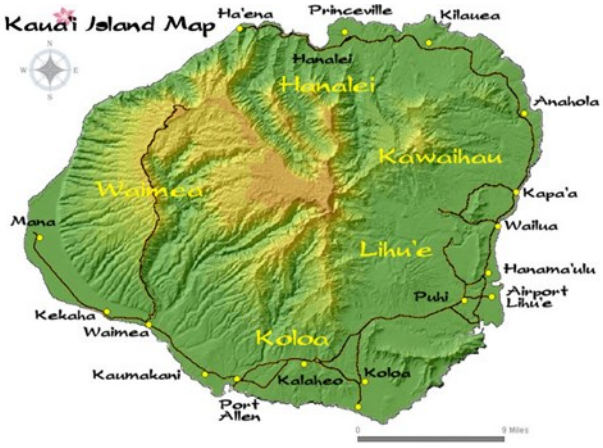
Fall MCCB Conference a Success!



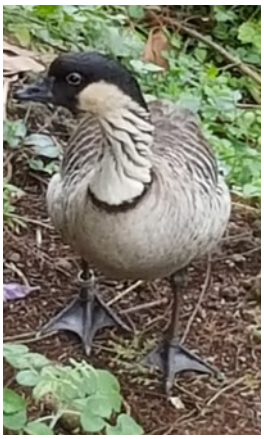


Flora and Fauna of Kauai and Maui, Hawaii
Susan Starr

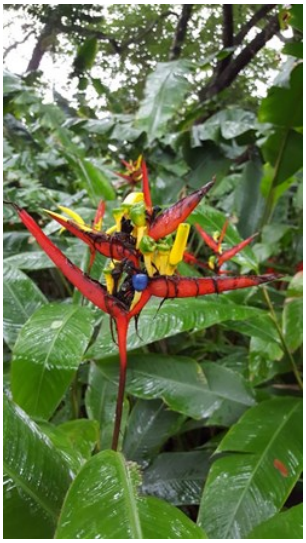
Susan described her trip to Kauia and Maui and showed us the flora and fauna that she encountered. Kauia is geographically the oldest of the main Hawaiian islands and is also the 4th largest island in Hawaii. Called the "Garden Isle", it has an area of 562.3 square miles. It was originally populated by Polynesians in dugout canoes between the years 300 and 800 CE, who brought many of the plants that they needed for survival with them (Coconut palms, taro, etc.). It was also the location of the last Kings and Queens of Hawaii. The highest peak on the mountainous island is Kawaikini (at 5,243 feet, or 1,598 meters), located centrally on the island, with the second highest peak, Mount Wai'ale'ale' (at 5,243 feet, or 1,598 meters), located to the west.

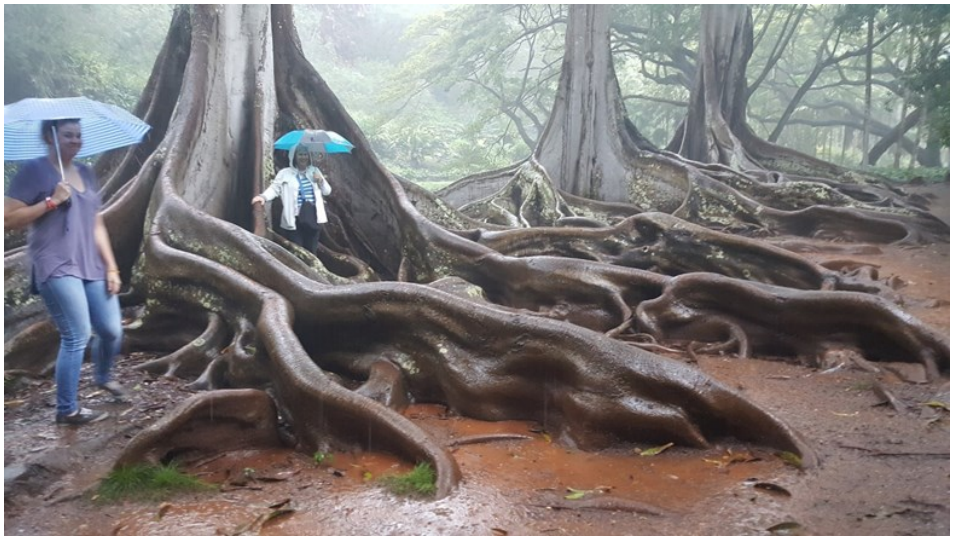


The fauna is extremely varied. The state bird is the Nene or Hawaiian Goose (*Branta sandvicensis*), but the Red Junglefowl (*Gallus gallus*), Great Frigate Bird, Shearwater, Red-headed Cardinal, Myna, and Red-footed Booby are also common. Arachnids encountered included Hawaiian Garden Spiders and Orb Weavers while reptiles ran the gamut from Green Anoles (*Anolis Carolinesis*), Brown Anoles (*Anolis sagrei*). Many species of the genus of Hawaiian Tree Snails (*Achatinella*) are now threatened, with only 25 of the original 99 species still common, but they can also create issues for humans as they may be intermediate hosts for rat lungworms, which humans can then contract (creating symptoms ranging from headaches to complete paralysis). Hawaiian Monk Seals (*Monachus schauinslandi*) are also threatened, but there are several groups that monitor their individual movements and try to lessen human impacts on their populations.

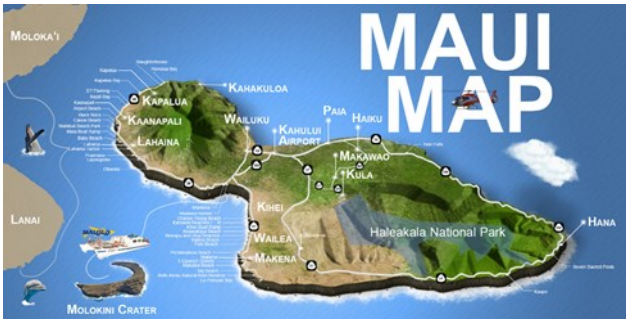


Susan next showed us many of the "houseplants gone wild" that have been brought by visitors to the island, and now have become permanent invasives. The island is now covered by the Fruit Salad Tree (*Monstera deliciosa*) from Mexico, Staghorn Ferns (*Platycerium*) from South America and Africa, *Heliconia* from across the tropical Americas, *Araceae* from the Old-World tropics, Yellow Bamboo (*Bambusa vulgaris*) from Indochina, the African Tulip Tree (*Spathodea campanulata*), orchids like *Vanilla planifolia* from Mexico (which appears to be the only Orchid that grows as a vine), and Banyan Trees which probably came originally from India. Even the ubiquitous starch that is often associated with Hawaii, the taro root (*Colocasia esculenta)*, is originally a cultivar from India and Southeast Asia.

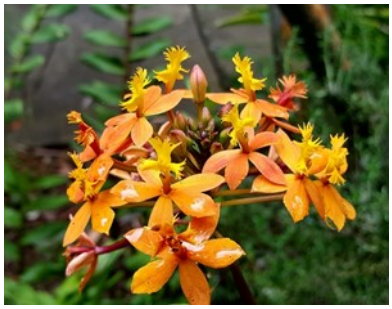


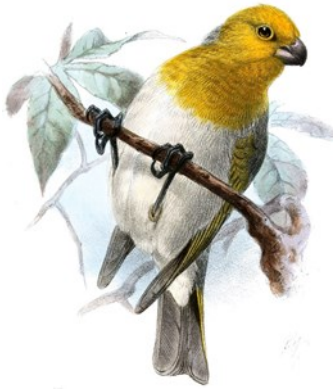


Maui was the other main destination that she detailed. It is the second-largest of the Hawaiian Islands with a surface area of 727.2 square miles (1,883 km^2). It is the largest of Maui County's four islands, which include Molokai'i, Lana'i, and the largely unpopulated Kaho'olawe. Maui also has the third-highest population of the Hawaiian Islands, behind that of O'ahu and the big island, Hawaii.



The straights between Maui and Molokai'i are frequented by large pods of Humpback Whales (*Megaptera novaeangliae*). Like Kauia, Maui is also populated by introduced species that have adapted to its volcanic soil, including African Sugarbushes (*Proteas*), Australian Honeysuckles (*Banksias*), the Australian evergreen *Macadamia* Nut Tree, *Dendrobium* orchids from Asia, and again, the Banyan Tree from Asia. It is also populated, however, by some highly specialized endemics, including the modified sunflower called Silversword (*Argyroxiphium*), found only at altitude on the slopes of some of their volcanos, a local heather called pūkiawe (*Styphelia tameiameiae*), a hardy shrub which can be found in such diverse habitats as alpine to bog environments, and the extremely toxic bean plant called Bushy Tree, or Mamane (*Sophora chrysophylla*), that creates both phenols and alkaloids to deter predatory seed-eaters. Interestingly with this last example, Mamane toxins will kill a house finch within minutes of ingestion, but appear to have no effect at all on the endangered Hawaiian Honeycreeper (*Loxioides bailleui*), a species found only on the slopes of Mauna Kea where the Mamane plant also flourishes!





Honeycreeper

Respectfully submitted,
Mark Robertson (Professor of Biology, Delta College)

MCCB Officers

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Mark Robertson
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Darrell Davies (Treasurer)

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Erica Staton
(Newsletter Editor)

Summary of:
Oaks and Aliens, Herbivores and Enemies: Using the Ecology Field Problem to Teach Inquiry-Based Science
Jaqueline Courteau Ph.D.

In this presentation, Jacqueline discussed successful methods for teaching ecological concepts and the process of science through ecological field research in undergraduate ecology classes at University of Michigan and Eastern Michigan University. Through this approach, students are tasked with a series of lab exercises to aid them in developing research skills and using scientific explanations to understand observations they have made in the field. As the course progresses, students work to develop skills preparing them to conduct independent research projects submitted at the close of the course. Early on, simple exercises, such as measuring the foot sizes of all people in class and using descriptive and simple parametric statistics (t-test, ANOVA, Pearson's r) can be used to get students thinking about data and how to use it. Students are then introduced to interesting ecological concepts as problems that can be addressed through research. Selected manuscripts are assigned for students to develop background knowledge of the problem. Students are also provided with a "field problem worksheet" which is completed as they move through the field exercise. The worksheet outlines basic important components of the research project (e.g. observations, question, hypothesis & predictions, methods, results, conclusions) and provides a framework for students to approach ecological problems. As the students progress through the course, less scaffolding is provided by the instructor and more of the information for the field worksheet is completed independently by the students. Jacqueline advocates the use of plants as study organisms as they are easy to track, require little/no permitting, and are abundant in several public locations. She presented three field problems which address different important ecological concepts and could be easily adapted for biological/ecological courses:

Success of Invasives – students test "Enemy Release" hypothesis by collecting leaves of native (e.g. native oak) vs. invasive (e.g. nonnative buckthorn, honeysuckle), then measuring and analyzing leaf damage. One prediction of this hypothesis could be that invasive species would experience significantly less damage vs. a native species in the same habitat.

Thorny Issue – students test hypothesis related to tradeoffs associated with resource allocation an induced defenses by examining Autumn olive thorn lengths, densities, presence. This highly abundant shrub is easily found throughout Michigan (it was once advocated that it be planted to facilitate deer habitat) and branches (containing thorns) can be removed and brought back to lab for assessment if field time is limited.

Oak Regeneration and Herbivores – students examine status of regeneration of local oaks (measure populations), presence of invasives, and browsing damage (by animals) to test hypothesis that increased herbivory pressure (by deer) influences oak regeneration.

Each of these field studies could be conducted at many local community or state parks, perhaps even on school property if there is natural area available.

Presenter: Jaqueline Courteau earned her Ph.D. in ecology from the University of Michigan and has served as an adjunct instructor of ecology at Eastern Michigan University and University of Michigan. She currently works as an ecological and natural resource consultant, focusing on deer impacts on vegetation. She continues to supervise independent study students and interns, and to offer ecology and plant ID hikes through organizations including the Conservation Stewards Program, the Stewardship network, and Ann Arbor's Natural Area Preserve program.

Neurofibromatosis Type I, "A Tumor Predisposition Syndrome"
Presented by: Jamie Grit

Jamie Grit began her talk with the description of an Incan mummy who was identified as a 7-9 year old boy exhibiting the characteristic neurofibromas of a disease called neurofibromatosis type 1. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0175000

Neurofibromatosis is an insidious disease that follows autosomal dominant or sporadic genetic mutation inheritance patterns. This common genetic disorder is identified by three primary types: neurofibromatosis type 1 (NF1 also called von Recklinghausen NF or peripheral NF),neurofibromatosis type 2 (NF2 also known as bilateral acetic neurofibromatosis or central NF) and schwannomatosis (which is a variant of NF2). The NF1 gene is found on chromosome 17 and results in the expression of neurofibromin which is a very large tumor suppressor protein. This gene contains many repetitive sequences and is highly prone to mutations. Because of the enormous size of the NF1 gene, it is very difficult to work with in terms of utilizing western blot, gene-transfer vectors and animal models. The premise of Jamie's research was to examine and study the molecular differences between the primary tumors associated with neurofibromatosis type 1 (dermal neurofibromas and plexiform neurofibromas) which has proven to be a very complicated and ever-expanding task. Her primary hypothesis was that different epigenetic factors (modification in gene expression as opposed to changes in the DNA sequence alone) were responsible for modification of the different phenotypes associated with the two types of tumors. Possible clinical implications of this research along with other research could possibly lead to qualitative prognoses as to the prediction of the severity of disease and the ability to monitor disease progression. Therapeutic developments could include better pain management by treating specifically to the pain signaling pathways instead of the use of narcotics for pain.

Presenter: Jamie Grit is a doctoral candidate in cell and molecular genetics at the Van Andel Institute in Grand Rapids. She became interested in scientific research while she was a nursing student at Grand Rapids Community College and decided to transfer to Hope College (Holland, Michigan), where she graduated with a BS in biology in 2014. Jamie is conducting her thesis research in Dr. Matt Steensma's laboratory, where she studies Neurofibromatosis Type 1 (NF1), a genetic disorder that causes a predisposition to cancer. Her project focuses on understanding how NF1 tumor cells evade targeted therapies by relying on alternate signaling networks.
http://cancerres.aacrjournals.org/content/early/2018/05/02/0008-5472.CAN-17-3167

-Summary by: Susan Dentel, Washtenaw Community College

Website Info

Please visit our website at:
http://www.mccb1.org/

You will find information concerning conferences, job positions, general information about our organization as well useful web resources on our website.

If any MCCB member knows about biology positions, upcoming relevant conferences, seminars, or workshops being held in Michigan (as well as throughout the U.S.) please email information to:

Isis Arsnoe
mccbmembership@gmail.com
and/or Susan Dentel
sdentel@wccnet.edu

MCCB Executive Board Meeting Notes from July 13, 2018

President's Report: (Lynnda S.)

- We need to think of ways to increase membership. Possibly request adjunct emails from representatives. Motion made to contact campus reps and offer free membership for new adjunct/part-time faculty for one year. Lynnda will write letter, Darrell will look over.
- We need to personally contact a college or two to recruit conference sponsors. Susan will contact Pam Nuttall (Kirtland Community College), Tim will contact Mid-Michigan Community College, Lynnda will contact Gogebic CC.
- We also need to recruit campus representatives and facilitate better communication.

Treasurers Report: (Darrell D.)

- RAM has new contract which includes charges for AV equipment, etc. The cost of this conference center is getting expensive. We should potentially rethink the use of RAM for spring conferences and host at community colleges.

Secretary Report: (Susan D.)

- RAM is currently held for May 10-12th, 2019, however, we haven't paid a deposit yet.

Nominations: (Tim P.)

- Looking for someone to serve as president elect.
- Possible conference at LCC in 2019.

Membership: (Isis Arsnoe)

- 49 members (currently paid), number of members higher, but not up to date with membership dues
- Perhaps better systems to remind people to renew membership.

Web Master: (Ryan Bodary)

- Will post photos from the spring conference as people send them to him.
- Hosting arrangement is changing from an old server to a new server.
- Will discuss more at next meeting the possibility of posting clips/excerpts from conferences (with copyright/release speaker forms), member's ability to modify their own profiles and membership/login (currently public and admin member).

New Business:

- Fall 2018 Conference: JCC
- Spring 2019 Conference: Kirtland Community College?/RAM?

Mission of MCCB:

MCCB (Michigan Community College Biologists) serves as a state-wide forum for sharing instructional techniques and new ideas for teaching college-level biology. The organization fosters communication, friendship, and unity among the biologists of the twenty-nine community colleges in the State of Michigan. Two state-wide meetings are held annually.

Founded in the early 1980's, MCCB began as an offshoot of COSIP (the College Science Improvement Program). Two COSIP groups were originally created in Michigan: a southern group of colleges (associated with the University of Michigan/Dearborn and directed by Dr. Hertzler) and a northern group of colleges (associated with Central Michigan University and directed by Dr. Carl Scheel). The initial meeting to form a statewide organization of community colleges occurred at Delta College in 1981. The first slate of officers was elected at that time, with Eldon Enger as President and Janet Dettloff as Vice-President.

- To promote interest in biology.
- To improve the teaching of biology by providing opportunities to share and discuss instructional techniques and teaching methods.
- To provide opportunities for updates on current topics and trends in biology.
- To facilitate the exchange of ideas and foster communication, friendship and unity among the community college biologists in Michigan

2018 Fall Conference Agenda

October 19 & 20, 2018
Jackson College
Pre-registration Due: September 22nd

Friday, October 19

5:30 pm	Check-in at Grand Rapids Brewery, 117 W Louis Glick Hwy, Jackson
6:00 – 7:30 pm	Dinner and Discussion
7:30 – 8:30 pm	Dr. Curtis Blankespoor, Jackson College

Common Mergansers: Innocent Victims in the War Against Swimmer's Itch

Imagine relaxing on a warm sandy beach during your mid-July getaway on one of northern Michigan's gorgeous recreational lakes. Life couldn't be better. Until you wake up on day 2 of your vacation, and your legs are covered in red, swollen spots that itch so intensely it feels like your skin is on fire. The locals call it "swimmer's itch" and just when you think your favorite vacation spot is ruined forever, some creative investigative biology saves the day! Hear all about how Dr. Curtis Blankespoor helped the Higgins Lake community "get their lake back" from the parasites that cause swimmer's itch.

Overnight accommodations at Holiday Inn Express, 3506 O'Neill Drive, Jackson

Saturday, October 20

8:00 – 9:00 am	Registration and breakfast in Bert Walker Hall, Rm. 245
9:00 – 10:00 am	Verne Mills, Kalamazoo Community College

The CRISPR Craze – How to Tell Reality from Hyperbole

During the past five years CRISPR technology has drastically altered the research landscape in both biology and biomedicine. Researchers say projects which were all but impossible before CRISPR are now "cheap" and "easy", and that its use routinely shrinks the timelines of their projects from years to a few months or even less. After a bit of background on CRISPR, this presentation will review some recent research which explores CRISPR's strengths, limitations and potentials.

10:00 – 10:30 am	Campus/Building tour, vendors
10:30 – 11:30 am	Joe Esquibel, Lansing Community College

Multiple Choice Questions: Best Practices in Assessment

Multiple choice questions are commonly employed assessment tools. As with any other tool, their overall effectiveness depends on appropriate implementation. Learn about research-informed best practices in this session, and practice improving your own questions. This workshop may increase:

A. your ability to use this tool effectively
B. the learning of your students
C. All of the above

11:30 – 1:00pm	Lunch/MCCB general membership meeting in Bert Walker Hall, Rm. 245

1:00 – 1:20	Transport to MacCready Reserve from JC (car pool and van)
1:20 – 2:20	Steve Albee-Scott, Jackson College

The Eskers of Jackson County: Oak Barrens Reserve

A walk through of the MacCready Reserve oak barrens looking at three silvicultural treatments for oak barrens recovery. We will walk rain or shine, so come prepared with comfortable shoes and outerwear for any potential weather (it is Michigan!)

2:20 – 2:40	Return to JC (car pool and van)
2:45 – 3:00	Coffee break and vendors
3:00 – 4:00	David Wooten, Washtenaw Community College

Disappearing Birds, Venomous Snakes, and Fish Falling from Trees: he Trophic Ecology of Seahorse Key Island, Fl.

Seahorse Key is an island in the Gulf of Mexico off the northern coast of Florida and an important locale for thousands of colonial nesting shorebirds. These birds hold a critical position within the food web of the island and have a unique relationship with an insular population of snakes. In April 2015, all colonial nesting birds mysteriously left Seahorse Key Island over the course of a few days. To date, they have not returned and their absence is now altering the ecology of the island. Join Washtenaw Community College biologist David A. Wooten for a talk discussing the unique ecology of the island and its inhabitants, the mystery of the missing birds, and his recent sabbatical research on the island to characterize the trophic dynamics of this changing insular system.

Conference organizer: Jenna Pruette, pruettejennife@jccmi.edu, 734.604.6188

Upcoming Events

2018 MSTA Meeting

The Michigan Science Teachers Association Meeting (MSTA) will be held March 1-2, 2019 at the Amway Plaza in Grand Rapids. For more information, check out their website at the following link: http://www.msta-mich.org/

Note that they still need presenters and presenters get in free! They are also looking for new board members. LuAnne Clark will be stepping down as the liaison between MSTA and MCCB this spring. Please go to their website and let them know if you are interested in being a presenter, joining the board, or serving as a liaison between MSTA and MCCB.