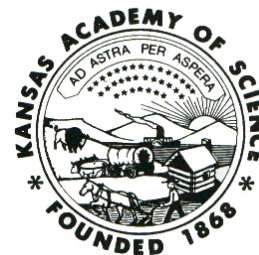


KAS BULLETIN



NEWSLETTER OF THE KANSAS ACADEMY OF SCIENCE

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February, 2020

152nd ANNUAL MEETING OF THE KANSAS ACADEMY OF SCIENCE

April 3rd -4th, 2020
Baker University
Baldwin City, Kansas

Check the [KAS website](#) for updates on deadline submissions, event schedules, field trips,
and keynote speakers!

Welcome new Transactions editor Erika Martin!

Erika is an instructor of Biological Sciences at Emporia State University.
Her lab researches Aquatics and STEM Education.



Fall Field Trip to the Biosecurity Research Institute a Great Success

by Hank Guarisco, editor

On November 9th, field trip participants met in the parking lot of the Biosecurity Research Institute (BRI), which adjoins the soon to be completed National Bio and Agro-defense Facility (NBAF) on the Kansas State University campus. We were greeted by BRI's research director, Stephen Higgs, and Ron Trewyn, President and biology professor, and were escorted into the facility through the pass-coded iron gates.



The federal facility (NBAF), which is being constructed by the US Department of Homeland Security, will be America's foremost animal disease research facility, and is intended to replace the aging Plum Island Animal Disease Center in New York. At a cost of \$1.25 billion, this facility will be a biosafety level-4 laboratory that can safely handle the most dangerous diseases in the world. Its mission is to protect US livestock from foreign animal diseases, including zoonotic ones that can threaten human health as well. Investigating hemorrhagic infectious diseases, such as Ebola, is of prime concern.

The BRI is tasked with protecting American agriculture, crops, livestock, and food, from global bio threats. Ongoing projects include: wheat blast disease, anthrax, the plague, exotic bluetongue, yellow fever, Chikungunya virus, Rift Valley fever, Japanese encephalitis, and a host of others planned for the near future.

After watching a short film on the BRI facility, we were escorted into the teaching lab, where new workers are trained in safety techniques needed to work with these very dangerous infectious agents. Lab work is performed under hoods with negative pressure so that aerosols or dust does not escape into the room, which is also under negative pressure.

The director, Stephen Higgs, hails from south of London and has spent many years in Texas before coming to Kansas. He is the editor of a journal entitled: "Vector-Borne and Zoonotic Diseases." In the latest issue, researchers from across the globe published studies on Lyme disease in Spain, West Nile Virus in Hungary, *Trypanosoma**sp. found in synanthropic mammals in southern Brazil, tick-borne encephalitis in the Ukraine, and hantavirus infection of rodents in Sri Lanka.

The field trip was a delightful educational experience. Both of our hosts were welcoming and exhibited the highest degree of professionalism. They emphasized the fact that the BRI facility has an educational mission, and prearranged lectures and guided tours are available to teachers, students, and members of the general public.

**Trypanosoma* is a genus of flagellate protozoans that are infamous for causing African Sleeping Sickness (transmitted by Tsetse flies) and Chagas disease (transmitted by true bugs belonging to the subfamily Triatominae).

Walk a While With Me

by Hank Guarisco Feb 3, 2020

Walk a while with me
On trails made by my feet through the woods;
A while, a mile,
Conjure the length later, if you must.

But now, be here,
Turn a watchful ear
To silence broken and enriched
By the sounds of crickets in the ditch,
Striped frogs by the pond,
The rustle of a pair of legless lizards
In the sun-warmed grass.
More magical things may come to pass.

Buds on trees ready to explode,
As spring gathers her springful load,
Like runners waiting at the starting line,
Ready to dash forward at the same time.

Hopping over a wide ditch
while I climb down and up the other side,
The master, my mentor, Henry Fitch
Quietly explains nature's secrets, bye and bye.

In the hollow of a rain-soaked rotten log,
we find a small, brown wolf spider
with tuning fork pattern on her back
and a white eggsac trailing behind.

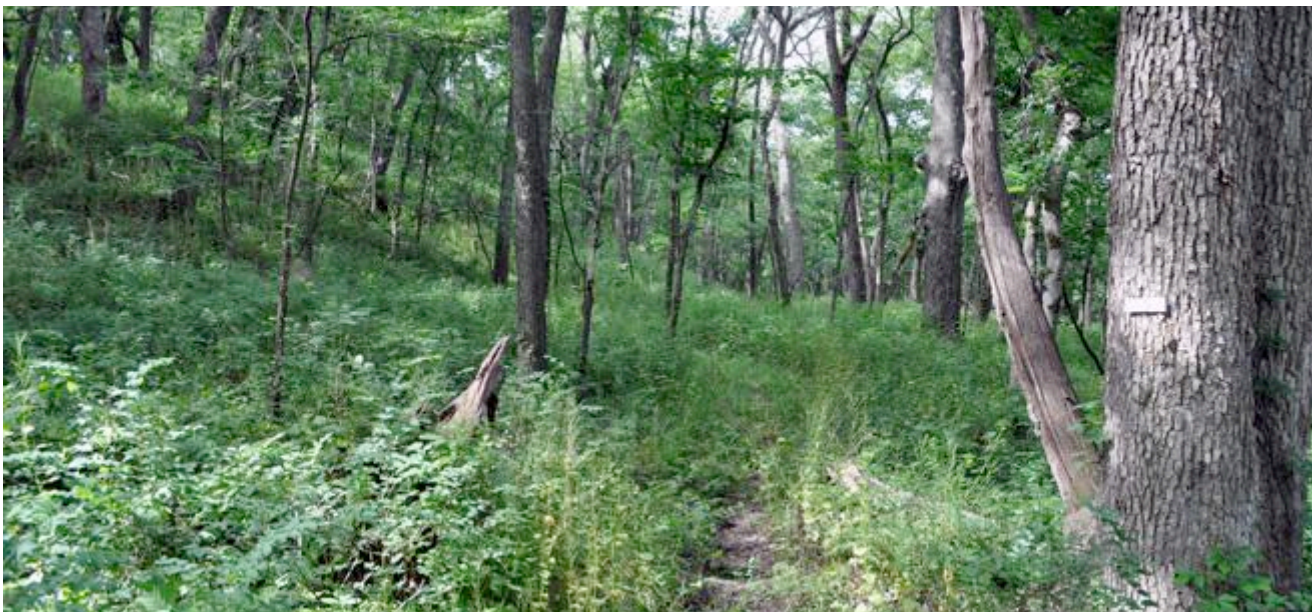
In 1935, Gertsch and Wallace christened her kind
With a latin moniker, *Pirata alachuus*.
Now people everywhere address her by this name,
But to her woodland neighbors she's been the same
For thousands of years before nineteen-thirty-five,
Long before Gertsch and Wallace did arrive.

Did she fret at being nameless all those years?
Feel insecure, on the verge of tears,
Because humans never recognized
She would be unique in taxonomists' eyes?

How does she live?
We want to know.
What does she eat,
Where does she go?

As day turns into night,
Seasons pass with heat and cold,
Other spiders does she fight?
When will she grow old?

Some people will not care
To understand her way of life,
But today, we care.



BOOK REVIEW: “Indigenous Food Sovereignty in the United States”

2019. Devon A. Mihesuah and Elizabeth Hoover (editors). Univ. of Oklahoma Press, Norman, OK. 370 p.
by Hank Guarisco, editor

In this age of corporate agriculture, indigenous food systems around the world have been negatively impacted in many ways. This has led to declining health due to a reliance upon “western” foods containing a lot of sugar, fats, and other substances known to increase the incidence of obesity, heart disease, cancer, and other maladies.

The introduction clearly states the book’s intention: “The goals of this anthology are both to identify the challenges facing indigenous communities in revitalizing and maintaining traditional food systems and also to highlight inspiring and successful food and health initiatives in Indian Country.” “Food production and distribution, as well as maintaining healthy environments for farming, hunting, fishing, and gathering involve a complex meshing of social, political, religious, economic, and environmental concerns.” “...the Working Group on Indigenous Food Sovereignty developed four principles of indigenous food sovereignty: 1) the recognition that the right to food is *sacred*, and food sovereignty is achieved by upholding sacred responsibilities to nurture relationships with the land, plants, and animals that provide food; 2) day-to-day *participation* in Indigenous food-related action at all of the levels of individual, family, community, and region is fundamental to maintaining Indigenous food sovereignty; 3) *self-determination*, or the ability of communities and families to respond to their needs for culturally relevant foods and to have the freedom to make decisions over the amount and quality of food they hunt, fish, gather, grow, and eat; and 4) *legislation and policy support* to reconcile Indigenous food and cultural values with colonialist laws, policies, and mainstream economic activities.”

As the book unfolds, the reader is taken on a journey from ancient history to modern times in exploring the struggles of native people around the world to reclaim their traditional food systems. A few chapter titles briefly encapsulate this journey: “Alaska native perceptions of food, health, and community well-being, challenging nutritional colonialism,” “Planting sacred seeds in a modern world,” “People of the corn,” “Comanche traditional foodways and the decline of health,” “Bringing the past to the present,” “On intimacy with soils,” and “Indigenous climate justice and food sovereignty.” After the conclusion, there is a section containing study questions on each chapter.

This thoughtful, balanced, well-written book belongs in a prominent place in your library. Although the problems surrounding “western” food systems are exacerbated in indigenous communities, there is a growing recognition of their adverse effects upon individual health, the environment, and community structures across the globe. When we reduce food, water, and air to mere commodities, the goal becomes possessing the greatest amount at the cheapest cost. This logically leads to travesties such as confined animal feeding operations (CAFOs) and massive environmental pollution, manufacturing addictive food products that cause disease, and damaging earth’s major systems that maintain homeostasis, such as the rain forest.

By listening to native peoples, we may regain our sense of the sacred during these thoughtless times when mass shootings reflect our societies’ lack of respect for even human life, let alone the lives of other creatures on the planet, and learn practical ways to achieve true independence.

The Trinidad and Tobago Field Naturalists' Club

by Hank Guarisco, editor

The Trinidad and Tobago Field Naturalists' Club was started in 1891 in order to "... give pleasure to its members by observation of animal, insect, and plant life in Trinidad." One of the founding members is P.L. Guppy. He promoted the use of the common name, "Guppy," for the fish his father, R.L. Guppy, discovered in Trinidad in 1866. In 1911, former president Theodore Roosevelt visited the island, and club members assisted his explorations. The famous herpetologist, Raymond Ditmars, came to Trinidad to collect a bushmaster for the Bronx Zoo in 1934. In 1947, the club founded the Zoological Society of Trinidad and Tobago, and five years later the Emperor Valley Zoo opened. In 1962, the country of Trinidad and Tobago gained independence, and the club was represented on several committees of the new government, including the Wildlife Conservation Committee. In the 1960s and early 1970s, the club became concerned with the slaughter of marine turtles and their report led to the enactment of laws protecting them. More recently, the club undertook a bio blitz in 2017, and recorded a total of 318 plant species, 40 fungi, 16 bacteria, 14 mammals, 127 birds, 22 reptiles, 17 amphibians, 33 fish, and a variety of other life forms.

In 1996, I traveled to Trinidad to attend the annual meeting of the American Arachnological Society (AAS), hosted by Chris Starr, a professor at the University of the West Indies, and a longtime member of the Trinidad and Tobago Field Naturalists' Club. In addition to scientific presentations, the AAS meeting included several field trips to exotic locations on the large tropical island of Trinidad. When the meeting ended, Chris kindly hosted me at his home for a few days.

The islands of Trinidad and Tobago were "discovered" by Columbus in the waning years of the fifteenth century and over the next few centuries were ruled by Spain, France, and Great Britain. Slavery was abolished in 1834, and indentured workers were imported from India to work on sugar plantations. This island nation comprises almost 2,000 square miles, and is home to over 1 1/3 million people.



During the Ice Ages when ocean levels were much lower, Trinidad was connected to Venezuela. Hence, many animals present in Venezuela, including jaguars and ocelots, migrated to the island. There are extensive mountains, several high enough to contain remnant cloud forests. The island also possesses an asphalt lake, similar to the La Brea Tar Pits in California. Interestingly, “Lake Asphalt” of Trinidad and Tobago is a state-owned enterprise located near La Brea, Trinidad that has provided road material and other asphalt related products for over one hundred years. The oldest forest reserve in the Western Hemisphere was established on Tobago in 1763. Because the country is so close to South America, it is rarely visited by hurricanes.

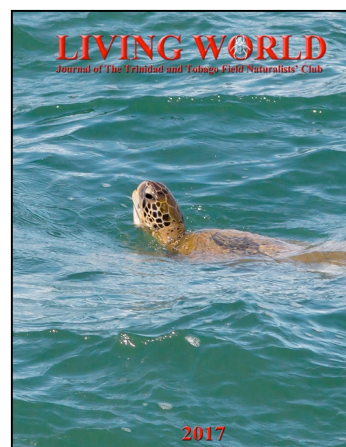
One memorable evening, Chris and I went to the monthly meeting of the local field naturalists’ club. It was packed with about fifty members of all ages, professions, and ethnic backgrounds. It was refreshing to be with a group of people who shared an ardent interest in the natural world. The meeting began by reading the minutes of last month’s meeting. Unlike many societies in the United States that perfunctorily accept last meeting’s minutes without discussion, there was a thorough discussion of all the items detailed in the minutes, with an understanding of the current state of various projects that were being pursued in conjunction with various government agencies and private organizations.

It soon became obvious that the Trinidad and Tobago Field Naturalists’ Club was a vibrant organization that was well-respected by both the citizens and the government of the country of Trinidad and Tobago. Various working groups of the club interacted with the highway department, forestry department, and educational institutions, and helped formulate plans that were beneficial or at least less harmful to the beautiful tropical world around them.

After reports from the working groups and a discussion of an upcoming field trip to a neighboring Caribbean island, a graduate student gave a presentation on the state of the mammalian fauna present in Trinidad. Some members had more of a passion for certain parts of the natural world. There were botanists, “birders,” “herpers,” and “arachno-entomo-philes,” but each group brought their special wonder to the entire membership. All were deeply in love with nature, as expressed in the club’s motto: “Natura Maxime Miranda in Minimis.” (Nature is most admired in the small things).

There was a comfortable blending of amateurs and professionals. One definition of a professional found in the Merriam-Webster Dictionary is: “participating for gain in an activity often engaged in by amateurs.” Obviously, the root of “amateur” is amare – to love. Hopefully, those who pursue the study of nature to the extent of becoming professionals, will never lose the love of nature.

Publications include: “The Field Naturalist,” a quarterly bulletin of the Trinidad and Tobago Field Naturalists’ Club, and “Living World,” a journal containing more in-depth technical explorations of the flora and fauna. Membership in the club costs TT\$100, which translates to \$15 US at the current exchange rate.



BOOK REVIEW: “Pawpaw In Search of America’s Forgotten Fruit”

by Andrew Moore, 2015. Chelsea Green Publ., VT, 296p.

by Hank Guarisco, editor

This delightful book introduces the reader to a classical American fruit, the pawpaw (*Asimina triloba*), which belongs to the tropical custard apple family (Annonaceae) native to Africa. It grows on a small understory tree usually found near creeks and adjacent wooded hillsides, ranging from Pennsylvania to South Carolina, west to Michigan, southeastern Nebraska, eastern Kansas, Oklahoma and Texas. Unlike many fruit trees that are pollinated by bees, the large dark-maroon pawpaw flowers rely on carrion flies and beetles to perform this service. Early historical accounts extol the virtues of the pawpaw and indicated they were part of the diets of early European explorers, Native Americans, and black slaves. Both Union and Confederate soldiers gladly supplemented their rations with wild foods, including the pawpaw.

The first treatise on pawpaws entitled, “The Pawpaw (*Asimina triloba*), A Native Fruit of Great Excellence,” was written by James A. Little who was living in the Neosho River bottoms of southeastern Kansas in 1860. There was a great drought and early settlers were grateful for the bountiful harvest of pecans and paw paws. Little moved to Indiana, began breeding experiments, and planted the first pawpaw orchard. Pawpaw ice cream, beer, and brandy were greatly favored at the time.

Although the native range of the pawpaw is quite extensive, early attempts at developing cultivars did not result in commercial production. In any given region the ripe fruit occurs for about one month. Unlike bananas, pawpaws cannot be picked before they ripen, and they bruise easily, making transportation difficult.

However, due to the efforts of one man, Neil Peterson, who is known as “Johnny Pawpaw seed,” there were six patented varieties of pawpaw on the market in 2003.

From 2003 to the present, the market for pawpaws has been slowly expanding, due to the efforts of a few other dedicated individuals who have planted pawpaw orchards.

The author dedicates the remainder of the book recounting his leisurely rambles through pawpaw country, exploring local folklore on his quest for the quintessential pawpaw. The last chapters include information on a variety of cultivars and nurseries, as well as a recipe for pawpaw ice cream.

Being a pawpaw aficionado, I thoroughly enjoyed this book. I did not realize that there is a pawpaw festival in southern Ohio that attracts thousands of people each year. Finding a perfectly ripe pawpaw in the late afternoon of a sunny autumn day can be a spiritual experience. The golden sunlight filtered through the large, pendulant leaves of a pawpaw grove adds a rich, mystical quality to this experience.





KANSAS ACADEMY OF SCIENCE

ATTN: Sam Leung

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