Newsletter of the Michigan Entomological Society

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Upcoming MES Events

2020 Breaking Diapause – ***Tentatively*** scheduled for Saturday, March 21 at the Frederik Meijer Gardens & Sculpture Park in Grand Rapids, MI. This meeting will coincide with their "Butterflies Are Blooming" annual exhibition, featuring thousands of tropical butterflies from Central and South America, Africa and Asia freely flying in the Tropical Conservatory. 10 am – 3 pm, more details in the next newsletter.

66th Annual Meeting – ***Tentatively*** scheduled for June 5-6-7 on the campus of Michigan State University, East Lansing, MI. We are working on holding tours or visits to MSU Entomology Department facilities and or research projects on Friday, June 5. Lodging and meals would be in MSU dorm facilities. More on this meeting will come out in the next newsletter.

New Newsletter Editors

Mark O'Brien has stepped down from his role as the editor of the MES Newsletter. He did such a good job that it took two people to replace him. The new co-editors are Duke Elsner and Crystal Dailey.

Duke has been a member of the society for many years, serving as president in 2010-2011 and currently as president-elect. He retired from Michigan State University Extension in 2019 and now plans to become more active in his personal entomological interests, which center on the butterflies and macro-moths of Michigan.

Crystal Dailey is a budding entomologist with a dream to pursue a degree through the MSU entomology program. She has a degree in Environmental Science from Northwestern Michigan College. Crystal is the Assistant Entomological Curator and Educator at the Grand Traverse Butterfly House & Bug Zoo in Williamsburg, MI. She is humbled and honored to be serving the MES as coeditor of the newsletter; she is also the new media administration for the MES Facebook page.

Producing a quality, timely newsletter is their goal (yes, this issue is a bit late and they will try harder). Submissions of articles, notes, photos or ideas for features from MES members are very welcome. Please direct materials to Duke at elsner@msu.edu or Crystal at smilingrainbow00@yahoo.com.

Recap of the 65th Annual Meeting of the Michigan Entomological Society

The 2019 annual meeting was held on June 21-22-23 at the Rockwell Lake Lodge in Luther, MI. An excellent program was put together by President-Elect David Houghton. About 40 people were in attendance over the three days. Many participants collected or just hiked on the beautiful grounds of the facility, and there was some good fishing as well.

The Plenary Speaker was Dr. Erika Tucker, Insect Collection Manager & Assistant Research Scientist of the University of Michigan. She presented "Conserving wild bees and other important insects through collections and collecting".

Presentation Abstracts – Part 1
(more to appear in next issue)

The Twolined Chestnut Borer (*Agrilus bilineatus*), a Native Buprestid, Invades Europe: its Biology and Outlook

Robert A Haack & Toby R Petrice

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Twolined chestnut borer (TLCB), *Agrilus bilineatus* (Weber), is a buprestid beetle native to eastern North America from New Brunswick to Manitoba in the north, southward to Texas and Florida. Its native hosts include American chestnut (*Castanea dentata*) and several species of oak (*Quercus*). TLCB is usually univoltine. Most adults emerge in early summer and lay eggs in bark cracks. The new larvae tunnel directly through the bark and feed in the cambial region primarily on phloem between the bark and wood. Larvae overwinter as mature fourth instars in pupal cells constructed in either the outer bark or outer sapwood, or as immature larvae in the cambial region. Mature larvae in pupal cells will pupate the following year in late spring with new adults emerging through D-shaped exit holes, which is typical for *Agrilus* beetles (Haack & Benjamin 1982, Haack and Acciavatti 1992, Haack and Petrice 2020). Immature larvae will

continue to feed the following spring and summer and create pupal cells in late summer or fall where they will pupate the following spring. Outbreaks of TLCB in the Great Lakes region often follow periods of environmental stress, especially drought, and defoliation (Haack and Petrice 2019).

The genus *Agrilus* is the largest in the Animal Kingdom with over 3200 recognized species worldwide (Eduard Jendek, Slovakia, pers. comm.). There are 90 species of Agrilus in Europe with *A. bilineatus* being the only Nearctic species. TLCB was first reported from Turkey in 2016 (Jendek 2016), and later confirmed as likely to be established there based on multiple collections that have been made in Turkey (Hızal and Arslangündoğdu 2018). In summer 2018, EPPO (European and Mediterranean Plant Protection Organization) asked us to prepare a "datasheet" on the TLCB (Haack and Petrice 2020) and to participate in a formal PRA (pest risk analysis) at their headquarters in Paris in December 2018 (EPPO 2019; attended by TRP). Based on conclusions of the PRA, EPPO will likely regulate *A. bilineatus* as an "A2" quarantine pest within Europe, which means that it has established and is locally present in the EPPO region. It is not known how or when the TLCB arrived in Turkey, but it could have been from unintentional movement of infested wood packaging, veneer oak logs, or other wood products shipped from North America.

The future pest status of TLCB in Europe is currently unknown. In Europe there are 22 native species of oak and one native chestnut species (EPPO 2019). The various European oak species extend from northern Africa to the United Kingdom and the southern portions of Scandinavia. English oak or pedunculate oak (*Q. robur*) has the largest range among oaks in Europe. European chestnut (*C. sativa*) is native to southern Europe, but has been widely planted further north (EPPO 2019). The TLCB has aggressively infested various experimental and urban plantings on English oak in Michigan, so at least some European genotypes are known to be susceptible to TLCB (EPPO 2019, Haack and Petrice 2019a, Petrice and Haack 2014).

There are six *Agrilus* species native to Europe that attack primarily oaks, and five more that infest both oaks and chestnut (EPPO 2019). There are also many natural enemies in Europe that readily utilize these 11 Agrilus species as hosts. So the TLCB will likely experience interspecific competition for host trees from other Agrilus species, as well as a ready suite of natural enemies that may provide some level of control. Therefore it is possible that the TLCB will only be a minor pest in Europe, as it is assimilated into the community of native *Agrilus* species. On the other hand, if TLCB is capable of attacking and killing healthy European oak and chestnut species, then TLCB has potential to become a major pest in Europe. The pest status of TLCB in Europe will become more apparent after more extensive surveys are conducted throughout Turkey and nearby countries.

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Michigan Butterflies and Skippers—20 Years Gone By

Duke Elsner

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This year marked the 20th anniversary of Mo Nielsen's landmark book on the butterflies and Skippers of Michigan. Mo intended that the form of the species distribution maps, marked with only verified county records rather than speculative regional distributions, would encourage both professional and amateur lepidopterists to scour their collections and territories to fill in the missing county record data. Without ever really naming it so, he was on the forefront of the now popular "citizen science" approach to collecting biological data.

In the subsequent 20 years, many hundreds of additional county/species records were submitted to Mo, or to me, after his death. I expect that hundreds more are likely, either undiscovered or unreported.

Mo and I had discussed the possibility of a new edition of the book over the years, but a glut of unsold books in the MSU inventory kept this from being pursued, as well as the costs of producing another physical publication. Since his death, I have been very interested in releasing a new "edition" in the form of a Michigan butterflies and skippers web site. Time constraints during my employment with MSU kept this from becoming a reality, but now that I have retired I hope to move this project to the front burner in 2020. I invite all those who interested in helping with this endeavor to contact me via my MSU email address.

In the Steps of the Great American Entomologist, Frank Eugene Lutz

Randall M. Cooper

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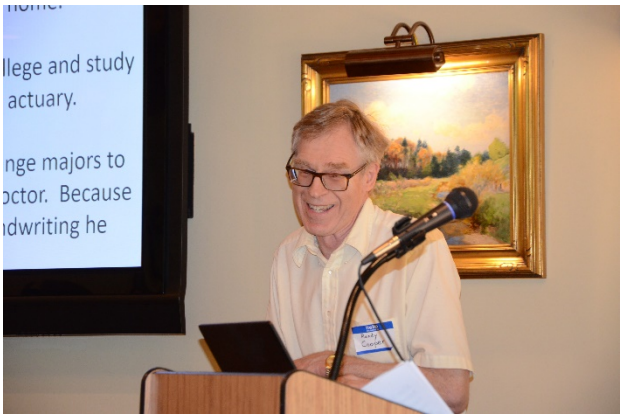
Early in my childhood days of insect collecting as a hobby I learned the name of an American entomologist, Frank Eugene Lutz. He was the subject of a biographical book for young readers written by Pallister (1966), who later wrote a biographical article as well (Pallister 1973). Fifty years later, remembering how his life ambition inspired my own pursuit of entomology, I decided to research his career to determine for myself why he should be called a "great American entomologist" as described in the title of Pallister's book.

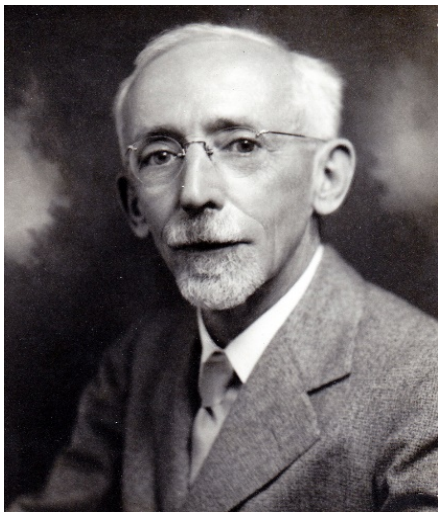
Lutz (1879-1943) never had a formal college course in entomology and devoted his first two years of college to study for a degree in mathematics. If not for his poor handwriting, he might have graduated to become an insurance actuary as his insurance agent father had suggested he do. However, Lutz's love of natural history in his youth steered him ultimately

toward a college degree in biology. Upon graduation in 1900, he first sought to enroll in medical school, but the high cost of tuition caused him to postpone his plans. In the meantime, he received advice from one his biology professors, H. S. Pratt, who suggested he go into biometry since he had training in both mathematics and biology. Pratt recommended Lutz speak to Dr. Charles B. Davenport, one of the most prominent researchers in the field at that time and a member of the faculty of the University of Chicago. Lutz contacted him, was able to acquire a scholarship, and his affiliation with the University led to a Master's Degree in 1902 and a Ph.D. in 1907.



In 1909, Lutz was offered a job as Assistant Curator in the Dept. of Invertebrate Zoology at the American Museum of Natural History. One of his immediate priorities was sorting and classifying the approximately 300,000 insect specimens in various collections and in storage at the Museum. He described his early days as a curator and the history of the Museum's collection in Lutz (1924a). He spent the rest of his career at AMNH, ultimately becoming Curator of the newly-formed Dept. of Entomology in 1921. During his tenure, he built the collection to approximately 2,000,000 specimens (Weiss 1944). Lutz took a total of 23 collecting expeditions.

Lutz excelled at popularizing entomology and encouraging nature education. He showed his broad interests in the creation of the first "self-guided" nature trail (Lutz 1926a), and even extended this concept to a tour of the nighttime sky (Lutz 1926b). The idea of trails with educational signage along the way quickly became popular and was widely copied. Many of his popular articles are found in Natural History (Bacon 1944). Some of these were originally radio broadcasts. Nat. Hist. 26, No. 2 is a good single source for several Lutz articles, including one in which he keenly described his public duty as an entomologist, naturalist, and educator (Lutz 1926c). He was especially vocal in helping the public understand the highly beneficial nature of many native insects (Lutz 1912), and how accidentally imported insects can sometimes gain such a destructive foothold (Lutz 1926d). His Field Book of Insects (Lutz 1918) was the standard book of reference for multiple generations of students and amateur entomologists. In the Hall of Insects at AMNH his exhibits were innovative. His displays were sometimes mechanical using push buttons, a new concept at that time. He also created "insect zoos" with live specimens and dioramas, some of which were circulated in the New York public schools (Mann 1927).



Lutz's popular and scientific writings often stemmed from his curiosity about insect biology, and led him to conduct studies on geographic distribution (Lutz 1916), insect sounds (Lutz 1924b), ultraviolet light in relation to flower visiting habits of insects (Lutz 1924c), and the ability of insects to withstand rapid changes in air pressures and lack of oxygen (Lutz 1929).

In his second book, A Lot of Insects (Lutz 1941), Lutz described the life history of several

insect orders he collected on his typical suburban lot in Ramsey, NJ. It is written in an entertaining manner and brings out his rich sense of humor.

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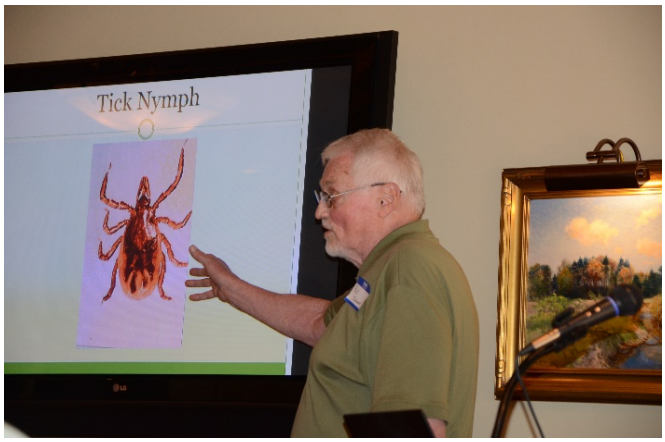

Ticks on Birds: Host Preference; Phenology; and Re-infestation

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I previously collected 864 immature *Ixodes scapularis* from 1693 birds netted for banding during two nesting seasons in western Maryland (Scharf 2004). There was no difference in infestation rate between male and female bird hosts (P=>.05). Hatch-year birds were significantly more infested with ticks than adult birds (P=<0.001).

I have continued collecting ticks (Keith et al. 2015, Scharf 2000, 2004, Scharf and Walker 2002, Scharf unpublished) for the past 8 years in Leelanau Co. Michigan. I found one new bird tick there for Michigan. I operate 10 twelve meter mist nets daily during the migration seasons. During this effort, I have collected 298 ticks of 3 species from 4774 birds. Re-infestation is common-place among certain birds nesting near the ground. Ticks with rabbit definitive hosts (the host where the parasite is sexually

mature) show a distinct seasonal preference in the occurrence of their larval and nymphal stages on birds. Photos showed the examination of birds with use of an optivisor, and the use of the back of a forceps to part feathers on the bird's head. Ixodes scapularis, the vector of Lyme disease, was illustrated with micro-photos of the larva, nymph, male, female and engorged female. Competence of bird species as reservoirs of Lyme disease, and the top 5 tick infested species at Chippewa Run were discussed.

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Above, photo by Robin Wieten. Right, photo by Duke Elsner

Recent Survey Efforts in Wilderness State Park: Using Entomology Classes to Promote Biodiversity Knowledge

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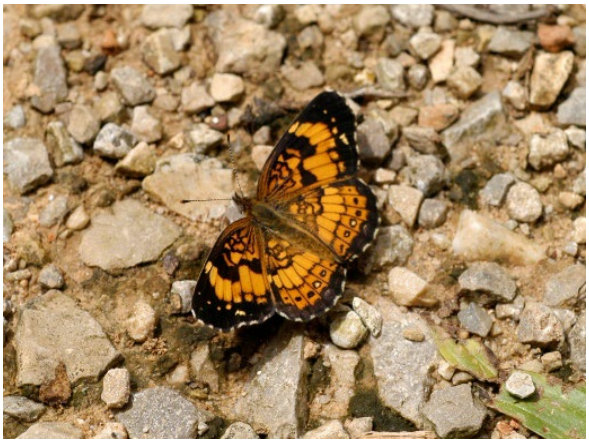
Despite the long history of entomology study at the University of Michigan Biological Station, we still lack knowledge about most groups of insects in northern Michigan. Currently, we have records of 4678 species from the Station region, but estimates indicate that there are about 15,000 species in the area. Using Biology of Insects classes, we have started to survey selected taxa of insects, focusing on Wilderness State Park. Over the course of eight years, the classes have surveyed 47 families in 7 orders, identifying 593 species. Our surveys have resulted in at least 175 Emmet County records and three possible state records. The study has revealed a number of tight habitat relationships and at least two butterfly species that have expanded their ranges to the northern tip of the Lower Peninsula.



MES 2019 annual meeting minutes

June 21-23, 2019 - 65th Annual Meeting.

Rockwell Lake Lodge & G.H. Gordon Biological Station, Luther, MI.

Present: The General Membership plus Governing Board Members: Dave Houghton, Elly Maxwell, Adrienne O'Brien, Mark O'Brien, Angie Pytel.

Undergrad Student Presentations:
1st prize was given to Danae Solie from Hillsdale College for her talk on "Changes in food availability and aquatic insect biomass between adjacent meadow and forest habitats".

2nd prize was given to Lily Erickson from Hillsdale College for her talk on "The great Rockwell experimental forest, part 2: quantifying insect assemblages".

3rd prize – a tie – was given to Nate Gipe from Hillsdale College for his talk on "The great Rockwell experimental forest, part 1: quantifying plant assemblages" and to Robert Kintz from Hillsdale College for his talk on "Beetlemania: exploring the Coleoptera of northern MI habitat types".

Congratulations to all of you!

Reports:

Secretary: Adrienne O'Brien – Membership levels are about the same

Treasurer: Angie Pytel – Balance in accounts totals $27,788.12. The cost and income for journal production is breaking even.

Newsletter: Duke Elsner and Crystal Dailey will be new co-editors of the newsletter. Thank you!

Members - please submit articles, photos, fun stuff to Crystal or Duke. Crystal is also the MES social media admin – check out the Facebook page for Michigan Entomological Society – lots of interesting posts.

Journal: no report

Webmaster: Mark O'Brien – no report.

Old Business:

At the Breaking Diapause Meeting (March 23, 2019 in Midland, MI), the following topics were introduced:

Member List – it was felt that there is a need for a member list to be made available to members, but we do not want to post any personal information online. It would be password protected Google sheet, available only to members. Adrienne will send an email to members, giving them the choice to opt in or out.

Associate editors for the journal - Rather than have seven, all members of the Governing Board, Kristi Bugajski has reduced the number to three.

Pagination for the journal – questions about page numbers were raised. Bob Haack is trained to fix it so there are consecutive page numbers, rather than "Article 1, Article 2 etc".

Adrienne and Mark O'Brien are moving to North Carolina this summer. Adrienne can remain as Secretary/Membership Coordinator, but will be unable to take meeting minutes. Elly Maxwell offered to take on the role of scribe. Mark will step down as the newsletter and social media admin. Crystal Dailey and Duke Elsner will cover these two duties. For now, the webmaster position will not change.

Governing Board would like access to the Mail Chimp login. This is the email program used for communication to the general membership. It was decided to grant access only to the Treasurer and Secretary to limit the number of different people sending out emails. Mark O'Brien will turn that over to Adrienne and Angie.

Website – Mark O'Brien will create a document about the website administration and give that to the Secretary and Treasurer in case he no longer wishes to be the admin.

New Business:
Elections
Congratulations to our new Members-at-Large, Tom Moore and Ralph Gorton (2019 – 2021) and President Elect, Duke Elsner. Thank you to the other candidate, Steve Bransky for agreeing to be on the ballot. And, a huge thank you to Crystal Dailey for joining

the MES this spring and immediately stepping forward to fill some key positions.

Thanks to David Houghton for planning and executing the 65th Annual Meeting. It was excellent!

Submitted by Adrienne O'Brien

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Elly Maxwell hands over the official MES gavel to David at the end of the annual meeting.

MES Historical Notes for 2018 and 2019

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For some mysterious reason the 2018 MES Historical Notes did not get published in the 2018 MES Newsletters. So here are notes for both 2018 and 2019.

1994 – 25 years ago. In 1994, Dave Gosling was President; Richard Roeper was President-Elect; Cathy Bach was immediate Past-President; Mo Nielsen was Treasurer, Ned Walker was Secretary; Dan Herms, Bill Westrate and Karen Grimmes were the three Members-at-Large; Mark O'Brien was Journal Editor; and Bob Haack and George Heaton were the Newsletter Editors. The 40th MES Annual Meeting was held 3 June 1994 at the Fernwood Botanic Garden near Niles, MI. There were 13 contributed talks that covered topics such as fen pentatomids, the exotic pine shoot beetle, tree-hole mosquitoes, ants as food for black bears, onion flies, ambrosia beetles, Karner blue butterfly, forest pests in South America, formation of the Michigan Lepidoptera Survey, wasps, gypsy moth, and fen Odonata. Mark Hodgkins of the USFWS gave the invited talk that focused on the recent USFWS Biological Opinion on the Mitchell's satyr. Some of the highlighted stories in the 1994 MES Newsletters dealt with federal listing of three insects as endangered, Michigan's Stale Listed insects, Mo Nielsen's opinion of Michigan's Endangered-Threatened Species Law and a response from the Michigan DNR, a list of the insects considered "sensitive species" on US Forest Service lands in the Eastern Region, insect-pollinated trees, and even zebra mussels. At the start of 1994, MES had 438 members and 173 journal subscriptions. MES annual dues in 1994 were $10 per year for active members, $5 for students, and $25 for libraries, and journal page charges were $30 per published page.

1993 – 26 years ago. In 1993, Cathy Bach was President; Dave Gosling was President-Elect; Fred Stehr was immediate Past-President; Mo Nielsen was Treasurer, Ned Walker was Secretary; Ron Priest, Dan Herms, and Bill Westrate were the three Members-at-Large; Mark O'Brien was Journal Editor; and Bob Haack and George Heaton were the Newsletter Editors. The 39th MES Annual Meeting was held 21 May 1993 at the University of Michigan's Biological Station at Douglas Lake, near Pellston, MI. There were 18 talks that covered topics such as the biology and flight season of the exotic pine shoot beetle, ambrosia beetle flight patterns, new entomological software, Lyme disease in Michigan, Chymomyza apple flies, praying mantis vision, insect fauna in patterned fens, Karner blue butterfly biology, evolution of feeding specialization in insects, how insects adapt to plants with high tannin content, insect feeding on sand dune plants, oviposition preferences of swallowtail butterflies, testing the carbon/nutrient balance hypothesis, insect

performance on trees exposed to high CO2 levels, impact of an introduced tachinid fly on native Lepidoptera, and compensatory growth by plants in response to insect feeding. In 1993 the Hungerford's Crawling Water Beetle (Brychius hungerfordi; Coleoptera: Haliplidae), a native to Michigan and Ontario, was proposed for listing as an Endangered Species, and officially listed in 1994. Some of the highlighted stories in the 1993 MES Newsletters dealt with the discovery and biology of the exotic pine shoot beetle, recovery plans for the endangered American burying beetle and Mitchell's satyr, gypsy moths entering the eastern USA by way of returning US military cargo vessels from Europe, and impacts of Btk on non-target Lepidoptera. In 1993, MES annual dues were $10 per year for active members, $5 for students, and $25 for libraries, and journal page charges were $30 per published page.

1969 – 50 years ago. In 1969, Louie Wilson was President; Julian Donahue was President-Elect; T. Wayne Porter was immediate Past-President; Mo Nielsen was Executive-Secretary as well as Editor of the MES Newsletter; and Ron Wilkinson was the journal editor for The Michigan Entomologist. The 15th annual MES meeting was held at Alpena Community College on 23 May 1969. The program was not published in the MES Newsletter, but in the MES Governing Board minutes it was mentioned that one talk in particular generated lots of discussion. It was the talk by Henry Townes, which was entitled "Fees Should Be Charged for Taxonomic Identifications." The featured speaker was JCE Riotte of the Royal Ontario Museum, who spoke on Anisota and Sphinx moths. In June 1969, MES and the MSU Entomology Department hosted the 20th Annual Meeting of the Lepidopderist's Society in East Lansing, with 66 attendees. MES held a 2-day spring collecting field trip at Alpena State Forest in May 1969, and parts of activities were filmed for the TV Program Michigan Outdoors! Two of the featured articles in the 1969 MES Newsletters dealt with how to construct a window-pane insect trap and a black-light box trap. As for business issues, starting in 1969, The Michigan Entomologist was published as one volume per year with four issues per volume (see note below on earlier publication history). Also in 1969 it was decided to increase dues to $4 per year for active members and $2 for students, leaving library subscriptions the same at $6 per volume. As of early 1969, MES had 570 active members and an additional 215 library subscriptions.

1968 – 51 years ago. In 1968, T. Wayne Porter was President; Louie Wilson was President-Elect; Fred Knight was immediate Past-President; Mo Nielsen became ("somewhat unwillingly") the Executive-Secretary as well as Editor of the MES Newsletter; and Ron Wilkinson was the journal editor for The Michigan Entomologist. The 14th annual MES meeting was held at Grand Valley State College in Allendale, MI on 23 March 1968. The program was not published in the MES Newsletter, so I cannot list the topics covered, but it was stated in the minutes that they had 16 dozen doughnuts to share among 24 members! Two issues of The Michigan Entomologist were printed in 1968. MES held various Society collecting field trips in 1968, including Yankee Springs State Recreation Area, E.S. George Reserve, Bear Lake Bog (near Lansing), Wakelee Bog (Cass Co.), and Three Rivers State Game Area. MES had 501 active members in 1968 and an additional 161 library subscriptions. MES had four active branches in 1968 (Ann Arbor, Detroit, East Lansing, and Toronto), with each having separate meetings and field trips. The Toronto Branch began in 1968 with J. Charles E. Riotte, of the Royal Ontario Museum, Toronto, as the first Branch Chair. As for business issues in 1968, MES decided to reduce the number of issues per volume of the journal from 10 to 4 (and try to publish quarterly with about 200 pages per volume). Note that volume 1 of The Michigan Entomologist, which included 10 issues, was published over the years 1966-1969! MES dues in 1968 were $2 per year for active members and $1 for students. Library subscriptions were $6 per volume.