AMCOP 67, July 9-11, 2015
Lawrence University
Appleton, WI

Contents

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Lawrence University

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Acknowledgements

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For support of speakers' travel expenses.

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For support of the LaRue, Cable, and Honorable Mention Awards and other expenses.

The 67th Annual Midwestern Conference of Parasitologists provides 4 Continuing Education Credits (4 CE). Your registration confirmation is proof of your attendance.

Schedule

THURSDAY, JULY 9, 2015

3:00-6:00 pm Dorm Check-in at Hiett Hall

6:00-8:00 pm Opening Mixer: Stone Cellar at Riverview Gardens, 1101 S. Oneida St., Appleton.

FRIDAY, JULY 10, 2015
Lawrence University
Steitz and Youngchild Halls

8:00am Continental Breakfast (atrium), Poster Setup (atrium), Silent Auction Set Up (Steitz 127)

8:45am Opening Remarks and Welcome (Youngchild Hall121)

- Dr. Judith Humphries, Program Officer

CONTRIBUTED PAPERS
(STUDENT PAPERS INDICATED BY *)

9:00 1* The Urban Bird Gets The Worm: A Survey Of Cestode Biodiversity In Avian Hosts. **OLIVIA N CHOI (GS)**, JENNIFER E KAWAGUCHI (UG), ROBERT C JADIN (MP), SARAH A ORLOFSKE (MP), Department of Biology, Northeastern Illinois University, Chicago, IL 60626

9:15 2* *Cytauxzoon felis* (Apicomplexa:Theileriidae) in bobcats, domestic cats, and tick vectors in the southern region of Illinois. **ELLIOTT ZIEMAN**[1,2] **(GS)**, MEGAN SCHWARZINGER[1] (UG), CLAYTON K. NIELSEN[2,3] (MP) and F. AGUSTÍN JIMÉNEZ[1] (MP). [1]Department of Zoology, Southern Illinois University Carbondale, IL. 62901-6501, [2]Cooperative Wildlife Research Laboratory, Southern Illinois University, Carbondale, IL. 62901, [3]Department of Forestry and Center for Ecology, Southern Illinois University, Carbondale, IL. 62901-4619.

9:30 3* The First Morphological And Molecular Identification Of The Exotic Trematode *Psilotrema mediopora* (Trematoda: Psilostomatidae) In The

United States. **TYLER ACHATZ (GS)** & Dr. Robert Sorensen (MP), Department of Biology, Minnesota State University Mankato, Mankato, MN 56001

9:45 4* Gastrointestinal Parasitic Infection Prevalence for Fur-Bearing Game Animals in the Different Regions of Wisconsin. **KELSEY HOFFMANN (GS)**, LUCAS SEABERG (UG), AMBER SCHULTZE (UG), and KIMBERLY BATES (MP), Department of Biology, University of Winona, Winona, MN 55987

10:00 Break & Silent Auction Bidding (Steitz 127), Poster Setup (atrium).

10:15 5* Investigation of Ascarid infections in an Iowa beef herd. **JEBA R J JESUDOSS CHELLADURAI (GS)**, CHRIS R BADER (GS), and MATTHEW T BREWER (MP), Department of Veterinary Pathology, College of Veterinary Medicine, Iowa State University, Ames, IA, USA

10:30 6* White Grub in Centrarchidae from the Ohio River Drainage. **EVAN BOONE[1] (GS)**, LES FRANKLAND[2] (MP), DEVON KEENEY[3] (MP), ROBERT COLOMBO[1] (MP), and JEFFREY LAURSEN[1] (MP), [1]Department of Biological Sciences, Eastern Illinois University, Charleston, IL 61920. [2]Illinois Department of Natural Resources, Division of Fisheries, Springfield, IL 62702. [3]Department of Biological Sciences, Le Moyne College, Syracuse, NY 13214.

10:45 7* The Effects of Competitor-Induced Plasticity on Intensity of Parasitic Infection. **ALEJANDRA VILLEGAS (UG)**, ELISABETH SOMCHITH (UG), SARAH A ORLOFSKE (MP). Department of Biology, Northeastern Illinois University, Chicago, IL 60625

11:00 8* Comparison of trematode biota of apparently healthy *Fulica americana* and *Aythya collaris* harvested from Lake Winnibigoshish, Minnesota, USA. **Miriah Linville (UG)**, Timothy Christopherson (UG), James Mitchell (UG), Okhumhekho Kassim (UG), Connor Hutton (UG), Tyler Achatz (GS), & Dr. Robert Sorensen (MP), Department of Biology, Minnesota State University Mankato, Mankato, MN 56001

11:15 9* Anatomical variation in white grub (*Posthodiplostomum minimum centrarchi*) from four fish hosts. **SHANE MASON** (UG) and SHAWN MEAGHER (MP), Department of Biological Sciences, Western Illinois University, Macomb, IL 61455.

11:30 Lunch

THE AMCOP SYMPOSIUM
Youngchild 121

1:00 **Dr. Rebecca Cole. USGS National Wildlife Health Center**
Wildlife health, invasive species and trojan horses

2:00 **Dr. Shelli Dubay, UW-Stevens Point**
Wildlife-parasite research with undergraduates - 3 recent projects

POSTER SESSION
Atrium

3:45 5:30

10* Exploring arvicoline colonization history across Beringia: a molecular phylogenetic analysis of a tapeworm species complex. **GENEVIEVE HAAS (GS)** and KURT GALBREATH (MP), Department of Biology, Northern Michigan University, Marquette, MI 49855 USA

11* Provisioning Pollution in the Population Genetics of *Blastocystis* in Bali's Long Tailed Macaques. **ERIK M.RODRIGUEZ (UG)**, **JOHN LOPEZ (UG)**, JUNE TOME (UG), SNEHA MODI (UG), and JUSTIN WILCOX (G) DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF NOTRE DAME, NOTRE DAME, IN 46556

12* Uncovering the hidden diversity of *Bothriocephalus* spp. in North American freshwater fishes. BRANDON KOZINSKI (UG), KARL HUBERTY (UG), **REED COLLING (UG)** and ANINDO CHOUDHURY (MP). Division of Natural Sciences, St. Norbert College, 100 Grant Street, De Pere, WI 54115.

13* Diversity of *Lissorchis* spp. (Trematoda: Lissorchiidae) explored through morphology and molecules. **DAVID YANDA (UG)**, ELIZABETH MANLICK (UG), ANGELA GRAHN (UG), PATRICK NELSON* (CO) and ANINDO CHOUDHURY (MP). Division of Natural Sciences, St. Norbert College, 100 Grant Street, De Pere, WI 54115. * North-South Consultants, Winnipeg, Manitoba, Canada.

14* Investigating the putative role of the TLR/NFκB pathway in the immune response of the snail *Biomphalaria glabrata.* **BRIANA HARTER (T)**, KASSIDY RINEHART (UG) and JUDITH HUMPHRIES (MP), Department of Biology, Lawrence University, Appleton, WI 54911.

15* Epigenetic regulation of schistosome-associated parasitic castration in snails. **NATHALIE M. DINGUIRARD (R)**[1], MEGAN MEZERA[1] KATHRIN K. GEYER[2], KARL F. HOFFMANN[2] and TIMOTHY P. YOSHINO[1]. [1]Department of Pathobiological Sciences, University of Wisconsin-Madison, [2]Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, Aberystwyth, UK

16* Transmission of Strigeidae (Platyhelminthes: Trematoda) in Wisconsin and Illinois freshwater wetlands. JENNIFER W KAWAGUCHI (UG), **OLIVIA N CHOI (GS)**, ROBERT C JADIN (MP), SARAH A ORLOFSKE (MP), Department of Biology, Northeastern Illinois University, Chicago, IL 60626

17* The Helminths Of The Short-Tailed Cane Mouse, *Zygodontomys Brevicauda* (Rodentia: Cricetidae) In French Guiana. **HAYLEY FALAT (UG)** and F. Agustín Jiménez (MP), Department of Zoology, Southern Illinois University, Carbondale, IL 62901

18* Comparative phylogeography of North American pika parasites. **HEATHER TOMAN (GS)** and KURT GALBREATH (MP). Department of Biology, Northern Michigan University, Marquette, MI 49855 USA

19* Temporal and Spatial Variation in the Protozoan Parasite Community of Singapore's Long-Tailed Macaques (*Macaca fascicularis*). **JUSTIN J.S. WILCOX (GS)**, SARAH ROHRMAN (UG), HOPE HOLLOCHER (MP), Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556-5688

20* Nuclear translocation of NFκB in *Biomphalaria glabrata*. **ANDREA WILKINSON (UG)** and JUDITH HUMPHRIES (MP), Department of Biology, Lawrence University, Appleton, WI 54911

BANQUET
Warch Campus Center

Cash bar opens 6:30 Mead Witter Room
Dinner begins at 7:00 Hurvis Room

KEYNOTE SPEAKER
Dr. Shelly Michalski
University of Wisconsin-Oshkosh

SATURDAY, JUNE 11, 2015.
Steitz and Youngchild Halls

8:00 Continental Breakfast (atrium) & Silent Auction Bidding (Steitz 127)

9:00 Silent Auction Bidding Closes

9:30 Business Meeting and Award Presentations. Dr. Trudy Aebig, AMCOP Presiding Officer

Dorm check out by 1pm.

ABSTRACTS

1. **The Urban Bird Gets The Worm: A Survey Of Cestode Biodiversity In Avian Hosts. OLIVIA N CHOI (GS)**, JENNIFER E KAWAGUCHI (UG), ROBERT C JADIN (MP), SARAH A ORLOFSKE (MP), Department of Biology, Northeastern Illinois University, Chicago, IL 60626

   Biodiversity loss is an undeniable fact of modern society. However, less understood is how the loss of biodiversity inevitably alters communities including those of parasites. As parasites make up a large portion of the worldwide

biodiversity, it is important to conduct surveys to address this knowledge gap. Birds are a useful system for wildlife parasite surveys due to their role as the definitive host for many helminth parasites. While there are a considerable number of studies conducted on helminth parasites of birds throughout the United States, studies in northeastern Illinois are limited and those surveys that exist need to be updated particularly in urban areas. Therefore, our research objective was to describe the parasite communities of a variety of avian hosts collected from urban areas in northeastern Illinois. We necropsied 61 birds: 5 American robins, 34 European starlings, 5 Mallard ducks, 5 Mourning doves, 9 Rock pigeons, 1 Ring-billed gull, and 2 Hermit thrushes. Birds were donated by Chicago O'Hare airpot and collected from the Northeastern Illinois University campus as part of a bird window collision study. We used standard parasitological methods for parasite isolation and collection. We obtained morphological information from permanent, whole mounts of specimens. We extracted DNA from select specimens for sequencing using 28S and NAD1 gene fragments to aid in cryptic species identification. Of the four helminth groups, cestodes showed the highest prevalence at 55% followed by nematodes (45%), acanthocephalans (36%), and trematodes (13%). Within the cestodes, 100% of all ducks were infected (5 birds, mean intensity 5.5 individuals), 100% of all ring-billed gulls (1, mean intensity 75), 80% of robins (4, mean intensity 6.25), 70.6% of starlings (24, mean intensity 2.8), and none in doves, pigeons, and thrushes. We identified five different species of cestodes from the families Dilepididae and Hymenolepididae including *Fimbriaria, Dilepis,* and *Cloacotaenia*. Based on the diet of these birds, it is unsurprising that doves and pigeons showed no cestode infections. The two thrushes were not infected with cestodes; however this is likely due to the small sample size. The robins, gull, and ducks exhibited higher than expected prevalence of cestodes, but additional specimens are needed. The host specificity of these cestode species can be determined as well as the role of diet by determining transmission. Similarities between host species may indicate the specific host resource(s) used by the parasites. This can lead to better predictions of infection dynamics and parasite communities within changing host communities through species introduction and urbanization. While many recent advances have been made in the roles of wildlife parasites in ecosystems, more precise information is needed on their diversity and life cycles to increase our understanding of these processes.

2. ***Cytauxzoon felis*** **(Apicomplexa:Theileriidae) in bobcats, domestic cats, and tick vectors in the southern region of Illinois. ELLIOTT ZIEMAN[1,2] (GS)**, MEGAN SCHWARZINGER[1] (UG), CLAYTON K. NIELSEN[2,3] (MP) and F. AGUSTÍN JIMÉNEZ[1] (MP). [1]Department of Zoology, Southern Illinois University Carbondale, IL. 62901-6501, [2]Cooperative Wildlife Research Laboratory, Southern Illinois University, Carbondale, IL. 62901, [3]Department of Forestry and Center for Ecology, Southern Illinois University, Carbondale, IL. 62901-4619.

Cytauxzoon felis is an intraerythrocytic Apicomplexan parasite of felines in the southeastern US. Infection in domestic cats (*Felis catus*) can result in the highly

fatal cytauxzoonosis. Bobcats (*Lynx rufus*) are the natural host and often show no apparent pathology associated with infection by *C. felis*. The lone star tick (*Amblyomma americanum*) and the American dog tick (*Dermacentor variabilis*) are competent vectors of *C. felis*. Previous work on *C. felis* has addressed the infection in one host species in a specific geographic region. In particular, distribution of the parasite in tick vectors was based on ticks removed from domestic animals and humans. A comprehensive study of the distribution of the parasite in both questing ticks and felines is necessary. Our study had two general objectives: i) to determine the prevalence and parasitemia of *C. felis* in bobcats and prevalence in questing tick vectors, and ii) to compare the genetic diversity of *C. felis* among different hosts. We screened tissues of 122 bobcats, 218 ticks (117 *A.* americanum, 101 *D.* variabilis), 12 domestic cats suspected to suffer cytauxzoonosis, and 12 asymptomatic domestic cats for the presence of *C. felis* using polymerase chain reaction (PCR) with specific primers. Bobcats from Illinois showed a prevalence of 66%, whereas ticks had a prevalence of 15.6% with no difference between species. Eleven cases of cytauxzoonosis were confirmed in domestic cats and 4 of 12 (33.3%) of asymptomatic domestic cats were positive for *C. felis* infection. This is the first study to examine a local population of ticks, domestic cats and bobcats. Our data indicate a very high prevalence in ticks and bobcats. More research is necessary to evaluate the causes of these high prevalences, specifically exploring the possibility that domestic cats may be acting as reservoirs and that localized foci of infections may have elevated the prevalence in ticks and reservoir hosts.

3. **The First Morphological And Molecular Identification Of The Exotic Trematode *Psilotrema mediopora* (Trematoda: Psilostomatidae) In The United States. TYLER ACHATZ (GS)** & Dr. Robert Sorensen (MP), Department of Biology, Minnesota State University Mankato, Mankato, MN 56001

This study examined the intestinal trematodes of hunter-shot *Fulica americana, Aythya collaris, Aythya affinis, Anas discors,* and *A. platyrhynchos* from Lake Winnibigoshish, Minnesota. Intestines were extracted and frozen until used. All trematodes were removed from each intestine with the aid of a dissecting microscope. All examined birds, except *F. americana,* were found to host what we believe to be *P. mediopora*, with the majority of these worms being located predominantly in the anterior small intestine of infected birds. *P. mediopora,* which was was originally described in *Anas platyrhynchos* and *Anas clypeata* from Northern Eurasia by P. G. Oschmarin in 1963, has not been previously reported in North American waterfowl . Of the presumed *P. mediopora* we found, *2*, 129, 212 and 92 individuals from *A. collaris, A. affinis, A. discors,* and *A. platyrhynchos*, respectively, were stained using Semichon's acetocarmine and examined using light microscopy. . Worms from all infected waterfowl showed no significant morphometric differences between host species. When our specimens were compared to Oschmarin's description, several size variations were detected. Although gross morphology typically matched variation seen in the original description such as the variable location of the ovary, additional morphological variation was noted, including the presence of up to 9 eggs in some specimens.

Molecular genetic analysis using partial 28s rDNA sequences was also used to compare 3 of the *P. mediopora* from *A. platyrhynchos*—2 from a fall collected bird and one from a spring-harvested mallard—to validate the placement of these worms within the genus of *Psilotrema.* These sequences supported the placement of these worms within the genus *Psilotrema*. Interestingly, the life cycle of *P. mediopora* requires the exotic snail *Bithynia tentaculata* as a first intermediate host, and this snail has been found relatively recently in the Midwestern United States. These results suggest that the expansion of the range for *B. tentaculata* snails offers the potential for the establishment of this novel, exotic trematode.

4. **Gastrointestinal Parasitic Infection Prevalence for Fur-Bearing Game Animals in the Different Regions of Wisconsin. KELSEY HOFFMANN (GS)**, LUCAS SEABERG (UG), AMBER SCHULTZE (UG), and KIMBERLY BATES (MP), Department of Biology, University of Winona, Winona, MN 55987

   Fishers (*Martes pennanti*), bobcats (*Lynx rufus*), and river otters (*Lontra canadensis*) are all species of interest for the Wisconsin DNR due to fluctuations in population size. The Wisconsin DNR collects carcasses of legally harvested fur-bearing game animals trapped throughout the seasons and then makes them available for research studies. Over the last 4 years the laboratory at Winona State University obtained intestines from these 3 animal species to be examined for parasites. Each intestine was placed in a Ziploc bag and frozen until ready to analyze. The intestines were then dissected and the digested material was separated through sieves of different sizes. The digested material was then examined microscopically and any parasites that were collected were stored in 70% ethanol. Some parasites were stained for further identification. Parasite prevalence and intensity were determined for each species of furbearer and analyzed in relation to gender, age, and geographic location. Currently, data from all 3 species of animal have been combined to determine relationships of parasitic prevalence/intensities in the different regions of Wisconsin.

5. Investigation of Ascarid infections in an Iowa beef herd. **JEBA R J JESUDOSS CHELLADURAI** (GS), CHRIS R BADER (GS), and MATTHEW T BREWER (MP), Department of Veterinary Pathology, College of Veterinary Medicine, Iowa State University, Ames, IA, USA

   Toxocara vitulorum, an ascarid that infects bovines, is commonly reported from endemic tropical and subtropical countries, but has only been reported twice from North America. We report the infection of a herd of feedlot calves with *Toxocara vitulorum* in Iowa. Morphological and histological characteristics, along with multilocus sequence data was used to definitively identify the parasite. Prevalence in the herd before and after treatment was calculated. The results suggest that *Toxocara vitulorum* may be more prevalent in North America than previously reported, and further studies into prevalence and transmission may be warranted.

6. **White Grub in Centrarchidae from the Ohio River Drainage. EVAN BOONE**[1] (GS), LES FRANKLAND[2] (MP), DEVON KEENEY[3] (MP), ROBERT

COLOMBO[1] (MP), and JEFFREY LAURSEN[1] (MP), [1]Department of Biological Sciences, Eastern Illinois University, Charleston, IL 61920. [2]Illinois Department of Natural Resources, Division of Fisheries, Springfield, IL 62702. [3]Department of Biological Sciences, Le Moyne College, Syracuse, NY 13214.

White grub (*Posthodiplostomum minimum centrarchi*) is a juvenile strigeoid trematode that has been documented in many centrarchid fishes. It was thought to be a generalist parasite infecting centrarchidae, but recent studies have suggested cryptic species. *P. minimum* infects fish by cercariae penetrating the skin. Transmission should be restricted to slow moving water, and most studies are done on lentic systems where sunfish predominate. In this study, ten centrarchid fish species (spotted bass(n=72), largemouth bass(n=3), bluegill(n=18), green sunfish(n=7), longear sunfish(n=10), orangespotted sunfish(n=4), redear sunfish(n=5), warmouth(n=6), black crappie (n=8), white crappie(n=1)) were collected from the Wabash River and Ohio River Drainage in 2014. Visceral organs, including reproductive tracts, were removed and examined for the presence of metacercariae. Prevalence of white grub ranged from 0 in black crappie, green sunfish, and white crappie to 100% in largemouth bass, redear sunfish, and warmouth. Prevalence in bluegill, a common host, was 77.8%. Mean intensity of white grub ranged from 3.5 in longear sunfish to 950 in largemouth bass. White grub was found in approximately 50% of below stock spotted bass (<18cm) and near 100% of stock (18-28cm), and quality size bass (>28cm) (length categories based on percentages of world record lengths rather than strictly by age). Intensity increased with size as well in spotted bass but variation was very high in stock size bass, which included multiple age classes. Spotted bass are commonly found in flowing water, and should be somewhat protected from infection. The parasitism rate jump in stock class may reflect a life history event such as moving to spawning in slack water where they are exposed to higher transmission rates. Preliminary evidence suggests that there may be 2 populations of white grub in this system, 1 in the genus *Micropterus* and 1 in the genus *Lepomis*.

7. **The Effects of Competitor-Induced Plasticity on Intensity of Parasitic Infection. ALEJANDRA VILLEGAS** (UG), ELISABETH SOMCHITH (UG), SARAH A ORLOFSKE (MP). Department of Biology, Northeastern Illinois University, Chicago, IL 60625

Phenotypic plasticity in organisms is a morphological or behavioral response to changes in the environment such as predation and competition. Plasticity serves as a mechanism to enhance survival from these different factors and can be observed through changes in physical traits, growth, and development. In larval amphibians (tadpoles), changes in size and body shape can be observed in response to competition-induced stress and parasitic infection. Through a manipulative experiment we seek to compare varying levels of plasticity and intensity of parasite infection with increasing density (competition). We constructed small and large mesocosms simulating natural pond communities from 50-gallon and 150-gallon plastic containers and included equal densities of infective stages of the trematode, *Ribeiroia ondatrae.* To observe morphological changes and infection due to

competition-induced stress, only the density of Pacific Chorus Frog (*Pseudacris regilla*) tadpoles (low – 0.04 tadpoles/L, medium – 0.08 tadpoles/L, and high – 0.16 tadpoles/L) in each mesocosm was manipulated with five replicates for each density level. Following the experiment, tadpoles were euthanized and preserved for future examination. Tadpoles (N=75) were digitally photographed using a dissecting microscope and Leica Application Suite software. Morphometrics of body dimensions were obtained using ImageJ image processing software. Each tadpole was weighed to determine differences in growth and control for body size on the morphometric measurements. Tadpoles were staged for development according to standard methods. When comparing morphology between high and low densities, there is a significant observable difference in mass and body length (Linear Mixed Effects Model p=0.0216 and p=0.0060). There was, however, no morphological difference between high and medium densities. These preliminary results show that morphological changes occurred with varying competition-induced stress. With the incorporation of parasite infection data, we predict that these changes will significantly affect the intensity of infection in tadpoles. Tadpoles and trematode parasites are often used to model host-pathogen interactions, and these results highlight the importance of studying pathogen transmission in regards to different population densities found in nature. Existing research has already shown that predation has an effect on plasticity and infection. This research seeks to establish whether the similar relationships are observed when relating plasticity and infection to the density of a given population. Ultimately, this research has important implications for understanding how individual traits affect transmission and disease in natural communities.

8. **Comparison of trematode biota of apparently healthy *Fulica americana* and *Aythya collaris* harvested from Lake Winnibigoshish, Minnesota, USA. Miriah Linville** (UG), Timothy Christopherson (UG), James Mitchell (UG), Okhumhekho Kassim (UG), Connor Hutton (UG), Tyler Achatz (GS), & Dr. Robert Sorensen (MP), Department of Biology, Minnesota State University Mankato, Mankato, MN 56001

   Parasite surveys are important to determine the normal parasite biota within a population of hosts. In the Midwestern United States, few survey studies have been conducted to assess the diversity of intestinal trematodes in apparently healthy waterbirds. This study examined the trematode community of American coot (*Fulica americana*) and ring-neck duck (*Aythya collaris*) at Lake Winnibigoshish, Minnesota. In the fall of 2012, 10 *F. americana* and 12 *A. collaris* were harvested by waterfowl hunters during the normal hunting season. Based upon interviews of hunters all of the birds harvested appeared healthy prior to shooting. The bird's intestines were extracted upon hunters' return to the boat landing, at which time they were iced until later frozen at Minnesota State Mankato. The intestines were later thawed and examined for trematodes using a dissecting microscope. Trematodes found were frozen in water or fixed in formalin for future genetic or morphological analysis, respectively. There were 16 trematodes species in both bird species, 8 trematode species found in *F. americana*, while there were 10 trematode species in *A. collaris*. Of the species found, *Sphaeridiotrema*

pseudogloboulus and *Zygocotyle lunata* were found in both bird species. Among all trematodes found, 3 species are considered to be pathogenic; these are, *Leyogonimus polyoon, Cyathocotyle bushiensis, and S. pseudoglobulus*. The most common trematode in American coot was *L. polyoon*, with 80% of the coot being infected and having a mean intensity of 103.13 worms per infected coot. *Z. lunata* was the most prevalent in infected ring-neck ducks with 100% being infected, while *Maritrema obstipum* had the greatest mean intensity with 131.33 worms per infected ring-neck duck, although only present in 3 of the 12 birds. These data represent the first survey of trematodes from healthy, hunter-shot waterbirds in Northern Minnesota following the introduction of exotic *Bithynia tentaculata* snails into these aquatic communities.

9. **Anatomical variation in white grub (*Posthodiplostomum minimum centrarchi*) from four fish hosts. SHANE MASON** (UG) and SHAWN MEAGHER (MP), Department of Biological Sciences, Western Illinois University, Macomb, IL 61455

White Grub *(Posthodiplostomum minimum centrarchi)* is a digenetic trematode that spends the majority of its life cycle encysted within the livers of fish from the family Centrarchidae. Although anatomical variation of adults has been described in a variety of experimental infections in definitive hosts, no comparison of the metacercarial stage in natural fish hosts is currently available. Here, anatomical variation of white grub anatomy was examined among four sympatric centrarchid species of varying phylogenetic relatedness (bluegill [*Lepomis macrochirus*], green sunfish [*Lepomis cyanellus*], largemouth bass [*Micropterus salmoides*], and white crappie [*Pomoxis annularis*]). Approximately 50 worms per host species were manually excised using fine forceps, preserved in ethanol, cleared, stained, and mounted. Seventeen linear measures describing the size and position of body structures were taken using the Leica application suite. Oral sucker length and width were excluded due to the difficulty of measuring this structure in *L. cyanellus*. MANOVA revealed a significant difference in all measurements of worms from different hosts (Wilks' $\lambda = 0.19884$, $df = 3$, $P < 0.001$), with 14 of the 15 measures displaying significant ANOVA results. The overall pattern of worm size for 8 of 15 measurements was as follows: *L. macrochirus* > *M. salmoides* > *P. annularis* > *L. cyanellus.* Five ratios useful in describing shape and relative size of structures were made from the linear measures. MANOVA revealed significant differences in the shape of specimens from different hosts ($df = 3$, Wilks' $\lambda = 0.4198$, $P < 0.001$), with all five measures displaying significant ANOVA results. Further multivariate analyses are required to describe these differences more accurately and genetic data are required to determine if this anatomical variation is host-induced, or reveals previously unrecognized species differences.

10. **Exploring arvicoline colonization history across Beringia: a molecular phylogenetic analysis of a tapeworm species complex. GENEVIEVE HAAS** (GS) and KURT GALBREATH (MP), Department of Biology, Northern Michigan University, Marquette, MI 49855 USA

Beringia, the region spanning eastern Siberia and northwestern North America, was uniquely impacted by climatic oscillations of the Quaternary with the opening and closing of the Bering Land Bridge. The land bridge facilitated the exchange of species between Eurasia and North America, and phylogeographic investigations of mammalian histories are revealing the direction and timing of faunal movements. For example, studies investigating arvicoline rodents (e.g., *Myodes*, *Microtus*, *Lemmus*) have revealed deep and shallow colonization events across Beringia, with complex histories of expansion, contraction, and diversification. These northern rodents are parasitized by a tapeworm species complex (genus *Arostrilepis*) that has tracked its hosts throughout the Quaternary and provides a window to the ecological dynamics of shifting host distributions. We use a molecular phylogenetic approach to examine the history of *Arostrilepis* in light of hypotheses for transberingian dispersal events by its rodent hosts. As predicted from host histories, we reveal multiple Nearctic colonization events by *Arostrilepis* species, but we also identify signatures of complex co-evolutionary processes such as missing-the-boat and host-switching. These events highlight the complex history of faunal assembly associated with Beringian mammal-parasite assemblages.

11. **Provisioning Pollution in the Population Genetics of Blastocystis in Bali's Long Tailed Macaques. ERIK M.RODRIGUEZ** (UG), **JOHN LOPEZ** (UG), JUNE TOME (UG), SNEHA MODI (UG), and JUSTIN WILCOX (G) DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF NOTRE DAME, NOTRE DAME, IN 46556

Blastocystis is the most common intestinal parasite in humans, infecting approximately ⅓ of Earth's population. Although its pathogenicity remains controversial, it has recently been implicated in causing gastroenteritis, urticaria (hives), and irritable bowel syndrome, and may represent a particular risk to the immunocompromised. Zoonotic transmission is believed to be an important source of infections with *Blastocystis* in humans, but little is known about *Blastocystis'* life-cycle, particularly in sylvatic hosts. Here, we apply a population genetics approach to evaluate demographic and landscape factors influencing the enzootic transmission of *Blastocystis* in long-tailed-macaques (*Macaca fascicularis*) on the island of Bali, Indonesia. We expected that *Blastocystis* population genetic structure would mirror that of its host, reflecting transmission between macaques. We also anticipated that water availability would be the primary predictor of *Blastocystis* prevalence, in accordance with the prediction that it is primarily transmitted through a direct fecal-oral route. Our preliminary results found substructuring in the Blastocystis population, but no relationship between the population genetic structure of *Blastocystis* and either macaque nuclear or mitochondrial DNA. This suggests that *Blastocystis* is primarily transmitting within groups, and may suggest a role for additional hosts in dispersing *Blastocystis* in macaques. We also found a strong negative relationship between water availability and Blastocystis prevalence, suggesting that Blastocystis may utilize waterborne transmission as hypothesized. However, we unexpectedly found that the anthropogenic environment was the strongest predictor of *Blastocystis*

prevalence. Overall our findings provide new insights into *Blastocystis* transmission in a sylvatic host. Moreover, they provide evidence that the human-wildlife interface may strongly influence the population genetic structure of a zoonotic parasite in a wild host. If this is true, proper management of the human-macaque interface may be effective in reducing disease risk.

12. **Uncovering the hidden diversity of *Bothriocephalus* spp. in North American freshwater fishes.** BRANDON KOZINSKI (UG), KARL HUBERTY (UG), **REED COLLING** (UG) and ANINDO CHOUDHURY (MP). Division of Natural Sciences, St. Norbert College, 100 Grant Street, De Pere, WI 54115.

    Survey work in Canada and the U.S. in the last decade has shown that what was once considered a single species, *Bothriocephalus cuspidatus*, is an assemblage of several species that can be differentiated using a combination of morphology (DIC light microscopy, SEM) and molecular data. This study continues that exploration and the prospecting for new species from several hosts and localities, including goldeye (*Hiodon alosoides*) from Manitoba, Canada, centrarchids from Wisconsin and Michigan, and darters (Etheostomini) from Wisconsin. *Bothriocephalus* spp. from these hosts show different levels of molecular and morphological differences when compared with *Bothriocephalus cuspidatus* from the type host, walleye (*Sander vitreus*) in Canada and the U.S. So far, our studies have identified at least 3 (possibly 4) different species of *Bothriocephalus*, with their own host specificities in darters, centrarchids, and goldeye. The midwest alone is home to 4 of these 5 species of *Bothriocephalus* in question.

13. **Diversity of *Lissorchis* spp. (Trematoda: Lissorchiidae) explored through morphology and molecules**. **DAVID YANDA** (UG), ELIZABETH MANLICK (UG), ANGELA GRAHN (UG), PATRICK NELSON* (CO) and ANINDO CHOUDHURY (MP). Division of Natural Sciences, St. Norbert College, 100 Grant Street, De Pere, WI 54115. * North-South Consultants, Winnipeg, Manitoba, Canada.

    The genus *Lissorchis* comprises an assemblage of at least 17 nominal species that typically parasitize hosts of the mainly Nearctic fish family Catostomidae (suckers). This study is based on recent surveys of fishes in Manitoba, Canada, as well as in Wisconsin and Oregon in the U.S. that allow for a more detailed morphological study of unflattened specimens using light (DIC) microscopy and Scanning Electron Microscopy (SEM), as well as sequence data from the rRNA genome. These studies have revealed that closely related hosts such as the ictiobines *Carpiodes cyprinus* and *Ictiobus cyprinellus* In Manitoba, Canada, have morphologically and genetically similar yet distinct species of *Lissorchis* that were conflated in the past with *Lissorchis gullaris*, and that the external features such as spination, tegumental papillae and gross acetabular morphology provide informative characters in describing and differentiating new species of *Lissorchis*.

14. **Investigating the putative role of the TLR/NFκB pathway in the immune response of the snail *Biomphalaria glabrata*. BRIANA HARTER (T)**,

KASSIDY RINEHART (UG) and JUDITH HUMPHRIES (MP), Department of Biology, Lawrence University, Appleton, WI 54911.

The innate immune response incorporates pathogen recognition receptors (PRRs) as a means of detecting antigens from invading organisms. One of the most studied PRRs in vertebrates is the Toll-like receptor (TLR) family, named after the Toll gene identified in *Drosophila melanogaster.* TLRs are highly conserved and may function as homodimers or heterodimers to recognize a variety of pathogen-associated molecular patterns (PAMPs). Importantly, TLRs can send molecular signals downstream to activate the NFκB pathway, initiating an immune response against the pathogen. Recently, TLRs have been identified in several invertebrates. It was of interest to see if a homologue was present in the snail *Biomphalaria glabrata*, which is an intermediate host for the parasitic trematode *Schistosoma mansoni.* This parasite is responsible for the debilitating disease in humans known as schistosomiasis. Research at Lawrence University focuses on understanding the immune response of the snail *B. glabrata*, specifically in regards to the TLR/NFκB pathway. We recently identified a TLR homologue in *B. glabrata*, and experiments are currently underway to investigate how the *Bg*TLR plays a role in the immune system of *B. glabrata.*

15. **Epigenetic regulation of schistosome-associated parasitic castration in snails.** **NATHALIE M. DINGUIRARD** (R)[1], MEGAN MEZERA[1] KATHRIN K. GEYER[2], KARL F. HOFFMANN[2] and TIMOTHY P. YOSHINO[1]. [1]Department of Pathobiological Sciences, University of Wisconsin-Madison, [2]Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, Aberystwyth, UK

Parasitic castration, a parasite-induced cessation of host egg production, is well documented in snails infected with larval trematodes. It has been hypothesized that excretory-secretory products released by developing larvae may be involved in the early disruption of host reproduction. However, the mechanism(s) by which secretions may be mediating interference with reproductive function is currently unknown. The present study explores the hypothesis that parasitic castration associated with prepatent *Schistosoma mansoni* infection of adult *Biomphalaria glabrata* may be mediated, at least in part, through larval influence on the epigenetic regulation of reproduction-associated gene expression in the cerebral ganglia (CG) and ovotestis (OT). To begin addressing this hypothesis, adult susceptible *B. glabrata* snails (NMRI strain) were exposed to 15-20 *S. mansoni* miracidia/snail or left unexposed, and then monitored for egg production at 1, 2, 3 and 4-weeks (wk) post-exposure (PE). Significant decreases in egg #/snail were noted in exposed snails at 3 and 4 wk PE (N=3). Concurrently, the OT and CG were dissected from subsets of exposed and unexposed snails on days 4, 15 and 21 and subjected to quantitative PCR to determine steady-state transcript levels of DNA (cytosine-5-)-methyltransferase 1 (Dnmt1) and Methyl-CpG-binding domain protein 2/3 (MBD2/3). Dnmt1 expression in the OT of exposed snails exhibited a transient spike at day 15 before returning to control levels, whereas there was a significant increase in CG Dnmt1 transcript levels at day 21 in exposed snails

relative to controls. Similarly, compared to control levels, MBD2/3 gene expression was elevated at days 15 and 21 in the CG, but not the OT. As Dnmt1 and MBD2/3 are core DNA methylation machinery components involved in developmental biology, the observed changes in their transcript expression in the CG and OT temporally-associated with the onset of castration suggests that epigenetic mechanisms may be involved in this phenomenon.

16. **Transmission of Strigeidae (Platyhelminthes: Trematoda) in Wisconsin and Illinois freshwater wetlands.** JENNIFER W KAWAGUCHI (UG), **OLIVIA N CHOI** (GS), ROBERT C JADIN (MP), SARAH A ORLOFSKE (MP), Department of Biology, Northeastern Illinois University, Chicago, IL 60626

    Freshwater communities consist of many species interactions, including predator-prey and parasite-host relationships. For trematodes, the life cycle is dependent on trophic interactions, leading to the proposal of parasites as bio-indicators of predator-prey interactions, host diet range, and of species occurrence at the landscape level. During field surveys of wetlands (N=4) in Southeastern Wisconsin and Northeastern Illinois, we observed cercariae and tetracotyle (metacercariae) of the family Strigeidae in *Lymnaea* sp. (snails). We identified these strigeid larval stages from three total sites and during each visit to those sites. Only two of the four sites presented both the cercariae and tetracotyle ($p= 0.277$, Chi-square). The snails were less likely to be infected by both life stages of the parasite simultaneously ($p= 0.002$, Chi-square). Based on field observations, we hypothesized that these life stages were the same species; we conducted transmission experiments where we exposed uninfected *Lymnaea* snails to the free-living infective stage. Between 16 and 31 days, with temperatures at 18°C and 22°C, tetracotyle formed from underdeveloped stages to fully formed tetracotyle. The mean percent of tetracotyle per exposed *Lymnaea* was 41%. Our future research includes using DNA sequence analysis to compare our samples to other members of Strigeidae, confirming species identity. We can then determine the distribution of the trematode species across wetland sites. Once positively identified, we propose that this species can potentially serve as an indicator of the presence of migratory waterfowl that may have applications to investigating food web functions in wetland restoration. These parasites are not major factors to morbidity but would serve as good indicators of waterfowl because they can indicate long-term bird activity rather than single point observations.

17. **The Helminths Of The Short-Tailed Cane Mouse, *Zygodontomys Brevicauda* (Rodentia: Cricetidae) In French Guiana. HAYLEY FALAT** (UG) and F. Agustín Jiménez (MP), Department of Zoology, Southern Illinois University, Carbondale, IL 62901

    Zygodontomys brevicauda, or the short-tailed cane mouse, is a small sigmodontine rodent common to herbaceous groundcover of the savannas and pastures of northern South America including French Guiana, Brazil, Colombia, Costa Rica, Panama, Venezuela, and Trinidad. This mouse is nocturnal, terrestrial and omnivorous and is common in anthropogenic landscapes. *Zygodontomys*

brevicauda is the natural reservoir for the Guanarito Virus (Arenaviridae), which is responsible for hemorrhagic fever. The goal of this manuscript is to build a database of the species of parasites that are able to infect *Z. brevicauda* to construct a database of metazoan parasites that enables testing the effects of metazoan infection on the transmission of the Guanario Virus. Necropsies were performed on the complete digestive tracts of fourteen rats collected in French Guiana to determine what, if any, parasites were present in each. The number of the parasites and their location within the digestive tract was catalogued and samples were mounted on slides and examined to determine the species. The helminths collected include *Syphacia odilbainae*, *Heterakis* sp., *Stilestrongylus freitasi*, and an unidentified tapeworm found in the digestive tract and *Litomosoides* sp., from the peritoneal tissues. Ninety-three percent of the individuals were infected with at least one species, with an average number of worms within each rat being in the range of 20-25.

18. **Comparative phylogeography of North American pika parasites**. **HEATHER TOMAN** (GS) and KURT GALBREATH (MP). Department of Biology, Northern Michigan University, Marquette, MI 49855 USA

    Mammals and other vertebrates are often parasitized by multiple independent lineages of both ecto and endoparasites. The evolutionary histories of this incredible array of diversity have just begun to be explored, but are essential to our understanding of the basic ecological processes that structure faunal communities through time. Molecular investigations into co-distributed, host specific parasite lineages provide a unique opportunity to elucidate what causes parasites to respond differently to a shared host history. Nearctic pikas (genus *Ochotona*) and their endoparasitic helminths provide an excellent study system to investigate these interactions, as pikas have a narrow temperature tolerance, so have experienced historical range fluctuations in response to climatic oscillations. This has led to strong genetic population structuring of pikas in the mountain systems of the American west. Parasites have been thoroughly sampled across this host's range, and when we focus on two major lineages, the tapeworm genus *Schizorchis*, and the nematode subgenus *Labiostomum* (*Eugenuris*), we see that they each have species with similar distributional patterns to each other but that overlap independent pika populations. The reason for this pattern is investigated using large, multi-locus datasets, and a further in-depth analysis of the intraspecies phylogenetic and demographic structure of these two taxa is done, revealing patterns of dispersal and gene flow as well as isolation and divergence that were not previously apparent. Timing of this genetic structuring relative to glacial cycles, as well as potential landscape specific corridors and barriers to dispersal are used to evaluate the range of possible histories for this host-parasite assemblage.

19. **Temporal and Spatial Variation in the Protozoan Parasite Community of Singapore's Long-Tailed Macaques (*Macaca fascicularis*). JUSTIN J.S. WILCOX (GS)**, SARAH ROHRMAN (UG), HOPE HOLLOCHER (MP), Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556-5688

Detailed surveys of wild parasite communities are essential to a range of important topics in parasite ecology, including zoonotic disease transmission, parasite—parasite interactions, invasion risk, and parasite—host coevolution. However, spatial and temporal heterogeneities may obstruct accurate characterization of natural parasite assemblages, and obfuscate the underlying dynamics structuring them. Here, we utilize three years of longitudinal data to assess the stability and structure of the protozoan parasite community of Singapore's long-tailed macaques (*Macaca fascicularis*) across time and space. Significant variation in the parasite community composition was observed across the three years, although a core similarity was maintained over this period. Additionally, a large outbreak of the zoonotic parasite *Balantidium coli* was observed in 2012. While no significant spatial variation was observed in the parasite community when all three years were pooled, significant differences were observed across space within specific years. These findings suggest that temporal variation may be more important than spatial variation in structuring this parasite community, and that site specific differences may be largely ephemeral within our study system. Overall our results highlight that parasite community structure at a single time point may not be indicative of the long-term patterns that occur within it. More importantly, our observation of consistent taxonomic richness in the context of ephemeral spatial variations in this parasite community supports a role for both host population size and localized sub-structuring of parasite communities in maintaining parasite diversity.

20. **Nuclear translocation of NFκB in *Biomphalaria glabrata*. ANDREA WILKINSON** (UG) and JUDITH HUMPHRIES (MP), Department of Biology, Lawrence University, Appleton, WI 54911

Immunocytochemistry (ICC) assays were used to show the translocation of nuclear factor kappa binding (NFκB) dimers from the cytoplasm to the nucleus in the freshwater snail *Biomphalaria glabrata*. *B. glabrata* serves as an intermediate host for the parasite *Schistosoma mansoni*, which is responsible for intestinal schistosomiasis disease in humans. Due to the significant role that *B. glabrata* have in the life cycle of *S. mansoni*, many studies have been done to better understand the immune system of *B. glabrata* (Matricon-Gondran & Letocart, 1999; Hahn et al., 2001; Humphries & Yoshino, 2008), including the specific signaling pathway with NFκB proteins (Moynagh, 2005). This research focuses on the NFκB pathway involving NFκB transcription factors p50 and p65. It is believed that the p50 and p65 dimers are held in the cytoplasm by an IκB (inhibitor of NFκB) protein until the pathway is activated by stressors causing the IκB protein to be degraded. Degradation of the IκB protein releases the p50 and p65 transcription factors causing them to translocate to the nucleus (Moynagh, 2005). The purpose of this research is to provide visual images to demonstrate whether or not various pathogens trigger the translocation of NFκB from the cytoplasm to the nucleus by incubating *B. glabrata* haemolymph cells in stressors such as lipopolysaccharide and peptidoglycan, to simulate the effect of gram-negative and gram-positive bacteria respectively, and then imaging the cells using fluorescent microscopy. This research has provided evidence to support the translocation of NFκB when

incubated in peptidoglycan indicating that the NFκB signaling pathway acts as a defense mechanism in the immune system of *B. glabrata* when infected with gram-positive bacteria.

SUMMARY OF THE 66TH ANNUAL MIDWESTERN CONFERENCE OF PARASITOLOGISTS.

The 66th Annual Midwestern Conference of Parasitologists was held on June 5-7, 2014, at M.H. Gluek Equine Research Center on the University of Kentucky campus. Dr. Augustin Jiménez of Southern Illinois University served as Presiding Officer and Dr. Dan Howe of the University of Kentucky made local arrangements and served as Program Officer. Forty-three persons registered for the conference. Fourteen platform presentations and 12 posters were presented. The C. A. Herrick Award and $300 for outstanding poster was awarded to Alyssa Gleischner of Purdue University for her poster "Kin Selection And Virulence: Do Related Parasites Do Less Damage To Their Host?" The G. R. LaRue Award and $300 for outstanding platform presentation was awarded to Miranda White of Eastern Illinois University for her presentation "Parasites Of Bluegill In The Sangamon River: Impact Of Sewage Effluent And Seasonality On Infection Parameters And Correlation With Fish Condition." Allison Young of M. H. Gluck Equine Research Center, Department of Veterinary Science, University of Kentucky was awarded the R. M. Cable undergraduate award and $200 for her presentation "Identification Of Surface Antigens In The Llama And Alpaca Parasite *Sarcocystis aucheniae*." Honorable Mention awards (and $100) were given to Leah Peng of Berea College for her poster entitled "In-Vitro Egg Development In The Trematode, *Cotylaspis insignis* (Subclass Aspidogastrea)." and Elizabeth Warburton of Western Michigan University for her presentation "Relationships Between Body Condition, Immune Function And Host Sex In Predicting Helminth Burdens Of Big Brown Bats (*Eptesicus fuscus*)." All of the students who won awards are invited to claim an additional $200 to support travel to another scientific meeting before the next AMCOP. Alyssa Gleischner was chosen as the AMCOP nominee for the American Society of Parasitologists' student travel grant award for 2014.

The AMCOP symposium was presented by Dr. Martin K. Nielsen, of the University Of Kentucky who spoke on "Anthelmintic Resistance – Survival Of The Fittest?" and Dr. Craig R. Reinemeyer, of East Tennessee Clinical Research who spoke on "Biological Adaptations In Equine Parasites And Other Unintended Consequences Of Chemical Control." The banquet speaker was Dr.

Thomas Platt, of Saint Mary's College who spoke on "A Life in Small Science (with Undergraduates)." The annual silent auction was also held and raised $179.

AMCOP 67 will be held in 2014 at Lawrence University, Appleton, WI. Additional future meeting sites as determined by the Meeting Sites Committee are:

AMCOP 68 – 2016: Southern Illinois University, Carbondale IL
AMCOP 69 – 2016: Wilmington College, Wilmington OH
AMCOP 70 – 2017: Eastern Illinois University, Charleston, IL
AMCOP 71—2018: Minnesota State University Mankato, Mankato, MN

Secretary-Treasurer Sorensen presented the treasurer's report for 2013 and the interim financial report for 2014. These reports were approved.

The AMCOP Student Research Grant Committee (S. Meagher, A. Jiménez, Tom Platt, Dan Howe, and K. Bates) reported its decisions for the second round of AMCOP-sponsored research grants. The awardees are: Shane Mason, Western Illinois University, "Does anatomical variation in "white grub" suggest unrecognized species?" ($500); Olivia Choi, Northeastern Illinois University, "The Prevalence, Intensity, and Diversity of Cestodes in Urban Birds." ($500). Doug Woodmansee, Ron Rosen, and Jeffrey Laursen will be joining the committee, replacing S. Meagher, A. Jiménez and Kim Bates, who are rotating off.

The following committee reports were received and approved: Auditing (Dennis Minchella, Ablesh Gautam), Symposium Suggestions (Elizabeth Warburton, Shelly Michalski), Meeting Sites (Doug Woodmansee, Jeff Laursen), Nominating (Kim Bates, Lin Twining), and Resolutions (Elzabeth Warburton, Elliot Zieman).

Officers elected for 2015 were: Dr. Trudy Aebig: Presiding Officer; Dr. Judith Humphries, Lawrence University: Program Officer; Dr. Robert Sorensen, Minnesota State University Mankato: Secretary-Treasurer.

Prepared June 10, 2014
Robert Sorensen
AMCOP Secretary-Treasurer

THE ANNUAL MIDWESTERN CONFERENCE OF PARASITOLOGISTS (AMCOP)

OBJECTIVES AND ORGANIZATION

A restatement to incorporate changes approved in 1989. Earlier statements have been approved in 1948, 1953, 1971, 1972, 1973, 1974, 1986, 2003 and 2004.

NAME

The organization shall be known as the ANNUAL MIDWESTERN CONFERENCE OF PARASITOLOGISTS (AMCOP), hereinafter referred to as the Conference.

AFFILIATION

The Conference is an affiliate of the American Society of Parasitologists.

OBJECTIVES

The Conference is a gathering of parasitologists and students of parasitology for the purpose of informal discussion of research and teaching in parasitology and the furthering of the best interests of the discipline of parasitology.

MEMBERS

The Conference is open to all interested persons regardless of place of work, residence, or affiliation in other recognized societies. There are three categories of membership: Emeritus, Regular, and Student. When a member retires from industry, university or other professional occupation, that person shall be eligible for emeritus membership.

DUES

Annual dues are required for emeritus, regular and student membership. A registration fee is charged during registration at annual conferences. The amount of this fee will be decided for each Conference by a committee composed of the Presiding Officer, the Secretary/Treasurer, and the Program Officer, who is to serve as its chair. Dues are established by the Policy Committee and collected by the Secretary/Treasurer.

MEETINGS

The Conference is held in the general Midwestern area during early to mid-June, unless otherwise specified by a majority vote of the previous Conference or a majority vote of those listed members replying by mail.

BYLAWS

1. Simple majority vote of members in attendance at regularly scheduled meetings of the Conference shall determine the policies of the Conference.

2. The officers are a Presiding Officer, whose term of office is one year or until a successor is elected (normally the term expires with adjournment of the annual Conference over which the person presides); a Secretary/Treasurer, whose term of office is two years or until a successor is elected; a Program Officer whose term of office is one year; and a Policy Committee composed of the last five available retired Presiding Officers plus, *ex officio* and without vote, the current Presiding Officer and Secretary/Treasurer. All terms of office of each full member of the Policy Committee is five years, or so long as the person is one of the five most recent, available Presiding Officers. The most recent past Presiding Officer available chairs the Policy Committee and is the Vice-President of the current Conference.

3. The Presiding Officer, the Secretary/Treasurer, and the Program Officer are elected by a majority vote of those members attending a regularly scheduled business meeting of the Conference or by a majority vote of those replying to a mail ballot of the membership.

4. The Presiding Officer shall preside at all meetings of the Conference and shall arrange for a banquet speaker. On the first day of a Conference the Presiding Officer shall appoint the following committees, which shall serve until they have reported on the last day of the annual Conference:

(a) Nominating Committee,

(b) Committee to Recommend Future Meeting Places,

(c) Committee to Suggest Program Possibilities for Future Meetings,

(d) Resolutions Committee,

(e) Judging Committee,

(f) Audit Committee,

(g) such other *ad hoc* committees as may be required.

The Presiding Officer shall appoint the Conference Representative to the Council of the American Society of Parasitologists for the year, who must be a member of that society. The current Presiding Officer serves as a member without vote of the Policy Committee.

5. The Secretary/Treasurer shall issue annual dues notices and about four months prior to each Conference a call for participants in the program for each Conference; inform the new Presiding and Program Officers concerning their duties and the members of the Policy Committee of their tenure and the Secretary of the American Society of Parasitology within three weeks after the annual election; serve as member without vote and the Secretary of the Policy Committee: and supervise all funds of the Conference.

6. The Program Officer shall be responsible for the general format of the Conference and for arranging suitable facilities and funding. It shall also be this person's responsibility to chair the special committee to determine and collect the registration fee for the Conference. The format of the Conference may vary, but should include both a demonstration session and a session of contributed papers, both open to all members. A symposium may also be included or may replace a session of contributed papers.

7. The Policy Committee shall determine by majority vote all matters of procedure and policy pertaining to the Conference upon which decision must be reached between consecutive Conferences, as well as all matters referred specifically to it by the membership. Such a vote may be requested by any member of the Conference but must be directed through the Secretary/Treasurer. The Chairperson of the Policy Committee shall request approval by the membership for all decisions of the Committee at the earliest subsequent business meeting of the Conference.

8. The Conference confers three major awards during its annual meeting to student participants. These are the Chester A. Herrick Award, sponsored by the Eli Lilly Co., for the best poster/demonstration of parasitological research, the George A. LaRue Award for the best oral presentation of parasitological research, and the Raymond M. Cable Award for best presentation given by an undergraduate student. Honorable mention awards will be given to the second place poster/demonstration and second place oral presentation at the discretion of the awards committee. All awards except for the Herrick Award are supported by donations from the AMCOP membership.

9. (a) The winner of each award will be selected by a 3-person committee appointed at each annual meeting by the Presiding Officer. The criteria for judgment will be established each year by the committee.

(b) The size of the Herrick and LaRue awards shall traditionally be $300.00. The Cable undergraduate award and honorable mention awards shall traditionally be $100. Awards may vary according to funds available from contributors.

(c) No person may win the same award more than one time while in student status. Likewise, no student may win both awards at the same meeting. However, one person may win both awards while a student in different years.

SUMMARY OF AMCOP MEETINGS 1949-PRESENT

Year Meeting Site (Conference No.) Presiding Officer
Banquet Speaker & Title,
PO=Program Officer, ST=Secy/Treas,
H=Herrick Award, L=LaRue Award, HM=Honorable Mention, C=Cable Undergraduate Award;
S=Symposium Title and Speakers

1949 Univ. Wisconsin, Madison, WI (AMCOP I) ..... Harley J. VanCleave
J.C. Baer,
ST=J. R. Lincicome

1950 Univ. Michigan, Ann Arbor, MI (II) ..... R.V. Bangham
W.W. Cort, Trends in Helminthological Research.
PO/ST=R. J. Porter

1951 Purdue University, Lafayete, IN (III) ..... L.O. Nolf
J.E. Ackert, Some Observations on Hookworm Disease.
ST=W. Balamuth

1952 Univ. Illinois, Urbana, IL (IV) ..... R.J. Porter
A.C. Walton,
ST=W. Balamuth

1953 Iowa State College, Ames IA (V) ..... C.A. Herrick
R.M. Cable, Parasitological Experiences in Puerto Rico.
ST=W.D. Lindquist

1954 Michigan State Univ., East Lansing, MI (VI) ..... A.C. Walton
G.F Otto, Mosquitos, Worms, Somoans and the Parasitologist in Somoa.
ST=W.D. Lindquist

1955 Notre Dame Univ., IN (VII) ..... R.M. Cable
G.R. LaRue, Relationships in the Development of Digenetic Trematodes.
ST=W.D. Lindquist

1956 Iowa State University, Ames, IA (VIII) ..... W.D. Lindquist
W.H. Headlee,
ST=F.J. Krudenier

1957 Univ. of Michigan, Ann Arbor, MI (IX) ..... J.E. Ackert
A.C. Chandler,
ST=F.J. Krudenier

1958 Kansas St. Univ., Manhattan, KS (X) ..... G.R. LaRue
H.W. Manter, Trematodes of Many Waters.
ST=F.J. Krudenier

1959 Northwestern Univ., Evanston, IL (XI) ..... G.F. Otto
H. Van der Schalie, Contrasting Problems in Conrol of Schistosomiasis in Egypt and the Sudan.
ST=D.T. Clark

1960 Purdue Univ., Lafayette, IN (XII) ..... F.J. Krudenier
P.P. Weinstein, Aspects of Growth and Differentiation of Parasitic Helminths *in vitro* and *in vivo*.
ST=D.T. Clark

1961 Ohio State Univ., Columbus, OH (XIII) ..... N.D. Levine
B. Schwartz, Parasitology Old and New.
ST=D.T. Clark

1962 Univ. of Nebraska, Lincoln, NE (XIV) G.W. Kelley, Jr
O.W. Olsen, The Life History of the Hookworm of Fur Seals.
ST=D.T. Clark

1963 Univ. of Minnesota, St. Paul, MN (XV) M.F. Hansen
F.G. Wallace, Observations on the Louisiana State University Inter-American Program in Tropical Medicine
ST=D.T. Clark

1964 Univ. of Chicago, Chicago, IL (XVI) D.T. Clark
R.E. Kuntz, Paragonimiasis in Formosa.
ST=E. J. Hugghins

1965 Kellogg Biological Station, Gull Lake, MI (XVII) P.E. Thompson
L. Jacobs, Toxoplasmosis.
ST=E.J. Hugghins

1966 Univ. of Illinois, Urbana, IL (XVIII) M.J. Ulmer
D.L. De Guisti, The Acanthocephala.
ST=E.J. Hugghins

1967 Iowa State Univ., Ames, IA (XVIV) P.J. Silverman
N.D. Levine, Parasitology, Problems and Promise.
ST=E.J. Hugghins
H=P.M. Nollen [FIRST HERRICK AWARD]

1968 Univ. of Wisconsin, Madison, WI (XX) F.G. Wallace
D.R. Lincicome, The Goodness of Parasitism. (with APS & AIBS)
ST=J.H. Greve,
H=W.G. Barnes

1969 Univ. of Cincinnati, Cincinnati, OH (XXI) H.W. Manter
H.W. Stunkard, Life Histories and Systematics of Parasitic Flatworms.
ST=J.H. Greve,

H=B. Caverny, H=T.P. Bonner

1970 Loyola Univ., Chicago, IL (XXII) J.L. Crites
M.J. Ulmer, Helminths from Midwest to Mediterranean.
ST=J.H. Greve,
H=H. Blankespoor

1971 Univ. of Louisville, Louisville, KY (XXIII) F. Etges
H. Van der Schalie, Dam Large Rivers-Then What?
ST=J.H. Greve,
H=R. Campbell

1972 Southern Illinois Univ., Carbondale, IL (XXIV) B.J. Jaskowski
R.M. Cable, The Lighter Side of Parasitology.
PO=T.T. Dunagan, ST=J.H. Greve
H=E.M. Cornford

1973 Notre Dame Univ., Notre Dame, IN (XXV) R. Shumard
R.F. Rick, Babesiosis and the Development of *Babesia* in Ticks.
PO=R. Thorson, ST=J.H. Greve,
H=D. Danley

1974 Univ. of Michigan, Ann Arbor, MI (XXVI) D. Ameel
M.J. Ulmer, Snails, Swamps and Swimmer's Itch.
ST=J.H. Greve,
H=P.T. LaVerde and D. Prechel

1975 Iowa State Univ., Ames, IA (XXVII) W. Bemrick
P.M. Nollen, Studies on the Reproductive Systems of Parasitic Flatworms or All You Wanted to Know About Sex in Worms and Were Afraid to Ask.
ST=J.H. Greve,
H=D. Wittrock, L=V.M. Nelson [FIRST LARUE AWARD]

1976 Univ. of Nebraska, Lincoln, NE (XXVIII) J. Greve
A.C. Todd, A Redefinition of Subclinical Parasitism and its Impact on World Politics.
ST=W.H. Coil, PO=M.H. Pritchard,
H=W.L. Current,L=C.A. Klu

1977 Kansas State Univ., Manhattan, KA (XXIX) T.T. Dunagan
A.J. MacInnis, Snails, Dollars, DNA and Worms.
PO=W.D. Lindquist, ST=W.H. Coil,
H=M. Fletcher, L=L. Smurro, L=J. Ketchum

1978 Indiana Central Univ., Indianapolis, IN (XXX) E.J. Hugghins
J.P. Dubey, Recent Advances in Feline and Canine Coccidia and Related Organisms.
PO=M. Brandt, ST=W.H. Coil,
H=D. McNair, L=G.L. Hendrickson

1979 Loyola Univ., Chicago, IL (XXXI) D.E. Gilbertson
E. Foor, Basic Studies in Reproduction (in Nematodes).
PO=B.J. Jaskowski, ST=W.H. Coil,
H=G. Plorin, H=D. Minchella, L=M. Fletcher

1980 Eastern Michigan Univ., Ypsilanti, MI (XXXII) A.D. Johnson
J.R. Williams, Tropical Parasitiology at the Junction of the White and Blue Nile Rivers.

PO=E. Waffle, ST=G. Garoian,
H=C.L. Williams, L=M. Goldman, L=R. Gamble,
S=Functional Morphology of Acanthocephala

1981 Eastern Illinois Univ., Charleston, IL (XXXIII) D.M. Miller
G.D. Cain, Antigenic Variation: New Techniques Applied to Old Problems.
PO=B.T. Ridgeway, ST=G. Garoian,
H=J.M. Holy, L=B.N. Tuggle,
S=Immunity to Protozoan Parasites

1982 Western Illinois Univ., Macomb, IL (XXXIV) D.G. Myer
J.D. Briggs, Biological Control of Invertebrates in International Programs.
PO=P.M. Nollen, ST=G. Garoian,
H=D.E. Snyder, L=C.L. Williams,
S=Biological Control of Organisms

1983 Univ. of Illinois, Urbana, IL (XXXV) C.M. Vaughn
H.M. Moon, Speculations on the Pathogenesis of Cryptosporidiosis with Comparisons to Other Enteric Infections.
PO=K.S. Todd, Jr, ST=G. Garoian,
H=K.J. Hamann, L=K.W. Bafundo,
S=Intestinal Protozoa

1984 Univ. of Iowa, Iowa City, IA (XXXVI) W.H. Coil
J. Donelson, Genetic Rearrangement and the Basis of Antigenic Variation in African Trypanosomes.
PO=G.D. Cain, ST=G. Garoian,
H=K.F. Forton, L=D. Woodmansee,
S=Helminth Immunology

1985 Ohio State Univ., Columbus, OH (XXXVII) B.T. Ridgeway
K.D. Murrell, Epidemiology of Swine Trichinosis: Could Both Zenker and Leuckart be Right?,
PO=P.W. Pappas, ST=G. Garoian,
H=R.L. Lavy, L=H.K. Forton,
S=Physiological Ecology of Parasites

1986 Univ. of Missouri, Columbia, MO (XXXVIII) ..... G.D. Cain
R.C. Tinsley, Correlation of Host Biology in Polystomatid Monogenea.
PO=L. Uhazy, ST=D.M. Miller
H=M.C. Lewis, H=I.G. Welsford, L=D.A. Leiby, ,
S=Gene Expression in Helminth Development

1987 Southern Illinois Univ., Edwardsville, IL (XXXIX) P.M. Nollen
K. Kazacos, *Baylisascaris* Nematodes-Their Biology and Role in Larva Migrans Disease.
PO=D. Myer, ST=D.M. Miller,
H=D.A. Leiby, L=V.A. Conners,
S=Modern Systematics in Parasitology

1988 Purdue University, West Lafayette, IN (XL) ..... G. Garoian
W.H. Coil, Forty Years of AMCOP, Laying a Foundation.
PO=K. Kazacos & D. Minchella, ST=D.M. Miller,
H=R.A. Bautz, L=R.R. Mitchler,
S=Host Parasite Genetics

1989 Miami Univ., Oxford, OH (XLI) ..... A.E. Duwe
G. Castro, A Physiological View of Host-parasite Interactions.
PO=R.A. Grassmick, ST=D.M. Miller,
H=S.R. Morris, S=Parasites in the Immune Suppressed

1990 Univ. Illinois, Urbana, IL (XLII) ..... J. H. Hubschman
G. Cross, Phosphatidylinositol Membrane Anchor and/or Transfection of Protozo
PO=G. McLaughlin, ST=D.M. Miller,
H=L.D. Morton, L=S.R. Morris,
S=Defining the Limits of Integrated Pest and Disease Management.

1991 University of South Dakota, Vermillion, SD, (XLIII) K. R. Kazacos
M. Dryden, What You Always Wanted to Know About Fleas on
Fluffy and Fido but were Afraid to Ask.
PO=A. D. Johnson, ST=D.M Miller,
H=D. Royal, L=R. Clopton,
S= Host Specificity

1992 Univ. Wisconsin-Eau Claire, WI, (XLIV) ..... Omer Larson
PO=D. Wittrock, ST=D.M.Miller,
H=S. Storandt, L=D. K. Howe,
S=Teaching of Parasitology-New Methods

1993 St. Mary's, Notre Dame, IN, (XLV) ..... R. A. Grassmick
J. Crites, AMCOP Peragrare Anni, Homines, Exitus
PO=T.R Platt, ST=D.M.Miller,
H=M. S. Schoen, L=B. J. Davids,
S="Ain't Misbehavin'": Ethology, Phylogeny and Parasitology

1994 Murray State Univ. Murray, KY (XLVI) ..... Gary Uglem
E. Christiansen, Come out, come out, we know you are in there.
PO=L. Duobinis-Gray, ST=D. J. Minchella,
H=J. Rosinski,L=R. Garrison, S=Parasite Ecology: Population and Community Dynamics

1995 Univ. of Wisconsin-Milwaukee (XLVII) ..... Darwin Wittrock
E.S. Loker, Schistosomiasis in Kenya: a Copernican point of view
PO= J. Coggins, ST=D.J. Minchella;
H=J. Curtis; L=M. Dwinnell
S=Water-borne Diseases

1996 Northeast MO State Univ., Kirksville, MO (XLVIII) Daniel Snyder
PO=L. C. Twining, ST=D.J. Minchella,
H= V. G. Mehta, L=H. Yoder,
S=Immune Aspects of Protozoan Infections: Malaria and Amoebiasis

1997 Butler University, Indianapolis, IN, (XLIX) ..... Joe Camp
R. Hengst, Paleoparasitology,
PO=D. Daniell; ST=D.J. Minchella;
H=A. Bierberich, L=S. Kappe, S=Molecular Biology in Solving Problems in Parasitology

1998 Indiana State University, Terre Haute, IN (L)..... Jim Coggins
W. Coil, J. Crites, & T. Dunagan, AMCOP 50 - Fifty Years Revisited;
PO=F. Monroy & D. Dusanic; ST=D. Wittrock;
H=M. Bolek; L=K. Page

S= Cytokines and Parasitic Diseases; Visit by ASP President John Oaks

1999 Wilmington College, Wilmington OH (LI) ..... Dennis Minchella
P. LoVerde, Molecular Biology of Schistosomes,
PO= D. Woodmansee,ST=D. Wittrock;
H= J.B.Green; L=J. Curtis;
S=Parasite Biochemistry by J.D. Bangs and C.F. Fioravanti.

2000 University of Notre Dame, Notre Dame, IN (LII).... Peter Pappas
J.A. Oaks – Zen and the Art of Tapeworms
PO= J. H. Adams; ST= D. Wittrock;
H= A. Eppert; L= M. Bolek; HM= C. Dresden-Osborne & K. VanBuskirk
S=Life Style Choices of Parasitic Protozoans by T. Sinai and J. Lebowitz

2001 Eastern Illinois University, Charleston, IL (LIII)..... Lin Twining
R.D. Smith - Environmental contamination with *Cryptosporidium parvum* from a dairy herd.
PO= J. Laursen; ST= D. Wittrock;
H= B. Foulk; L= M. Michalski ; HM= M. Gillilland III; B. Balu and P. Blair
S= Use of Molecular Data in Parasite Systematics by M. Mort and M. Siddall

2002 Millikin University, Decatur, IL (LIV) ..... David Williams
P. Brindley – Mobile genetic elements in the schistosome genome
PO=Tom McQuistion; ST= D. Wittrock;
H= Stacy Pfluger; L= Greg Sandland;
HM= Kelly VanBuskirk and Michelle Steinauer
S= Parasite Transmission and Control in Domesticated Animals
by M. McAllister and L. McDougald

2003 Michigan State University, East Lansing (LV) ..... Tom Platt
Robert Pennock – Darwin and the Parasitic Wasp: Teaching Evolutionary Design;
PO= Pat Muzzall; ST= Darwin Wittrock;
H= Luis Gondim; L= Michelle Steinauer; HM= Shawna Cook and Ahmed Sayed;
C= Katie Reif; S= Vector Borne Diseases of Michigan and Adjacent States by N
Walker and Hans Klompen

2004 Minnesota State University, Mankato, MN (LVI) .. Patrick Muzzall
Richard Clopton – Publishing with pain: The editor doesn't really hate you.
PO= Robert Sorensen, ST= Darwin Wittrock
H=Rebecca LaBorde; L= Maria Castillo;
HM= Angie Kuntz and Laura Duclos; C=Jenna Rodgers
S= Molecular phylogenetics of parasites by Vasyl Tkach and Ramon Carreno

2005 Wabash College, Crawfordsville, IN (LVII).... Douglas Woodmansee
John Adams - In a changing world of malaria research, can an old dog learn new tricks?
PO= Eric Wetzel, ST= Darwin Wittrock
H= Amy McHenry; L= Laura Duclos;
HM= Jillian Detwiler and Julie Clennon; C= Kristin Giglietti;
S= Molecular Phylogenies in Nematoda by Virginia Ferris and
Microbial Community Ecology of Tick-borne Human Pathogens by Keith Clay

2006 Winona State University, Winona, MN (LVIII)..... Thomas McQuistion
Matthew Bolek - Amphibian parasites: The cool, the bad and the ugly.

PO= Kim Bates; ST= Doug Woodmansee;
H= Andrew Claxton; L= Kristin Herrmann; C= Lindsey Stillson;
HM= Brenda Pracheil, Kristin Giglietti;
S= Parasites of Wildlife of the Midwest by Rebecca Cole and Darwin Wittrock

2007 University of Wisconsin-Oshkosh, Oshkosh, WI (LIX) Jason Curtis
David Williams – The Genomics Revolution in Parasitology.
PO= Shelly Michalski, ST= Doug Woodmansee;
H= Christine Hsiao; L= Shriveny Dangoudoubiyam
HM= Peter Ziniel, Nathan Peterson; C= Emily Doucette,
S= Tropical Disease by Gary Weil and Peter Fischer

2008 University of Illinois at Urbana-Champaign (LX) ... Robert Sorensen
Dennis Minchella – P.C. (Post Cable) Parasitology at Purdue.
PO= Milton McAllister, ST= Doug Woodmansee;
H= Nathan Peterson; L= Erica Mize
HM= Apichat Vitta, Jillian Detweiler; C= Kyle Luth,
S= Parasitic Protists by Laura Knoll and Alexa Rosypal.

2009 Ohio Wesleyan University, Delaware, OH (LXI) Daniel Howe
Eugene Lyons - Hookworms (*Unicaria* spp.) in Pinnipeds with Notes on the Biology of Northern Fur Seals.
PO= Ramon Carreno, ST= Doug Woodmansee;
H= Sriveny Dangoudoubiyam; L= Elizabeth Thiele, HM= Matthew Brewer;
C= Cailee Smith;
S= Ectoparasites by Susan C. Jones and Glen R. Needam

2010 Western Illinois University, Macomb, IL (LXII) Jeffrey Laursen
Tim Yoshino - Frankenflukes: Parasitic GMO's.
PO= Shawm Meagher, ST=Doug Woodmansee;
H=Kathryn Coyne; L=Philip Scheibel; HM= Kathy Johnson; C= Bryan Rolfsen;
S= Can Parasitic worms treat autoimmune disorders? by David Elliott and John O. Fleming.

2011 Saint Mary's College, Notre Dame IN (LXIII) ..... Shelly Michalski
Bruce Christensen – Programmes for control of lymphatic filariasis: perspectives from a vector biologist.
PO= Tom Platt, ST= Doug Woodmansee;
H=Daniela Cortese; L=Ablesh Gautam HM= Jenica Abrudan, Elizabeth Warburton; C= Markah Frost, Sarah Johnson; S=Parasitonomics by Mary Ann McDowell and Mike Ferdig.

2012 Truman State University, Kirksville, MO (LXIV) .. Shawn Meagher
Scott D. Snyder - Parasite Biodiversity: Reflections, Challenges and Opportunities.
PO=Lin Twining , ST= Doug Woodmansee
H= Utibe Bickham; L= Heather Stigge; C= Michael Lehrke; HM= Shelby Heistand;
S= The importance of the unimportant. & Understanding the histories of parasites of Galapagos birds.
by John Janovy and Patricia Parker.

2013 Purdue University, West Lafayette, IN (LXV)..... Kimberly Bates

Agustin Jimenez - Biodiversity in the New World: "What is it?", still a relevant question.
PO=Joe Camp , ST= Doug Woodmansee
H= Heather Stigge; L= Elizabeth Warburton HM= Ablesh Gautam and Bhagya Wijayawardena; C= David Cordie;
S=DNA Barcoding in Parasitology Research by Sean Locke and Mark Forbes

2014 The University of Kentucky ..... Agustin Jimenez
PO=Daniel Howe, ST= Robert Sorensen
H= Alyssa Gleischner; L= Miranda White; HM= Leah Peng and Elizabeth Warburton; C= Allison Young;
S= Parasite adaptation and anthelmintic resistance by Martin K. Nielsen and Craig R. Reinemeyer

2015 Lawrence University ..... Trudy Aebig
PO=Judith Humphries, ST= Robert Sorensen
H=?; L=? HM= ?; C=?;
S= Wildlife Disease by Dr. Rebecca Cole and Dr. Shelly Dubay

2014 AMCOP Final Financial Report
Mar. 31, 2014-Dec.31, 2014
Updated 7/07/2015

New Account opened at Affinity Plus, Mankato MN			$10.00
AMCOP Funds transferred from Woodmansee			$7,854.63
Student Research Grant Refunded			$500.00
Balance Available 4/2/2014			**$8,364.63**
Expenses			
	AMCOP 64 Program Duplication	$0.00	
	Postage	$0.00	
	Certificates & Holders	$19.37	
	Herrick Award	$300.00	
	LaRue Award	$300.00	
	Cable Award	$200.00	
	Honorable Mention Awards	$200.00	
	Verification of Good Standing- State of I	$90.00	
	Web Site Expense (Go Daddy)	$27.41	
	Bank Fees	$0.00	
	Office Supplies	$0.00	
	Speaker Expenses	$0.00	
	2012 Student Travel Awards	$0.00	
	2013 Student Travel Awards	$0.00	
	Research Grants Program	$1,000.00	
	Total Expenses		**$2,136.78**
Income			
	2014 Dues Payments	$370.00	
	2014 Member Contributions	$486.01	
	Transaction error correction	0.27	
	GoDaddy cost =$27.14,		
	Personal account reimburse=$27.41		
	Lilly Donation	$0.00	
	ASP Support	$0.00	
	Silent Auction Revenue	$179.00	
	Interest Income (through 12/31/14)	$5.85	
	AMCOP 65 Surplus (Loss)	$0.00	
	Total Income		**$1,041.13**
Operating Surplus (Loss) for 2014			**-$1,095.65**
Net Worth (12/13/14)			**$7,268.98**

Submitted By:

Robert E. Sorensen

Financial Report Approved by

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Robert E. Sorensen
Secretary/Treasurer

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2015 AMCOP Interim Financial Report
Jan. 1, 2015-July 8, 2015
Updated 7/08/2015

Balance Available 1/1/2015			**$7,268.98**
Expenses			
	AMCOP 67 Program Duplication	$0.00	
	Postage	$0.00	
	Certificates & Holders	$0.00	
	Herrick Award	$300.00	
	LaRue Award	$300.00	
	Cable Award	$200.00	
	Honorable Mention Awards	$200.00	
	Verification of Good Standing- State of I	$0.00	
	Web Site Expense (Go Daddy)	$0.00	
	Event Insurance	$278.00	
	Bank Fees	$0.00	
	Office Supplies	$0.00	
	Speaker Expenses	$0.00	
	2013 Student Travel Awards	$0.00	
	2014 Student Travel Awards	$250.00	
	Research Grants Program	$1,000.00	
	Total Expenses		**$2,528.00**
Income			
	2014 Dues Payments	$295.00	
	2014 Member Contributions	$475.00	$770.00
	Lilly Donation	$0.00	
	ASP Support	$0.00	
	Silent Auction Revenue	$0.00	
	Interest Income (through 12/31/14)	$3.62	
	AMCOP 66 Surplus (Loss)	$0.00	
	Total Income		**$773.62**
Operating Surplus (Loss) for 2015			**-$1,754.38**
Net Worth (7/8/15)			**$5,514.60**

Submitted By:

Robert E. Sorensen

Financial Report Approved by

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Robert E. Sorensen
Secretary/Treasurer

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Membership Email Directory
(Dues Paid in Either 2014 or 2015)

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Tim Yoshino University of Wisconsin - Madison yoshinot@svm.vetmed.wisc.edu	Elliott Zieman University of Southern Illinois ezieman@siu.edu

NOTES

2015 AMCOP DUES

Name _____

Address_____

_____

_____

Phone # _____

Email _____

DUES
Faculty & Emeriti ($10), Student ($5): $_____

CONTRIBUTION to student awards: $_____

TOTAL $_____

****
Please make checks payable to AMCOP.
****

Send this form and your check via US Mail to:

Dr. Robert Sorensen
AMCOP Secretary/Treasurer
Department of Biological Sciences
Minnesota State University Mankato
Trafton Science Center South, S-277
Mankaton MN 56001

This form also available at
www.amcop.org