

VIRGINIA MUSEUM OF NATURAL HISTORY
Board of Trustees Research and Collections Committee

Saturday, May 21, 2022

9:00-9:45 a.m.

A G E N D A

- Call to order: **Dr. Art Evans**
- Roll Call: Dr. Art Evans, Dr. Tom Benzing, Dr. Carole Nash, Lisa Carter, Melany Stowe, Mark Buss.
- February 2022 Research and Collections Committee meeting minutes (action item)
- January-March 2022 acquisitions (action item)
- Consideration of Dr. Derek Hennen as a Research Associate (action item)
- Consideration of Dr. Julian J. Lewis as a Research Associate (action item)
- Consideration of term renewals for the following Research Associates: Dr. Robert Bodnar, Dr. Art Evans, William Henika, Dr. Cynthia Liutkus-Pierce, Dr. Sterling Nesbitt, Dr. John Pagels, Dr. DB Poli, and Dr. William Schmachtenberg.
- Other business: **Dr. Art Evans**
- Adjourn: **Dr. Art Evans**

The mission of the Virginia Museum of Natural History:

To interpret Virginia's natural heritage within a global context in ways that are relevant to all citizens of the Commonwealth.

VIRGINIA MUSEUM OF NATURAL HISTORY BOARD OF TRUSTEES
MINUTES OF THE RESEARCH AND COLLECTIONS COMMITTEE MEETING
Feb. 19, 2022

Present at the meeting were Dr. Art Evans, Dr. Tom Benzing, Mark Buss, Dr. Hayden Bassett, Dr. Kal Ivanov, Dr. Nancy Moncrief, Dr. Adam Pritchard, Dr. Joe Keiper, and Ben Williams.

Committee Chairman Dr. Art Evans called the meeting to order. Evans said that since the committee meeting did not have a quorum, no action could be taken on any of the action items on the agenda and the meeting would instead serve as an informational session.

The minutes were accepted as information with no comments or additions.

Dr. Art Evans, Dr. Tom Benzing, and Mark Buss signed off on the museum's recent acquisitions.

Dr. Kal Ivanov spoke briefly about the two new proposed Research Associates on the agenda. Ivanov said that the first, Dr. Derek Hennen, recently graduated from Virginia Tech and is closely associated with the VMNH Bug Lab. Hennen is also working on a project to help slow the spread of the spongy moth (formerly known as the European gypsy moth) in the United States. Ivanov said that Hennen wishes to use the VMNH facilities to continue his research. The other proposed Research Associate, Dr. Julian J. Lewis, is a professional cave biologist and is the foremost authority on aquatic cave isopods.

Dr. Adam Pritchard offered an update on the search for the museum's new Assistant Curator of Herpetology. After receiving numerous applications and interviewing three candidates, the position was offered to Dr. Arianna Kuhn. She accepted and will begin working at the VMNH in October. Kuhn's work encompasses a broad spectrum of phylogenetics and has largely focused on reptiles, but she intends to shift her focus to salamanders upon arriving in Virginia.

Dr. Kal Ivanov said that in December, Dr. Jackson Means and collaborators published a paper on the first true millipede, a specimen found more than 450 meters deep in mine shafts in Australia. The paper has been accessed more than 68,000 times since, and nearly 300 news outlets have covered the story. Ivanov added that Dr. Means joined the museum as a full-time staff member on Jan. 4, 2021.

Dr. Kal Ivanov said that he, Dr. Nancy Moncrief, and other museum staff resubmitted in October for an Institute of Museum and Library Sciences grant that would provide high-quality, high-power microscopes for outreach and research, providing live images for remote education and outreach and allowing students with disabilities to take advantage of the tools.

Dr. Kal Ivanov said that he has a variety of papers in various stages of completion, including a paper on millipedes, a paper on the northern spread of fire ants, a paper on subterranean insect traps, and a paper on the type materials at the museum. Additionally, he hopes to have a paper on the isopods of Virginia completed by the end of the year.

Dr. Nancy Moncrief said that she recently published papers about a whole genome analysis of the eastern fox squirrel and a paper regarding the spread of armadillos into Virginia, the latter of which in particular generated a large amount of media coverage. She has begun working with a colleague to publish papers about porcupines and fishers returning to Virginia.

Dr. Nancy Moncrief also said that she recently published a paper that was the culmination of decades of work: a comprehensive checklist of the mammals of the Barrier Islands.

Dr. Adam Pritchard said that he and colleagues recently published a paper that had been in the works for about ten years in *Papers in Paleontology*. The paper concerns an extinct genus of reptiles known as *Azendohsaurus*.

Dr. Adam Pritchard said that the fossil cat *Petra* has not been positively identified yet and that the process of extracting *Petra* from the surrounding matrix has been more difficult than anticipated. However, he said, he expects that further work will reveal *Petra* to be a puma. He added that the matrix is full of small animal bones, and that a complete bat skull has been found lodged in *Petra*'s nasal cavity. Pritchard said that the SOVAH hospital system is allowing VMNH to use their CT scanners to create 3-D scans of *Petra*, which provide excellent association data for the bones.

Dr. Hayden Bassett said that he was on paternity leave for most of the previous quarter. However, he said, the Smith River Survey is officially kicking off in March and he will begin doing archaeological surveys along the Smith River. This will include a survey of the Belmont site, just a few minutes from the museum, which was a palisaded village near a bend in the Smith River. The site includes a significant number of burials, including dog burials, and is owned by the Archaeological Conservancy. Representatives from the conservancy are scheduled to meet Bassett on-site in the coming weeks.

Bassett said that he has also received a \$25,000 gift from the Sons of the American Revolution to locate Patrick Henry's Leatherwood home. The location of the home has been narrowed down to four potential locations.

Bassett also said that the Cultural Heritage Monitoring Lab (CHML) has been deeply involved with the State Department in monitoring the ongoing Ukraine situation. The New York Times is planning to publish a story on the CHML very soon.

In January, Bassett said, CHML did a project for the State Department to conduct a satellite survey of UNESCO World Heritage sites in Mali to identify looting activity of antiquities over the past five years.

Bassett also said that he has applied for a State Department grant of \$187,000 regarding the CHML monitoring of Ukraine, and will hopefully hear back during the current quarter.

Bassett also said that he has several publications in the pipeline and one currently in press.

Dr. Art Evans adjourned the meeting.

JANUARY-MARCH 2022 VMNH ACQUISITIONS FOR APPROVAL BY BOARD OF TRUSTEES RESEARCH AND COLLECTIONS COMMITTEE

RIM* No.	Collector/Donor	Date at VMNH	VMNH Dept.	Quantity	Description	Method	To Be Accessioned (Y/N)
RIM 02-2022	UVA School of Medicine (David Moyer)	8/31/2021	ICHTHYOLOGY	10	lungfish (<i>Protopterus</i>), cadavers preserved in formalin fluid in glass jar	Gift	No, not to be accessioned.
RIM 03-2022	LEFT AT FRONT DESK	2/14/2022	ORNITHOLOGY	1	Yellow-bellied Sapsucker (<i>Sphyrapicus varius</i>)	Salvaged	Yes
RIM 04-2022	Jill K. Harris	2/17/2022	MAMMALOLOGY	1	mouse (<i>Peromyscus</i> sp.)	Salvaged	Yes
RIM 05-2022	Christopher Kerr	2/5/2022	PALEONTOLOGY	1	reptile teeth in silty matrix	Gift	Yes
RIM 06-2022	Adam Pritchard	2/14/2022	PALEONTOLOGY	13	sandstone rocks with fish bone and teeth	Field Collection	Yes
RIM 07-2022	Kim Harrell	-	PALEONTOLOGY	1	whale periotic	Gift	Yes
RIM 08-2022	Curt W. Harden	7/23/2021	RECENT INVERTEBRATES	70 vials and 287 dry	70 vials of ethanol preserved invertebrates and 287 dry pinned insects	Gift	Yes
RIM 09-2022	Dr. Julian J. Lewis	3/4/2022	RECENT INVERTEBRATES	275 vials	of alcohol preserved invertebrates	Gift	Yes
RIM 10-2022	Mike Fies (VA DGIF)	3/16/2022	MAMMALOLOGY	1	Fisher	Transfer	Yes

* RIM is an acronym for the Record of Incoming Material form

JANUARY-MARCH 2022 VMNH ACQUISITIONS FOR APPROVAL BY BOARD OF TRUSTEES RESEARCH AND COLLECTIONS COMMITTEE

VMNH Collections Committee and Executive Director have Approved Recent Acquisitions: RIM 02-2022 through RIM 10-2022

VMNH Board of Trustees Research & Collections Committee Review of Acquisitions: RIM 02-2022 through RIM 10-2022

Arthur V. Evans, Chair _____
(signature) Arthur V. Evans, Chair _____ Date _____

Thomas R. Benzing _____
(signature) Thomas R. Benzing _____ Date _____

Mark J. Buss _____
(signature) Mark J. Buss _____ Date _____

Lisa Carter _____
(signature) Lisa Carter _____ Date _____

Carole L. Nash _____
(signature) Carole L. Nash _____ Date _____

Melany Stowe _____
(signature) Melany Stowe _____ Date _____

**VIRGINIA MUSEUM OF NATURAL HISTORY
RESEARCH AND COLLECTIONS ACTIVITIES**

**Report to the Board of Trustees
Jan.-March 2022**

**Kaloyan Ivanov, Ph.D.
Associate Curator of Invertebrate Zoology**

- Dr. Ivanov and colleagues' manuscript "Prevalence and location of survivable skeletal injuries in two species of North American *Sciurus*" was recently published at *Journal of Mammalogy*.
- Drs Ivanov and Means and colleagues from Brazil have a manuscript in review at *Zoologia*.
- Dr. Ivanov presented a seminar at the Department of Plant and Environmental Sciences at Clemson University.
- Dr. Ivanov presented a lecture, part of VMNH's series "*The Shenandoah Valley and Blue Ridge: Hotspots for Virginia Natural History*", to students from the Osher Lifelong Learning Institute (OLLI) at the University of Virginia.
- Dr. Ivanov and museum staff completed work on the museum's newest exhibit "The Science of Flight" which opened to the public on 22 January.
- Dr. Ivanov participated in VMNH's "The Science of Flight" festival and interacted with 230+ visitors.
- Drs Ivanov and Keiper completed research and testimony on a forensic case concerning a litigation under the Endangered Species Act. The work was featured in a recent Henry County Enterprise article by C. Hietala.

Research & Collections

VMNH Curator of Mammals Dr. N. Moncrief, VMNH Biology Technician L. Hightower, Georgia College & State University faculty Dr. A. Mead, and Dr. Ivanov's paper "Prevalence and location of survivable skeletal injuries in two species of North American *Sciurus*" was recently published in the American Society of Mammalogists periodical *Journal of Mammalogy*.

[Moncrief, N. D., L. Hightower, A. J. Mead, and K. Ivanov. Prevalence and location of survivable skeletal injuries in two species of North American *Sciurus*. *Journal of Mammalogy* XX: 1-9. <https://doi.org/10.1093/jmammal/gyab131>]

Drs Ivanov and Means (VMNH), R. Bouzan, Dr. A. D. Brescovit, and Dr. L. F. M. Iniesta (Instituto Butantan, Brazil) and T. M. Almeida (Instituto Nacional de Pesquisas da Amazônia, Brazil) have a paper in review at *Zoologia*. The paper focuses on the Amazonian millipede genus *Leptherpum* (Polydesmida: Chelodesmidae) and includes the description of three new species.

VMNH Research Associate and Clemson University graduate student C. Harden, L. Hightower, and Dr. Ivanov are drafting a manuscript, to be submitted to *Subterranean Biology*, on the efficiency of two subterranean trap designs for targeting endogaeic invertebrate taxa in the Appalachian Highlands of the eastern US.

Drs. Ivanov and Keiper initiated work on a Case Report to be submitted to the *Journal of Forensic Sciences*. The manuscript focuses on recently completed forensic case regarding the death of a captive exotic animal and a litigation under the Endangered Species Act.

Drs. Ivanov and Means, and L. Hightower continued work on a catalogue representing the first synopsis of the 400+ invertebrate types in the collection of the Virginia Museum of Natural History.

Dr. Ivanov presented a seminar at the Department of Plant and Environmental Sciences at Clemson University. The presentation largely focused on VMNH's ongoing "The ants of Virginia" project. In addition, Dr. Ivanov used Clemson University's Arthropod Collection to study ant, wasp, and earwig taxa from the eastern US.

Drs. Ivanov and Means, and L. Hightower continued work on their ongoing "*Nannaria incertae sedis*" and "The terrestrial isopods of Virginia" projects, including field work in Caldwell Co., NC and Patrick Co., VA. This research focuses on a number of undescribed species in the *minor* clade of the xystodesmid genus *Nannaria* and on the diversity of the terrestrial isopod (Isopoda: Oniscidea) fauna of Virginia.

VMNH Collections Manager H. Cartmell and L. Hightower, with help from Dr. Ivanov, completed work on updating a dataset of the museum's invertebrate holdings to be posted to VMNH's website. All records were also successfully updated in the museum's database by VMNH's Registrar J. Harris.

Dr. Ivanov completed the identification and curation of 650+ backlogged hymenopteran (ants, bees, and wasps) specimens, which were incorporated into VMNH's invertebrate holdings.

With help from Dr. Evans, Dr. Ivanov initiated correspondence regarding the acquisition of B. Steinly's dipteran (primarily Ephydriidae) collection from Miami U, Ohio.

Dr. Ivanov and the rest of VMNH's Collections Committee initiated work on updating the museum's Collection Policy and participated in an in-person meeting on 29 March.

Visiting student researchers D. Martinez (Universidad Nacional de Colombia), G. Harrison, and L. F. Vasquez-Valverde (Virginia Tech) used VMNH's invertebrate holdings to capture data and study the millipede family Platyrrhacidae (Polydesmida) from Southeast Asia and tropical Central and South America; J. J. Lewis used VMNH's invertebrate holdings to study aquatic isopods (Isopoda: Asellidae) from the eastern US. (February 18 and March 4, respectively)

Dr. Ivanov responded to information requests regarding VMNH's invertebrate holdings: Cynipidae (gall wasps) (L. Nastasi, C. Davis; Penn State University)

Dr. Ivanov oversaw the acquisition of 205 lots of ethanol preserved aquatic isopods (Isopoda: Asellidae), including types of 16 newly described taxa, and 70 lots of millipedes donated to VMNH by Dr. J.J. Lewis (Lewis & Associates; RIM2022-09); 4 lots of identified beetles in ethanol, 46 lots of unidentified invertebrates in ethanol, 20 lots of

ants and bycatch from subterranean traps in ethanol, and 287 pinned and pointed insects donated to VMNH by C. Harden (Clemson U; RIM2022-08)

Education & Outreach

To celebrate the opening day of the museum's newest exhibit "The Science of Flight", VMNH hosted "The Science of Flight Festival" which offered a variety of flight-themed displays and activities that ranged from invertebrate and vertebrate materials from the museum's collections to live birds of prey, rocketry, and paper airplane contests. The event was attended by 237 children and adults from Virginia and North Carolina (~1% from elsewhere).

Dr. Ivanov presented a lecture to students from the Osher Lifelong Learning Institute (OLLI) at the University of Virginia. OLLI offers courses, and other educational activities, to adults from the local community and allows members to acquire new knowledge, explore ideas, and share interests and expertise with others. The series "*The Shenandoah Valley and Blue Ridge: Hotspots for Virginia Natural History*", provided by the Virginia Museum of Natural History, explores the past and present geological, biological, and cultural diversity of the region, a planned future site for the museum's first satellite campus. (February 25)

Drs Ivanov, Keiper, Beard (VMNH) along with C. Hietala hosted a birding trip for museum patrons in the City of Martinsville and the adjacent Henry and Patrick Cos. (March 19)

Exhibits

Dr. Ivanov and museum staff completed work on the museum's newest travelling exhibit "The Science of Flight" which opened to the public on 22 January. This original work is the first VMNH exhibit to be offered in English and Spanish and it offers an in-depth look into the multitude of ways animals have taken to the air and how studying these amazing organisms has provided the basis for humans' ability to take flight.

Media

"Tiger King has a local tie" Henry County Enterprise article by C. Hietala, Stuart, Virginia. (March 11). (with J. Keiper)

Dr. Ivanov's interview with C. Kettlewell on the Eastern Cicada Killer (*Sphecius speciosus*; Hymenoptera: Crabronidae) will be featured in the June issue of the *Virginia Living* magazine. (March 31)

Professional Service

Dr. Ivanov and museum staff completed in-person interviews of applicants for the position of Assistant Curator of Herpetology at VMNH. (January 10-12, 17-19, 24-26).

Drs Ivanov and Keiper completed research and testimony on a forensic case concerning a litigation under the Endangered Species Act (ESA). The case was brought up by the PETA (People for the Ethical Treatment of Animals) Foundation against Jeff

Lowe, best known for his appearance in the Netflix documentary series, "Tiger King: Murder, Mayhem, and Madness." Lowe was ultimately found liable under ESA and is prevented from engaging in any future business activities with respect to animals.

Dr. Ivanov joined Virginia Tech's graduate student G. Harrison Advisory Committee.

As the acting President and Co-Treasurer of the Virginia Natural History Society, Dr. Ivanov created and oversaw voting polls regarding the election of new officers at VNHS; send numerous reminders to members to renew memberships; and participated in meetings with the web agency Momenta regarding the construction and hosting of the Society's new website.

Nancy D. Moncrief, Ph.D.
Curator of Mammalogy

- Dr. Moncrief was part of a VMNH team that fabricated and installed VMNH's special exhibit about flight.
- Dr. Moncrief participated in the day-long VMNH Flight Festival by staffing a display table.
- Dr. Moncrief attended the Virginia Chapter of the Wildlife Society conference; she presented a poster about her research on skeletal injuries in squirrels, and, as part of her service on the Awards Committee of that organization, she evaluated presentations by graduate and undergraduate students

Research and Collections

Dr. Moncrief continued her collaboration with Dr. R. Jory Brinkerhoff (University of Richmond) and Ms. Lisa Gatens (North Carolina Museum of Natural Sciences, NCMNS). They are using museum specimens to study the recent pattern of Lyme disease emergence in Virginia and North Carolina. Specifically, they screened ear clips from study skins of white-footed deermice (housed at VMNH and NCMNS) for DNA from the Lyme disease pathogen. They are drafting a manuscript that will be submitted to the journal *Ticks and Tick-borne Diseases*.

Dr. Moncrief also continued collaborating with VMNH Research Associates Drs. Raymond Dueser and John Porter (University of Virginia) on studies of mammals on the Virginia barrier islands. She is compiling and editing databases that will be used to analyze live-trapping data for mouse populations on the islands and adjacent mainland.

In March Dr. Nancy Moncrief presented a poster about her research on skeletal injuries in squirrels at the Virginia Chapter of the Wildlife Society conference. This group includes professionals from multiple state and federal agencies as well as faculty members and students from several Virginia colleges and universities (including Radford, George Mason, Virginia Tech, Bridgewater, Randolph Macon, and Richmond).

Dr. Moncrief continued working with Mss. Hightower, Cartmell, and Harris to prepare, install, document, and organize (electronically and in archival hardcopies) traditional specimens and frozen tissues of mammals and birds.

Dr. Moncrief worked with other members of the VMNH Collections Committee to review and revise the VMNH Collections Policy and to draft VMNH Policies for Live Animals.

Professional Service and Other Duties

In January Dr. Moncrief attended presentations by and participated in meetings with the three candidates who visited VMNH to interview for the Herpetology Curator position.

In February, Dr. Moncrief identified a rodent for Dr. Teresa Southard (Associate Professor in the Department of Biomedical Sciences and Pathobiology at the Virginia Maryland College of Veterinary Medicine) as part of a forensic investigation by Dr. Southard.

Dr. Moncrief serves on the Awards Committee of the Virginia Chapter of The Wildlife Society. In February, she and other committee members reviewed nominations for several service awards and a student scholarship bestowed by that organization. Also as part of her service on this committee, she evaluated technical presentations by graduate and undergraduate students at the annual conference in March.

Dr. Moncrief continued serving on the Council of the Virginia Natural History Society (VNHS). She also continued serving (with Dr. Ivanov) as Co-Treasurer. As part of her duties as Co-Treasurer, she recorded dues payments for new and renewing VNHS members.

Scientific Programs, Exhibits, and Other Activities

In January Dr. Moncrief and exhibits staff members Ms. Jessica Davenport and Mr. Donnie Jones completed fabrication and installation of a special exhibit about flight. She worked with them to hang all the text panels, position all the interactive elements, hang all the models of vertebrates, and mount all the specimens of birds and bats.

Dr. Moncrief also participated in VMNH's Flight Festival in late January. She staffed a display table with a variety of specimens of birds and mammals. She also showed and explained videos of gliding and flying mammals.

In February Dr. Moncrief was interviewed about the flight exhibit by Roanoke Television station WDBJ7. <https://www.wdbj7.com/2022/02/04/science-flight-exhibit-spreads-its-wings-virginia-museum-natural-history/>

In March Dr. Moncrief participated in the Jefferson Awards ceremony. She presented the Thomas Jefferson Medal for Outstanding Contributions in Natural Science to Dr. Eric Hallerman, Professor in the Department of Fisheries and Wildlife Conservation at Virginia Tech.

Throughout the quarter, Dr. Moncrief worked with Mss. Harris and Cartmell to pack books and journals in preparation for moving them out of the library.

Hayden Bassett, Ph.D.
Assistant Curator of Archaeology

VMNH Assistant Curator of Archaeology Dr. Hayden Bassett focus much of his efforts on the VMNH Cultural Heritage Monitoring Lab's response to the war in Ukraine and developing a state-wide vulnerability model for all archaeological sites in the Commonwealth of Virginia.

Research and Collections

In March, the VMNH Archaeology Department began developing a flood vulnerability model for all 48,000 known archaeological sites in the Commonwealth of Virginia. The model – both an early warning system and monitoring tool – was completed in late March. Dr. Bassett presented the model at UVA and at the 2022 VMNH Jefferson Awards. Dr. Bassett is now validating the model with the goal of deploying it in June to identify Virginia's most vulnerable archaeological sites and tribal resources, to assist State professionals, tribal governments, and policy makers in prioritization of attention, funding, and protective measures. This work adds to the VMNH's expanding portfolio of efforts to apply cutting-edge science and economical solutions to conservation challenges faced by the Commonwealth of Virginia today and in years to come.

In March, Dr. Bassett also began fieldwork on the Patrick Henry Leatherwood project, a funded effort to locate the Henry County home of Patrick Henry, and other Revolutionary War sites in the area. While the driver of this fieldwork is to identify sites for interpretation for the upcoming Revolutionary War anniversary, the VMNH archaeology team is taking this opportunity to use archaeology to learn more life on what was Virginia's western frontier in the 18th century.

In collaboration with the Smithsonian Institution, the VMNH's Cultural Heritage Monitoring Lab (CHML), under the direction of Dr. Bassett, made significant progress this quarter on projects in Virginia, Honduras, and Ukraine. Through the CHML at VMNH, Dr. Bassett continues to lead a team of 6 cultural heritage professionals and 8 virtual interns in data production and satellite imagery analysis. As the producer and curatorial repository of these new digital collections, the VMNH Archaeology Department has expanded its digital collections holdings by nearly 20,000 "objects" since February 2022, and anticipates further growth in digital collections with each new quarter. A total of 52,000 digital objects in the VMNH's CHML collections were requested/accessed by outside researchers between late February and early May 2022. Additionally, as Dr. Bassett initiates a long-term project to monitor the cultural heritage of Virginia from impacts related to climate change, he anticipates a significant number of requests from Virginia state agencies for these data and digital collections in 2022 and beyond.

In early March, Dr. Bassett provided "reach-back" support and virtual training for the US Army Monuments Officers for their mission to Honduras. This included modeling the projected impacts from future flooding to the Mayan city of Copan to guide protective measures, guiding US and Honduran archaeologists and military personnel on the ground via satellite, and recording their findings at Copan remotely from the VMNH

archaeology lab. As part of this project, he delivered two virtual lectures from the VMNH.

Most of Dr. Bassett's research efforts this quarter were dedicated to the leading role played by the VMNH's Cultural Heritage Monitoring Lab (CHML) in the US response to the destruction of museums, archaeological sites, and other cultural heritage sites in Ukraine. Dr. Bassett and his team developed an approach to monitoring cultural heritage using remote sensing, and other satellite-based technologies. Since late February, the CHML team at VMNH has been monitoring over 26,000 cultural heritage sites in Ukraine every 48 hours using satellite sensors and imagery. Impacts to cultural heritage are reported to a wide spectrum of stakeholders in academia and research, government, on the ground in Ukraine, and the general public. The lab's capabilities have grown significantly since February in response to this emergency need, and through a number of new public and public-private partnerships. His collaborators in this effort include the Smithsonian Institution and the Penn Museum.

Between late February and early May, Dr. Bassett gave 26 presentations on the findings of the VMNH's Cultural Heritage Monitoring Lab (CHML). These presentations were given virtually to the Smithsonian Institution, UNESCO, United Nations Institute for Training and Research, the US Department of State, the US Committee of the Blue Shield, the US Space Force, the US Army, the MITRE Corporation, William & Mary, University of Virginia, UC San Diego, the Government of Honduras, as well as French, British, and Dutch researchers. Additionally, Dr. Bassett and his team authored and delivered reports of findings to key stakeholders for situational awareness, media, ground responses for protective measures, and research-driven questions on destruction of cultural property. Since late February, the work of Dr. Bassett and the CHML team at VMNH has been featured in print in the *New York Times*, the *Washington Post*, the *Wall Street Journal*, *The Telegraph*, *The Guardian*, *San Diego Union Tribune*, *Cardinal News*, the *Martinsville Bulletin*, and the *Henry County Enterprise*. The VMNH's work in Ukraine has also been covered digitally by CNN, Bloomberg, Vox, Turan News Agency (Azerbaijan), EFE: Spain (4th largest newswire in the world), Politico, and on television by PBS News Hour, WDBJ7, WSLs10, and CBS19.

Dr. Bassett's manuscript on the VMNH's CHML as a case study for modern Applied Research Labs was published in March. In April, he and his co-authors in the CHML submitted a manuscript to the *Journal of Preservation Education and Research* (PER), which is now under review. In April, he was invited to contribute two articles on his work in Ukraine: one for *The SAA Archaeological Record*, and one for the journal *Text & Image*, published by the University of Kiev in Ukraine. Both are in progress. He also presented a conference paper at the Cultural Property Protection conference at Cornell University, and presented as a part of a three-person expert panel on Cultural Heritage impacts in Ukraine.

In early May, the VMNH Archaeology Department was officially awarded its grant funding for the Smith River Survey – a two-year archaeological survey of sites associated with Virginia's First Peoples along the Smith River in Henry County, VA. This award officially allows the project fieldwork to begin in June 2022.

Education and Outreach

In March, Dr. Bassett served as the keynote speaker for the VMNH Jefferson Awards. He delivered a presentation on his recent work in Virginia, Honduras, and Ukraine. He also nominated the corporate award recipient, Iridium Communications, and delivered their award at the ceremony.

The VMNH Archaeology department worked with several colleges and universities this quarter. Dr. Bassett and VMNH Staff Archaeologist Madeleine Gunter Bassett continued to work 8 virtual interns at the undergraduate and graduate level. The U.S. Department of State provided the VMNH Archaeology Department with these 8 virtual intern positions through the Virtual Student Federal Service (VSFS) program. Between late February and early May of 2022, the interns and associated virtual volunteers contributed a combined 1240 hours to the CHML at VMNH.

Dr. Bassett responded to two public requests for identification of artifacts, both of them from Virginia. Artifact identifications were made in-person (masked and distanced).

Professional Service

Dr. Bassett continued his duties as Vice President of the Board of Trustees for Falmouth Heritage Renewal, an international historic preservation non-profit. He also continued his appointment as a Research Associate at the Smithsonian Institution to support international efforts and contributions made through VMNH's new Cultural Heritage Monitoring Lab. He also continued his duties to the Legislative Affairs Committee of the Council for Virginia Archaeologists (CoVA). Dr. Bassett continued his appointment as an Adjunct Professor at the College of William & Mary. In early April, Dr. Bassett also commissioned into the US Army Reserves as one of the recently reconstituted "Monuments Men."

From February to May, Dr. Bassett co-organized 9 meetings of the Culture Conflict Resource Network (CCRN), an NSF-funded group of collaborative researchers working on research surrounding the impacts of armed conflict on cultural heritage. The VMNH, through the Cultural Heritage Monitoring Lab (CHML), is a collaborative partner of the CCRN, along with the University of Pennsylvania, the Smithsonian, and several other institutions. Dr. Bassett presented the findings of his lab at both meetings.

This quarter, Dr. Bassett and VMNH staff archaeologist Madeleine Gunter Bassett continued to fulfill their duties in the Archaeological Society of Virginia (ASV). In these roles, VMNH Archaeology staff provide direction, technical review, grant approvals, among other tasks for state-wide archaeological research for the foreseeable future. From February to May, Dr. Bassett was consulted on 11 occasions by VA state and US federal agencies, and international institutions to implement his technical methods for using satellite imaging and remote sensing to document ground disturbance, and/or destruction of cultural heritage in conflict zones and after natural disasters. The consultations included contributions of expertise and virtual delivery of training.

Research and Collections

Jill K. Harris, Registrar

Ten (10) collections acquisitions were recorded for 615 individual specimens and 346 vials of wet specimens. These specimens were added to the invertebrate zoology, vertebrate zoology, and paleontology collections.

Two (2) outgoing loans were recorded this quarter with specimens from the education, paleontology, and vertebrate zoology collections on loan to the Science Museum of Virginia; and, invertebrate zoology specimens on loan to Virginia Tech.

Haley Cartmell, Collections Manager

Curators and staff modified/updated 3,728 existing records and added 3206 new records to the VMNH collections databases Proficio (all museum collections) and EGEMS (paleontological collections only).

PEOPLE SERVED DATABASE printed 5/6/2022
Summary

# of Activities	TYPE OF ACTIVITY	PROFESSIONALS AND 13+ STUDENTS	K-12 STUDENTS	K-12 TEACHERS	PUBLIC			TOTAL #	
2	Conference presentations (A)	150	0	0	120			270	
0	Meetings chaired (B)	0	0	0	0			0	
4	Review documents/manuscripts (B)	4	0	0	0			4	
3	Requests for information about collections (C)	3	0	0	0			3	
12	Visiting researcher (C)	12	0	0	0			12	
3	Collections tours (D)	0	0	0	17			17	
3	Lab Tours (D)	0	0	0	7			7	
0	Receptions	0	0	0	0			0	
17	Responses to requests for information about specimens at VMNH (D)	55	0	0	2			47	
5	Lectures and presentations at VMNH (D)	64	13	0	0			77	
2	Technical consultations (B, D, & E)	19	0	0	0			19	
6	Display table with specimens	0	0	0	237			237	
3	Off-site education programs	100	0	0	3			103	
7	Lectures Not at VMNH (E)	30	0	0	227			257	
2	Off-site presentations (E)	66	0	0	270			336	
2	Field trips/Field Work	0	2	0	8			10	
0	Publications	0	0	0	0			0	
71	TOTALS							1399	

TOTAL # INDIVIDUALS SERVED

1399

Research & Collections Facebook & Instagram Statistics (Jan.-March 2022)

Total Research & Collections Post Reach

114,214

Total Research & Collections Post Engagement

6,444

Top 5 Performing Research & Collections Posts By Total Engagement

1. Link to article published by the Cardinal regarding Petra (January 25) - 1,855 Engagements
2. Update regarding CHML's work monitoring and mapping Ukraine (March 2) - 726 Engagements
3. Announcement of "Annotated Checklist of Terrestrial Mammals of the Virginia Barrier Islands and the Adjacent Delmarva Peninsula" (February 2) - 716 Engagements
4. Announcement of the hiring of Dr. Arianna Kuhn (February 28) - 380 Engagements
5. Update regarding CHML's work monitoring and mapping Ukraine (March 20) - 352 Engagements

Total VMNH Facebook Audience Growth from January 1 to March 31, 2022

- The total number of followers increased by 436 (14,053 to 14,489).
- The total number of likes increased by 352 (13,700 to 14,052).



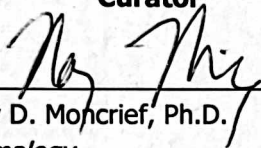
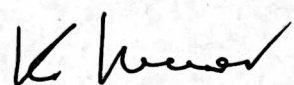


Virginia Museum of
NATURAL HISTORY

IN ASSOCIATION WITH THE SMITHSONIAN INSTITUTION

NEW APPLICATION AS RESEARCH ASSOCIATE

Derek Hennen, Ph.D.

I have reviewed the information submitted for Derek Hennen (Kal Ivanov, Sponsor) and have indicated his/her recommendation as a Research Associate for the Virginia Museum of Natural History.

Curator	Date	Recommend	Do Not Recommend
 Nancy D. Moncrief, Ph.D. Mammalogy	2 Feb 2022	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Kal Ivanov, Ph.D. Recent Invertebrates	2 FEB. 2022	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Adam Pritchard, Ph.D. Paleontology	2 Feb '22	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Hayden Bassett, Ph.D. Archaeology	2 Feb 2022	<input checked="" type="checkbox"/>	<input type="checkbox"/>



Kaloyan Ivanov, Ph.D.
Virginia Museum of Natural History
21 Starling Ave.
Martinsville, VA 24112
kal.ivanov@vmnh.virginia.gov

19 January 2022

Virginia Museum of Natural History
21 Starling Ave.
Martinsville, VA 24112

To Whom It May Concern,

I write to nominate Dr. Derek A. Hennen as a Research Associate of the Virginia Museum of Natural History (VMNH). Dr. Hennen recently completed teaching an entomology course at the Virginia Polytechnic Institute and State University and has now joined the Virginia Department of Agriculture and Consumer Services as a coordinator for the “Slow the Spread” program to control the invasive forest pest moth *Lymantria dispar*.

Dr. Hennen holds a Ph.D. in Entomology from the Virginia Polytechnic Institute and State University and a Master’s degree in Entomology from the University of Arkansas. His expertise includes biogeography, systematics, and natural history of myriapods (millipedes and centipedes) with a strong focus on Appalachian taxa. His work also includes a science communication component, and he runs a Twitter account (@DearMillipede) to spread knowledge and appreciation for myriapods. As his enclosed documents demonstrate, Dr. Hennen is uniquely qualified to contribute to the mission and research objectives of this institution.

I have known Derek for over five years and I have come to admire his intimate knowledge of myriapods and wide-ranging familiarity with insects and other arthropods. During the course of his Ph.D. work he has deposited numerous invertebrate specimens at the Virginia Museum of Natural History and he will undoubtedly continue to do so during the course of his professional career. His dissertation work on the millipede genera *Pseudopolydesmus* (Polydesmida: Polydesmidae) and *Nannaria* (Polydesmida: Xystodesmidae) of the southern Appalachian Mountains has included examination, identification, curation, and digitization of numerous specimens from VMNH’s millipede

collection. Dr. Hennen has published results of his research in many peer-reviewed journals. His recently published field guide to the millipedes of Ohio represents the first field guide to millipedes anywhere in the United States. Dr. Hennen is currently continuing his work on Appalachian millipedes and the poorly studied North American stone centipedes in the family Lithobiidae.

Derek has expressed interest in continuing to use VMNH's facilities and invertebrate collections for his specimen-based research. Dr. Hennen, Dr. Means, and I have discussed several potential joint research projects that would use material from VMNH's collections as well as new material obtained through fieldwork.

This mutually beneficial appointment will not only provide Dr. Hennen with an institutional outlet for his ongoing research and facilitate the generation of publications vital to our understanding of myriapod systematics and natural history but will allow VMNH to benefit from his expertise, curatorial efforts, and fieldwork which contribute directly to the museum's mission. I invite you to refer to Dr. Hennen's enclosed CV and a letter expressing his interest and commitment.

Sincerely,



Kaloyan Ivanov, Ph.D.
Associate Curator of Recent Invertebrates
Virginia Museum of Natural History

Dr. Derek Hennen
1800 Foxhunt Ln Apt A
Blacksburg, VA 24060

6 January 2022

Board of Trustees
c/o Dr. Kaloyan Ivanov
Scientific Collections, Recent Invertebrates
Virginia Museum of Natural History
21 Starling Avenue
Martinsville, VA 24112

Dear Trustees,

I am writing to request a Research Associate position with the Recent Invertebrates Collection at the Virginia Museum of Natural History. My prior experience and research with millipedes and centipedes nicely complements the work being done by collection staff, and formalizing my collaboration with the Recent Invertebrates staff will benefit both the VMNH and my own research.

I received my Ph.D. in Entomology from Virginia Tech in 2020, where I studied the systematics and natural history of Appalachian millipedes. During my Ph.D., I conducted extensive field work, which included travel to three countries and 21 states in the US to collect millipedes. The main thrust of my work was combining phylogenetics and morphological investigations for taxonomic revisions of the millipede genera *Pseudopolydesmus* (Polydesmida: Polydesmidae) and *Nannaria* (Polydesmida: Xystodesmidae). Both are widespread throughout eastern North America, and *Nannaria* has a distinct lineage found only in the Appalachian Mountains. I discovered 17 undescribed species within *Nannaria*, and my publication describing these species has been accepted in the journal *ZooKeys* and will be published soon.

My research on both these taxa included many specimens loaned from the VMNH, which I digitized and re-curated. These specimens were integral to my research, and I added more specimens to the VMNH collections through the designation and deposition of type material. My current research continues my focus on Appalachian Myriapoda (millipedes and centipedes), and I have ongoing projects on the millipede families Parajulidae and Xystodesmidae and the poorly studied American Lithobiidae centipedes, which have not been systematically studied since the 1950s. Through my local field work, I have uncovered additional localities for the rarely-collected centipede *Garibius psychrophilus*, a species previously known from only two locations, and I have also collected many ant specimens to contribute to Dr. Ivanov's research. I met Dr. Jackson Means during graduate school, before his employment at the VMNH, and our research collaborations continue with field work searching for the millipede genera *Nannaria* and *Pseudotremia*, both of which have astounding species diversity of over 70 species each. We recently traveled to West Virginia to search for myriapods, and discovered at least five state records for centipedes, which we are in the beginning stages of writing up for publication.

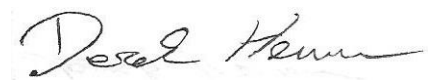
I have paired my scientific research with a science communication component, and have sought out training whenever possible during my scientific career to improve my communication skills. By making a strong case for the importance of myriapods and other “leaf litter critters,” I believe support for conservation and a realization of the importance of our local arthropod species will follow. To accomplish these goals, I have taught workshops focused on science communication and millipede biology and identification in both Mexico and the United States, tailored for biology students as well as the general public. I’ve given invited talks about my research and science communication at The Ohio State University Museum of Biological Diversity and the Smithsonian National Museum of Natural History, as well as at general public events at public libraries and local science organizations.

The accomplishment I’m proudest of is the recent publication of my Field Guide to the Millipedes of Ohio, a collaboration with the Ohio Division of Wildlife. This is the only field guide for millipedes in the United States, and emphasizes photographs and field characters. Importantly, the publication is free since it was funded by the state of Ohio, which eliminates a significant barrier for anyone wanting to learn more about these interesting animals. Previously, there was no entry-level text to learn about millipedes, but this field guide fills that niche. It will hopefully encourage more people, both scientists and general public alike, to take another look at millipedes.

During this past fall, I was the Instructor for the Virginia Tech Entomology Department’s Insect Biology course, in which I taught a class of ca. 70 graduate and undergraduate students. The course included a laboratory component, in which students were expected to assemble a large insect collection. For this component, I taught the students how to identify ca. 100 families of insects they’re likely to encounter in Virginia, how to properly pin and label insect specimens, and insect field collection techniques. Recently, I have been hired as the Slow the Spread Survey Coordinator for the Virginia Department of Agriculture and Consumer Services. In this capacity, I will be working as part of an inter-institutional program to control the invasive moth *Lymantria dispar*. I will be carrying on my research projects still, and would also like to aid the VMNH in arthropod identification and curation, as time allows. I envision that my main focus will concern the Myriapoda, particularly the centipedes, but am more than willing to help out with related projects and collaborations with museum staff. I also plan to deposit specimens and type material in the VMNH collections, adding to the already impressive Myriapoda holdings.

Receiving a Research Associate appointment with the VMNH will allow me continue my research on Appalachian myriapods and further communicate the importance of our local natural history. I am sure it will be a mutually beneficial relationship, and I am happy to answer any questions about my research goals. I look forward to future collaborations with the museum, and links to my published research and science communication work are available in my attached curriculum vitae.

Sincerely,



Derek Hennen, Ph. D.

Derek A. Hennen, Ph.D.
1800 Foxhunt Ln Apt A, Blacksburg, VA 24060
derhennen@gmail.com

Education

- 2015 – 2020 **Ph.D. in Entomology**
Virginia Polytechnic Institute and State University, Blacksburg, Virginia
Major Professor: Paul Marek
Dissertation: Natural history, taxonomy, and phylogenetics of Appalachian flat-backed millipedes (Diplopoda: Polydesmida)
- 2013 – 2015 **M.S. in Entomology**
University of Arkansas, Fayetteville, Arkansas
Major Professor: Ashley Dowling
Thesis: An inventory of endemic leaf litter arthropods of Arkansas with emphasis on certain insect groups and Diplopoda
- 2008 – 2012 **B.S. in Biology & B.A. in Spanish**, *Cum Laude* with Curriculum Honors,
Marietta College, Marietta, Ohio

Employment

1. **Slow-the-Spread Survey Coordinator**, Virginia Department of Agriculture and Consumer Services, Christiansburg, VA
January 2022 – present
 - Planned, coordinated, and implemented survey and field operations for the slow the spread program to control the invasive forest pest moth *Lymantria dispar*. Trained trappers and quality control personnel on field techniques, trap deployment, taxonomic identification, and data collection procedures.
2. **Entomology Instructor**, Department of Entomology, Virginia Polytechnic Institute and State University, Blacksburg, VA
July 2021 – December 2021
 - Taught Insect Biology lecture and laboratory for undergraduate and graduate students, developed course material, instructed and supervised teaching assistants.
3. **Laboratory Assistant**, Marek Lab, Department of Entomology, Virginia Polytechnic Institute and State University, Blacksburg, VA
May 2020 – July 2021
 - Conducted research on the Myriapoda of North America, with an emphasis on the Appalachian fauna. Research duties included writing and preparation of scientific manuscripts and illustrations (taxonomic figures, phylogenies, distribution maps) for peer-reviewed publication, preservation and curation of myriapod specimens, identification of specimens from all myriapod classes, phylogenetic investigation

and bioinformatics of myriapods with phylogenetic software (Mesquite, MrBayes, IQtree, BEAST, etc.), submission of gene sequences to Genbank, photographing and digitizing insect specimens from the Virginia Tech Insect Collection and uploading specimen information to online database.

4. Ph.D. Candidate, Marek Lab, Department of Entomology, Virginia Polytechnic Institute and State University, Blacksburg, VA

August 2015 – May 2020

- Conducted independent taxonomic research on the Diplopoda of North America, with an emphasis on the Appalachian fauna. Research duties included synthesis of pertinent literature, planning and execution of fieldwork throughout North America, morphological investigation of collected specimens via microscopy (dissection, compound, and SEM), molecular investigation of species limits via Sanger sequencing, primer design, and phylogenetic software (Mesquite, MrBayes, IQtree, BEAST, etc.), description of new species with integrative taxonomic methods, preparation of manuscripts and illustrations for peer-reviewed publication. Teaching responsibilities included laboratory preparation, grading, and teaching students in the 3000 level Insect Biology course. Curatorial responsibilities in the Virginia Tech Insect Collection included species identification, creating a list of species in the collection, curation of specimens, and specimen accession.

5. Graduate Assistant, Dowling Lab, Department of Entomology, University of Arkansas, Fayetteville, AR

July 2013 – August 2015

- Conducted independent research focused on the endemic arthropods of Arkansas via trapping methods including Malaise trapping, leaf litter concentration, and Berlese-Tullgren funnel extraction. Sorted and identified collected arthropods (including myriapods, arachnids, and insects) and preserved them by pinning or storage in alcohol with proper labels. Worked as a teaching assistant for the introductory Insects, Science and Society course: prepared labs, graded assignments, and lectured.

6. Americorps OSM/VISTA: Friends of Lower Muskingum River, Marietta, OH

May 2012 – May 2013

- Increased capacity building within the organization. Worked on grant writing, event planning, education and outreach, coordinating volunteers, and collecting water quality data.

Teaching Assistant Experience

Fall 2016 & 2019 Insect Biology, Entomology Department, Virginia Tech

Spring 2014 & 2015 Insects and Society, Entomology Department, University of Arkansas

Publications

1. **Hennen, D.A.**, Means, J.C., and Marek, P.E. 2022. A revision of the *wilsoni* species group in the millipede genus *Nannaria* Chamberlin, 1918 (Diplopoda, Polydesmida, Xystodesmidae). *ZooKeys*. *Accepted manuscript*.
2. Means, J.C., **Hennen, D.A.**, and Marek, P.E. 2021. A revision of the *minor* species group in the millipede genus *Nannaria* Chamberlin, 1918 (Polydesmida: Xystodesmidae). *ZooKeys* 1030: 1-180. <https://doi.org/10.3897/zookeys.1030.62544>
3. Means, J.C., **Hennen, D.A.**, Tanabe, T., and Marek, P.E. 2021. Phylogenetic systematics of the millipede family Xystodesmidae. *Insect Systematics and Diversity* 5(2): 1-26. <https://doi.org/10.1093/isd/ixab003>
4. Jiang, X., **Hennen, D.A.**, Chen, H., and Xie Z. 2020. First description of the male of *Glyphiulus formosus* (Pocock, 1895) (Diplopoda: Spirostreptida: Cambalopsidae) from China. *Zootaxa* 4861(2): 281-289. <https://doi.org/10.11646/zootaxa.4861.2.8>
5. Wong, V.L., **Hennen, D.A.**, Macias, A.M., Brewer, M.S., Kasson, M.T., and Marek, P.E. 2020. Natural history of the social millipede *Brachycybe lecontii* Wood, 1864. *Biodiversity Data Journal* 8: e50770. <https://doi.org/10.3897/BDJ.8.e50770>
6. Sierwald, P., **Hennen, D.A.**, Zahnle, X.J., Ware, S., and Marek, P.E. 2019. Taxonomic synthesis of the eastern North American millipede genus *Pseudopolydesmus* Attems, 1898 (Diplopoda: Polydesmida: Polydesmidae), utilizing high-detail ultraviolet fluorescence imaging. *Zoological Journal of the Linnean Society* 187(1): 117-142. <https://doi.org/10.1093/zoolinnean/zlz020>
7. Jiang, X., Shear, W.A., **Hennen, D.A.**, Chen, H., and Xie, Z. 2019. One hundred million years of stasis: *Siphonophora hui* sp. nov., the first Mesozoic sucking millipede (Diplopoda: Siphonophorida) from mid-Cretaceous Burmese amber. *Cretaceous Research* 97: 34-39. <https://doi.org/10.1016/j.cretres.2019.01.011>
8. Shorter P.L., **Hennen D.A.**, and Marek P.E. 2018. Cryptic diversity in *Andrognathus corticarius* Cope, 1869 and description of a new *Andrognathus* species from New Mexico (Diplopoda, Platydesmida, Andrognathidae). *ZooKeys* 786: 19-41. <https://doi.org/10.3897/zookeys.786.27631>
9. Marek, P.E., Means, J.C., and **Hennen, D.A.** 2018. *Apheloria polychroma*, a new species of millipede from the Cumberland Mountains (Polydesmida: Xystodesmidae). *Zootaxa* 4375 (3): 409-425. <http://dx.doi.org/10.11646/zootaxa.4375.3.7>

10. **Hennen, D.A.** and Shelley, R.M. 2015. A contribution on the milliped tribe Nannariini (Polydesmida: Xystodesmidae): Revalidation of *Mimuloria* Chamberlin, 1928; identities of *Fontaria oblonga* C. L. Koch, 1847, and *Nannaria minor* Chamberlin, 1918; elucidation of the tribal range; and commentaries on *Nannaria* Chamberlin, 1918, and *Oenomaea* Hoffman, 1964. *Insecta Mundi*. 0418: 1–21.
<https://digitalcommons.unl.edu/insectamundi/924/>

Published Abstracts

1. Means, J.C., **Hennen, D.A.**, and Marek, P.E. 2017. Discovery of Two Monophyletic Clades Within the Appalachian Millipede Genus *Nannaria* Chamberlin, 1918 (Diplopoda: Polydesmida: Xystodesmidae). *Tropical Natural History*, Supplement 5: 29.
2. **Hennen, D.A.** and Marek, P.E. 2017. Taxonomic Synthesis of the North American Millipede Genus *Pseudopolydesmus* Attems, 1898 (Diplopoda: Polydesmida: Polydesmidae). *Tropical Natural History*, Supplement 5: 8.

Non-refereed Publications

1. **Hennen, D.A.** and Brown, J. 2021. Millipedes of Ohio field guide. Publication 5527. Ohio Department of Natural Resources, Division of Wildlife, Columbus, OH. 75 pp.
<https://ohiodnr.gov/static/documents/wildlife/backyard-wildlife/Millipedes+of+Ohio+Pub+5527.pdf>

Invited Presentations

1. **Hennen, D.A.** and Brown, J. 2021. Every leg counts: the millipedes of Ohio. Ohio Wildlife Diversity Conference. Columbus, OH [virtual].
<https://www.youtube.com/watch?v=4-2UcCGZdnI>
2. **Hennen, D.A.** 2018. Designing an entomological social media campaign. Entomological Society of America, Eastern Branch. Annapolis, MD.
3. **Hennen, D.A.** 2017. Untapped resources: The overlooked biodiversity of urban forests. Entomological Society of America. Denver, CO.
4. **Hennen, D.A.** 2016. Surprising smells and sculptures of glass: Discovering the diversity of Appalachian millipedes. National Museum of Natural History. Washington, D. C.
5. **Hennen, D.A.** 2015. The future of science outreach: How millennials are changing science communication. Entomological Society of America. Minneapolis, MN.
6. **Hennen, D.A.** 2015. More than just cat photos: Using social media professionally. Ohio State University Museum of Biological Diversity. Columbus, OH.

7. **Hennen, D.A.** 2014. The benefits of the selfie: Grad students and the imagined distraction of social media. Entomological Society of America. Portland, OR.

Presentations

1. **Hennen, D.A.**, Means, J.C., and Marek, P.E. 2019. Phylogenetics of the Appalachian twisted claw millipedes (Polydesmida: Xystodesmidae: *Nannaria*). Virginia Natural History Society, Martinsville, VA.
2. **Hennen, D.A.** and Marek, P.E. 2019. First molecular phylogeny of the swift pink millipedes *Pseudopolydesmus* Attems, 1898 (Diplopoda: Polydesmida: Polydesmidae). Entomological Society of America, Eastern Branch. Blacksburg, VA.
3. Sierwald, P., **Hennen, D.A.**, Zahnle, X., Nguyen, A.D., and Bueno-Villegas, J. 2019. Siphoniulida: 125 years after discovery found alive. 18th International Congress of Myriapodology. Budapest, Hungary.
4. **Hennen, D.A.** 2019. The Unknown Diversity. Entomological Digest Talk, Entomological Society of America, Eastern Branch. Blacksburg, VA.
5. Means, J.C., **Hennen, D.A.**, and Marek, P.E. 2018. Molecular phylogenetics of the twisted claw millipedes (Polydesmida: Xystodesmidae). Virginia Natural History Society. Martinsville, VA.
6. Means, J.C., **Hennen, D.A.**, and Marek, P.E. 2018. A taxonomic revision of the Appalachian millipede genus *Nannaria* Chamberlin, 1918. Society for Systematic Biologists. Columbus, OH.
7. **Hennen, D.A.** and Marek, P.E. 2018. A First Phylogeny of the North American millipede genus *Pseudopolydesmus* Attems, 1898 (Diplopoda: Polydesmida: Polydesmidae). Society for Systematic Biologists. Columbus, OH.
8. **Hennen, D.A.** and Marek, P.E. 2017. Taxonomic synthesis of the North American millipede genus *Pseudopolydesmus* Attems, 1898 (Diplopoda: Polydesmida: Polydesmidae). 17th International Congress of Myriapodology. Krabi, Thailand.
9. Means, J.C., **Hennen, D.A.**, and Marek, P.E. 2017. Discovery of two monophyletic clades within the Appalachian millipede genus *Nannaria* Chamberlin, 1918 (Diplopoda: Polydesmida: Xystodesmidae). 17th International Congress of Myriapodology. Krabi, Thailand.
10. **Hennen, D.A.** and Marek, P.E. 2017. How to deal with a mixed up group: unraveling the species of the millipede genus *Pseudopolydesmus* (Polydesmida: Polydesmidae). Interfaces of Global Change Graduate Student Research Symposium. Blacksburg, VA.

11. **Hennen, D.A.** 2016. Many legs, much heart: An Appalachian millipede adventure. Virginia Tech Entomology Department Lightning Talks. Blacksburg, VA.
12. **Hennen, D.A.** and Dowling, A.G. 2015. An updated synopsis of the millipedes of Ohio and Arkansas. Joint meeting, Arkansas & Kansas Entomological Societies. Fayetteville, AR.
13. **Hennen, D.A.** 2015. Legs, leaves, and logs: a 21st century Ohio millipede adventure. Ohio Natural History Conference. Columbus, OH.
14. **Hennen, D.A.** and Dowling, A.G. 2014. Obeying the zeitgebers: Circadian rhythms of forest leaf litter arthropod communities. Entomological Society of America. Portland, OR.
15. **Hennen, D.A.** and Dowling, A.G. 2014. 80 years later: Revisiting the millipedes of Ohio. Kansas Entomological Society. Emporia, KS.
16. **Hennen, D.A.** and Dowling, A.G. 2013. Arkansas's enigmatic (but not unknown) millipedes. Arkansas Entomological Society. Magnolia, AR.

Poster Presentations

1. Britt, K., Catron, K., Brichter, K., Brown, J., Chalise, P., Hadden, W., **Hennen, D.A.**, Quinn, N., Ragozzino, M., and Roth, M. 2018. Parasitoid Power: putting pests in their place by invading their space. Entomological Society of America. Vancouver, BC.
2. **Hennen, D.A.** and Marek, P. E. 2018. Chemical defense gland evolution in a millipede Müllerian mimicry ring. Interfaces of Global Change Graduate Research Symposium. Blacksburg, VA.
3. Shorter P.L., **Hennen, D.A.**, and Marek, P.E. 2016. Cryptic diversity in *Andrognathus corticarius* Cope, 1869 (Diplopoda, Polydesmida, Andrognathidae). Virginia Tech Graduate Student Association Research Symposium. Blacksburg, VA.
4. **Hennen, D.A.** and Marek, P.E. 2016. Millipedes under our feet: Taxonomic revisions of the common North American millipede genera *Pseudopolydesmus* (Polydesmida: Polydesmidae) and *Nannaria* (Polydesmida: Xystodesmidae). Interfaces of Global Change Graduate Research Symposium. Blacksburg, VA.
5. McShaffrey, D., **Hennen, D.A.**, Mays, M., Spring, M., Turner, N., Reed, B., Eckels, L., Lustofin, K., and Monroe, C. 2016. An Updated ATBI (All-Taxa Biotic Index) for the Barbara A. Beiser Field Station, Washington County, Ohio. Ohio Natural History Conference. Columbus, OH.

6. McShaffrey, D.G., **Hennen, D.A.**, Lustofin, K., Spring, M., and D. Remeneric. 2014. Baseline ATBI for the Barbara A. Beiser Field Station Washington County, Ohio. Ohio Natural History Conference. Columbus, OH.
7. **Hennen, D.A.** and McShaffrey, D.G. 2012. A biological survey of the assassin bugs (Hemiptera: Reduviidae) at the Barbara A. Beiser Field Station. Ohio Natural History Conference. Columbus, OH.
8. Lustofin K., **Hennen, D.A.**, and McShaffrey, D.G. 2012. UV fluorescing millipedes from southeastern Ohio. Ohio Natural History Conference. Columbus, OH.

Mentorship

- 3 undergraduates (Loren Jones, Maddie Hellier, Patricia Wooden), Virginia Tech, 2017-2020

Relevant Skills (selected)

Phylogenetics: Mesquite, BEAST, Geneious, IQ-TREE, Opal, MrBayes, RAxML, PartitionFinder2. **Bench Skills:** DNA extraction, PCR, specimen imaging, insect curation. **Fieldwork:** Macrophotography, leaf litter extraction, malaise trap, pitfall trap, sweep netting.

Manuscripts Reviewed

Zootaxa (12); Annals of the Brazilian Academy of Sciences (1); Banisteria (1); Journal of Paleontology (1); Southwestern Naturalist (1); The Canadian Entomologist (1); Zookeys (1); Zoological Studies (1)

Extended Field Expeditions

2019: Coastal North Carolina, 3 days; Great Smoky Mountains National Park, 5 days;
2018: Illinois, Iowa, 1 week; eastern Tennessee, 1 week; Mexico, Los Tuxtlas Biosphere Preserve, 2 weeks; North Carolina, Tennessee, Georgia, 1 week; northern Alabama, 5 days;
2017: Tennessee, Arkansas, Missouri, Indiana, Kentucky, 10 days; northern Vietnam, 10 days; Pennsylvania, New York, 5 days; West Virginia, Kentucky, 5 days; North Carolina, South Carolina, 5 days; North Carolina, Georgia, Alabama, 5 days;
2016: Oregon, Washington, 1 week; coastal Virginia, 4 days; Tennessee, Georgia, Alabama, 1 week; North Carolina, 4 days; Indiana, Ohio, West Virginia, 5 days; Virginia, Maryland, Pennsylvania, 5 days; southern Ohio, 4 days; east Tennessee, 3 days
2015: Southwestern North Carolina, 2 weeks
2014: Southern Ohio, 2 weeks; western Arkansas, 2 weeks

Professional Workshops Taught

- 2019 ComSciCon-Virginia Tech 2019
Tweeting Science Workshop
Virginia Tech, Blacksburg, Virginia
March 8, 2019
- 2018 Myriapoda and Arachnida International Workshop
Los Tuxtlas Tropical Biology Station, Veracruz, Mexico
September 23-October 5, 2018
- 2018 Millipedes of Ohio
Advanced Naturalist Workshops Series 14
Cincinnati Museum Center's Edge of Appalachia Preserve
West Union, Ohio, May 18-20, 2018

Professional Workshops Attended

- 2017 Susan Hassol Science Communication Workshop
Interfaces of Global Change Program, Virginia Tech
Blacksburg, Virginia
- 2015 Alan Alda Center Science Communication Workshop
Interfaces of Global Change Program, Virginia Tech
Blacksburg, Virginia
- 2015 Biology & Diversity of Myriapoda Workshop
Highlands Biological Station
Highlands, North Carolina
- 2012 Opiliones Advanced Naturalist Workshop
Cincinnati Museum Center's Edge of Appalachia Preserve
West Union, Ohio
- 2011 Myriapoda and Pillbugs Advanced Naturalist Workshop
Cincinnati Museum Center's Edge of Appalachia Preserve
West Union, Ohio

Awards and Honors

Virginia Polytechnic Institute and State University:

- 2019 First place, J. M. Grayson Scholarship Award for outstanding Ph.D. Student
- 2019 First place, Entomological Digest talks, Entomological Soc. of America Eastern Branch
- 2019 Second place, PhD student competition, Entomological Soc. of America Eastern Branch
- 2017 Alwood Extension Award
- 2017 Kosztarab Scholarship for Distinguished Achievement in Systematics

- 2017 Third place, J. M. Grayson Scholarship Award for outstanding Ph.D. Student
- 2015 Loke and Vicki Kok Graduate Fellowship
- 2015 Interfaces of Global Change Fellowship

University of Arkansas:

- 2014 Third place, student paper competition, Kansas Entomological Society annual meeting
- 2013 Charles G. Lincoln Fellowship
- 2013 Third place, student paper competition, Arkansas Entomological Society annual meeting

Marietta College:

- 2012 Eggleston-Ruby Prize
- 2012 Delta Upsilon Good Citizenship Award
- 2011 David F. Young Alumni Scholarship
- 2011 Benjamin A. Gilman International Scholarship
- 2011 Howard Writing Prize

Grant Applications (funded)

- 2018. American Museum of Natural History. Theodore Roosevelt Memorial Grant. **\$1,800**
- 2018. Virginia Tech Graduate School. Graduate Research Development Program. **\$992**
- 2017. Virginia Tech Department of Entomology. Dodson Travel Grant. **\$998**
- 2017. Virginia Tech Department of Entomology. Hill Travel Scholarship. **\$250**
- 2014. University of Arkansas travel grant. **\$250**
- 2014. Ohio Biological Survey. Survey of the millipedes of Ohio. **\$500**
- 2011. Marietta College Investigative Studies Program. A biological survey of the assassin bugs (Hemiptera: Reduviidae) at the Barbara A. Beiser Field Station. **\$500**

Professional Membership

- 2012-present Entomological Society of America
- 2014-present Ohio Biological Survey
- 2014-present Entomological Collections Network
- 2018-present Virginia Natural History Society

Professional Volunteerism and Service

- 2019 Field Trip Leader, Spring Wildflower Pilgrimage, Great Smoky Mountains National Park, Gatlinburg, TN
- 2013-2019 Field Trip Leader, Mothapalooza. Portsmouth, OH
- 2014-2018 Social media coordinator, Entomological Collections Network

- 2017 Organizer, Member Symposium, Entomological Collections Network Meeting
- 2015 Writing Committee Member, ESA Position Statement on the Importance of Entomological Collections. <https://www.entsoc.org/sci-pol/collections>
- 2015 Organizer, Professional Development Workshop, University of Arkansas
- 2014 Organizer, Program Symposium, Entomological Society of America Meeting
- 2013-2014 Student volunteer, Entomological Society of America Annual Meeting
- 2011-2012 Field Trip Leader, Midwest Native Plants Conference. Dayton, OH

University and Department Service

Virginia Polytechnic Institute & State University:

- 2020 Student Handbook Committee
- 2019 Linnaean Games Team, Eastern Branch Entomological Society of America
- 2018 Captain, Linnaean Games Team, Eastern Branch Entomological Society of America
- 2018 W. B. Alwood Society President
- 2017 Search Committee Member, Arbovirology Assistant Professor
- 2017 Seminar Committee
- 2016 Hokie Bugfest Chair

University of Arkansas:

- 2014 Linnaean Games Team, Southeastern Branch Entomological Society of America
- 2014-2015 Isely-Baerg Entomology Club - Outreach Coordinator

Media Appearances

- 2021 Just the Zoo of Us podcast 115: [Myriapods \(Millipedes, Centipedes & Pauropods\) w/ Dr. Derek Hennen!](#)
- 2021 North Carolina Museum of Natural Sciences: Science Tonight - [Millipedes with Dr. Derek Hennen](#)
- 2021 Conservation Cast Episode 53 - [Dr. Derek Hennen](#)
- 2021 Lil Dudes Insect Academy podcast – Episode 51: [The Mysterious life of Millipedes \(Feat. Derek Hennen\)](#)
- 2020 Funky, new parasitic species named after Twitter, where it was discovered, CNET - [Link](#)
- 2020 Surface Learning podcast – Episode 3: [Millipedes with Derek Hennen](#)
- 2019 Circles of Life ebook by Franz Anthony - [Link](#)
- 2019 How many legs does a millipede really have?, HowStuffWorks - [Link](#)
- 2018 Centipedes and Millipedes: Lots of Legs, What's the Difference?, LiveScience - [Link](#)
- 2018 Lemurs May Be Making Medicine Out of Millipedes, National Geographic - [Link](#)
- 2018 Up Close With the First and Only Millipede Lab in the United States, Atlas Obscura - [Link](#)
- 2018 Bugs Blood & Bones podcast – Episode 4: [Millipede Mania with Derek Hennen](#)
- 2017 400,000 and counting: Out of mothballs, Virginia Tech insect collection thriving, The Roanoke Times - [Link](#)

2016	College Campuses Are Being Overrun by Pokémon Go, The Chronicle of Higher Education - Link
2016	Virginia Tech bug man is 'always looking at the ground', The Roanoke Times - Link
2015	6 Extra Pairs of Genitals Is Just Too Much of a Good Thing, Wired - Link
2015	Reaching Beyond Our Horizons: Combining Insects With Enthusiasm on Social Media, Entomology Today - Link
2014	Charles Darwin's Rove Beetle Imaged On-site in Portland, OR, Entomology Today - Link

Internet Outreach

- **DearMillipede** – A dedicated Twitter account focused on informing the public about the science and beauty of millipedes and centipedes, ongoing since 2018. Current follower count: **2,416**. <https://twitter.com/dearmillipede>
- **iNaturalist** – I have identified over **28,000** user-submitted images of millipedes and centipedes on iNaturalist since joining the website in 2016. This website allows anyone to upload their photographs of plants, animals, etc. and learn more about the nature around them. I help users on the website identify their myriapods, since there are few accessible identification resources for these taxa. In particular, I have focused identifying observations from North America, and have identified all millipedes uploaded for the state of Ohio (currently over 3,000). <https://www.inaturalist.org>

Writing Outreach

2018	Diplopoda: The Not-So Creepy Crawlies, Virginia Master Gardeners
2015	The Benefits of Supplementing Science with Social Media, Entomology Today
2010-2015	Personal research blog, Normal Biology
2014	The Conversation, Scientists at Work series
2013	How is Twitter Useful for Entomologists?, Entomology Today
2012	Marietta Natural History Society Newsletter, Featured article
2012	Insects Galore, Explore the Outdoors Ohio, Guest Blog Post
2012	Tool Tales: Project Noah – A Community for Nature Lovers, Soapbox Science for Nature.com Blogs

Community Activities and Outreach

Presentations:

Aug. 2020	Myriapod Madness, Biology Class Interview, Western Sydney University (online)
Aug. 2020	Chem Tales – Millipedes, SciBugs Gamified Entomology Workshop, Online
June 2019	Millipedes of Virginia, Science on Tap (New River Valley), Blacksburg, VA
Nov. 2018	Bugs!, ThinkerCon 2018, Huntsville, AL
Jan. 2018	Ohio's Many Millipedes, Marietta Natural History Society, Marietta, OH
Aug. 2017	Samuel P. Hildreth: Pioneering Science in the Mid-Ohio Valley, Castle Museum

June 2017 An Introduction to Appalachian Millipedes, Virginia Master Gardeners College
 June 2014 Investigating Ohio's Millipedes, Buzzard's Roost Nature Preserve
 May 2013 Insects of Washington County, Marietta Natural History Society
 Feb. 2012 Entomology: A Window to a New World, Jackson Middle School
 Mar. 2012 Inventing the Wheel(bug), Marietta Natural History Society
 Apr. 2012 Ecology of Assassin Bugs, Marietta College All Scholars Day
 June 2012 Dream Big with Insects, Monroe County Public Library

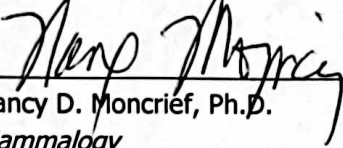
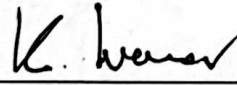
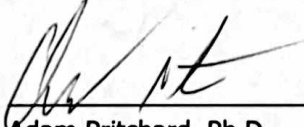

Outreach Events:

Sep. 2021 Judging student insect collections for Hokie Bugfest, Blacksburg, VA
 Mar. 2019 Girl Scout STEM Career Fair, Blacksburg, VA
 Jan. 2019 Skype call with elementary school student, West Lebanon, NH
 Oct. 2018 Hokie Bugfest, Blacksburg, VA
 July 2018 Hokie BugCamp, Virginia Tech, Blacksburg, VA
 Feb. 2018 Become a Naturalist, Boy Scout Troop 44, Blacksburg, VA
 Oct. 2017 Hokie Bugfest, Blacksburg, VA
 Oct. 2016 Hokie Bugfest, Blacksburg, VA
 Aug. 2016 Montgomery County Heritage Festival, Christiansburg, VA
 July 2016 Hokie BugCamp, Virginia Tech, Blacksburg, VA
 Mar. 2016 Hahn Horticulture Garden, Virginia Tech, Blacksburg, VA
 Feb. 2016 Skype call with high school class, Aurora, NE
 Sep. 2015 Rocky Knob Bioblitz, Blue Ridge Parkway, Floyd, VA
 Apr. 2015 Asbell Elementary School Green Team, Fayetteville, AR
 Dec. 2014 Sonora Elementary School, Springdale, AR
 Nov. 2014 Harp Elementary Science Club, Springdale, AR
 Oct. 2014 Arkansas Insect Festival, Fayetteville, AR
 July 2014 Walker Elementary School, Springdale, AR
 May 2014 Fayetteville Farmers' Market, Fayetteville, AR
 May 2014 Asbell Elementary School Food Camp, Fayetteville, AR
 May 2014 Jones Elementary School, Springdale, AR
 Oct. 2013 George Washington Carver National Monument BioBlitz, Diamond, MO
 Sep. 2013 Northwest Arkansas Preparedness Fair, Bentonville, AR
 July 2013 Fayetteville Farmers' Market, Fayetteville, AR

**NEW APPLICATION
AS RESEARCH ASSOCIATE**

Julian J. Lewis, Ph.D.

I have reviewed the information submitted for Julian J. Lewis (Kal Ivanov, Sponsor) and have indicated his/her recommendation as a Research Associate for the Virginia Museum of Natural History.

Curator	Date	Recommend	Do Not Recommend
 Nancy D. Moncrief, Ph.D. <i>Mammalogy</i>	2 Feb 2022	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Kal Ivanov, Ph.D. <i>Recent Invertebrates</i>	2 FEB. 2022	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Adam Pritchard, Ph.D. <i>Paleontology</i>	2 Feb '22	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Hayden Bassett, Ph.D. <i>Archaeology</i>	2 Feb 2022	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Kaloyan Ivanov, Ph.D.
Virginia Museum of Natural History
21 Starling Ave.
Martinsville, VA 24112
kal.ivanov@vmnh.virginia.gov

15 December 2021

Virginia Museum of Natural History
21 Starling Ave.
Martinsville, VA 24112

To Whom It May Concern,

I write to nominate Dr. Julian J. Lewis as a Research Associate of the Virginia Museum of Natural History (VMNH). Dr. Lewis is a professional cave biologist, myriapodologist and carcinologist based in Kentucky. He is currently the President of Lewis and Associates, a Cave, Karst and Groundwater Biological Consulting Company, an Adjunct Professor at the University of Louisville, and a Research Associate at the National Museum of Natural History. Dr. Lewis holds a Ph.D. in Aquatic Biology from the University of Louisville and a Master's degree in Biology from the same institution. His expertise includes isopod and millipede taxonomy, systematics, and natural history with a strong focus on troglobitic (cave adapted) taxa. As his enclosed documents demonstrate, Dr. Lewis is uniquely qualified to contribute to the mission and research objectives of this institution.

Although I have only known Julian for less than a year, I have come to admire his intimate knowledge of freshwater isopods and his wide-ranging familiarity with many cave taxa including millipedes, arachnids, and insects. Dr. Lewis is intimately familiar with VMNH's invertebrate holdings as a result of his work in the collection since the early 1990s and he has expressed interest in continuing to use VMNH's invertebrate collection for his specimen-based research. His work on the freshwater isopods of Virginia and the adjacent areas has included examination, identification, and curation of numerous specimens from VMNH's crustacean collection and the majority of the nearly 800 asellid isopods in the collection have been expertly identified by Dr. Lewis.

During his career, Dr. Lewis has authored numerous publications including the description of many new asellid and millipede taxa. In the past five years he has had multiple projects focused on the rare and endangered isopod crustacean fauna of Virginia. He is currently completing work on a monograph on the groundwater isopod crustaceans of Virginia and the adjacent Appalachians which is to be published in



VMNH's Memoirs series. As a result of this work, many taxa, including newly described species, will be added to the museum's invertebrate holdings.

I have no doubt that VMNH would benefit from Julian's expertise, curatorial efforts, and fieldwork all of which contribute directly to the museum's mission.

Sincerely,

A handwritten signature in blue ink, which appears to read "K Ivanov". The signature is fluid and cursive.

Kaloyan Ivanov, Ph.D.
Associate Curator of Recent Invertebrates
Virginia Museum of Natural History

Lewis & Associates, LLC
17903 State Road 60
Borden, IN 47106
10 December 2021

Board of Trustees
Virginia Museum of Natural History
21 Starling Avenue
Martinsville, VA 24112

To whom it may concern,

I am writing to apply for the position of Research Associate at the Virginia Museum of Natural History (VMNH). My interest stems from the museum's collections and publication series in conjunction with my research interest in Virginia invertebrates (particularly isopod crustaceans and millipedes). I started working with the collections of the VMNH with Richard Hoffman in the 1990s and subsequently attended the 80th birthday symposium in his honor, speaking and contributing two papers to the proceedings volume. I am currently finishing a book-length manuscript on the groundwater isopod crustaceans of Virginia and the adjacent Appalachians that I hope to publish as a VMNH contribution.

From an educational standpoint, my training includes an M.S. and Ph.D. in aquatic biology from the University of Louisville. I also have a B.A. in French from Indiana University and a B.S. in photography from Southern Illinois University.

I am the president of Lewis & Associates, LLC, a biological consulting company specializing in cave, karst and groundwater projects. Our company primarily provides services to conservation-oriented organizations for whom we perform bioinventory surveys and endangered species projects. We also perform cave and karst faunal evaluations for large scale engineering projects, typically things like pre-construction surveys of interstate highway routes. In the past five years we have had multiple projects working on rare and endangered isopod crustacean fauna of Virginia, with funding from the U.S. Fish & Wildlife Service, Virginia Natural Heritage Program, National Park Service, Cave Conservancy of the Virginias, and the Smithsonian Institution.

Besides my previous work at the VMNH, I have experience with a variety of other museums and am reasonably versed in institutional procedures. I am a research associate at the National Museum of Natural History, where I have collaborated since 1976. Elsewhere, I've worked with the collections at museums from the Bishop Museum in Honolulu to the Museum of Natural History, London, and many others in between.

Sincerely,

A handwritten signature in black ink, appearing to read "Julian J. Lewis". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Julian J. Lewis, Ph.D.

Julian J. Lewis, Ph.D.
17903 State Road 60
Borden, IN 47106 USA
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(812) 786-1744 (cell)
lewisbioconsult@gmail.com

Affiliation: President
Lewis and Associates
Cave, Karst and Groundwater
Biological Consulting, LLC

Adjunct Professor
University of Louisville

Education: Ph.D., Aquatic Biology 1988
with Highest Honors
University of Louisville
Louisville, Kentucky

M.S., Biology 1985
with Highest Honors
University of Louisville
Louisville, Kentucky

B.A., French 2014
with Highest Honors
Indiana University
Bloomington, Indiana

B.S., Cinema & Photography 1976
with Honors
President's Scholar
Southern Illinois University
Carbondale, Illinois

Memberships: Beckham Bird Club, Kentucky Ornithological Society
Biological Society of Washington
Cave Research Foundation
Indiana Academy of Sciences
Indiana Karst Conservancy
 President (2007-2021)
 Board of Directors (2001-2007)
National Speleological Society
 Fellow of the Society
 Associate Editor for Biological Sciences and Conservation,
 Journal of Cave and Karst Studies
 NSS Science Award for Lifetime Contributions
 Stone Research Award
Phi Kappa Phi
Société Internationale de Biospéologie (SIBIOS)
The Nature Conservancy

Publications

Lewis, S.L., Lewis, J.J. and W. Orndorff. 2021. *Caecidotea burkensis*, new species, a unique subterranean isopod from Burke's Garden, with a synthesis of the biogeography and evolution of southwestern Virginia asellids. *Journal of Cave and Karst Studies*, 83 (2): 78-87.

Lewis, J. J., Lewis, S. L., Orndorff, W., Malard, F., Douady, C., and L. Konecny. 2020. Endangered species management in an era of ever-increasing biodiversity: A case study of the molecular phylogenetics of *Lirceus hargerii*. Proceedings of the 2019 National Cave and Karst Management Symposium, Bristol, Virginia.

Lewis, J. J., Milne, M., Stephen, C., and D. Dourson. 2020. Sinkholes as foci of terrestrial biodiversity in the Hoosier National Forest. *Journal of Cave and Karst Studies*, volume 82.

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Peck, S.B., Lewis, J.J. and J.O. Whitaker. 2020. Cave faunas of the Upper Mississippi Valley - Region. *in* Natural History of the Upper Mississippi Valley Region.

Milne, M. A., J. Louderman, B. Foster, I. Grijalva, J. J. Lewis, L. Bishop, B. L. Deno, J. Acosta,

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- Milne, M. A., B. Foster, J. J. Lewis, L. Bishop, A. Hoffman, T. Ploss, and B. Deno. 2017. Spiders in Indiana: Seventy-one new and updated distribution records. *Proceedings of the Indiana Academy of Science* 125 (1): 75-85.
- Lewis, Julian J. and Thomas R. Sawicki. 2016. *Mexistenasellus floridensis*, sp. n., the first stenasellid isopod discovered from the Floridan aquifer (Crustacea: Isopoda: Asellota). *Subterranean Biology*, 17: 121-132.
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- Lewis, Julian J. 2013. *Caecidotea insula*, a new species of subterranean asellid from Lake Erie's South Bass Island (Crustacea: Isopoda: Asellidae). *Journal of Cave & Karst Science*, 75: 64-67.
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