VIRGINIA MUSEUM OF NATURAL HISTORY
Board of Trustees Research and Collections Committee
Saturday, Feb. 1, 2025
9 a.m.

A G E N D A

- Call to order
- Roll Call: Dr. Art Evans, Dr. Tom Benzing, Dr. Carole Nash, Melany Stowe, Mark Buss.
- Approval of minutes from the Nov. 16, 2024 meeting of the Research and Collections Committee
- October-December 2024 acquisitions (action item)
- Consideration of Dr. Arianna Kuhn as a Research Associate
- Review of requested collections space analysis
- Other business
- Adjourn

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
November 16, 2024

Present at the meeting were Dr. Art Evans, Mark Buss, Dr. Tom Benzing, Dr. Melany Clark, Dr. Kal Ivanov, Dr. Adam Pritchard, Abigail Gump, and Ben Williams.

Committee Chair Dr. Art Evans called the meeting to order. The committee circulated the acquisitions sign-off sheet and approved it unanimously.

Dr. Art Evans congratulated Dr. Kal Ivanov on his promotion from Associate Curator to Curator. Evans said that the museum was fortunate to have Ivanov and that he first met Ivanov right before his first board meeting. Between Ivanov and Dr. Jackson Means, Evans said, VMNH has become a powerhouse of an institution in regard to its work on recent invertebrates.

Dr. Art Evans then brought up the August board retreat at the Danville Science Center and the discussions that led from that meeting. The trustees emphasized the importance of Research and Collections as the museum's central focus and suggested that additional staff be hired for collections management. While the museum staff performs admirably, Evans said, the institution is short-staffed and more work needs to be done to add additional staff.

Additionally, Evans said, more space is needed for storing collections, and while the museum's Douglas Avenue site is important to the goal of adding collections space, it is a stopgap solution. Ideally, he said, there will be further discussion of expanding the footprint at the main facility and adding at least 10,000 square feet dedicated solely to housing collections. Evans said that he believes the same amount of energy that has been devoted to the museum's proposed Waynesboro, VA branch campus should be devoted to the idea of a museum expansion in Martinsville.

Dr. Tom Benzing suggested that it would be beneficial to the board to have a better understanding of how much space current collections occupy; how much space is left in the main campus for collections expansion; and how much space will be needed for expansion in the future. Dr. Kal Ivanov said that Research and Collections staff would pull that data together. Dr. Art Evans asked if that document could be prepared by the end of the year so that it could be discussed at the next quarterly board meeting; Ivanov said that staff would certainly try, although Dr. Arianna Kuhn will be doing fieldwork in Madagascar for a large portion of that time.

Dr. Melany Clark said that the majority of the Code of Virginia, as it pertains to VMNH, focuses on Research and Collections. She asked if that also includes education. Dr. Art Evans said that he considers both education and exhibits to be a part of the whole and are important for disseminating information about collections holdings.

Dr. Tom Benzing suggested that VMNH conduct a feasibility study regarding the proposed footprint expansion. Dr. Art Evans said the expansion is going to be tough sell given that collections are often unappreciated since they're seldom seen by the public. However, he said, there are good talking points that can be used to boost enthusiasm for the project; natural history collections can help us to answer the questions we don't yet know to ask. When he first joined the board, Evans said, R&C was not on the board's front burner. Every board committee needs at least one person asking, "Where does Research and Collections fit into our goals?"

Dr. Art Evans asked museum staff how staffing in Research and Collections was progressing. Dr. Kal Ivanov explained that rather than hiring a curator to replace Dr. Nancy Moncrief following her retirement, the museum was instead trying to recruit a "Visiting Scholar" who would essentially be a post-doctoral candidate that would fulfill many of the responsibilities of curator for a period of two years. He added that there was initially talk of hiring a curator with a focus on AI or big data. Dr. Adam Pritchard said that the job posting was eventually amended so that it advertised for a more traditional curator but with a preference for those candidates with experience in more modern data-driven fields. Evans said that it might be a tough sell to recruit candidates with that level of broad, deep knowledge to work in Martinsville, since the city's infrastructure might not necessarily support their needs. Mark Buss suggested that staff look at how other organizations in the region handle recruitment.

Dr. Adam Pritchard said that he recently went to a national meeting of vertebrate paleontologists and that it was reassuring to hear the board discussing the importance of adding space for collections, since at most other museums and universities, it seems like staff are having to plead to keep their existing collections rather than even consider expansion. Some years earlier, Evans said, a consultant came to VMNH to offer his advice on how the museum should move forward. When Evans checked the institutions the consultant mentioned he had assisted, he found out that they had all gotten rid of their curators and collections. Fortunately, Evans said, the mandate from the Commonwealth is that VMNH focus on Research and Collections and creating exhibits to promote the department.

Dr. Tom Benzing asked if there was any opportunity for prospective staff members to interact one-on-one with members of the Board of Trustees. Dr. Kal Ivanov and Dr. Adam Pritchard said that it hasn't really come up, although candidates are told that the board supports Research and Collections. Ivanov added that VMNH has no issue attracting quality candidates who seldom leave unless motivated by outside factors. In the next strategic plan, he said, VMNH is going to request another full-time employee from the state, although it's not yet clear at this time what position will be advertised. Ivanov said that another invertebrate paleontologist would be helpful. Pritchard added that invertebrate paleontologists tend to have a heavy background in geology, which would be useful for the museum's geology collections.

Mark Buss asked if it would be useful to add a preparator to the museum's operations and allow the position to be a shared resource with another museum. Dr. Kal Ivanov

said that good preparators are few and far between, but a preparator would be an asset to the museum as they would be able to complete a couple of mothballed projects and create new exhibit items. Dr. Art Evans said that the position would allow for more cross-pollination between departments. While he generally doesn't like the idea of monetizing collections, a good preparator could be a way of meeting mission while also creating replicas of unusual specimens that could be sold or distributed to other museums. Ivanov said that the role could also incorporate 3D printing. Dr. Adam Pritchard said that 3D printing has become the standard over the more old-fashioned methods of molding and casting. Dr. Melany Clark said that she could help explain to the Foundation Board the importance of adding this position.

Dr. Kal Ivanov took a moment to recognize Dr. Jackson Means, who was promoted to Assistant Curator of Myriapodology recently.

Dr. Art Evans thanked everyone for their participation and adjourned the meeting.

VIRGINIA MUSEUM OF NATURAL HISTORY
RESEARCH AND COLLECTIONS ACTIVITIES

Report to the Board of Trustees
October-December 2024

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

Dr. Jackson Means
Associate Curator of Myriapodology

- Dr. Means and colleagues published a paper in *Zootaxa*.
- Dr. Ivanov and colleagues have a paper accepted at *Global Environmental Research*.
- Drs. Ivanov and Means, and colleagues have papers in revision at *Insectes Sociaux* and *European Journal of Taxonomy*.
- Drs. Ivanov and Means presented research findings at the 4th Appalachian Karst Symposium in Lewisburg, WV.
- Dr. Ivanov provided training in insect identification and natural history to members of the Southwestern Piedmont Chapter of the Virginia Master Naturalists.
- Drs. Ivanov and Means, and L. Hightower participated in the 13th annual Hokie Bugfest and interacted with 3,000 visitors.
- Drs. Ivanov and Means, L. Hightower, and volunteer L. Appel participated in VMNH's Bonez & Booz Halloween and Fall Festival and interacted with 1,000+ visitors.

Research & Collections

Dr. Means and colleagues Drs. C. Suriel (Instituto Tecnológico de Santo Domingo, Dominican Republic), and J. Bueno-Villegas (Universidad Autonoma del Estado de Hidalgo, Mexico), and R. S. Bouzan (Instituto Butantan, Brazil) published a paper in *Zootaxa*. The work explores the history of research on the millipede family Chelodesmidae in the Antilles and the Bahamas and includes a checklist of the 118 species of the family in the region.
[Suriel, C., Bueno-Villegas, J., Means, J., and R. Bouzan. 2024. A bibliographic review of the Chelodesmidae of the Antilles and Bahamas (Diplopoda: Polydesmida). Zootaxa 5538(3): 247-263.]

Dr. Ivanov and Virginia Tech colleagues Dr. S. Yang and C. Fang-Ling have a manuscript accepted for a special issue of *Global Environmental Research* - Invasion Biology and Control Technologies for Invasive Alien Ants. The paper examines the status, distribution, and management strategies of the three most ecologically and economically significant invasive ant species (the red imported fire ant, the Argentine ant, and the Asian needle ant) in the continental United States.

Drs. Ivanov and Means, C. Ziemke (U Southern Mississippi), and N. Jones (AIMG) have a manuscript in revision at *Insectes Sociaux*. The paper focuses on the recent discovery of the terrestrial isopods *Trichorhina heterophthalma* Lemos de Castro and *Caraiboscia christiani* Leistikow in Puerto Rico and their association with multiple species of ants (new host associations for both taxa). In addition, the manuscript includes an updated checklist of the terrestrial isopods of Puerto Rico.

Drs. Ivanov and Means, L. Hightower (VMNH), R. Bouzan, Drs. L. F. M. Iniesta, A. D. Brescovit, and J. P. P Pena-Barbosa (Instituto Butantan, Brazil), Dr. J. Bueno-Villegas, Dr. C. Rojas-Buffet (Universidad de la República, Uruguay), and Dr. P. Sierwald (FMNH) have a manuscript in revision at *European Journal of Taxonomy*. The works represents the first worldwide catalog of the millipede family Chelodesmidae and includes detailed data on all 771 valid species along with synonymies, bibliography, and distributional information.

Drs. Ivanov and Means, R. Bouzan, Drs. L. F. M. Iniesta and A. D. Brescovit, and R. A. Castro-Souza (Universidade Federal de Mato Grosso, Brazil) are completing a manuscript on the worldwide distribution of the millipede suborder Cambalidea (Spirostreptida) to be submitted to *PeerJ Open Advances in Zoology*. To address knowledge gaps in cambalidean distribution, the study utilizes ignorance score-based maps to estimate the limitation of current distributional data, and the spatial grouping of millipedes based on worldwide species occurrences.

Drs. Ivanov and Means, R. Bouzan, Drs. L. F. M. Iniesta and A. D. Brescovit are completing a manuscript on the patterns of endemism of the millipede family Chelodesmidae. This study represents the first biogeographic analysis of the family focused on analyzing worldwide patterns of endemism.

Dr. Ivanov and colleagues from various Florida and Georgia institutions continued work on a manuscript focused on the non-native myrmecofauna of Florida for a special issue of *Florida Entomologist*. When completed, the paper will offer a comprehensive account of all non-native ant taxa recorded from Florida, a global hotspot of introduced and invasive ants.

Drs. Ivanov and Means, and L. Hightower continued work on a catalog of the invertebrate type specimens in the collection of the Virginia Museum of Natural History. When completed, the two-part paper will offer a complete list, and associated data, of the type specimens housed at VMNH.

Dr. Means and Dr. M. Milne (U Indianapolis) continued work on a catalog of the spiders of Virginia. When completed, the paper will offer a complete list, including bibliographic history and references, of the 650+ species of spiders found in Virginia.

Drs. Ivanov and Means presented research findings at the 4th Appalachian Karst Symposium in Lewisburg, WV regarding their work on the subterranean ant fauna of the southern Appalachian Mountains and the cevernicolous millipedes of Appalachia. The 4-day event was attended by 120+ students, faculty, and researchers from Virginia, North Carolina, and 16 additional states. (November 7-10)

Drs. Ivanov, Hennen (VA DCR), and Means submitted annual reports to the Virginia Department of Conservation and Recreation (incl. Division of Natural Heritage) regarding research activities during the 2024 season.

Drs. Ivanov, Anderson (Canadian Museum of Nature), and Evans submitted final reports to Laguna Atascosa National Wildlife Refuge, Sabal Palm Sanctuary, Welder Wildlife Refuge, and various state parks and state wildlife management areas regarding their 2024 work in southern Texas.

Drs. Ivanov and Means conducted fieldwork at various sites in Alleghany, Augusta, Botetourt, Dinwiddie, Floyd, Grayson, and Roanoke counties, VA, and Greenbrier Co., WV in support of ongoing research projects.

Dr. Ivanov completed the identification and curation of 3,921 ant specimens from a recent collecting trip to the Gulf Coast states (Alabama, Louisiana, Mississippi, and Texas). The materials represent 92 species from 37 genera, of which 37 species and 5 genera are new to the museum's collection. Notable finds include the first record of the ant genus *Rhopalothrix* in the United States, the first records of the nonnative *Cardiocondyla obscurior* Wheeler and *Tetramorium lanuginosum* Mayr from Texas, and an apparently undescribed species of *Camponotus* from Laguna Atascosa National Wildlife Refuge. All materials have been incorporated into VMNH's invertebrate holdings.

Drs. Ivanov and Means identified 122 backlogged specimens (spiders, cockroaches, earwigs, mantids, phasmids, crickets, et alia) from a recent collecting trip to Florida. The materials include 20 species, 15 genera, and 4 families new to the VMNH's invertebrate collection and an undescribed species of goblin spiders in the genus *Oonipoides*.

In late December, VMNH Research Associate Dr. C. Harden, with help from Dr. Ivanov and L. Hightower, updated the taxonomy and curated the VMNH's holdings (6,000+ specimens) of the beetle family Staphylinidae.

VMNH Collections Manager H. Cartmell, with help from Dr. Ivanov, is completing work on curating and cataloging the museum's Mollusca (mollusks) holdings. Recent work included digitization of selected specimens, and preparation and installation of labels.

Visiting researcher Dr. A. Evans worked on sorting and identifying backlogged beetle specimens from VMNH's collection. (December 26-27)
In mid-December Drs. Ivanov and Means, and L. Hightower travelled to Lynchburg, VA to oversee the acquisition of coleopterist Dr. E. Smith insect collection and library. The collection, which comprises 10,809 dry-preserved and 8 lots of fluid-preserved insects and arachnids is currently being processed through the museum's disinfestation chamber.

Dr. Ivanov oversaw the acquisition of 54 lots of ethanol-preserved millipedes and ants donated to VMNH by T. Malabad (VA DCR-DNH; RIM2024-44); 935 pinned/pointed insects (Coleoptera, Hemiptera, Blattodea) and 122 lots of unidentified arthropods donated to VMNH by Dr. C. Harden (VMNH Research Associate; RIM2024-45, -54); 1,359 pinned/pointed insects (including *Sparrmannia ursina* PARATYPE), and 15 lots unidentified arthropods donated to VMNH by Dr. A. Evans (VMNH Research Associate;

RIM2024-46); 20 lots of bulk arthropods in ethanol donated to VMNH by Dr. D. Hennen (VA DCR-DNH; RIM2024-48); and 169 pinned identified insects (chiefly Orthoptera and Coleoptera) donated to VMNH by Dr. F. Shockley (NMNH; RIM2024-53).

Dr. Ivanov satisfied a loan request regarding VMNH's invertebrate holdings: 96 pinned *Oxycrepis* (Coleoptera: Carabidae), 29 lots of undetermined Carabidae, and 211 lots of undetermined Pselaphinae (Coleoptera: Staphylinidae) chiefly of Virginia origin (Dr. C. Harden).

Education & Outreach

Drs. Ivanov and Means, and L. Hightower participated in the 13th annual Hokie Bugfest on the campus of Virginia Tech in Blacksburg, VA. The single day event was attended by over 5,000 visitors and offered a great opportunity to promote VMNH and the museum's entomology collection. (October 12)

Dr. Ivanov provided training in insect collecting, identification, and natural history to members of the Southwestern Piedmont Chapter of the Virginia Master Naturalists. VMNH is one of the seven sponsoring agencies of the Virginia Master Naturalists Program, which is designed to develop a group of well-trained volunteers to provide education, outreach, and services dedicated to the management of natural resources and natural areas for the Commonwealth of Virginia. (October 21)

Drs. Ivanov and Means, L. Hightower, and Recent Invertebrates volunteer L. Apel participated in VMNH's third annual Bonez & Booz Halloween and Fall festival, which offered a variety of one-day-only displays and activities that ranged from materials from the museum's collections to live performances, magic shows, and costume contests. The event attracted 2,278 children and adults including 1,022 EBT cardholders as part of the *Museums for All* program. (October 26)

Drs. Ivanov, Means, and Keiper participated in Simpson's College, IA, Entomology Career Day. The online event offered an opportunity to promote VMNH and the museum's entomology program. (December 4)

Volunteer Lauren Apel continued work in the Department of Recent Invertebrates by processing new and backlogged litter samples from Virginia and the surrounding areas in support of various research projects.

Exhibits

Dr. Ivanov reviewed panels for VMNH's upcoming Jean S. Adams Education Pavilion exhibits.

Professional Service

Drs. Ivanov, Bassett, and Pritchard, B. Williams, and L. Perkins completed interviews of applicants for the Visiting Scholar position at VMNH and made final selection in mid-December.

Drs. Ivanov and Means helped organize and participated in the 2024 general meeting of the Virginia Natural History Society held on the campus of Radford University, in Radford, VA. (October 19)

Drs. Ivanov (co-Treasurer and Copy Editor), Means (Secretary and Webmaster), and Kuhn (Councilor) participated in the [virtual] Virginia Natural History Society Executive Committee meeting on December 14. Among the discussed topics were the election of new officers, membership incentives, review of the 2024 Selu Conservancy bioblitz and the 2024 general meeting, and the time and location of the next general meeting of the Society. (December 14)

Drs. Ivanov and Means participated in two Board meetings of the Virginia Institute for Invertebrates. The primary goal of this newly launched non-profit organization is to build and maintain a network of insect monitoring sites, collect long-term data, support scientific research, and help guide sound conservation strategies in Virginia. (November 4, December 16).

Drs. Ivanov and Means are serving as co-editors of VMNH's periodical *Jeffersoniana* for a manuscript titled "The groundwater isopods of Virginia, Supplement I: six new species of asellids (Isopoda: Asellidae)" by Dr. J. J. Lewis and colleagues. The manuscript is currently at the copy-editing stage.

Dr. Ivanov copy edited two articles for the Virginia Natural History Society's periodical *Banisteria* (Volume 58). (completed November 14, 15)

Dr. Ivanov reviewed manuscripts for *Check List* and *Insects*. (completed October 16, November 14)

Dr. Means reviewed manuscripts for *Zootaxa*, *Banisteria*, and *Journal of Threatened Taxa*. (completed November 12, 22, December 19)

Hayden Bassett, Ph.D.
Assistant Curator of Archaeology

INTRODUCTION:

The VMNH Archaeology Department is currently staffed by 8 personnel as of January 2025. This includes the Department Head (VMNH Assistant Curator of Archaeology), VMNH Senior Staff Archaeologist, the four core staff of the Cultural Heritage Monitoring Lab and two Archaeology Lab technicians. This quarter, Dr. Bassett focused his teams' efforts on publications, collections management, project development, and the VMNH Cultural Heritage Monitoring Lab.

RESEARCH AND COLLECTIONS:

From November to December, the VMNH Archaeology Department continued collections organization efforts with the goal of enabling research. This included consolidating collections storage, measuring utilized and available storage, addressing long-term loans, possible transfers of out-of-scope collections, and defining storage areas for anticipated acquisitions in a 1-to-2-year outlook.

In December, the VMNH Archaeology Department worked with VMNH Registrar Jill Harris to develop a no-cost solution to create NAGPRA-related data fields in VMNH's *Proficio* collections database. These eight additional fields will record the NAGPRA status of artifacts within VMNH collections and allow other (non-archaeology) departments the opportunity to record the NAGPRA status of their specimens (if applicable).

Throughout the quarter, Dr. Bassett worked with several external organizations to meet collections management and project development goals. The archaeology lab met with Alexandria Archaeology to discuss the transfer of legacy archaeological collections from Alexandria, VA to Alexandria Archaeology's collections facility in northern Virginia. The VMNH Archaeology Lab and VMNH Administrator of Science Ben Williams also met with Appalacian Power to discuss the scope, funding, and timeline for the development of educational materials for the archaeological sites at Smith Mountain Gap, Virginia. Last, the Archaeology Department began planning with the Virginia Department of Historic Resources' underwater archaeologists to assist in monitoring Revolutionary War shipwrecks in Virginia with the VMNH's new underwater archaeology equipment. As a producer and curatorial repository of digital collections, the VMNH Archaeology Department has expanded its digital collections holdings by nearly 9,000 "objects" since November 2024 and anticipates further growth in digital collections with each new quarter. At the request of its research stakeholders, the new objects include expanded cultural heritage site locations for Syria. These digital objects in the VMNH's digital collections have already been requested/accessed by multiple outside organizations in the past month.

A part of Dr. Bassett's research efforts this quarter were dedicated to continuing the leading role played by the VMNH's Cultural Heritage Monitoring Lab (CHML) in response to the destruction of museums, archaeological sites, and other cultural heritage sites in Ukraine, Sudan, and Syria. Since February 2022, the VMNH-CHML team has been monitoring over 28,000 cultural heritage sites in Ukraine, identified potential damage to over 1,700 sites, and confirmed damage to 630. The VMNH team is

also monitoring Sudan and Syria's museums, religious sites, and archaeological sites in the areas impacted by conflict. This work has resulted in several published reports this quarter and international recognition of the VMNH as a leading research institution at the nexus of archaeology and international affairs.

PUBLICATIONS:

Dr. Bassett and his team released five publications this quarter. This includes one review, one journal article, and three open-access reports. In the past three months, these five publications have been read 1,377 times and downloaded 109 times. This brings the readership of the VMNH's Archaeology Departments 27 most recent publications from the past 16 months to 21,415 reads and 2,474 downloads. The five publications from this quarter are listed below:

Peer-Reviewed Publications:

Cil, Deniz, **Hayden F. Bassett**, Jacob Aronson, **Madeleine Gunter-Bassett, William Welsh**, Katharyn Hanson, Corine Wegener, and Brian I. Daniels. (2024). "Detecting Damage to Cultural Heritage during Armed Conflict Using the Case of Ukraine." *Nationalism and Ethnic Politics*, November, 1–12. doi:10.1080/13537113.2024.2411794.

Bassett, Hayden F.. (2024). "Review: Ukraine: Grey Zone." *Reviews in Digital Humanities*. https://doi.org/10.21428/3e88f64f.99033e29

Open-Access Reports:

Hanson, K., Bender, T. J. P., **Fitzgerald, K**., Lawrence-Weilmann, J., Rozhko, V., Makar, R., Zadorozhna, M., Oleksii, A., Frolova, Y., Cil, D., Tuttle, E., Bakhshi, R., Aronson. J., **Welsh, W., Maher, A., Bassett, H., Gunter-Bassett, M.**, Muller, C. E., Kane, K. E., Daniels, B. I., Carroll, C., Averyt, K., and Wegener, C. (2024). "Rapid Site Report: Tsentral'na Biblioteka in Bakhmut, Ukraine," Virginia Museum of Natural History, Cultural Heritage Monitoring Lab; Ukrainian Heritage Monitoring Lab; University of Pennsylvania Museum of Archaeology and Anthropology, Penn Cultural Heritage Center; and Smithsonian Institution, Smithsonian Cultural Rescue Initiative. DOI: 10.25573/data.27555933.

Hanson, K., Bender, T. J. P., Lawrence-Weilmann, J., Rozhko, V., Makar, R., Zadorozhna, M., Oleksii, A., Frolova, Y., Dvornikov, V., Cil, D., Tuttle, E., Bakhshi, R., Aronson., J., **Fitzgerald, K., Welsh, W., Maher, A., Bassett, H., Gunter-Bassett**, M., Muller, C. E., Kane, K. E., Daniels, B. I., Carroll, C., Averyt, K., and Wegener, C. (2024). "Rapid Site Report: Freedom Square, Kharkiv, Ukraine, in March 2022," University of Pennsylvania Museum of Archaeology and Anthropology, Penn Cultural Heritage Center; Virginia Museum of Natural History, Cultural Heritage Monitoring Lab; Ukrainian Heritage Monitoring Lab; University of Maryland, Center for International Development and Conflict Management; and Smithsonian Institution, Smithsonian Cultural Rescue Initiative. DOI: 10.25573/data.27307632.

Welsh, W., Bassett, H., Fitzgerald, K., Hanson, K., **Maher, A**., Carroll, C., Averyt, K. **Gunter-Bassett, M.**, Daniels, B. I., and Wegener, C. (2024). "Potential Impacts to Cultural Heritage Sites from Hurricane Helene, Western North Carolina, USA." Virginia Museum of Natural History, Cultural Heritage Monitoring Lab; Smithsonian Institution, Smithsonian Cultural Rescue Initiative. DOI: 10.25573/data.27558057.

EDUCATION AND OUTREACH:
In late November, Dr. Bassett and his team taught a virtual workshop to over 60 archaeologists (professionals and students) in Ukraine. The workshop was sponsored by the Smithsonian Institution and covered the use of satellite imagery and other remote sensing tools to monitor archaeological sites in conflict zones. The workshop was well received, and a follow-up session has been requested for more students to participate.
In December, Dr. Bassett assisted the VMNH Foundation in locating and acquiring a first English edition of Thomas Jefferson's *Notes on the State of Virginia* for the museum. The volume is now at the VMNH and will go on exhibit in advance of the Virginia 250th celebration.

PROFESSIONAL SERVICE:
Dr. Bassett continued his appointments as a Research Associate at the Smithsonian Institution, a Fellow of The Explorers Club, a Fellow of the Royal Geographical Society, and an Adjunct Lecturer in William & Mary's Department of Anthropology. He continued his duties as Vice President of the Board of Trustees for Falmouth Heritage Renewal, an international historic preservation non-profit.
This quarter, Dr. Bassett and VMNH staff archaeologist Madeleine Gunter Bassett continued to fulfill their duties in the Archaeological Society of Virginia (ASV) and Council for Virginia Archaeologists (CoVA). In their roles on committees in these organizations, VMNH Archaeology staff provide direction, technical review, grant approvals, among other tasks for state-wide archaeological research for the foreseeable future.

- Dr. Pritchard presented a podium presentation and collaborated on a poster presentation at the Society of Vertebrate Paleontology Annual Meeting. Both projects were collaborative, and the latter was led by a former VMNH intern.
- Dr. Pritchard traveled to the Denver Museum of Nature & Science to describe and photo-document a series of Cretaceous crocodile relatives from Madagascar. The project is a long-running collaboration with a team of colleagues from his time in graduate school at Stony Brook University.
- Dr. Pritchard worked with co-authors to finalize text and figures for a manuscript on a Virginian fossil snake, intended for submission to *Acta Paleontologia Polonica* in Q1 2025. He also provided final edits and data for a collaborative manuscript with VT-based team intended for submission to *Anatomical Record* in Q1 2025.
- Dr. Pritchard worked with his two interns from the University of Lynchburg to complete papers on their respective projects. Both are part of the 2024 intern group funded by the NSF grant supporting the Wyoming Dinosaur Project, and two of the projects have been submitted for presentations at the Geological Society of America Southeastern Sectional meeting in Spring 2025.

Research & Collections

Dr. Pritchard presented a podium presentation on the anatomy of chameleon-like Triassic drepanosaurs, detailing an extreme case of left-right asymmetry in the limbs, at the Society of Vertebrate Paleontology Annual Meeting in Minneapolis, Minnesota. He also co-authored a poster presentation with former VMNH intern (now Master's student at Utah State University) Gina Workman on VMNH collections of Triassic reptiles.

Dr. Pritchard traveled to the Denver Museum of Nature & Science (funded by the DMNS) to work with Drs. David Krause, Alan Turner, and Patrick O'Connor to identify and document fossil crocodile-relatives from the Ankazomihaboka Formation of Madagascar. Dr. Pritchard gained expertise on Malagasy crocodiles as part of his graduate work at Stony Brook University, so he was selected to provide descriptions and figures of the specimens.

Dr. Pritchard collaborated with his co-authors and formatted a manuscript describing the first land snake specimen from the pre-Ice Age fossil record of Virginia for the journal *Acta Paleontologia Polonica*. The specimen not only represents an early snake record from Virginia; it is also the first specimen from the entire mid-Atlantic region.

Working with his collaborators from Virginia Tech on a project led by Ph.D. graduate Meghan Sodano, Dr. Pritchard provided edits and new data on a manuscript on the claws of drepanosaurs: a lizard-like group of Triassic reptiles. The manuscript will detail the comparative anatomy of the claws in the group for the first time, and it is intended for submission to the journal *Anatomical Record*.

Dr. Pritchard finalized the internship projects/products of his two interns for the ENVS class at the University of Lynchburg led by Dr. Brooke Haiar. One project focused on the identification and shape of meat-eating dinosaur teeth from the Jurassic sites sampled by the VMNH in Wyoming. The other focused on developing an educational activity for grade 5-6 students on measuring and analyzing dinosaur trackways from the Jurassic Period. The trackway project and a second to which Dr. Pritchard contributed regarding the anatomy of dinosaur skin from Wyoming were submitted as abstracts for the Southeastern Sectional Geological Society of America meeting.

Dr. Pritchard worked with researchers on a number of destructive sampling requests of VMNH specimens. One carbon-dated a part of the skeleton of Petra the Cave Cat (the specimen is likely too old for carbon dating) and the second involved chemical analysis of two specimens of a mastodon skeleton.

Dr. Pritchard hosted four visitors to the VMNH collections, including two from the United Kingdom. Dr. Andy Johnson visited the mollusk collections, and Dr. Nicholas Fraser examined the Triassic and Jurassic reptiles.

Education & Outreach

Dr. Pritchard and technician Lucy Treado hosted a circus-themed display for the 2024 Bonez and Booz educational event. The display focused on bizarre mammalian fossils that have not been featured at past festival events. Bonez and Booz reached XXXX people this year.

Dr. Pritchard virtually presented the VMNH paleontology collections to an audience of children and parents at the Pamunkey Regional Library.

Dr. Pritchard provided a lecture and specimen-based training for the Piedmont chapter of the Virginia Master Naturalists program.

In collaboration with Los Angeles creature artist Alice Wright, Dr. Pritchard worked on a 3D reconstruction of the Triassic reptile *Tanytrachelos* for VMNH exhibits.

Dr. Pritchard worked with a College of William & Mary student and a Henry County school counselor on two separate job shadow programs for Q1 2025.

Dr. Pritchard collaborated with experiences manager Bethany Fisher and Lucy Treado to select specimens and develop signage for the upcoming Age of Dinosaurs exhibit for February 2025.

Grants & Funding

Dr. Pritchard wrote initial drafts for a grant proposal for the Luckstone Corporation. The proposal would support an intern developing a 3D reconstruction of the skeleton of a Triassic reptile found in a Luckstone-owned quarry in Virginia (*Tantyrachelos*).

Professional Service

Dr. Pritchard reviewed a manuscript on South American crocodile-relative for *Proceedings of the Royal Society B*.

Dr. Pritchard helped host and answer questions for the Society of Vertebrate Paleontology Annual Meeting ‘Ask Me Anything’ event.

Arianna Kuhn, Ph.D.
Assistant Curator of Herpetology

Due to extensive fieldwork abroad during the previous quarter, Dr. Arianna Kuhn was unable to provide a report.

Research and Collections

Jill K. Harris, Registrar

Eleven (11) collections acquisitions were recorded for 2,531 individual specimens and 166 vials. These specimens were added to the invertebrate zoology, paleontology, earth science (geology), and vertebrate zoology collections.

Six (6) outgoing loans were recorded from the collections: paleontology, invertebrate zoology, and vertebrate zoology. Loans were made to the University of Richmond, VA Department of Conservation and Recreation Natural Heritage Program, Nazareth University, VMNH Research Associates, and the Integrative Centers for Science and Medicine.

Ms. Harris (database administrator) reports that, within the collections management system Re:discovery Proficio, staff modified/updated 8,159 records.

Haley Cartmell, Collections Manager

Curators and staff modified/updated 958 existing records and added 811 new records to the VMNH collections database Proficio during the months of July, August, and September 2024.

Ms. Cartmell worked with Biology Technician M. Boyd and Registrar J. Harris to move and organize collections materials at VMNH’s Douglas Avenue site.

OCTOBER-DECEMBER 2024 VMNH ACQUISITIONS FOR APPROVAL BY BOARD OF TRUSTEES RESEARCH AND COLLECTIONS COMMITTEE

RIM* #	Collector/Donor	Date at VMNH	VMNH Dept.	QTY	Description	Method	To Be Accessioned (Y/N)
RIM 44-2024	Tom Malabad – VA DCR-DNH	11/12/2024	RECENT INVERTEBRATES	54 vials	205 specimens: 199 millipede specimens and 6 ant specimens in 95% EtOH	Gift	Yes
RIM 45-2024	Curt W. Harden	11/12/2024	RECENT INVERTEBRATES	45	45 vials w/unknown number of unidentified invertebrates, preserved in EtOH	Gift	Yes
RIM 46-2024	Arthur V. Evans	11/12/2024	RECENT INVERTEBRATES	15 vials and 1,359 pinned	1 pinned *Sparrmannia ursina* PARATYPE; 239 identified, pinned Coleoptera; 1119 unidentified, pinned specimens; 15 vials of unknown # of unidentified specimens in EtOH	Gift	Yes
RIM 47-2024	Bureau of Land Management (BLM) - WY	11/1/2024	PALEONTOLOGY	24	dinosaur bones, tree scales, worm trace	Field Collection	No – BLM Property
RIM 48-2024	Derek Hennen	11/25/2024	RECENT INVERTEBRATES	20 vials	arthropods	Gift	Yes
RIM 49-2024	Paul Kreingold	11/20/2024	EARTH SCIENCE	5	Potomac Marble Breccia specimens	Gift	Yes
RIM 50-2024	Arianna Kuhn	11/6/2024	ORNITHOLOGY	1	Barred Owl (*Strix varia*)	Salvaged	Yes
RIM 51-2024	Liberty Hightower	9/23/2024	HERPETOLOGY	1	Eastern Ratsnake (*Pantherophis alleghaniensis*)	Salvaged	Yes
RIM 52-2024	Jason Gibson	12/19/2024	HERPETOLOGY	2	Southern Leopard Frog (*Lithobates sphenocephalus*)	Gift	Yes
RIM 53-2024	NMNH (Dr. Floyd W. Shockley)	12/16/2024	RECENT INVERTEBRATES	169	dry pinned insects	Gift	Yes
RIM 54-2024	Curt W. Harden	12/26/2024	RECENT INVERTEBRATES	935 and 77 vials	935 dry, pinned specimens and 77 wet specimens	Gift	Yes

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

OCTOBER-DECEMBER 2024 VMNH ACQUISITIONS FOR APPROVAL BY BOARD OF TRUSTEES RESEARCH AND COLLECTIONS COMMITTEE

VMNH Collections Committee and Executive Director have Approved Recent Acquisitions: RIM 44-2024 through RIM 54-2024

VMNH Board of Trustees Research & Collections Committee Review of Acquisitions: RIM 44-2024 through RIM 54-2024

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

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

Melany Stowe _____ _____
(signature) Melany Stowe Date

_____ _____
(signature) Date

PEOPLE SERVED DATABASE printed 1/8/2025
Summary

# of Activities	TYPE OF ACTIVITY	PROFESSIONALS AND 13+ STUDENTS	K-12 STUDENTS	K-12 TEACHERS	PUBLIC			TOTAL #
2	Conference presentations (A)	100	0	0	0			100
9	Meetings chaired (B)	126	0	0	0			126
8	Review documents/manuscripts (B)	13	0	0	0			13
7	Requests for information about collections (C)	5	0	0	2			7
4	Visiting researcher (C)	4	0	0	0			4
0	Collections tours (D)	0	0	0	0			0
0	Lab Tours (D)	0	0	0	0			0
0	Receptions	0	0	0	0			0
4	Responses to requests for information about specimens at VMNH (D)	0	0	0	4			4
3	Lectures and presentations at VMNH (D)	0	0	2	38			40
2	Technical consultations (B, D, & E)	2	0	0	0			2
5	Display table with specimens	0	0	0	2278			2278
0	Off-site education programs	0	0	0	0			0
1	Lectures Not at VMNH (E)	60	0	0	0			60
3	Off-site presentations (E)	307	1500	200	1005			3012
0	Field trips/Field Work	0	0	0	0			0
48	**TOTALS**							5646

TOTAL # INDIVIDUALS SERVED 5646

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

7 January 2025

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

To Whom It May Concern,

I am writing to express my full support for Dr. Kuhn's Research Associate application at the Virginia Museum of Natural History (VMNH). After 2.5 years with the institution, in January 2025, Dr. Kuhn will be stepping down from her role as Assistant Curator of Herpetology to Assistant Research Scientist, Curator of Vertebrate Biology at the Illinois Natural History Survey (University of Illinois, Urbana Champaign).

Prior to Dr. Kuhn's career as Assistant Curator of Herpetology at the Virginia Museum of Natural History in Fall 2022, the position of herpetology curator had only been filled briefly from 1989–1991. During her time at VMNH she established the **first ever VMNH Herpetology Lab and frozen tissue collection, and an active herpetology internship program**. Complementing this advancement, she also launched the first VMNH herpetology-focused field collection events and undertook several research programs leveraging her expertise in systematics, genomics, and conservation, in partnership with regional university and agency collaborators to build and maintain the VMNH collections while increasing visibility of scientific resources to the rest of the research community. Through these new collaborations, she developed herpetology collection-specific protocols and infrastructure following best practices to extend the longevity of the VMNH's current collections and standardize preservation of new acquisitions. Dr Kuhn also **increased collections visibility** through the short-term goal of new digitization pipelines, with the long-term goal of integration with global data repositories. After the former Curator of Mammalogy retired in 2024, Dr. Kuhn became acting Curator-in-Charge for all Vertebrate holdings at the VMNH. Through this position, she continued to build comprehensive representation of native birds, mammals, fish, reptiles and amphibians across Virginia through collaborations with other universities, state agencies and nonprofits (e.g., Department of Wildlife Resources, Department of Conservation and Recreation, Virginia Herpetological Society). Through these new collaborations that have connected the VMNH Herpetology program to many new

regional partners, Dr. Kuhn now has a well-established research and education program tied to reptiles and amphibians of the Commonwealth.

A transition to Research Associate at the VMNH would help support the continuation of her research projects that utilize and contribute to the VMNH Collections, the research connections between the VMNH and other institutions she has built in the Commonwealth, and various VMNH education and outreach programs that incorporate reptiles and amphibians (e.g., Reptile Festival, Virginia Master Naturalists, the VMNH Live Collection Reptile Ambassadors). Her expertise in the natural history of reptiles and amphibians of the Commonwealth will continue to translate into expert specimen identification and preparation in contribution to building comprehensive representation for Virginia herpetofauna. Additionally, she will continue to pursue ongoing grants (several in review and others previously awarded) that incorporate direct benefit to building VMNH exhibits, southwest Virginia outreach initiatives, and opportunities to connect the local community with nature and science.

Dr. Kuhn has demonstrated commitment to support young scientists and inspiring museum visitors from diverse backgrounds through mentoring relationships and hands-on outreach programs, many of which will continue after she transitions from her role. The RA role offers a unique opportunity to continue her work advancing science education and promoting the Vertebrate Collections through multi-institutional research collaborations leveraging contemporary advancements in specimen informatics.

In addition to her experience addressing comparative biodiversity hypotheses using integrative genomic techniques and passion for herpetological diversity, she has demonstrated commitment to increasing inclusivity and collaboration throughout the Commonwealth. We look forward to this opportunity to collaborate in developing solutions to augment, digitize, and utilize our herpetological collections to increase accessibility to research at the VMNH.

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

Sincerely,

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

ILLINOIS NATURAL HISTORY SURVEY
PRAIRIE RESEARCH INSTITUTE

January 3, 2025

To the Members of the Research and Collections Committee,

Please consider my application for Research Associate at the Virginia Museum of Natural History. As a vertebrate curator with a museum and field based research program, I am interested in leveraging contemporary advancements in specimen informatics, phylogenomics, and statistical modeling to unravel the history and predict the future of reptile and amphibian populations and communities. As a collaborator of the Research and Collections Division at the VMNH, my experience generating and analyzing multi-dimensional biodiversity data along with my interest in mobilizing natural history collections to educate and train the next generation of biodiversity ambassadors will enhance ongoing research, education and collections initiatives.

Over the past two years, I have served the Commonwealth as the Assistant Curator of Herpetology at the Virginia Museum of Natural History. During this time, I collaborated extensively with the institution to build the first Herpetology Lab, Herpetology Internship Program, and multiple new education programs centered around local reptile and amphibian diversity. In this role, my research program expanded to include a focus on the systematics, evolution and conservation of local fauna through new collaborations within the Commonwealth and beyond, including universities (e.g., Virginia Tech, Radford University, James Madison University, University of Richmond, Averett University), non-profits (e.g., DARBA, Wildlife Center of Virginia), schools (e.g., Magna Vista Prep) government agencies (e.g., DWR, DCR, Smithsonian Institute).

Currently, I have several active grants in review or awarded (e.g., National Science Foundation, American Philosophical Society, European Society of Evolutionary Biology) and projects tied to exhibits, education programs, outreach initiatives, events and field programs directly linked to the VMNH and Virginia biodiversity, the opportunity to transition to Research Associate as I begin a new role at the University of Illinois Urbana-Champaign would facilitate the success of these initiatives. In turn, the outcomes will have a positive impact on the museum and research collections through collections growth, opportunities to continue collaboration with other museum staff members such as Marshall Boyd, Christie Deathridge, Dr. Kal Ivanov, Dr. Jackson Means and support for museum programs such as Virginia Master Naturalists, Reptile Festival, Spring biodiversity survey events, and coordination of collaboration between the aforementioned institutions and the museum in my absence from the role of Vertebrate Curator.

I look forward to contributing to the mission of the VMNH to enhance our understanding of Virginia biodiversity and connect the global and local context of my work through collaborations with ongoing research programs at the institution.

Best Regards,
Arianna Kuhn, PhD
Assistant Research Scientist, Vertebrate Curator
Illinois Natural History Survey, Prairie Research Institute
Graduate Faculty, University of Illinois, Urbana-Champaign

ARIANNA L. KUHN, PH.D., CURRICULUM VITAE

arianna.kuhn@vmnh.virginia.gov | www.ariannakuhn.com

EDUCATION

2014–21 **Ph.D. in Evolution and Ecology**, Graduate Center of the City University of New York; Richard Gilder Graduate Program, American Museum of Natural History.
Genomic and Ecological Dimensions of Malagasy Reptiles and Amphibian Biodiversity

2012–15 **M.Sc. in Biological Sciences,** Villanova University.
Systematics of the Namib Day Geckos (*Squamata: Gekkonidae:* Rhoptropus)

APPOINTMENTS

2025– **Assistant Vertebrate Curator, Research Scientist**, Illinois Natural History Survey, IL
2022–25 **Assistant Curator of Herpetology,** Virginia Museum of Natural History (VMNH), VA
2024 **Acting Curator-in-Charge – Vertebrate Biology**, Virginia Museum of Natural History
2024– **Collections Care Committee Officer**, Virginia Museum of Natural History
2024– **Research Associate,** Field Museum of Natural History (FMNH), IL
2023– **Research Adjunct,** North Carolina Museum of Natural Sciences (NCMNS), NC
2021– **Research Associate,** American Museum of Natural History (AMNH), NYC
2021–22 **Postdoctoral Fellow,** University of Lethbridge, Alberta, CA

SELECT GRANTS AND AWARDS

Awarded

2024 **European Society of Evolutionary Biology,** Outreach Fund. $6,500
David L. Stephan Grant in Herpetology, North Carolina Herpetological Society. $1,000
2022 **Postdoctoral Fellow Dissemination Grant**, University of Lethbridge. $1,000
2021 **W.D. Hamilton Outstanding Student Presentation**, Soc. for the Study of Evol. $1,000
Excellence in Dissertation Research Award, Canadian Soc. of Evol. & Ecology
Outstanding Research Presentation Award, Canadian Soc. of Evol. & Ecology. $500
2018 **Alumni Fund Dissertation Fellowship**, City University of NY: Graduate Center $25,000
Best Lightning Session Talk, Joint Meeting of Ichthyologists & Herpetologists
2017 **Lewis & Clark Exploration Fund Grant**, American Society of Naturalists $4,400
Systematic Research Fund Grant, Soc. of Systematic Biologists $1,234
**in addition 5 travel ($2,300); 4 workshop ($3,500), 6 research grants ($24,250) awarded*

Submitted

2024 **Madagascar and Comoros Public Diplomacy Grants Program**, *Building Capacity for Conservation in a Global Biodiversity Hotspot*. Lead PI. ***In review.*** $39,930

NSF DEB Evolutionary Processes (EP) *RUI: Exploring dimensions of pheromonal and microbiome diversity in salamander speciation.* Co-PI. $951,430*

2024 Virginia Wildlife Grant Program. *Fostering outdoor appreciation through wildlife viewing activities in Virginia.* Lead PI. $10,000*

2023 **NSF DEB Organismal Responses to Climate Change (ORCC)**, *Collaborative Research: ORCC: Sea-high sea-low, ENSO and nowhere to go: Contrasting effects of climate change on Galapagos marine and terrestrial fauna*. Co-PI. $814,440*

**not selected for funding*

PUBLICATIONS

In review

2024 Rakotoarimalala, F, **Kuhn, A**, Raselimanana, A, Ruane, S. "Herpetofaunal diversity in northwestern Madagascar: the Andrafiamena-Andavakoera protected area". *Malagasy Nature*, in review December 6, 2024.

Rakotoarimalala, F, **Kuhn, A**, Raselimanana, A, Tahinarivony A. J., Ruane, S. "Habitat use, ecological preference, and population density of chameleon communities (*Calumma* spp.) in the Central Highlands of Madagascar". *Herpetologica*, in review December 18, 2024.

Huang, T, Overcast, I, **Kuhn, A**, Morin, PJ and Ruane, S. "Small snakes, big cities: population genetics of urban Dekay's brown snake (Storeria dekayi) in New Jersey". *Diversity and Distributions*, in review December 16, 2024.

Published

2023 Schiebelhut, LM*, Guillaume, AS*, **Kuhn, A***, Schweizer, RM, Armstrong, EE, Beaumont MA, Byrne, M, Cosart, T, Hand, BK, Howard, L, Mussmann, SM, Narum, S, Rasteiro, R, Rivera-Colón, AG, Saarman, N, Sethuraman, A, Taylor, HR, Thomas, GWC, Wellenreuther, M, Luikart, G. "Practical guidance in conservation genomics: from study design to application." *Molecular Ecology Resources*.
**co-first authorship*

2023 Burbrink, FT, Ruane, S, Raxworthy, C, Rabibisoa NHC, Achille, R, and **Kuhn, A**. "Speciation rates are unrelated to the formation of population structure in Malagasy Gemsnakes." *Ecology & Evolution*.

2023 Kizirian, D, Campbell, G, Donnelly, MA, **Kuhn, A**, Overcast, I, Padial, JM, Povenika, R, Quitian, M, Saporito, R, and Segall, M. "Feedback in Batesian Mimetic Systems." *Zoological Journal of the Linnean Society.*

2022 **Kuhn, A,** Gehara, M, Andrianarimalala, MSM, Rabibisoa, N, Randriamahatantsoa, B, Overcast, I, Raxworthy, CJ, Ruane, S and Burbrink, FT. "Drivers of unique and asynchronous Population dynamics in Malagasy herpetofauna." *Journal of Biogeography.* 49(4): 600–616.

2022 Burbrink, FT, Bernstein, JM, **Kuhn, A**, Gehara, M and Ruane, S. "Ecological divergence and The history of gene flow in the Nearctic milksnakes (*Lampropeltis triangulum* complex)." *Systematic Biology.* 71(4): 839–858.

2020 **Kuhn, A**, Skipwith, P and Overcast, I. "Digest: An emerging model system for understanding ecomorphological convergence." *Evolution.* 74(3): 696–697.

2019 Burbrink, FT, Ruane, S, **Kuhn, A**, Rabibisoa, N, Randriamahatantsoa, B, Raselimanana, AP, Andrianarimalala, MSM, Cadle, J, Lemmon, AR, Lemmon, EM, Nussbaum, RA, Jones, L, Pearson, R and Raxworthy, CJ. "The origins and diversification of the exceptionally rich gemsnakes (Colubroidea: Lamprophiidae: Pseudoxyrhophiinae) in Madagascar." *Systematic Biology.* 68(6): 918–936.

2019 Weinell, JL, Branch, WR, Colston, TJ, Jackman, TR, **Kuhn, A**, Conradie, W and Bauer, AM. "A species level phylogeny of *Trachylepis* (Scincidae: Mabuyinae) provides insight into their reproductive mode evolution." *Molecular Phylogenetics and Evolution.* 136, 183–195.

2016 Ceríaco, LM, de Sá, Bandeira, S, Valério, H, Stanley, EL, **Kuhn, A**, Marques, MP, Vindum, JV, Blackburn, DC and Bauer, AM. "Herpetological Survey of Iona National Park and Namibe Regional Natural Park, with a Synoptic List of the Amphibians and Reptiles of Namibe Province, Southwestern Angola." *Proceedings of the California Academy of Sciences*, 63(2): 15–61.

2014 Jacobsen, NH, **Kuhn, A**, Jackman, TR and Bauer, AM. "A phylogenetic analysis of the southern African gecko genus *Afroedura* Loveridge (Squamata: Gekkonidae), with the description of nine new species from Limpopo and Mpumalanga provinces of South Africa." *Zootaxa*, 3846(4): 451–501.

SELECT CONTRIBUTED PRESENTATIONS

2024 **Kuhn, A**. *Then and now: Then and now: Herpetology at the Virginia Museum of Natural History*. 2024 Virginia Natural History Society Annual Meeting.
Kuhn, A, Burbrink, FT, Raselimanana, A, Ruane, S. *Insights from genomics and natural history collections on Madagascar's largest snake radiation.* 16th Conference of the Herpetological Association of Africa.

2023 **Kuhn, A**, Overcast, I, Ruane, S, and Burbrink, FT. *Historical climate change structures contemporary patterns of diversity in insular herpetofauna*. 2023 Southeastern Population Ecology and Evolutionary Genetics.
Kuhn, A, Overcast, I, Ruane, S, and Burbrink, FT. *Historical climate change structures contemporary patterns of diversity in widespread insular snakes*. 2023 Joint Meeting of Ichthyologists & Herpetologists.

2023 **Kuhn, A**, Weisrock, D, and Lee-Yaw, JA. *Understanding historical change to predict the future of biological communities*. The Wildlife Society - Virginia Chapter.

2022 **Kuhn, A**, Weisrock, D, and Lee-Yaw, JA. *Using genomic data to guide successful translocation initiatives*. North Carolina Herpetology Society 2022 Meeting.

2021 **Kuhn, A**, Overcast, I, Ruane, S, and Burbrink, FT. *Genome-wide data detects highly synchronous demographic responses to Pleistocene climate change across insular snake communities*. Canadian Society of Ecology and Evolution 2021.
Kuhn, A, Overcast, I, Ruane, S, and Burbrink, FT. *Comparative historical demography of widespread insular snake using genome-wide data.* Evolution 2021.

2018 **Kuhn, A**, Ruane, S, Raxworthy, CJ and Burbrink, FT. *Drivers of diversification in Malagasy snakes*. Joint Meeting of Ichthyologists and Herpetologists. Rochester, NY.
Kuhn A, Ruane, S, Raxworthy, CJ and Burbrink, FT. *Ecological drivers of genetic diversity and differentiation in Malagasy snakes.* Joint Evolution Meeting. Montpellier, France.

**in addition, 11 first author presentations; 10 co-authored presentations with students*

TEACHING EXPERIENCE

Courses Taught

2020 **Course Instructor of Record.** Warm and Cold-blooded Species. School of Visual Arts. New York, NY.

2020 **Adjunct Lecturer**. General Biology II Laboratory. LaGuardia Community College.

2020 **Course Instructor of Record.** (co-taught) Population Genetics modeling and inference in R. Richard Gilder Graduate School. New York, NY.

2019 **Course Instructor of Record.** Comparative Vertebrate Evolution. School of Visual Arts. New York, NY.

2017, 18 **Adjunct Lecturer.** Ecology & Evolutionary Biology Laboratory. City College of NY. New York, NY.

2016–18 **Course Instructor.** Field Herpetology. Blackrock Forest Consortium. Cornwall, NY.

2015–17 **Adjunct Lecturer.** General Biology I & II Laboratory. City College of New York. New York, NY

2012–14 **Teaching Assistant.** General Biology I & II Laboratory, Comparative Vertebrate Anatomy, Evolution. Villanova University. Villanova, PA.

Educational Resources Developed

2023,24 **Lab & Lecture.** *Using Dichotomous Keys in the Classroom*. Lynchburg Governor's School.

2023 **Workshop.** *Identification of Virginia's snakes*. Virginia Master Naturalists.

2020 **Blog contribution.** *What can snakes on Madagascar teach us about evolution?*. 4-H Animal Science Blog – STEM Scientist Feature.

2019 **Featured scientist/editor.** *Dream job: Herpetologist*. Newsela Science & Math.

Workshops Delivered

2024 **Science Communication Toolkit**: Field Museum of Natural History, Chicago, IL
RADcamp SF: *Unified RAD-Seq data assembly, filtering and analytical toolkit.* California Academy of Sciences, San Francisco, CA.

2023,24 **RADcamp Chicago**: *Unified RAD-Seq data assembly, filtering and analytical toolkit*. Field Museum of Natural History, Grainger Bioinformatics Center, IL.

2023 **Phylogeographic Temporal Analysis (PTA)**: *Model based comparative phylogeography with machine learning*. Society for Systematic Biologists Meeting 2023, Mexico City.

Students Mentored

2024 **Smithsonian Leadership for Change Internship:** Benjamin Dye & Megan Vaughn

2023 **Roanoke College Research Internship:** Madison Brunette

2022 **Research Internship Concentration:** Daemon Wisniewski*
Applied Studies Independent Research: Dustin Snyder & Brianna Constable

2020 **Science Research Program:** Katelyn Tai & Genesis Dixon

2019 **Science Research Program:** Emily Pelayo-Perez & Ning Chang

2018 **Urban Barcode Research Program:** JieJie Yuan & Bineth Abeysekera

2017 **City University of New York Graduate Research:** Anyelic Rosario
City University of New York Graduate Research: Yadira Siguencia
AMNH Independent Graduate Research: Maya Juman

2016 **Science and Engineering Research Program:** Olga Pinkhas

2015 **Villanova Undergraduate Research Fellowship:** Gabriella Auraco-Shapiro

2014 **Villanova Undergraduate Student Research:** Gabe Vasillas, Kellan Carney

**Undergraduate Diversity at Evolution Fund award recipient*

INVITED SEMINARS

2024 **Duke University Biology Seminar.** *Understanding adaptive radiations from the perspective of insular snakes.*
Kennesaw State EEOB Seminar. *Diversity, distributions and natural history of Appalachian salamanders.*

2023 **University of Richmond Biology Seminar.** *Global change insights from reptile and amphibian genomes.*
A. Watson Armour II Seminar, Field Museum of Natural History. *Global Change Insights from Reptile and Amphibian Genomes*.
Department of Biology Seminar, James Madison University. *Global Change Insights from Reptile and Amphibian Genomes*.

2022 **Department of Biology Seminar, Villanova University.** *A window into the past informs species preservation in the future – lessons from reptile and amphibian Genomes.*

2021 **Genomics Social Hour Seminar, California Academy of Science.** *The role of Pleistocene glacial cycles in shaping the diversity and distribution of Malagasy snakes.*
Herpetology Seminar, University of California, Berkeley. *Genomic signatures of Quaternary climate change on Madagascar*.
Water Institute for Sustainable Environments, University of Lethbridge. *Genomic signatures of Quaternary climate change on Madagascar*.

2018 **Lang Science Alliance Program, American Museum of Natural History.** *Field research and snake evolution on Madagascar*.

SELECT FIELD RESEARCH EXPERIENCE

2024 **Madagascar:** Affiliations: *Field Museum of Natural History, Université de Antananarivo, Association Vahatra.* Aims: regional diversity survey of Mantadia NP, Ranomafana NP, Andohahela NP: regional tissue sampling of Malagasy giant boa spp

2023 **Madagascar: Andrafiamena-Andavakoera.** Affiliations: *Field Museum of*

Natural History, Université de Antananarivo, Association Vahatra. Aims: regional diversity survey of Andrafiamena-Andavakoera Protected Area.

2023– **SW Virginia/NW North Carolina.** Affiliations: North Carolina Museum of Nat. Science. Aims: population sampling & presence/absence surveys of undescribed salamanders.

2023– **Virginia.** Affiliations: University of Florida. Aims: skin swabbing for wildlife diseases; data collection of thermal preference; community biology tissue sampling.

2021,22 **SW Alberta.** Affiliations: *University of Lethbridge, Parks Canada.* Aims: population sampling of long-toed salamanders and western toads; presence absence surveys.

2018 **Madagascar: Mahajanga and Toliara Provinces.** Affiliations: *American Museum of Natural History, Université de Mahajanga.* Aims: regional diversity survey of Beanka Nature Reserve; phylogeographic sampling of amphibians and reptiles.

2017 **Madagascar: Antsiranana and Fianarantsoa Provinces.** Affiliations: *American Museum of Natural History, Université de Mahajanga.* Aims: biological survey & phylogeographic sampling of reptiles and amphibians.

2016 **Madagascar: Antsiranana and Fianarantsoa Provinces.** Affiliations: *American Museum of Natural History, Université de Mahajanga.* Aims: biological survey & phylogeographic sampling of reptiles and amphibians.

2014 **Angola: Namibe and Huila Provinces.** Affiliations: *Florida Museum of Natural History, California Academy of Sciences, Museu Nacional de História Natural de Angola.* Aims: regional diversity survey; sampling of reptiles and amphibians.

2013 **South Africa: Western Cape.** Affiliations: *California Academy of Sciences* Aims: phylogeographic sampling of reptiles.

APPLIED CONSERVATION ACTIVITIES

2022 **Presentation to conservation partners and stakeholders: Kuhn, A**.Weisrock, D and Lee-Yaw, J. *"Genomic insights to informed amphibian reintroductions and relocations".* Waterton Lakes National Parks, Parks Canada.

2022 **Presentation to conservation partners & stakeholders: Kuhn, A,** Weisrock, D and Lee-Yaw, J. *"Reintroduction genomics of the long-toed salamander in Alberta".* Wild Genomes, Revive and Restore Organization.

2022 **Field & research training to prevent the spread of wildlife disease:** Student Research Network for Amphibian Pathogen Surveillance.

SERVICE TO PROFESSION

2024– **President.** Virginia Herpetological Society.
Officer of Organization. Joint Meeting of Virginia Herpetological Society and North Carolina, Averett University, VA.

2023– **Vice President.** Virginia Herpetological Society.
Grants Committee Officer. North Carolina Herpetological Society.
Officer of Organization. Virginia Herpetological Society Fall Meeting, Richmond, VA

2023– **Sponsorship Committee Representative.** Herpetologists League.
Conference Mentor. Society for the Study of Amphibians & Reptiles Student Mentorship Program.
Co-chair. VMNH Inclusion, Diversity, Equity & Access Committee.
Associate Editor – Systematics. *Herpetologica.*
Officer of Organization. Charles Camp 2023 Meeting (AMNH, NYC);
Virginia Herpetological Society 2023 Meeting (Martinsville, VA)
Reviewer. SSE GREG Rosemary Grant Advanced Awards, Herpetologists League Graduate Research Award, Society of Systematic Biologists Graduate Student Research

Award, *Diversity and Distributions*, *Biological Journal of the Linnean Society*, *Heredity, PeerJ, Scientific Reports, Zoological Journal of the Linnean Society.*

2022– **Associate Editor.** *Herpetological Journal.*
Counselor. *Virginia Society of Naturalists.*

2022 **Reviewer.** *Molecular Phylogenetics and Evolution, PeerJ.*

2021 **Postdoctoral Representative.** Diversity, Equity and Inclusion Committee. University of Lethbridge School of Graduate Studies.
Poster Judge. Biology Graduate Research Symposium. University of Lethbridge.

2021 **Reviewer.** *Journal of Biogeography, African Journal of Herpetology.*
Poster Judge. Biology graduate Research Symposium. University of Lethbridge.

2020 **Reviewer.** *Journal of Biogeography, African Journal of Herpetology, Zoological Journal of the Linnean Society.*

2018, 19 **Poster Judge.** Summer STEM Research Symposium. City University of New York.

SELECT COMMUNITY INVOLVEMENT AND OUTREACH

2024 **Guest Lecturer.** *Natural History and Biomimicry.* Magna Vista Prep Warrior Tech, VA
Survey lead and organizer. *Piedmont Master Naturalists Herpetology Bioblitz,* VA.
Survey lead and organizer. *VHS 2024 Spring Survey.* Sweet Run State Park, VA.
Survey lead and organizer. *Fall Salamander Meander.* Fairystone State Park, VA.
Panel Moderator. *Women in Natural History.* Field Museum of Natural History.
Guest Lecturer. *Cybermander:* Community Science Initiative. Virginia Master Naturalists.
Guest Speaker. North Carolina State University Herpetology Club.

2023 **Guest Speaker.** Hidden Jewels of Appalachia. Waynesboro Theatre Science Series.
Guest Lecturer. *Snake identification and education.* Virginia Master Naturalists.
Speaker. *Discovering new species overseas and in Virginia.* VMNH Members Event.
Speaker. *Secrets of Salamanders.* VMNH Reptile Festival

2022 **Guest Lecturer.** *Facts and Myths about Virginia snakes*. Virginia Master Naturalists.

2021 **Guest Educator**. *Amphibian and reptile species of southwest Alberta.* Helen Schuler Nature Center.
Guest Panelist. *Snake Patrick's Day.* California Academy of Sciences.

2020 **Speaker.** *Learn with me – Live with Frogs, Lizards, and Snake*s. AMNH.
Speaker. *Scientists at Home: Reptiles and Amphibians Live.* AMNH.
Guest Speaker. *Snake genetics and evolution on the island of Madagascar.*
Speaker. Scutes & Scales: An Evening Reptile Encounter. AMNH.

2019 **Guest Speaker**. *What can you be with a STEM degree? My job as a field biologist.* Women in STEM Science Expo: Success Academy Harlem.

2018 **Guest Speaker**. *Using molecular data to understand snake evolution.* Middle School Institute.
Guest Speaker. *How many snakes can fit on an island?* Biology on Tap: Island Edition.
Guest Speaker. *How one species becomes 100.* AMNH Discovery Center: Meet the Scientist.

Select Events and Education Activities

2024 **Co-Organizer.** *How-to's for hiking and herpetology.* Piedmont Girl Scouts, VA.
Skype a Scientist. MiaPrep Online High School.

2022–24 **Outreach Educator.** Bones & Boos Festival - Skeletal Mysteries. VMNH.

2023–24 **Outreach Educator.** Dinosaur Festival - Extinct and Living Reptiles. VMNH.

2023–24 **Outreach Educator, Exhibit designer.** Reptile Festival. VMNH.

2023–24 **Guest Outreach Educator.** Reptile and Amphibian Day. NCMNS.

2023 **Outreach Educator.** Bug Festival. VMNH.
Meet the Scientist. Indianapolis Public Schools: New-Comer Program.

2022–24 **Meet the Curator**. Averett University Herpetology Class. VMNH.

2019 **Outreach Educator.** Members Public Exhibit Event. AMNH.

Volunteer. Investigating STEM Careers. Thomas J. McCann Intermediate School Urban Explorers.

2019–20 **Skype a Scientist.** Capital Prep Magnet School, Henrico County Public School, School of the Future.

2018 **Educator.** Skype a Scientist in Real Life: Pregame your Brain.

2018 **Guest Educator.** Full STEAM Ahead: Meet the Scientist. The Intrepid Museum.

2018 **Outreach Educator.** Discovery Day Public Event. AMNH.

2018 **Guest Scientist.** After School Program: Science Research Collections Tour. AMNH.

2018 **Guest Educator.** Metropolitan Society of Natural Historians: Behind the Scenes in Herpetology.

2017–19 **Outreach Educator.** Specimen Identification Day Event. AMNH.

2017–19 **Guest Scientist.** Science and Nature Program for Young Scientists: Museum Investigations in Science. AMNH.

2016–19 **Outreach Educator.** Family Party Museum Benefit Event. AMNH.

**in addition, 24 collections tours and demos to universities and state agencies*

MEDIA CONTRIBUTIONS

2024 **News Article.** *The VMNH housed two Smithsonian interns for the summer. Martinsville Bulletin.* Aug. 3, 2024.

News Article. *Local herpetologists study amphibian indicator species in spring.* Martinsville Bulletin.

2023 **News Article.** *Society's meeting puts spotlight on natural history museum's herpetology department*. Martinsville Bulletin.

2023 **Children's Book Feature & Interview**. *Reptiles are Awesome!* Scholastic Inc. 2024. ISBN13:9781546120643.

2023 **Live interview.** *Virginia Museum of Natural History*. WDBJ7 at 4.

News article. *Kuhn focuses on understanding origins of Biodiversity.* Henry Co. Enterprise.

2022 **News feature**. *Getting to Know Arianna Kuhn*. Martinsville Bulletin.

News article. *New VMNH herpetologist Arianna Kuhn does research and educational outreach with reptiles and amphibians*. Martinsville Bulletin.

2021 **News article**. *University of Lethbridge shines a light on rarely seen local toad.* Lethbridge Herald.

2021 **News feature**. *Postdoctoral Research Fellow, Dr. Arianna Kuhn*. Lethbridge Herald.

EXHIBITS CURATED

2025 Magna Vista Warrior Tech. *Biomimicry: Inspired by Nature* (in prep)

2024 University of Richmond. *From to Codex to Collection*

2023– Virginia Museum of Natural History. *From to Codex to Collection*

SCIENTIFIC AFFILIATIONS

Society for the Study of Evolution | American Genetics Association | North Carolina Herpetology Society | Virginia Herpetological Society | Herpetologists League | The Wildlife Society | SEPARC | NEPARC | Virginia Society of Naturalists | Society for the Preservation of Natural History Collections

NEW APPLICATION

AS RESEARCH ASSOCIATE

Dr. Arianna Kuhn

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

Signature of approval/date

8 JANUARY 2025

Dr. Kal Ivanov

8 January 2025

Dr. Adam Pritchard

8 Jan 2025

Dr. Hayden Bassett

After us all quantifying the amount of shelf space available in the collections and the amount of space used. These numbers are as if the "to be incorporated" specimens of Lane Cabinets (or otherwise) were already in the collections.

Vertebrate and Invertebrate Zoology Collections Storage

*******Overall the storage space of **dry collections in Room 203 is 80% Full*****

*******With the expansion space between Fluid Herps and Mammals (1 aisle of 70 shelves) the entirety of **fluid collections across all disciplines is 53% Full.*****

Frozen Collections between Room 229 and B120 are considered to be **overall 54% Full**.

Dry Collections Room 203 is 2,428 sq ft. with 1,634 sq ft used for collections between all the shelving, lockers, and compactor carriages. There is 794 sq ft for workspace, aisle access and between compactors.

Delta Carriage Compactors for dry collections: 1,191 sq ft

Static Cubby Shelves for taxidermy and large skulls/antlers: 112 sq ft

Large Taxidermy Shelves with taxidermy and some oversized skeletons: 110 sq ft

Back Taxidermy Shelves with taxidermy and some oversized skeletons: 51 sq ft

Insect Deltas for Cornell Drawers of pinned insects: 120 sq ft

VT Green Lockers of pinned insects: 46 sq ft

LRCC Small Green Locker of pinned insects: 4 sq ft

*****Overall the storage space of dry collections in Room 203 is 80% Full*****

Taxidermy at Starling Ave on open shelving: **105% Full** (Includes birds on wall of 2nd Floor Starling Ave)

Dry Bird Skins in Delta Compactors: **87% Full**

Bird Eggs/Nests in Delta Compactors: **102% Full** (Includes collections temporarily on large taxidermy shelving)

Dry Mammals in Delta Compactors and open shelving: **53% Full**

Dry Herps in Delta Compactors and open shelving: **10% Full**

Dry Bryozoans in Delta Compactors: **95% Full**

Lepidoptera in Glass/Acrylic in Delta Compactors: **85% Full**

Dry Mollusks in Delta Compactors: **89% Full**

Dry Pinned Insects in Cornell Drawers of Static Delta Cabinets: **88% Full**

Taxidermy at Douglas Ave: This room is considered to be **overall 75% Full**. The room has 765 sq ft with 271 sq ft used for collections between open shelves, closet shelving, glass case shelving, and wooden pallets on floor. There is 494 sq ft for workspace, aisle access and ladder storage. Total shelving space vertically accounts to be 559 sq ft of full shelving accounting for the 75% Full consideration. The half Moose mount is in the basement area due to inability to get mount through small doorway but on a wooden pallet and covered with plastic.

Wet Collections Room 227 is 1,138 sq ft. with 675 sq ft used for collections and supplies on Delta Carriage Compactors. There is 463 sq ft for workspace, aisle access and between compactors. All fluid collections are within the same compactor shelving.

*******With the expansion space between Fluid Herps and Mammals (1 aisle of 70 shelves) the entirety of **fluid collections across all disciplines is 53% Full.*****

Fluid Invertebrates: **61% Full** (~5,000 lots/vials within four Lane Cabinets/two shelf units at Douglas to be sorted)

Fluid Mammals currently in a single row: **58% Full**

Fluid Herps currently in two rows: **64% Full**

Fluid Fish planned to be a single row: **26% Full**

Frozen Collections between Room 229 and B120 are considered to be **overall 54% Full**.

Frozen Invertebrate Specimens in -20 Freezers of Room 229: **30% Full**

Frozen Invertebrate Tissue Collection in -20 and -80 Freezers of Room 229: **5% Full**

Frozen Vertebrate Specimens in -20 Freezers of Room B120: **75% Full**

Frozen Vertebrate Tissue Collection in -80 Freezers of Room B120: **106% Full** (Until second freezer is running)

Geology Collections

Storage in Room 204 is 1,365 sq ft with 663 sq ft used for collections between Delta Compactors, Open shelf compactors of standard and oversized, and free-standing Delta cabinets.

Geology Collections are **overall 45% Full**

Delta Cabinets with half width shelves: **51% Full**

Standard Compactors with 34”X15” shelves: **53% Full**

Oversized Compactors with 34”X18” shelves: **29% Full**

Archaeology Collections Storage

The Archaeology Collections are stored in three rooms with a combined 707 sq ft in floor plan. This currently holds 3,991 sq ft of shelf/cabinet storage.

Archaeology Collections are **overall 91% Full

The Archaeology Collections room (Room 105) is 378 sq ft in its floor plan, with approximately 2,932 sq ft of shelf and cabinet storage.

Spacesaver 920 Series high-density mobile storage with 24”X24” drawers: **97% Full**

Spacesaver Standard high-density mobile storage with 18”X24” shelves: **95% Full**

The Archaeology Lab (Room 130) storage area is 288 sq ft in its floor plan, with approximately 1,025 sq ft of shelf and cabinet storage.

Delta Cabinets with half width shelves: **70% Full**

Viking Cabinets with full width shelves: **95% Full**

Viking Cabinets with half width shelves: **75% Full**

The Archaeology Organics collections storage area (Room 101) is 30 sq ft in its floor plan, with approximately 34 sq ft of shelf storage.

Steel bookshelves with six shelves : **5% Full**

Paleontology Collections Storage

Vertebrate paleontology collections (Room 106) at **21 Starling Avenue** is 2,139 sq ft. 1,070 sq ft the floor plan is used Delta cabinets, Lane cabinets, compactors, open metal shelving. The space is roughly **96% Full.**

Standard Compactors with ½ width shelves: **95%** Full.

Oversized Compactors with full-width shelves: **92%** Full.

Delta cabinets are **100%** Full.

Lane cabinets are **100%** Full.

Open metal shelving: **80%** Full.

Invertebrate paleontology collections (Room 202) at 21 Starling Avenue is 1,773 sq ft. 1,092 sq. feet of the floor plan is covered by compactors and open metal shelving. The space is **80% Full.**

Standard Compactors with ½ width shelves: **75%** Full.

Oversized Compactors with full-width shelves: **100%** Full.

Open metal shelving: **70%** Full.

Basement paleontology storage (B104+B114) at 21 Starling Avenue is 618 sq. feet. 176 feet of the floor plan is occupied by open metal shelving. The space is **100% Full**.

The **Paleontology Collections stored at the Douglas Ave** building are mainly within one room with a total space of 1,419 sq ft in floor plan area with shelving that covers 533 sq ft. This allows for 886 sq ft of space between shelves for workspace and access between shelving. All shelving units are open shelves with various container styles due to changes in product availability.

Lane (style) Cabinets (2 units of 29" X 32"): 13 sq ft

Newly built Shelves (6 units of 36" X 72"): 108 sq ft

Older Shelves (22 units of 37" X 50" and 2 units of 50" X100"): 350 sq ft

Repurposed Shelves planned for Buck Ward Soil Samples (3 units of 39" X 76"): 62 sq ft

To include the collections planned to be incorporated, the shelves within those units account for holding 6,568 sq ft of specimens considered to be **80% Full**.

The collections of VMNH are averaged based on the bold numbers above to be about 72% Full

Virginia Museum of
NATURAL HISTORY

Calendar Year 2025 Acquisition Plans

Archaeology
Dr. Hayden Bassett

The main impediment to collections care and accessibility in 2024-2025 is storage space. The Archaeological collections room is currently at capacity (98% filled). We will increasingly have to rely on opportunistic storage until offsite storage (Douglas Ave) is complete. In 2024, the archaeology curator and staff continued to reorganize collections to maximize limited space. All available general-use storage space outside of designated archaeological storage has now been filled by other curatorial departments. Because of this, acquisition of new archaeological collections is limited to acquisition priorities 1-3. Priority 1 reflects a change from previous years' acquisition plans, in that it reorients the department's acquisitions to building research reference collections, as opposed to accepting entire archaeological site collections or donated material with limited research value. This follows post-pandemic shifts in collections-based archaeological research in which digital collections are increasingly relied upon by outside scholars/students, with museums/repositories receiving greater attention for their comprehensive reference collections as opposed to purely their site assemblages.

Priority 1. Collections/specimens representing comprehensive reference material by type, technology, species, and/or geography. This includes artifact, shell, wood (dendrochronology), archaeobotanical, and archaeofaunal (zooarchaeology) reference specimens to be used in the identification or analysis phase of archaeological research.

Priority 2. Collections from local/regional sites, generated by VMNH fieldwork. In 2024, the VMNH Archaeology Department conducted local archaeological and dendrochronology fieldwork, generating physical collections. The archaeological collections will be stored in a dedicated cabinet in the VMNH Archaeology Lab, while the dendrochronology cores will be curated in dedicated, humidity-controlled space in Archaeology Room 101. Space in these storage areas will continue to be reserved for local archaeology and Virginia-based dendrochronology.

Priority 3. Collections related to published research, with high research potential, currently housed elsewhere. A special emphasis will be placed on acquisition of local/regional collections.

Priority 4. Salvage and opportunistic: Archaeological specimens recovered through opportunistic site visits or through donations.

Priority 5. Collections from non-academic or research-based sources, *i.e.*, private collections. These collections tend to be large and have little to no research value. Few of these collections are accepted and then only if

they have exceptional exhibit or education value or include a rare artifact type with some provenience information.

Invertebrate Zoology
Dr. Kaloyan Ivanov

The following materials are expected to be acquired within the next year. Wet and dry storage space is adequate to accommodate any new specimens acquired.

Terrestrial Invertebrates

Priority 1. Specimens generated by ongoing research activities, with primary focus on material from Virginia and the southeastern USA. Specimens from other areas in the USA and/or other countries may also be included.

a. Hymenoptera (ants, bees, and wasps) as pinned/pointed and alcohol-preserved specimens.
b. Millipedes, especially in the orders Polydesmida and Chordeumatida as alcohol-preserved specimens.
c. Terrestrial isopods (Isopoda: Oniscidea) as alcohol-preserved specimens.
d. Spiders as alcohol-preserved specimens.
e. Cicadas (Hemiptera: Cicadidae) as pinned specimens.
f. Dragonflies and damselflies, true bugs, earwigs, walkingsticks, mantids, cockroaches, and beetles as pinned specimens.
g. Leaf-litter and soil invertebrates as alcohol-preserved (annelids, pseudoscorpions, springtails, non-millipede myriapods, and non-insect hexapods) and pinned (true bugs and beetles) specimens.

Priority 2. Opportunistic acquisitions of specimens obtained through site visits, salvage, or through donations (prepared to handle if such material becomes available).

a. Various pinned and alcohol-preserved arthropods from Virginia and adjacent areas (A. Evans, S. Roble, C. Harden, D. Hennen, others).

Priority 3. Specimens to support exhibits and/or education programs (as needed or become available).

Aquatic Invertebrates

There is currently no plan to acquire new materials. If such materials become available (opportunistic acquisitions), they will be handled on a case-by-case basis.

Forensic Work

There is currently no plan to acquire new materials. If such materials become available (casework and teaching efforts), they will be handled on a case-by-case basis.

Vertebrate Zoology
Dr. Arianna Kuhn

The following materials are expected to be acquired within the next year. Wet and dry storage space is adequate to accommodate any new specimen acquisitions indicated below.

Herpetology

Priority 1. Opportunistic acquisitions of specimens and tissues, through salvage events and donations when appropriate to augment the herpetology collection. At present, no large donations are anticipated. Based on FY2023-2024, we anticipate under 50 salvaged tissues and 50 salvaged specimens by the Research and Collections staff, and approximately 50 salvaged specimens and 50 tissues from Research Associate donations.

Priority 2. Research-targeted acquisitions of specimens and tissues, following current permit allocations for various ongoing projects will help to facilitate regional research and collaborations. Currently, the Herpetology lab maintains 8 active research permits for Virginia and North Carolina for various research projects which involve the collection of specimens, tissues, and skin swabs. These allow for up to 100 new tissues and specimens to be added to the collection over the next two years.

Priority 3. Educational and outreach acquisitions of specimens (wet, osteological, taxidermy), particularly those with no associated data/captive bred, to elevate outreach and education events as well as in-house exhibits. No more than 50 total specimens of this nature are anticipated, based on estimates of current items in the freezer backlog prior to 2023 that will be processed for this purpose.

Mammalogy

Priority 1. Opportunistic acquisitions of specimens and tissues, through salvage events and donations when appropriate to augment the mammalogy collection. At present, no large donations are anticipated. Based on FY2023-2024, we anticipate under 50 salvaged tissues and 50 salvaged specimens for rare mammals and occasional common species (primarily to support the dermestid colony) by the Research and Collections Department, and less than 20 salvaged specimens and 20 tissues from Research Associate donations.

Priority 2. Research-targeted acquisitions. Currently, there is no mammalogy-focused research program at the VMNH, nor are there collections-based permits aside from salvage (see above) to collect non-mammal vertebrate specimens.

Priority 3. Educational and outreach acquisitions of specimens (osteological, study skins, touch skin, taxidermy), particularly those with no associated data or

are captive bred, will be considered on a piece-by-piece basis under the following criteria:

a. they fill an important curriculum-based gap, or they are part of the backlogged freezer specimens that already have been assigned a Record of Incoming Material (RIM) form, and
b. available storage space compared to the size of item is adequate.

Ornithology

Priority 1. Opportunistic acquisitions of bird skins and tissues, through salvage events and donations when appropriate to augment the ornithology collection. Currently, a salvage-based collaboration with Radford University and University of Richmond will involve adding ~50 new skins to the collection and processing freezer backlog items that already have been assigned RIMs.

Priority 2. Research-targeted acquisitions. Currently, there is no ornithology focused research program at the VMNH, nor are there collections-based permits aside from salvage (see above) to collect non-ornithological specimens.

Priority 3. Educational and outreach acquisitions of bird specimens (osteological, study skins, taxidermy), particularly those with no associated data or are captive bred, will be considered on a piece-by-piece basis under the following criteria:

a. they fill an important curriculum-based gap, or they are part of the backlogged freezer specimens that already have been assigned a Record of Incoming Material (RIM) form, and
b. available storage space compared to the size of item is adequate.

Ichthyology

Priority 1. Research-quality specimens representing Virginia diversity. These will be obtained through salvage and collaborations with colleagues. Space exists for future acquisitions, but is shared with Herpetology expansion, and no plans have been made to add additional specimens at this time.

Priority 2. Specimens to support exhibits and education programs. These will be obtained through salvage, purchase, and/or collaborations with colleagues.

Paleontology
Dr. Adam C. Pritchard

The following materials are expected to be acquired within the next year and can be accommodated in paleontology storage areas to be developed in early 2025, including ongoing work to renovate and consolidate resources at the Douglas Avenue facility. Technician Lucy Treado is working with the Building and Grounds department on the installation of new shelving and the consolidating of already-stored specimens in the facility. We are also consulting with invertebrate paleontologists and stratigraphers on the best methods of consolidating storage of Dr. Lauck Ward's sediment collections from his invertebrate-producing localities from the Atlantic Coastal Plain.

Priority 1. Triassic fossils of Virginia. Multiple one-day to one-week excavations in Ashland, VA, the circum-Richmond area, and hopefully reconnaissance at the former Solite Quarry. Acquisitions will include multiple types of rock containing plants, invertebrates (clam shrimp, insects), and vertebrates. Likely to total two to three double-wide cabinet drawers full of specimens.

Priority 2. Wyoming Dinosaur Project (Two Sisters Quarry). One three-week excavation planned for Summer of 2025. Work will recover 5-10 plaster jackets and isolated bones of dinosaurs. The specimens will be arriving at the museum in late summer 2025.

Specimens, owned by BLM but managed by VMNH Paleontology, are likely to total two to three double-wide cabinet drawers. Lucy and I are working to free up space in the Starling Avenue facility to accommodate the new specimens, which will be accomplished partly by shifting hardier plant fossils to Douglas Avenue as the shelving space there develops.

Priority 3. Atlantic Coastal Plain Vertebrates (Carmel Church Quarry). One to two two-week excavations in Winter 2025, targeted at excavation of baleen whale from the St. Marys Formation. Opportunistic discoveries will almost certainly occur as well. Likely to bring in one large plaster jacket and one double-wide cabinet drawer.

Priority 4. Cultivated relationships with private collectors. After cultivating relationships with private collectors, specimens will be through donations. This will concentrate on northern VA fossils. Targeted donations include Virginian Eocene plants, small reptiles, and possibly mammals. Specimens are primarily sub-centimeter in size, requiring relatively limited storage capacity (est. 3-4 single-wide drawers).

Department of Education and Public Programs (DEPP)
Ms. Christy Deatherage

There is currently no plan to acquire new materials in the DEPP. However, we will report materials that would enhance current exhibits or programs if offered to the Department.

Earth Sciences

There is currently no Earth Sciences curator and no plan to acquire new materials; however, there may be some opportunistic acquisitions. These will be handled on a case-by-case basis and existing storage space should be sufficient to store them. It is possible that education and/or exhibits material may be added to the collections. If this includes mineral specimens, these may be accessioned.