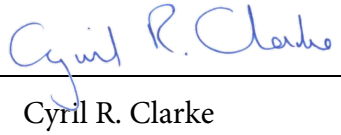
NOMINATION SIGNATURE PAGE

2024 Virginia Outstanding Faculty Awards

Nominations must include this as the cover page of the nomination package PDF submission

Name of Applicant:	Kathleen Alexander, DVM, PhD
Institution:	Virginia Tech
Category (choose only one): • Baccalaureate Institution • Masters/Comprehensive Institution • Research/Doctoral Institution • Two-Year Institution • Rising Star	Research/Doctoral Institution
Signature of President or Chief Academic Officer:	
Printed Name of President or Chief Academic Officer:	Cyril R. Clarke
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MISSION STATEMENT

Inspired by our land-grant identity and guided by our motto, Ut Prosim (That I May Serve), Virginia Tech is an inclusive community of knowledge, discovery, and creativity dedicated to improving the quality of life and the human condition within the Commonwealth of Virginia and throughout the world.

Summary of Accomplishments

Dr. Kathleen Alexander is recognized globally as a trailblazer in One Health research, education, and outreach in Africa, working to address complex challenges facing our societies. Having dedicated her life to serving humanity, she is known to governments as the "go-to" person when technical help is needed. Her research work has provided ground-breaking insights into the emergence of infectious disease and advanced the capacity of governments, communities, and young scientists to tackle increasingly complicated problems. Her work goes beyond domain boundaries, crossing disciplines, institutions, and cultures, weaving outreach and education throughout her efforts, ensuring that outputs advance the wellbeing of our global communities and, at the same time, create the next generation of nimble international practitioners dedicated to service. As a reflection of her impacts, the President of the Republic of Botswana recently visited Virginia Tech to meet with the Virginia Tech President, Provost, and Dr. Alexander to discuss the development of a unique partnership between the Botswana Government, CARACAL (an NGO she created), and Virginia Tech. This is thought to be the first foreign presidential visit to the Virginia Tech Campus. Simply put, her accomplishments and initiatives have redefined the global land grant mission. "***Dr. Alexander has had a lasting impact on this country and beyond, guided by her deep commitment to humanity across race, culture, education, or wealth. Her work will be the monument she leaves the world and its Peoples, and her epitaph shall ever be "Kathy left the world and all she met eminently better than when she found them."*** *Dr. Sidney Pilane, Former Special Advisor to the President of Botswana.*

Teaching: Dr Alexander has created novel educational programs that go beyond the normal classroom setting. Working across international environments, she has created the first of their kind experiential learning programs for high school students, undergraduates, graduates, and other professionals from the United States and across the world. In her long-term study site in Botswana, she merges student learning with her research and outreach programs. She uses a systems biology approach to study the complex and interdependent couplings between the natural environment and human societies. From this platform, students learn how to operate in international settings, engaging the principles of One Health to advance the wellbeing of humans, animals, and the environment. To create this novel teaching environment, she uses her grass-roots non-governmental organization and research institute, which she created in Northern Botswana in 2001 called the Centre for African Resources: Animal, Communities, and Land Use (CARACAL). With significant support from the National Science Foundation (NSF) and other donors, she has built extensive infrastructure to support the integration of student experiential learning into her research and outreach programs including student laboratories, classrooms, accommodation, ablutions, dining facilities, and field equipment that provides the foundation for active learning in her laboratory and field operations. Students work side by side with community members, traditional leaders, government officers, collaborating scientists, and graduate and postdoctoral students. Participating government officers come from a variety of disciplines and departments including the Department of Wildlife and National Parks, Police Services, Department of Animal Health and Production, Ministry of Education, the Kasane Primary Hospital and District Health Teams, CARACAL staff members, and others. Students shadow Dr. Alexander as she provides emergency support services across the region to both the Botswana Government and community members alike. Over the years, Dr. Alexander has mentored more than 100 undergraduate students through her programs. As a wildlife veterinarian, she has also provided critical experiential mentoring to countless pre-veterinary and veterinary students as well as veterinarians, creating the next generation of One Health practitioners. With her support and guidance, Botswana citizens and government officers have successfully moved through her graduate program at Virginia Tech together with her other graduate students. She is deeply committed to greater inclusion and diversity in science and has been awarded three supplementary grants from NSF to support the participation of US underrepresented minorities

from Virginia Tech (undergraduates) and high schools (students and teachers) in Virginia (e.g., *Minority Mentoring: Botswana and USA Youth Partnerships in Scientific Discovery*). In these programs, African American high school students and teachers travel to Botswana to participate in research and partner with Botswana staff, minority undergraduates, graduate students, postdocs, and other partners to promote confidence, a vision for service, and empowerment in the stem fields. Her continued engagement with these students identifies opportunities for high school students to return to Botswana from Virginia Tech as undergraduate minority mentors while they themselves engage in research, harnessing the power of mentoring others to build confidence and self-realization. The outcomes have been transformative and serve as a model for advancing diversity in the stem areas. "***Dr. Alexander's impact is more than profound, it is a message of hope to everyone who has had the pleasure of working with her—when we try hard enough, we can enact positive change in the world. Dr. Alexander brings her skills, stories, and dedication to Virginia Tech in a way that inspired me, and so many others, to not only pursue planetary health and conservation, but to be better scientists and people."*** *Emma Fralin, former student, DVM Candidate at Cornell University, College of Veterinary Medicine*

Discovery: Together with the large collaborative group she leads, Dr. Alexander has made ground-breaking scientific discoveries and provided critical contributions that have strengthened public, animal, and environmental health for generations to come. For example, she discovered a novel tuberculosis (TB) pathogen, *Mycobacterium mungi,* in banded mongoose (*Mungos mungo*) in Northern Botswana that is closely related to human TB. This represents a rare and important scientific discovery for pubic and animal health. This host-pathogen system serves as a long-term model for evaluating the complex dynamics of infectious disease transmission that crosses land type, host, and environment and provides critical insight into the management of this globally important health threat to both humans and animals. She continues working on other emerging zoonotic disease threats, with her findings not only advancing our scientific understanding of emerging diseases but informing human and animal health services across the region. Her work focuses on the role of water as a primary connection between many hosts and pathogen types across landscapes, and the manner in which linkages between humans, animals (domestic and wild), and the environment, including climate change, can drive water quality declines, waterborne disease outbreaks, and transmission of antibiotic resistant bacteria. Dr. Alexander's team developed basin-wide hydrological models to provide countries in Southern Africa a lifesaving tool to manage scarce water resources within and between nations and a mechanism for forecasting extreme weather events and climate change impacts. Her work has been critical in identifying water treatment and sanitation infrastructure insufficiencies and human health impacts in flood pulse systems. She is working actively with the Government, contributing the results of her research to inform the installation of a new water treatment plant at her field site. She works directly with the local hospitals and central government, sharing her results and supporting their health operations. She is increasingly involved in using research and education to enhance conservation and security, partnering in novel applications to detect criminal activity. She works closely with communities, advancing participation in natural resource management and land-planning and is tackling the increasing public health threat of foodborne pathogens in developing countries. She is widely published in high impact journals such as *Plos Medicine, Nature Communications*, and *Science*. She has been invited to share her critical research findings with various US agencies including the US Embassy in Botswana, the Regional Environment and Health Office for Southern Africa, the Centers for Disease Control (CDC) Botswana, and USAID's President's Emergency Plan for AIDS Relief. Her teaching, discovery, and service programs at CARACAL have attracted significant national and international attention with numerous site visits from regional heads of state, including the President of the Republic of Botswana, ambassadors from across the globe, ministers, members of the Botswana Parliament, and United States

senators, among other dignitaries. She has an expansive history of successful funding, securing highly competitive grants from US agencies such as NSF, where she serves as the PI for highly competitive programs such as the Ecology and Evolution of Infectious Disease (EEID) and the Dynamics of Coupled Natural and Human Systems. She currently serves as a PI and co-PI on two NSF awards and a co-PI on one Defense Health Agency award. She has just received notification of another multimillion-dollar recommendation for award from the Bureau of International Narcotics and Law Enforcement Affairs. Given her diverse expertise and unique capabilities, she was asked to serve as the **Ecological Advisor to the Office of the President of Botswana** from 2004 to 2006 and the **Scientific Advisor to Botswana's Presidential COVID Task Force** at the inception of the pandemic in 2020**.** She was the only foreign member of the task force and played a key role in directing the nation's pandemic response. She has created a profound legacy of change, a broad footprint representing Virginia Tech's global land grant mission that spans individuals, households, communities, ecosystems, countries, and continents. Her work serves as an example for this and future generations of scientists charged with resolving the world's most pressing challenges. In recognition of her accomplishments, she was awarded the **VT Alumni for Excellence in International Research. "*She is creative and a problem solver, identifying lasting interventions that are innovative, and this speaks to her creative capacities. It is this gift that has enabled her to make significant scientific discoveries in her career, which I have followed. Her work has transformed our understanding of emerging threats to Africa."*** Dr. Sidney Pilane, Former Special Advisor to the President of Botswana.

Knowledge Integration: Dr Alexanders is considered a pioneer in integrated experiential learning in Africa. She uniquely harnesses her complex research programs, collaborative relationships, and stakeholder connections to provide a unique platform for student engagement. Here, they have the opportunity to work alongside Dr. Alexander, developing first-hand experience in international research activities that cross disciplines, environments, and partners, transforming the learning process. She pushes students to realize confidence and personal growth, framing education and achievement through the lens of service. She has developed a unique experiential learning program for delivery to undergraduate students in Botswana (16-unit semester abroad program - Global One Health and Social Justice in Southern Africa and 6-unit summer session abroad program - Wildlife Health Immersion in Africa: Capture, Rehabilitation, and Forensics). For these programs, she leverages the power of co-learning approaches with community members and government, which are interwoven into her program of research and outreach. Her institution, CARACAL, is a long-term and vital fixture in Botswana and the platform for this educational curriculum, allowing students to develop unique relationships within the surrounding population where she has established a collaborative, multilayered, partner network that includes educators, NGO staffers, scientific researchers, government representatives, police and law enforcement agents, business leaders, social change agents, artists and artisans, and community members alike. The focus of her teaching has been directed at ensuring that students appreciate, through real life examples and experiential learning, the spectrum of partners and disciplines that describe any one problem and the need to engage across these groups to understand what is needed. In recognition of her unique contributions and experience, she was nominated to give a TEDx Talk where she highlighted her experiences and the important difference between knowing and knowledge in service and research and the importance of engagement to realize impact. The integrated programs she has established serve as a model for the execution of the global land grant mission, bringing experiential learning to the global level. "***For her EEID project, Dr. Alexander assembled a team of graduate students, undergraduates, high school teachers, and high school students to meet these challenges. These efforts have resulted in multiple funding supplements to the original award, demonstrating that we at NSF have judged them to be highly successful. Hers is the only EEID award that has received supplemental***

funds for high school student participation. These extensive efforts by Dr. Alexander in not just this project, but all of her research, demonstrates a level of international engagement that goes well beyond what is typical of U.S. scientists. Besides the grant from the EEID program, Dr. Alexander has received several other NSF grants with similar types of international research. Her multiple grants are a strong indication that these efforts are highly regarded." Samuel M. Scheiner, Program Director, Division of Environmental Biology, National Science Foundation

Service

Kathleen's entire career has been framed as an act of service for her profession, communities, and society at large. She is an Associate Editor for the high impact journal, *Frontiers in Ecology and the Environment* (IF 13.789) and serves on numerous specialist panels, groups, and commissions from the IUCN Commission on Ecosystem Management to the Wildlife Health Specialist Group. She has contributed her leadership skills to the development of the Global Systems Science Destination Area under Virginia Tech's Beyond Boundaries Program Initiative where she successfully applied participatory approaches, she has used previously with government health care workers in Africa. In Northern Botswana, she has provided veterinary services to the local community over the decades, free of charge, for domestic animal care. She continues to assist Botswana Government across Ministries and Departments. Her support of local government hospitals and clinics has been critical, from consulting on hospitalized and quarantined patients with suspected zoonotic diseases to providing resources, such as freezers and lab consumables, to support critical community health functions. She provides response services for wildlife emergencies, wildlife forensics, and disease outbreak investigations across the country. She coordinates Enviro911, a citizen environmental emergency reporting and response system. She has run a wildlife orphanage for decades providing care to a diversity of injured and orphaned animals. The animal collection is also leveraged to provide Botswana children and adults the opportunity to learn about wildlife at CARACAL, enhancing stewardship, encouraging citizen empowerment, and resource ownership. She has secured funding and supported numerous projects, from baskets to bicycles sales, to assist vulnerable women. She has also developed and led a support group for sex workers, assisted them in securing services from the local police and other Government agents, addressing persistent threats to their health and survival. She developed typing courses for women wanting to exit the sex trade. She also operates educational internship and teaching programs for Botswana children (12 schools) where school leavers (from 12-24) are hired from the community and work with Dr. Alexander, staff, and students to deliver prepared curriculum to hundreds of children per month. More than 4000 students and teachers visit her center annually, enriching education across the nation. In recognition of her contributions, she was awarded the **VT Alumni Award for Excellence in International Outreach in 2015**. Through her bold vision, lasting partnerships, and strong leadership, she is coordinating the final stages a collaboration to develop a partnered institute in Northern Botswana focused on integrated One health research, education, and service between CARACAL, VT, and the Botswana Government. This institute with its unique operational approach and mandate will be the first of its kind in the world. In 2020, in recognition of her efforts to extend the benefits of the nation's land grant universities into the international arena, she was awarded the highly prestigious university level award, the **William E. Lavery Professorship**. "**Kathy is a stellar professional, an extraordinary scholar, and colleague. She embodies all the qualities of a globally engaged researcher, practitioner, and professor. To put it in a nutshell, Kathy is the Jane Goodall and Florence Nightingale of the town of Kasane, Botswana. Her focus on One-health to improve human and animal health, reduce human and wildlife conflict, and protect the lives and livelihoods of marginalized women in the region has had a lasting impact on Kasane and northern Botswana writ large."** Guru Gosh, Virginia Tech, Vice President for Outreach and International Affairs

Personal Statement

It began with the postcards. They arrived from distant lands from my grandmother, addressed to Dr. Kathleen Alexander - I was five. I treasured each of them and dreamed of my future. Everything seemed possible. But those early years were hard and unusual by any standard. I grew up on a remote farm in New Mexico, often seeing no one but my family and animals for months on end. My parents were exceptionally reclusive, suffering through economic hardship and other things that, at that time, did not have a name. My younger brother and I were not allowed to go to school for much of the school year as we were needed to help on the farm– this was in a time and place where no one would notice a child left behind. I took my first spelling test in the 7th grade and to this day, I still can't spell. But my mother loved to read and so I read too, voraciously, with every page turned, a taste of freedom and dreams of the future. I learned to teach myself – a skill that has served me well through life. Through my extensive literary adventures, I envisioned traveling the world, contributing, serving, and making the world a better place. But my mother became sick and went to the hospital for an extended period; my father went to bed — I was ten. During that time, I took care of my little brother, father, and the animals on our farm. Many of the animals died; I was young and I didn't know how to fix animals or people or, indeed, make the world a better place. But I decided then that I would become a veterinarian and that I would, eventually, have the ability to help people and animals, to make the world a better place. This was a young and naive dream to be sure but one that I have continued to pursue throughout my life. These seemingly insurmountable challenges during my childhood years turned out to be transformative gifts, inspiring my life's efforts, giving me the tools and capacity to navigate complex and difficult landscapes, enabling me to charter a unique pathway of service.

Growing up as I did, I became adept at surmounting educational gaps and navigating barriers. After graduating from high school, I left the farm and hitched a ride, finding my own way and support to start my university education. It was a daunting challenge given my history of poverty and lack of access to formal education. But, failure was simply not an option. I persevered, working full time to support myself, eventually landing a full time job as an animal behaviorist at Sea World while I attended my classes on my days off. Sea World was a spectacular experience – performing shows in front of thousands of people, water ballets with killer whales, dolphins, playing the sheriff visiting a haunted castle with my trusty sea lion. It was here that I experienced first-hand how people can obsessively love, fear, and/or hate, all having very definitive views on what should and should not happen. This provided important insight into the origins of many societal challenges. Towards the end of my undergraduate program, I took a position working in the Arctic Circle with a team conducting a baseline environmental study. Here, I spent time with the Inupiat tribal people who were hunting seals and other wildlife for subsistence, the very thing others lamented. As I listened to their stories and witnessed first-hand the constraints of life in that harsh region of the world, I was struck by the differences in priority and perspective that are, ultimately, shaped by history, environment, and necessity. I began to appreciate the complexities and variation in human need and experience and the requirement for real engagement in planning and helping across divergent landscapes and peoples. It was the late 1980s, and engagement was not considered a critical part of the any tool kit, nor, for that matter, were women. I did not understand either of these things and so I ran after my dream of service.

I was admitted to veterinary school in 1988, securing a volunteer position studying African Wild dogs in the Masai Mara in Kenya during my first summer break. I was the only volunteer there, largely on my own. This experience changed me. While my passion for wildlife remained – I saw the incredible challenges facing families overwhelmed with poverty, lack of education, and health inequities. I realized that I needed to incorporate people and their context as a central element of my efforts. Thus, I extended my research efforts and role, studying disease transmission between humans and animals, capturing and tracking African wild dogs and other large predators while working with the Maasai tribal people and their domestic animals. In the field, I was often on foot, moving from village to village, walking through herds of wildebeest,

moving past lions through the grass plains together with my Maasai technicians. I was 24 years old and the work was compelling. One day I met a young pregnant woman. Her family had been attacked by a rabid spotted hyena and one young boy was killed. After a 30 km walk to the nearest clinic, she was sent home; she was told her wounds were not severe enough to warrant rabies vaccination. Another woman's bite wounds were sewn closed, leading to a life-threatening infection. I was able to help these women and many others. These were humbling experiences, a reflection of the pervasive need for service. From here, I extended my work to Botswana and other Southern African countries doing various comparative analyses, which culminated in the award of my PhD in 1995 after receiving my veterinary degree in 1992. I raised my own funding for my education, nearly $200,000 from diverse sources. These early research efforts highlighted the importance of human health and the multitude of factors that shape community, animal population interactions, and vulnerability to infectious disease. This launched my career and passion for international One Health research and education before the phrase "One Health" was coined. I learned from these different systems, tribal groups, cultures, institutions, and political settings. Most importantly, I learned how to navigate complex international landscapes and identify need from those who knew what was truly needed.

Upon obtaining my Ph.D., the Botswana Government recruited me to run the Department of Wildlife and the National Park's Wildlife Veterinary Unit, a position with national oversight responsibility. Here, I held a line-officer post within an African paramilitary institution. At the time, I was the only woman in such a position in Sub-Saharan Africa—I was 31. Here, I advanced the development of wildlife veterinary services as an instrumental component of wildlife management within the Government. In addition to directing all wildlife ground and air (helicopter and fixed wing) capture services and disease outbreak responses, I developed and implemented a comprehensive national wildlife health research strategy and established the first integrated wildlife veterinary research laboratory and care facility in Botswana. I conducted large-scale multispecies studies focused on zoonotic diseases. My experiences were diverse, from capturing rhino (accompanied by the Botswana Defense force to protect us against poachers) to responding to emerging disease outbreaks in perilously remote locations with limited support. Realizing the challenges facing African Governments and the need for external partnerships to realize capacity development, I left Botswana public service in 2001 and established a non-governmental organization (NGO) called CARACAL. I negotiated and secured 17 hectares of land from the Botswana Government to build a research and education center that would serve Botswana and beyond. With significant funding success and a great team of people, I established laboratory and educational facilities, creating a program of broad integrated assistance to the Botswana Government and the people of the country that crossed disciplines, ministries, and communities.

Through all of these experiences, I became committed to creating research and educational programs that would foster the development of independent and visionary leaders. I took my first academic position at Virginia Tech (VT) – I was 43. VT's global land grant mission was the optimal platform for such an effort and the natural choice for me. I wanted to create novel approaches that would foster the development of the next generation of leaders who would be uniquely capable of navigating complex international landscapes and challenges and were committed to service. With significant research and funding success, I developed the Chobe Research Institute under CARACAL, broadening infrastructure, programs, and developing a unique immersive, experiential-learning curriculum.

I am currently leading the development of a Virginia Tech, Botswana Government, and CARACAL collaborative institute, which will transform our vision of research, education, and service in Africa, truly realizing a north-south partnership that will transform our path to an equitable future, producing a new generation of diverse scientists committed to service. All that I have built with others will impact generations to come. I am only 59, though, and I feel like I am just getting started. I have so much yet to do!

KATHLEEN ANNE ALEXANDER: ABBREVIATED VITAE

Education: University of California, Davis: Doctor of Philosophy (**PhD**, 1995), Doctor of Veterinary Medicine (**DVM**, 1992), Bachelor of Science, Zoology (**BSc**, 1998)

Current Professional Appointments:

- Professor, Department of Fisheries and Wildlife Conservation, Virginia Tech 2015-Present
- Board President, CARACAL and Director Chobe Research Institute, Botswana 2000-Present

Professional Experience (Selected):

- Associate Professor, Fisheries and Wildlife Conservation, Virginia Tech 2007-2015
- Ecological Advisor, Office of the President of Botswana and AG Chambers 2004-2007
- CEO/Founder, CARACAL, Botswana 2001-2004
- Senior Wildlife Veterinary Officer, Head National Wildlife Veterinary Unit 1995-2001
  Government of Botswana, Department of Wildlife and National Parks, Botswana

Honors, Awards, and Other Distinctions (Selected):

- Technology-Enhanced Learning and Online Strategies (TLOS) Fellow 2023
- William E. Lavery Professorship 2021
- Alumni Award for Excellence in International Research 2015
- Alumni Award for Excellence in International Outreach 2013
- Botswana Department of Wildlife and National Parks Officer of the Year (Chobe) 2000

Specialist Advisory Roles/Groups (Selected):

- Scientific Advisor – Botswana Presidential COVID-19 Task Force 2020- 2021
- Committee on Agricultural and Food Microbiology 2015-Present
  Public and Scientific Affairs Board, American Society for Microbiology
- Dryland Ecosystem Specialist Group, CEM, World Conservation Union 2016-Present
- Board Member, Health Related Microbiology Specialist Group 2016-Present
  International Water Association, Specialist Group
- Subject Matter Expert: FDA - Game Meat Working Group 2013
- Working Group Member- Operational Epidemiological Modeling Process- 2011-2012
  National Center for Integrated Civilian-Military Domestic, Disaster Medical Response
- Commission on Ecosystem Management, World Conservation Union 2001-Present
- Wildlife Health Specialist Group, IUCN Species Survival Commission 1996-Present
- African Lion Working Group, Affiliate of the Cat Specialist Group 2000-Present
  ICUN Species Survival Commission
- Government of Botswana - Technical Advisory Group: Department of Environmental Affairs
  1) Natural Resource Management and 2) Environmental Information 2004-2008
- Canid Specialist Group, IUCN Species Survival Commission 1992-2004

Teaching : Graduate and undergraduate academic curricula developed and delivered at VT and abroad: 1) Developed curriculum Semester Abroad: Global One Health Experiential Learning in Southern Africa (16-units), 2) Wildlife Health Immersion in Africa: Ecology, Capture, Rehabilitation, and Forensics (6 credit hours), 3) Disease Ecology and Ecosystem Health (3 credit hours), 4) Advanced Topics in Disease Ecology (3 credit hours), 5) Dynamics of Infectious Disease at the Human – Wildlife Interface (3 credit hours).

Mentoring: Post-doctoral students: 10, Committee Chair, co-chair, or international field research supervision: (7 MS, 11 PhD), undergraduate student training Botswana and USA (>100

students), African American high school students and teachers experiential learning program in Botswana (NSF supported, 13 students, two teachers, three trips), Botswana K7-12 ~1000 per week across 12 schools over 6 years in Botswana with 4000 children a year visiting CARACAL, the NGO I established in Botswana.

Funding: Since coming to my first academic appointment in 2007, I have been awarded grants in the amount of $9,072,207 under my control. I currently hold two active NSF and one GEIS/JHF Award. I am currently finalizing the award contract with the US Department of State Bureau of International Narcotics and Law Enforcement Affairs ($2,664,268 included in totals). Total grant involvement $27,788,866 over the last 15 years since coming to VT.

Competitive Funding Sources (Select): National Science Foundation: (EEID, CNH, CNH2, Expeditions in Computing), National Institute of Health (Modeling Infectious Disease Agent Study (MIDAS) program), and the Global Emerging Infections Surveillance, Military Health System and Defense Health Agency.

Development Funding (Select, prior to 2007): Global Environmental Facility/World Bank, United Nations Development Program, USAID/African Wildlife Foundation, IUCN ROSA, European Union/Botswana Government

Research Publication – selected papers: 85 peer reviewed publications, one book and four book chapters, 12 requisitioned consultancy reports, cited 4629 times, h-index =36, i10-index=65, **Supervised research associate, postdoc, or graduate student (https://scholar.google.com/citations?user=ahdCjFQAAAAJ&hl=en)

- Abu-Saymeh, R.,** Godref, A, and **K.A. Alexander**. 2023. Modeling Large River Basins and Flood Plains with Scarce Data: Development of the Large Basin DataPortal. *Hydrology*, 10 (4), 87.
- Sanderson, C.E.,** Jori, F., Moolla, N., Paweska, J.T., Oumer, N., and **K.A. Alexander.** 2020. Rift Valley fever at the human-wildlife interface in Botswana: the quandary of silent circulation *Emerging Infectious Diseases*, 26(10), 2453-2456.
- **K.A. Alexander** and CA Nichols**. 2020. Behavior-landscape interactions may create super-spreader environments: vigilance-olfactory interactions across land type and disease transmission potential in the banded mongoose, *Frontiers in Ecology and the Environment*. https://doi.org/10.3389/fevo.2020.00047
- Heaney, A.K.**, **Alexander, K.A.**, and J. Shaman. 2019. Ensemble forecast and parameter inference of childhood diarrhea in Chobe District, Botswana *Nature communications, 10,* Article number: 5798.
- **Alexander, K.A.,** Heaney, A.K.,** and J. Shaman. 2018. Distant climate controls and dryland flood pulse dynamics influence diarrheal disease and population vulnerability to climate change in communities living near surface water resources. *PLOS Medicine, https://doi.org/10.1371/journal.pmed.1002688*
- Alexander KA, Sanderson CE,** MH Larsen, Robbe-Austerman SR, Williams MC, Palmer M. 2016. Emerging tuberculosis pathogen hijacks social communication behavior in the group-living banded mongoose (*Mungos mungo*). *mBio*, vol. 7 no. 3 e00281-16

Invited and Key Note Presentations (select examples):

- National Institute of Allergy and Infectious Diseases, Many Hosts of Mycobacteria 2022
- 8th Annual Global Health and Infectious Disease Conference, Washington University 2021
- Centers for Disease Control, International Emerging Infectious Diseases Conference 2019
- World Health Organizations and Convention on Biological Diversity 2013
  Regional Workshop-Inter-Linkages between Human Health and Biodiversity

Letters of Support

Supervisors/Senior Leadership

Timothy Sands, President of Virginia Tech: I strongly support Dr. Kathleen Alexander's nomination for the 2024 SCHEV Outstanding Faculty Award. Dr. Alexander's contributions to her academic field and the broader community are exceptional. Her dedication to teaching at Virginia Tech has left an indelible mark on countless students, inspiring them to become passionate advocates for wildlife conservation and disease ecology. Dr. Alexander's mentorship extends far beyond the classroom, providing her students with a sense of purpose and the skills necessary to address pressing global challenges. Her groundbreaking research has enhanced Virginia Tech and the commonwealth's prestige and yielded invaluable insights into the health of African wildlife. Dr. Alexander's commitment to conservation and her collaborative efforts with local communities exemplify the positive role of academia in society. In every facet of her work, Dr. Alexander embodies the qualities and impact that this award seeks to recognize, making her a most deserving nominee. Her contributions to Virginia and the world at large are truly outstanding.

Cyril Clarke, Virginia Tech Provost: Dr. Kathleen Alexander has become a leader in the integrated research field of human, wildlife, and domestic interfaces. She has achieved excellence in her scholarly endeavors. Her significant funding and scientific discoveries in One Health have brought about important changes to communities through government partnerships. She spearheads the development of unique undergraduate, graduate, and veterinary educational programs in Botswana, which serve as models for international experiential learning. Her transdisciplinary approach to problem solving has had impact on households, hospitals, communities, and government offices and she is a valued scientific advisor to the Botswana Presidential Task Force. Virginia Tech, the commonwealth, and the world are fortunate to have a champion like Dr. Kathleen Alexander and I am pleased to provide my strongest recommendation for her SCHEV nomination.

Guru Gosh, Vice President for Outreach and International Affairs: During her tenure at Virginia Tech, she has educated a generation of Virginians and Americans while working in partnership with Botswanans and Southern Africans to solve complex problems in the context of the developing world. Undoubtedly, the Commonwealth's scientific bank and socio-cultural sophistication is stronger due to Kathy's service as an educator and researcher – par excellence. In my two decades of working in Virginia's public higher education system - at William & Mary and Virginia Tech - I cannot think of a faculty member more deserving of the 2024 SCHEV Outstanding Faculty Award than Dr. Kathy Alexander.

Colleagues

Peter J Hudson, Pen State University, Elected Fellow Royal Society*:* Dr Kathy Alexander is a pioneer in the field of African One Health, integrating human health with wildlife health and environment conditions. Indeed, she was actively doing this in the wilds of Africa before the discipline got its name. She has expertise in many areas and leads a transdisciplinary research team of discovery and knowledge while embracing the educational needs of children in Botswana and Virginia. This is truly remarkable. When you meet Kathy, you appreciate just how she achieves so much. She has boundless energy, and she perceives no barriers in trying to solve the big issues facing humanity. For example, I would say it was almost impossible to use science-based guided policy in African countries, but not to Kathy. Her charisma and drive coupled with her achievements make her an obvious choice to be one of the 2024 Outstanding Faculty Awards. I cannot think of any better faculty member from any state of America.

W. Getz, UC Berkley, Professor of the Graduate Division, Emeritus Chancellor's Professor*:* Professor Alexander has had the most extraordinary and inspirational career of any of the several hundred follow scientists and academics, US and foreign alike, with whom I have interacted over the past 40 years. Her establishment of the CARACAL center in Botswana, her commitment to

the local people through her disease ecology studies, the veterinary clinics that she runs when in residence in Kasane, and her dedication to wildlife conservation standout as an exemplar of how academicians can serve a greater community beyond the confines of their focused research work. Nothing speaks more convincingly to the quality and importance of Professor Alexander's research program than her remarkable success in securing not one, not two, but three NSF simultaneous at a time when securing just one is a significant accomplishment on its own.

X.J. Meng, Virginia Tech, Member of the American Academy of Science: Kathleen is a truly extraordinary person, coming to academia late in her career bringing with her a unique vision and perspective that has contributed significantly to her professional impact and the global land grant mission. She is a born leader and visionary, dedicated to international service through a unique integration of scientific discovery, outreach and education. I have had the privilege of working with a variety of renowned scientists, but Kathleen stands out in her ability to contribute to Global Land Grant Mission of Virginia Tech.

Students

***Emma Fralin, former student, DVM Candidate at Cornell University College of Veterinary*:** Medicine: What set Dr. Alexander apart from the other faculty I worked with at Virginia Tech was her intense commitment to international work, and the integration of that work into the classroom. Her teaching style was the first I had seen where material was presented in a globally significant and relevant method, inducing excitement and motivating me to build upon learned information, and thus shaping my future career plans. I was fortunate enough to learn from Dr. Alexander first in her classroom, then her laboratory, and finally her study site in Botswana. I witnessed her shift from a lecturer stressing knowledge over memorization, to an ambitious investigator, a pensive diplomat, and a compassionate veterinarian. I saw how effectively Dr. Alexander empowered the systems she worked within, resulting in her being celebrated and welcomed as an accomplished and involved community member.

Nick Sybertz, Current Graduate Student, Virginia Tech: Dr. Alexander instills passion in all who meet her. From local community outreach and education to global public health missions, her passion for service exceeds that of anyone I know. As a mentor, Dr. Alexander has always been invested in the professional and personal growth of her students and employees. In my greatest successes and most devastating failures, her support is unwavering. There will always be ups and downs, twists and turns, and times when you question yourself and your choices. But Dr. Alexander infected me with a fierce passion for service, and even in the hardest times, I find that gift to be the light that guides me to success, happiness, and the ability to change lives.

Community Members

Sidney Pilane, Former Special Advisor to the President of Botswana: Dr Alexander is a leader and a visionary, her efforts have contributed importantly to our global community. Her scientific knowledge and capacities are unparalleled as she has a unique ability to integrate complicated scientific discoveries into translatable action and policy- identifying lasting impact, a rare attribute in a scientist. She remains above all else, an excellent and inspiring educator for all who encounter her, transforming perspective, creating critical thinking skills, and encouraging us all to seek our better selves. Her integrity is unimpeachable, and she has always committed to assisting people no matter the personal cost to herself. No to job is too big or too small for her; she will do any job as long as it carries benefit, not for her but for others.

Kgosi Mmualefhe Mmualefhe, Chief of Kachikau, Chobe District: Dr Alexander has been tireless in her efforts to assist our communities in Botswana. Through her outreach programs, she has inspired generations of school children to seek education and dream of greatness for our country. Her contributions will be lasting.