The Wildlife Disease Association (WDA) is a US based non-profit organisation established in March 1951 by a group of U.S. and Canadian scientists interested in wildlife diseases. The current Africa & Middle East Section (WDA-AME) section was established in 2014. The mission of the WDA is to acquire, disseminate, and apply knowledge of the health and diseases of wild animals in relation to their biology, conservation, and interactions with humans and domestic animals.

In December 2017, the WDA-AME Section organized a symposium and annual general meeting. This coincided with the Tanzania Wildlife Research Institute (TAWIRI) scientific conference held in Arusha, Tanzania between 6th and 8th December 2017. The theme of the symposium was The role of wildlife health professionals and the increasing trend of emerging and re-emerging disease at the wildlife-livestock-human interface.

The TAWIRI scientific conference was officially opened on 6th December 2017 by the Tanzanian Minister of Environment and Wildlife at the Arusha International Conference Center (AICC). This scientific conference was attended by many researchers and academics based in Tanzania and elsewhere in the world doing research related with environment and wildlife conservation in Tanzania and Africa. The WDA-AME symposium and annual general meeting was held on 7th December 2017. The Executive Director of the Wildlife Disease Association, Dave Jessup, was the chief guest. He opened the symposium with a presentation titled “Skepticism can be useful: Is there really an increasing trend for emerging and re-emerging diseases at the Wildlife-Livestock Interface?”.

There were a further nine presentations given by WDA members. These are listed on page 2. The annual general meeting was held after the scientific conference.

We were pleased and happy to be part of this conference as our knowledge on wildlife conservation was enhanced. As students, we were able to network with experienced professionals and experts in wildlife science and related fields. We were exposed to the new trends and technologies in wildlife and conservation research. Our sincere appreciation goes to the management of WDA-AME for the opportunity to attend the scientific conference and the WDA-AME symposium.
WDA AME SYMPOSIUM PROGRAMME

Skepticism can be useful: is there really an increasing trend for emerging and re-emerging diseases at the Wildlife-Livestock Interface
David A Jessup

Past, current, and future perspectives of One Health at the face of Global Health Challenges: Tackling Wildlife Zoonotic Diseases Perspective
Lawrence Mugisha

The role of One Health in safeguarding wildlife health in Tanzania: Opportunities and challenges
Julius Keyyu

A One-Health approach to Mountain Gorilla Conservation: Challenges and Opportunities for research, training and business
Benard Jasper Ssebide

A successful vaccine trial reveals an opportunity to control Malignant Catarrhal fever in cattle
Elizabeth Cook

Investigation of Malignant Catarrhal Fever in cattle comparing PCR and ELISA methods for diagnosis
Sheillah Orono

Haematological values of healthy and sick free-ranging lesser flamingos (Phoeniconaias minor) in Kenya
Thomas Nyariki

The African (Cape) buffalo (Syncerus caffer) is a reservoir of important zoonotic diseases
Elizabeth Cook

Evaluation of the implementation of One Health in Kenya: A case study of the Zoonotic Disease Unit
Kelvin Momanyi

Manifestations of Capripox disease in non-domesticated ruminants
Stephen Chege
A One-Day Workshop on the Health and Welfare of Invertebrates, particularly butterflies, was held at Kipepeo, situated at Gedi Historical Site, a village near the coastal town of Malindi in Kenya, on Wednesday 21st February 2018. The Kipepeo Project involves communities who live on the margins of the Arabuko-Sokoke Forest. Local people rear butterflies of certain species, using eggs from females that have been collected in the forest. The Kipepeo Project at Gedi then packs these as pupae and sends them to butterfly houses in Europe and North America. This arrangement not only assists local people to earn an income but also provides an incentive for them to protect the Arabuko-Sokoke Forest and its various endemic and endangered species of fauna and flora.

The Workshop in February was organised under the auspices of the National Museums of Kenya (NMK) and was run under the direction of staff of Kipepeo and Mombasa Butterfly House (MBH). The tutors and demonstrators were Mr Hussein Aden, Mr Laban Njoroge, Professor John E Cooper and Mrs Margaret E Cooper. This intensive training day was primarily intended for the staff of Kipepeo and the Mombasa Butterfly House but it also attracted some others who work with Invertebrates or have an interest in their care in captivity and their conservation in the wild. These included two Kenyan registered veterinary surgeons involved in the licensing of animals and animal products. A total of 41 people participated in the day's activities, including 25 involved locally in the "farming/breeding" of butterflies.

In his opening remarks, Hussein Aden gave a welcome to Kipepeo and the workshop. John and Margaret Cooper then led the preliminary session, in which the hosts, tutors and registrants introduced themselves.

Amongst those welcomed as guests were Dr Ian Gordon, now resident in Rwanda, who had started the Kipepeo Project in 1993. He outlined its history, aims and achievements to date. Another invited guest was Mr Mike Clifton, a very experienced entomologist who has lived and worked in Kenya for many years.

The bulk of the morning consisted of lectures, delivered in a mixture of English and Swahili. The topics covered were "Introduction to invertebrates" (Laban Njoroge), "Legal and ethical aspects of keeping invertebrates in captivity" (Margaret E Cooper), "Invertebrate health" (John E Cooper), and a description of the work of Kipepeo and the Mombasa Butterfly House.
(Hussein Aden). The last of these was combined with an opportunity for the farmers/breeders to discuss their work and problems they encounter in respect of butterfly health.

The afternoon comprised practical work. Participants looked at live butterflies and viewed enclosures under the guidance of Hussein Aden and other Kipepeo staff and with input from Ian Gordon and Mike Clifton. This tour of the facilities was followed by a "hands-on" session in which Laban Njoroge and John Cooper demonstrated the gross examination of different stages of Lepidoptera and taught methods of dissection and investigation - including the taking of samples from butterflies for microscopy. Portable field equipment was used for this work, to illustrate how such procedures do not initially depend on sophisticated laboratory facilities. The day finished with a discussion period, after which certificates were presented by Margaret Cooper to all registrants and those who assisted in the organisation.

This workshop at Kipepeo appears to have been a success. Much was learned by all parties. It was almost certainly the first time in Kenya, probably in Africa, that such a workshop, discussing the health of butterflies and linking this with welfare, conservation and sustainable use, had taken place. Discussions are underway as to how what was achieved in February could be developed and enhanced, not only so that it might directly benefit the work of Kipepeo and the Mombasa Butterfly House but with a view to its contributing to the scope of Kenyan entomology and the promotion of the country’s ecosystem health. One proposal is to organise a more in-depth, scientific, training session on invertebrate health and diseases in Nairobi, probably in the Entomology Section of the National Museums of Kenya. Further information about this and other possibilities will be announced in due course.

We are grateful to the Zoological Society of London (ZSL), the Veterinary Invertebrate Society (VIS), Dr John Ballany, Vetark Professional, Mr Paul Pearce-Kelly, Ms Sarah Pellett, Ms Sally Dowsett and Mrs Jeannie Knocker for their support and encouragement and to the Director-General of the National Museums of Kenya, Dr Mzalendo Kibunjia, for authorising the workshop. An expanded version of this report, with images, will be issued soon.
A vulture is a large bird of prey with the head and neck more or less bare of feathers, it feeds on carcasses and carrion. There are twenty-three known species of vultures classified into two groups namely: New world vultures and Old world vultures. There are seven species of new world vultures which are native in North and South America and they include black vulture (Coragyps atratus), turkey vulture (Cathartes aura) and King vulture (Sarcogyps papa) just to mention a few. The old world vultures inhabit Africa, Asia and Europe with sixteen species that comprise of the bearded vulture (Gypaetus barbatus), Ruppell’s vulture (Gyps rueppelli) and Egyptian vulture (Neophron percnopterus) among others.

In Africa the vulture population is on the decline, six of Africa’s vulture species are now at a higher risk of extinction according to the latest assessment of birds carried out by Birdlife International for the IUCN Red List of Threatened species. The main causes of the drop in vulture populations are attributed to indiscriminate poisoning where the birds are drawn to poisoned baits, habitat loss and human interference in their breeding sites. There is deliberate poisoning of vultures by poachers as congregations of vultures can alert authorities to a poaching incident especially big game e.g. elephant and rhino carcasses.

The use of vulture body parts in traditional medicine is also thought to contribute to their decline.

While some people may look down upon vultures and view them as unclean birds since they feed on carcasses and rubbish dumps, it is good to note that the vultures are the number one janitors in our environment. Their feeding behavior helps to remove carcasses of dead animals from the landscape that contain deadly diseases like anthrax, rabies, hog cholera and botulinum toxins thus preventing their spread in the ecosystem. The acid inside the stomachs of vulture is highly corrosive therefore facilitating the digestion of pathogens such as rabies.

When vulture populations decline the number of other scavengers increases. Scavengers like feral dogs, hyenas and rats move in to clear carcasses from the land. The problem with these scavengers is that they are more likely to spread diseases to people and other animals as well. In India for example the feral dog population increased after many vultures died as a result of consuming cow carcasses poisoned with diclofenac. The feral dogs infected others dogs with rabies which went on to spread the disease to the local people. Between 1993 and 2006 the government of India spent an estimated $34 billion to fight the spread of rabies, and up to today India continues to have the highest rate of rabies in the world.

It is high time the world fully appreciated the role of vultures in keeping our ecosystem clean, and being mindful of the profound consequences that will befall people and other animals if vultures were to disappear.

The current decline in vulture populations should be reversed if we are to save these magnificent species from becoming extinct. The major focus should be directed to Africa and Asia where the situation is desperate. Various conservation organizations working closely with local government should implement conservation plans to save vultures. Through creating public awareness on the importance of conserving vultures and their role in our ecosystem we can help reverse the trend.
Every year, tens of thousands of Africans will get sick from diseases spread between animals and people. Animals provide many benefits to people. However, some animals can carry pathogens that can be shared with people. Zoonotic diseases can be caused by pathogens including viruses, bacteria, parasites, and fungi. Zoonoses can cause many different types of illnesses in people and animals ranging from mild to serious illness and even death. It is important to know that animals do not always appear sick when carrying a zoonotic disease. Many animals can appear healthy, but still be carrying pathogens that can make people sick.

Zoonotic diseases are very common in Africa and around the globe. Scientists estimate that more than 6 out of every 10 known infectious diseases in people are spread from animals, and 3 out of every 4 new or emerging infectious diseases in people are spread from animals.

Many people interact with animals in their daily lives, both at home and away from home. Pets offer companionship and entertainment, with millions of households having one or more pets. We might come into close contact with animals at a county fair or petting zoo, or encounter wildlife while enjoying outdoor activities. Also, animals are an important food source and provide meat, dairy, and eggs.

How do diseases spread between animals and people?

Because of the close contact between people and animals, it’s important to be aware of the common ways people can get infected with zoonotic diseases. These can include:

Direct contact: Coming into contact with the saliva, blood, urine, nasal secretions, faeces or other body fluids of an infected animal. Examples include petting or touching animals, and bites or scratches.

Indirect contact: Coming into contact with areas where animals live and roam, or objects or surfaces that have been contaminated with germs. Examples include aquarium tank water, pet habitats, coops, plants, and soil, as well as food and water dishes.

Vectorborne: Being bitten by a mosquito, tick, flea or other invertebrate.

Foodborne: Eating or drinking something unsafe (such as unpasteurized milk, undercooked meat or eggs or unwashed fruits and vegetables that are contaminated with faeces from an infected animal).

Who is at a higher risk of serious illness from zoonotic diseases?

Anyone can become sick from a zoonotic disease, including healthy people. However, some people may be more at risk than others for certain zoonotic diseases. These people are more likely than others to get fatally sick, from infection with certain diseases. These groups of people include:

- Children under the age of 5 years
- Pregnant women
- Adults over the age of 65 years
- Anyone with a weakened immune system – for example, someone with HIV or a patient undergoing chemotherapy

What can you do to protect yourself and your family from zoonotic diseases?

Thankfully, there are things you can do to protect yourself and your family from zoonotic diseases.

Keeping hands clean through improved hand hygiene is one of the most important steps we can take to avoid getting sick and spreading germs to others. Many diseases and conditions are spread by not washing hands with soap and clean, running water. If soap and water are unavailable, use an alcohol-based hand sanitizer that contains at least 60% alcohol to clean hands.

Stay safe around animals/pets
Always wash your hands and follow proper hygiene after being around animals, even if you didn’t touch the animal.

Prevent bites from mosquitoes, ticks, and fleas.
Avoid bites and scratches from animals.
Handle food safely whether it’s for yourself or your family, your pet, or other animals.
Wildlife management can include wildlife conservation, game keeping, and pest control. Wildlife management draws on disciplines such as mathematics, chemistry, biology, ecology, climatology and geography to gain the best results.

Wildlife conservation aims at reducing the loss of Earth’s biodiversity by taking into consideration ecological principles such as carrying capacity, disturbance and succession as well as environmental conditions such as physical geography, pedology, and hydrology. Biologists are concerned with the preservation and improvement of habitats through techniques including reforestation, pest control, nitrification and denitrification, irrigation, coppicing and hedgelaying.

Game keeping is the management or control of wildlife for the well being of the game and may include killing other animals which share the same niche or predators to maintain a high population of the more profitable species such as pheasants introduced into woodlands. This is defined as the art of making land produce, sustained annual crops of wildgame for recreational use.

Pest control is the control of real or perceived threats and can be used for the benefit of wildlife, farmers, gamekeepers or safety reasons. This might include the application of vaccines to animals or control of unwanted plant and animal species.

Major wildlife management activities should be based on habitat control, erosion control, predator control, providing supplemental food and water as well as providing supplemental shelter especially to organisms that are facing the risk of extinction. Wildlife management should include a census to determine the approximate number of animals in reserved areas and our forests. Due to improved technology this has been made possible as trackers can be attached to animals especially those in gazetted areas to track and monitor their movements.

Acts of poaching and deforestation should be punished through laws and policies implemented by the Government. As the late Professor Wangari Maathai said "Nature is unforgiving", our future generations should not suffer because of our crimes against nature. All this can be done smoothly when the society is educated to know the importance of conserving forests and animals.
During 2016-2018, I was the vice-Chair of the Wildlife Disease Association (Africa & Middle East section), during which time our committee made huge success which included organizing a wildlife disease symposium in Arusha, Tanzania which was attended by more than 300 participants and high impact papers were presented, recruitment of new members which has made AME have more members than other sections of WDA and helped establishment of a student chapter (South Africa) our new baby in the block. It is also during this time that we have enhanced WDA-AME section visibility by being actively involved in social media (twitter, whatsapp) and hopefully once I get your votes I will work towards creation of WDA-AME website.

Wildlife professionals have a big role to play, the training is super and they have the will to do it, they need dedicated and visionary leaders of which I believe I fit the bill. I am presenting my candidature for the position of the Chairman so that we can all move together to the next level. I will bring onboard experience in managing the association (good institutional memory) as well as sharing my vast experience in wildlife management. I strongly feel WDA AME requires a person who understands the wildlife conservation dynamics on the ground and a person who is ready and willing to partner with others. This person is Stephen Chege and I call upon of all you for your support. God bless you all.

I am a veterinarian by training who has as well advanced his studies by pursuing a Master’s degree in Veterinary Epidemiology & Economics as well as an advanced Diploma in Business administration. I am currently managing a wildlife disease surveillance program, a collaborative project between Kenya Wildlife Service, San Diego Zoo Global and the Northern Rangelands Trust, in Northern Kenya focusing mainly on endangered species. I have previously worked as a senior veterinarian in Al Ain Zoo, United Arab Emirates as well as being a wildlife veterinarian at Kenya Wildlife Service.

DR STEPHEN MAINA CHEGE
CONTACT: THEWILDVET@GMAIL.COM
DR HANA SOUALAH-ALILA
CONTACT: SOUALAHALILAHANA@YAHOO.FR

I am a doctoral professor researcher working on Wildlife Biodiversity and Environment Health at the University of Souk Ahras (Laboratory science and techniques of water and environment). My role in this position is to investigate the epidemiology of diseases at the wildlife-human interface.

I am originally from Algeria where I studied Animal Ecology at the University of Badji Mokhtar, Annaba (Algeria). I spent 8 years investigating the role of lizards in the transmission of pathogens in Algeria. I have a Magisterial and Doctoral degree in wild animal-environment Health. I conducted research projects investigating the epidemiology, ecology of zoonotic diseases, human health and wildlife.


My PhD research investigated pathogens, vectors, lizards and zoonotic diseases in the North east and south of Algeria. This research reported the first list of ectoparasites and pathogens found on our lizards.

I am currently conducting a number of projects in Algeria and Europe investigating the interactions between pathogens and disease and their impact on species and ecosystems. Mammals and birds diseases of wildlife, ecology of the host-pathogen interaction; data analysis and epidemiology software; wildlife disease surveillance are our current objective in several zones in Algeria.
GENERAL SECRETARY

DR JOSEPH MAINA GAKUHA
CONTACT: JGAKUHA@KWS.GO.KE

Joseph Maina is a veterinary technologist of long-standing experience in Wildlife Health. Currently he works as the Veterinary technologist at the Kenya Wildlife Service, where he has a wide range of work related experience in both captive and free ranging wildlife in Kenya’s protected areas. Joseph has a deep sense of writing and keen sense of scientific studies on wildlife diseases and has been instrumental in drafting the Kenya wildlife Service veterinary department’s annual reports. As a Secretary General of WDA- AME Joseph is determined to bring value to members and connect with their needs to establish an interactive platform. He intends to bring on board new energy derived from the vast experience he has accumulated over these years to students both in veterinary and non-veterinary professions in pursuit of skills for the advancement of wildlife health. Joseph holds a Diploma in Animal Health from Egerton University and has undergone training in institutions of higher learning both regionally and oversees to sharpen his skills in the field of laboratory disease diagnostics such the Sokoine University of Agriculture in Morogoro Tanzania and the University of Leicester UK. Joseph is a registered member of the Kenya Veterinary Board and the Kenya Paraprofessional Association.

DEPUTY SECRETARY

DR VINCENT OBANDA
CONTACT: VOBANDA@KWS.GO.KE

Vincent Obanda is a disease ecologist with a passion in Zoonoses and Food Animal Diseases (ZoFADs) at the interface of Human/Livestock/Wildlife. He is currently the Veterinary Research Scientist in Kenya Wildlife Service, where he has over 10 years work experience. Vincent has served as a committee member of the WDA-AME for two years and looks forward to a new mandate and position of Deputy Secretary in which he is determined to continue strengthening the Association. Specifically, he is keen to bring value to members and connect with their needs to establish a dynamic interactive association. He will promote multiple fora that impart knowledge and inspire students both in veterinary and non-veterinary professions to pursue and use skills for advancement of wildlife health. Vincent brings a wealth of experience, having worked on wildlife diseases in both free-range and captive facilities as well as laboratory settings and has been a coordinator for many multi-national projects investigating Anti-Microbial Resistance, Newcastle Disease, Tuberculosis, Foot-and-Mouth Disease, Theileria, Babesia, Arboviruses and Bat viruses. Vincent holds a PhD in Applied Veterinary Parasitology from the University of Nairobi. He is a long serving member of the IUCN species survival committee (SSC), World Association for the Advancement of Veterinary Parasitology (WAAVP) and certified professional by International Federation of Biosafety Association (IFBA) that promotes high standards of biosafety and biosecurity towards implementation of the Global Health Security Agenda. In addition, Vincent mentors University students pursuing post-graduate degrees.
DR ANNIE COOK  
CONTACT: ANNIEVET1@GMAIL.COM

I am currently the treasurer on the WDA AME committee. Over the past two years I have been an active member and have contributed to the section by editing the newsletter, managing the bank account and keeping the accounts. I would like to continue supporting the section in my role as treasurer. I am a post-doctoral fellow in epidemiology at the International Livestock Research Institute. My role in this position is to investigate the epidemiology of diseases at the wildlife-domestic-human interface. I studied veterinary science at the University of Sydney. I spent 8 years in clinical practice before focusing full time on research. I have a Masters in Wild Animal Health and a Masters in Public Health in Developing Countries. I have conducted research projects investigating the epidemiology of zoonotic diseases including tuberculosis, *Echinococcus*, *Cryptosporidium*, rabies, brucellosis, leptospirosis, Q fever and RVF in Uganda, Kenya and Tanzania.

I am currently conducting a number of projects in Kenya investigating diseases at the wildlife-livestock interface. I have been involved with research on diseases transmitted to cattle from wildlife including Corridor disease from African buffalo to cattle and also Malignant Catarrhal Fever (MCF) from wildebeest to cattle.

DR VERONICA EYIHURI ADETUNJI  
CONTACT: ONIZE5@YAHOO.COM

I am a lecturer in zoo and wildlife medicine from University of Ibadan, Nigeria. I graduated with a Doctor of Veterinary Medicine (DVM) and Masters of Veterinary Public Health (MVPH) degrees; 2008, and 2010 respectively. I am married with three children; two boys and a girl.

I have unflinching interest in zoo and wild animal health management and have been undergoing trainings, conferences attendance to improve in this area of interest. In addition I have done researches on zoo and wild animal management and conservation, My current research is on molecular characterization of haemo-parasites of chelonians and other reptiles.

I was employed by the University of Ibadan, Department of Veterinary Public Health and Preventive Medicine, Aquatic and Wildlife Unit to teach wildlife diseases and ecology and management to the undergraduate students of the Faculty of Veterinary Medicine from 2010 till date. I have also been involved in rendering clinical services to the University Zoological gardens through the Veterinary Teaching Hospital, and owners of exotic pets like tortoises and other wild animals.

Joining the WDA Africa and Asia as a Committee member will afford me opportunity to contribute my quota to the global development of WDA. It will afford me the opportunity to collaborate with colleagues from other countries to widen my horizon and facilitate effective teaching and development of wild animal practice in Africa. I promise to serve the association with the best of my ability if elected.
I am an avid lover of the natural world, since an early age, and completed my undergraduate studies in Zoology at the University of Pretoria. Here I had the opportunity to be part of the mentorship program in my final year, under the guidance of Prof Armanda Bastos, working on African swine fever under BSL-3 conditions. I strongly believe that mentorship, if done right, is a great way of transferring knowledge and preparing students for the future. I moved to the University of the Free State (UFS) for my BSc. Hons. Zoology, at the Qwaqwa campus, where I studied the phylogenetic relationships of haemoparasites in the local lizard population. Here I was given the opportunity to present at the International Congress on Parasites of Wildlife in Skukuza during September 2014. I am also a strong advocate to give students a lot of exposure and opportunities to help them grow. After my Hons my MSc. in Molecular Biology started at Stellenbosch University and in 2016 I upgraded the project to a PhD. The focus of the project is to develop molecular diagnostic assays that can detect *Mycobacterium bovis* in warthogs, as well as studying the phylogenetic relationship of the bacteria. During my studies I have been actively involved in student leadership, as I was part of a team that started the first ever Postgraduate Student Council at Stellenbosch as well as being the President of the SA WDA SC. Student guidance is a real passion of mine.