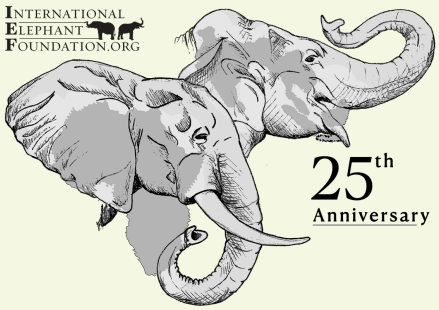
20th International Elephant Conservation & Research Symposium

July 30-August 2, 2024

Endangered Species?
Not if we can help it



Program
20th International Elephant Conservation and Research Symposium (Virtual)
July 30 – August 2, 2024

TUESDAY JULY 30, 2024

6:00 am - 6:15 am Welcome - Introduction to the International Elephant Foundation

Featured Speaker:

6:15 am – 7:15 am Why we concluded that there are two species of elephant in Africa
Alfred Roca

Veterinary Care

7:15 am – 7:30 am Genomic resources for Asian (*Elephas maximus*) and African (*Loxodonta africana*) elephant conservation and health research
Natalia Prado

7:30 am – 7:45 am Isolating alveolar macrophage to assist in understanding the immune response in African elephants (*Loxodonta africana*)
Stacey Caitlin Engel

7:45 am – 8:00 am Bisgaard Taxon 45: a novel cause of fatal septicaemia in African Elephants
Laura Rosen

8:00 am – 8:15 am Elephant prosthetics - a big challenge
Steven John Bukvic

Linking In Situ and Ex Situ Conservation

8:15 am – 8:30 am Exploring the wide potential of linking in situ and ex situ conservation in elephants – a promising approach
Christian Schiffmann

8:30 am – 8:45 am The Sri Lanka Elephant Project: an interdisciplinary research and conservation effort
Chase LaDue

8:45 am – 9:00 am Global conservation powerhouses unite to launch the first center for species survival for Asian elephants in India
Adam Felts

9:00 am – 9:15 am Asian elephant support update on care and conservation projects in Asia
Mary Miller

Storytelling to Support Conservation Initiatives

9:15 am – 9:30 am Creating compelling, resonant and entertaining stories to engage and build audiences
Fairlie Arrow

9:30 am – 9:45 am TikTok for good: how social media can make a positive impact for pachyderms
Erin Reilly

9:45 am – 10:00 am Housekeeping and Close

WEDNESDAY JULY 31, 2024 WORLD RANGER DAY

6:00 am - 6:10 am Welcome - World Ranger Day

Celebrating Wildlife Rangers and Community Conservation

6:10 am – 6:20 am The Wildlife Ranger Challenge
Charlie Mayhew

6:20 am – 6:35 am Elephants as crime victims: efforts to protect elephants from illegal trafficking in Sri Lanka
Jessica Rizzolo

6:35 am – 6:50 am Elephant Response Units: Snare removal from Sumatran elephant calf
Christopher Stremme and Komunitas untuk Hutan Sumatera

6:50 am – 7:00 am Are we conservation heroes or conservation villains
Amos Gwema

7:15 am – 8:00 am Northern Rangelands Trust 9 Teams
Ian Craig and Samuel Lekimaroro

8:00 am – 8:15 am Conservation Lower Zambezi – Working today to protect tomorrow
Peter Longwe

8:15 am – 8:45 am Tsavo Trust – thriving biodiversity, sustainable livelihoods, and strong partnerships in the greater Tsavo Ecosystem
Joseph Kyalo Kimaile and Nicholas Njogu

8:45 am – 9:15 am Conservation Joint Operations Command Center
Mike Keigwin

9:15 am – 9:45 am EarthRanger: The Central Platform for Holistic Wildlife Protection
Swabir Seif

9:45 am – 10:00 am Community Conservancies and Community Conservation
Derek Lubangakene

10:00 am – 10:15 am Community Elephant Guards to Mitigate Human-Elephant Conflicts, Namibia
Christin Winter

10:15 am – 10:30 am Housekeeping and Close

THURSDAY AUGUST 1, 2024

6:00 am – 6:15 am Welcome

Human- Elephant Conflict

6:15 am – 6:45 am Elephants and sustainable agriculture in Kenya (ESAK): Research progress and outreach
Bruce Schulte, Simon Kasaine

6:45 am – 7:00 am Understanding human-elephant conflict in Sarpane, Bhutan
Tashi Wangdi

7:00 am – 7:15 am Understanding local perspectives and education on human-elephant conflict conservation efforts in Sri Lanka
Avery Marie Nicholas

7:15 am – 7:30 am	Trunk wars: navigating the human-elephant conflict Kaveri Jambagi
7:30 am – 7:45 am	Multispecies anthropology and interdisciplinary approaches to HEC studies: farmer-Asian elephant coexistence research in Eastern Thailand Anandi Gandhi
7:45 am – 8:00 am	Assessing the effectiveness of deterrents in major elephant conflict zones using GIS analysis Yasmin Perry
8:00 am – 8:15 am	Promoting sustainable coexistence: mitigating human-elephant conflict in the Selous Niassa Wildlife Corridor Philipo Jacob Mtweve
8:15 am – 8:30 am	Creating environmental and conservation leadership in Malawi Steven Makumba
8:30 am – 8:45 am	Smallholder farmer's knowledge, perception and practices regarding elephants restraining poliwire fences in Mambova Wildlife Corridor, Southern Zambia Edgar Hichoonga
8:45 am – 9:00 am	Conservation education and human-elephant conflict mitigation in Arabuko-Sokoke Forest Ecosystem, Kenya Jessica Carey
9:00 am – 9:15 am	Getting along with elephants and three days trainers of training workshop in Odisha, India Mamatha Sathyanarayana
9:15 am – 9:30 am	Sri Lanka Wildlife Conservation Society Ravi Corea

Hormone Monitoring

9:30 am – 9:45 am	Investigating reproductive and metabolic aging in captive Asia (*Elephas maximus*) and African (*Loxodonta africana*) elephants in US Zoos through long-term hormone monitoring Natalie Prado
9:45 am – 10:00 am	Use of onsite reproductive hormone monitoring to predict parturition for five African elephant births Leon Krause
10:00 am – 10:15 am	Housekeeping and Close

FRIDAY AUGUST 2, 2024

6:00 am - 6:05 am	Welcome
6:05 am – 6:15 am	Elephant teeth and ivory Ellen Wiedner

Elephant Endotheliotropic Herpesvirus

6:15 am – 6:30 am	Elephant Endotheliotropic Herpesvirus (EEHV) Updates from the North American EEHV Advisory Group Lauren Howard

6:30 am - 6:45 am	Closing the gap - EEHV shedding and viremia in African elephants Zachary LaGrange
6:45 am – 7:00 am	Inducing an EEHV-primo infection using natural social stressors to a young Asian elephant in human care Chrispijn Schilp
7:00 am - 7:15 am	EEHV-specific nanobodies - a potential (prophylactic) treatment for EEHV-HD Tabitha Hoornweg
7:15 am – 7:30 am	Development of an Elephant Endotheliotropic Herpesvirus vaccine Paul Ling

Elephant Behaviour in Range Countries

7:30 am – 8:00 am	Elephant orphan conservation and herd reintegration Adine Roode
8:00 am – 8:15 am	Examining dyad proximity and social bond dynamics in a herd of African savannah elephants (*Loxodonta africana*) during release from semi-captivity in to the wild Keneilweone Kejekgabo
8:15 am – 8:30 am	Dynamic occupancy modelling of Asian elephants (*Elephas maximus*) in Nepal Ashok Kumar Ram
8:30 am – 8:45 am	The effectiveness of camera trap videos for identifying wild Asian elephants Sasha Montero-De La Torre
8:45 am – 9:00 am	Innovation in wild Asian elephants across landscapes Sarah Jacobson
9:00 am – 9:15 am	Spatial Capture-Recapture (SCR) point process analysis for elephant populations in Trumon District, South Aceh, Aceh Province Abdullah Abdullah
9:15 am – 9:30 am	Relationship between shared space-use and between-clan dominance in the Asian elephants, Nagarahole-Bandipur National Parks, southern India Chowdari Jabili
9:30 am – 9:45 am	Mammalian and avian community response to African Elephant (*Loxodonta africana*) habitat disturbance in southeastern Kenya Dakota Vaccaro
9:45 am – 10:00 am	Self-directed behaviours in captive African elephants increase with tourist numbers and close interactions Maud Bonato

10:00 am – 10:15 am	Closing Ceremony

ABSTRACTS

20TH INTERNATIONAL ELEPHANT CONSERVATION AND RESEARCH SYMPOSIUM

July 30 – August 2, 2024

TUESDAY, JULY 30, 2024

Featured Speaker: Dr. Alfred Roca is currently full professor at the University of Illinois at Urbana-Champaign (UIUC). He earned his doctorate at Harvard University, then conducted research at the Laboratory of Genomic Diversity before joining UIUC. He has published 106 peer-reviewed scientific journal articles, given 50 invited lectures, and served on 20 grant review panels. His research interests involve the population and conservation genetics of mammals, notably African elephants, other endangered species, and domesticated animals.

Why we concluded that there are two species of elephant in Africa

Alfred L. Roca
Department of Animal Sciences, University of Illinois at Urbana-Champaign, Urbana, Illinois 61801

Multiple lines of evidence support the conclusion that extant African elephants comprise two distinct species: the savannah elephant (*Loxodonta africana*) and the forest elephant (*L. cyclotis*). Forest and savanna elephants display differences in social structure, life history, and diet; and generally reside in different habitats. Forest and savanna elephants are morphologically distinctive: relative to savanna elephants, forest elephants are smaller in stature and have thinner, straighter, and downward pointing tusks. There are morphological distinctions in the cranium and mandible. A multivariate analysis of skull dimensions, featuring 295 samples from widespread locations across elephant range in Africa, generated two nonoverlapping clusters corresponding to elephants from forest and savanna habitats, with a few intermediaries largely from habitat transition zones. Genetic studies using nuclear markers have strongly supported the conclusion that extant African elephants comprise two species. Geographically widespread nuclear gene flow occurs within but not between the two species. This absence of nuclear gene flow in the face of parapatry and hybridization between forest and savanna populations provides the most compelling support for their separation as distinct species, with further support provided by multiple types of analyses. Various studies using nuclear DNA markers, featuring samples from widespread locations in Africa, have revealed forest and savanna elephant lineages to be deeply divergent, with a limited degree of hybridization where the two types meet. Most of the nuclear genetic diversity present in African elephants is due to differences between forest and savanna species. Genetic diversity is much higher within forest elephants than within savanna elephants, the very large difference is preserved due to the limited nuclear genetic introgression between the two species. Despite the high diversity of the forest elephant, most of the genetic diversity present within Loxodonta is due to differences between the two species rather than within species, indicating that forest and savanna elephants are strongly subdivided. A Bayesian approach that relies on the deviation of allele frequencies from expectations under Hardy-Weinberg equilibrium has divided Africa's elephants into two groups or partitions, each of which corresponded to one of the species (although

species information was not used in the analysis). Forest and savanna elephant lineages are reciprocally monophyletic: on a phylogenetic tree, a clade consisting of all savanna elephants included no forest elephant individuals, and a clade consisting of all forest elephants included no savanna elephants. The two species are estimated to have diverged millions of years ago; their divergence is almost as great as between the Asian elephant genus (*Elephas*) are the mammoth genus (*Mammuthus*). The two species show limited gene flow despite the presence of a hybrid zone, and it is important to note that the existence of hybrid elephants does not detract from recognizing forest and savanna elephants as distinct species, even under the strict biological species concept (BSC). The BSC recognizes that many species can hybridize, but does not lump them into the same species if the genetic integrity of the parent species has remained intact, as is the case for African elephants. Finally, the mitochondrial DNA shows very different patterns from all other genomic markers; the incongruent patterns suggest that female matrilocality and reduced reproductive success for hybrid males have been responsible for maintaining the deep distinctions between the two species. (Collaborator names and affiliations will be shown in the presentation.)

Genomic resources for Asian (*Elephas maximus*) and African savannah elephant (*Loxodonta africana*) conservation and health research

Natalia A. Prado[1,2,] Ellie E. Armstrong[3,] Janine L. Brown[2,] Shifra Z. Goldenberg[2,] Peter Leimgruber[2,] Virginia R. Pearson[5,] Jesus E. Maldonado[2,] Michael G. Campana[2]
[1]*Adelphi University;*
[2]*Smithsonian National Zoo and Conservation Biology Institute*
[3]*Stanford University;*
[4]*San Diego Zoo Wildlife Alliance;*
[5]*Fox Chase Cancer Center*

We provide novel genomic resources to help understand the genomic traits involved in elephant health and to aid conservation efforts. We sequence 11 elephant genomes (5 African savannah, 6 Asian) from North American zoos, including 9 de novo assemblies. We estimate elephant germline mutation rates and reconstruct demographic histories. Finally, we provide an in-solution capture assay to genotype Asian elephants. This assay is suitable for analyzing degraded museum and noninvasive samples, such as feces and hair. The elephant genomic resources we present here should allow for more detailed and uniform studies in the future to aid elephant conservation efforts and disease research.

Isolating alveolar macrophage to assist in understanding the immune response in African elephants (*Loxodonta africana*)

Stacey Caitlin Engel[1], Tanya Jane Kerr[1], Léanie Kleynhans[2], Tracey Jooste[1], Gian van der Spuy[1] and Michele Ann Miller[1].
[1]*South African Medical Research Council Centre for Tuberculosis Research; Division of Molecular Biology and Human Genetics, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa.*
[2]*Mater Research Institute - The University of Queensland, Translational Research Institute, Brisbane, Australia.*

Infectious diseases, such as Tuberculosis (TB), remain a threat to elephant populations globally. The pathogenesis and associated immune response of elephants is poorly understood due to a lack of

reliable diagnostic assays. This study aims to use alveolar macrophages from the lungs (TB site of disease) of African elephants (*Loxodonta africana*) to better understand and characterise the immune response of this species.

Bronchoalveolar lavage fluid (BALF) was obtained endoscopically from eight immobilized, free-ranging African elephants in Kruger National Park, South Africa. Following centrifugation of BALF, mucous was digested and large particulates were removed via filtration after which cells were isolated using Ficoll gradient separation. An aliquot of the cells was stained with Rapi-diff stain to confirm the purity and cell composition. QuPath software (version 0.5.1) was used to visualize and count the stained cells and R-program (version 4.4.1) was used to determine summary statistics (median, interquartile range). The cells were then cultured unstimulated (phosphate buffered saline) or stimulated (Pokeweed Mitogen) for 24 hours for downstream gene expression analysis.

The differential stains and counts of cells successfully isolated from the BALF of African elephants suggest that 71.90% - 96.40% (87.25, 80.43-92.40) of the cell population were macrophages, 2.40% - 11.70% (6.00, 4.90-7.65) were lymphocytes, 0.20% - 19.60% (2.45, 0.30-10.33) were neutrophils, and 0.10% - 5.10% (1.45, 0.83-3.58) were eosinophils.

This method allows for the successful isolation of alveolar macrophages from BALF containing mucous and debris. These results suggest that majority of the cell population in BALF from African elephants were alveolar macrophages. Therefore, the subsequent stimulation and RNA extracted from these cells were assumed to be from alveolar macrophages with little contamination from other cells. Future work will include extracting RNA from these cells for gene expression analysis to discover potential biomarkers from alveolar macrophages to better diagnose diseases such as TB.
Keywords: African elephant (*Loxodonta africana*), Bronchoalveolar lavage (BAL), alveolar macrophages, cell culture, Tuberculosis (TB)

Bisgaard taxon 45: A novel cause of fatal septicaemia in African elephants

Laura E. Rosen [1,2], Chris M. Foggin [2], Marijke M. Henton [3], Angela Buys [4], Toby Floyd [5], Andrew D. Turner [6], Jonathan Tarbin [7], Antony S. Lloyd [7], Columbas Chaitezvi [8], Richard J. Ellis [9], Helen C. Roberts [10], Akbar Dastjerdi [11], Alejandro Nunez [5], Arnoud H. M. van Vliet [12], Falko S. Steinbach [11,12]

[1] *Transboundary Epidemiology Analytics, Alpharetta, GA, USA*
[2] *Victoria Falls Wildlife Trust, Victoria Falls, Zimbabwe*
[3] *Vetdiagnostix, Blue Hills, Midrand, South Africa*
[4] *Design Biologix, Erasmusrand, Pretoria, South Africa*
[5] *Pathology and Animal Sciences Department, Animal and Plant Health Agency Weybridge, Addlestone, UK*
[6] *Centre for Environment Fisheries and Aquaculture Science, The Nothe, Weymouth, UK*
[7] *Fera Science, Biotech Campus, York, UK*
[8] *Zimbabwe Parks & Wildlife Management Authority, Harare, Zimbabwe*
[9] *Surveillance & Laboratory Services Department, Animal and Plant Health Agency Weybridge, Addlestone, UK*
[10] *Department for Environment Food & Rural Affairs, London, UK*
[11] *Virology Department, Animal and Plant Health Agency Weybridge, Addlestone, UK*
[12] *Department of Comparative Biomedical Sciences, University of Surrey, Guildford, UK*

African elephant (*Loxodonta africana*) mortalities in Botswana and Zimbabwe featured prominently in global news in 2020. Poaching and malicious poisoning were ruled out early as the cause of death, with environmental intoxication and infectious diseases remaining as differential diagnoses. The mortalities in Botswana were later attributed to a cyanobacterial toxin. This study explored samples from the elephants in Zimbabwe to identify a cause of death.

Elephant mortalities were investigated in northwest Zimbabwe between August–November 2020. A total of 35 carcasses were identified, 15 of which could be sampled. Six post-mortem examinations were performed and tissues collected. Samples underwent a battery of tests at laboratories in Zimbabwe, South Africa, and the UK, including histopathology, bacterial culture, toxicological analysis, and molecular diagnostics to identify potential causative agents.

Elephant carcasses from both sexes (16 males, 9 females) and a wide age range (18 mo –30 yr) were found. Gross pathology revealed hepatomegaly and splenomegaly with variable haemorrhages throughout the body. Histopathological investigation showed acute multifocal heterophilic and necrotizing inflammation in the liver, spleen, and lymph node with intralesional Gram-negative coccobacilli. Blood smears also showed bipolar, short-rod, or coccobacilli, including within neutrophil cytoplasm. There was no evidence of intoxication with cyanobacteria or other toxins, and no evidence of anthrax or viral infection. Culture isolates from one elephant underwent 16S sequencing which most closely resembled Bisgaard taxon 45, a close relative of *Pasteurella multocida*. Sequencing of FTA cards detected Bisgaard taxon 45 in a total of six elephants. Whole genome sequencing confirmed the culture isolates as Bisgaard taxon 45 and found 22 of 25 virulence factors shared with *P. multocida*.

The findings from this study are consistent with a fatal bacterial septicaemia in African elephants caused by Bisgaard taxon 45. This is the first time this organism has been isolated from elephants or associated with fatal septicaemia. Much remains to be studied about the epidemiology of Bisgaard taxon 45 in this setting and its implications for elephant conservation more broadly.
Keywords: African elephant, septicaemia, *Pasteurella*, mortality, Zimbabwe

Elephant prosthetics – a big challenge
Steven John Bukvic[1], Denise McNerney[2], Ilya Kablam[3]
[1]*Elephant Prosthetics.org, Singapore),*
[2]*Elephant Prosthetics.org, Florida, USA,*
[3]*EasyGo Expert Services, Elephant Prosthetics.org, Kuala Lumpur, Malaysia*

The formation of **ElephantProsthetics.org**, a non-profit organization, was inspired by the plight of Ellie, a young Malaysian elephant that had an amputation of her front leg as a result of being caught in a snare. Snares, landmines, logging, and traffic accidents are just a few of the typical anthropogenic activities that have impacted wild and domesticated elephants across the Asian continent resulting in amputations. Preliminary research of elephants with amputations across Asia, has to-date, identified a total of nine disabled elephants located in Cambodia, Malaysia, Sri Lanka, and Thailand. Each of these elephants are receiving care with the help of local organizations, largely working independently of each other, although some cross-border interaction has taken place. Designing and constructing a prosthetic leg for an elephant is a big challenge. The prosthetic leg must be specially tailored to the ‘amputation stump’ of each elephant and strong enough to carry the weight of the world’s largest land mammal. Consideration must be given to the age and therefore size and weight of the elephant. Care

must also be given to ensure that the prosthetic leg not only fits correctly and comfortably for the elephant, but also and of importance, to ensure that the elephant's gait is as normal as possible so as to avoid other potential orthopaedic deformities with age. In all cases the prosthesis needs to be adjusted regularly to accommodate the growth of each elephant with age.

ElephantProsthetics.org aims to collaborate with each caregiver to design and construct a low-cost, Universal Prosthetic Leg Device (UPLD), to be patented in Singapore, and appliable for use on elephants of all ages. The full technology cycle for such a device includes the design, manufacturing, logistics, localized adjustment, and attachment of the prosthesis. To help with the development of 'best prosthetic practices' **ElephantProsthetics.org** plans to collaborate with each elephant caregiver to create a single, standardized Best Practice Elephant Prosthetic Manual to help both existing caregivers as well as potentially new caregivers (if and when, additional disabled elephants are identified) provide best prosthetic practice to the elephants in their care. The ultimate goal of **ElephantProsthetics.org** is to achieve a positive impact on the lives of each disabled elephant and to restore as normal a daily life as possible for each elephant.

ElephantProsthetics.org aims to raise sufficient funding to allow for:

- Extensive online research to assess the actual extent of elephants in need of / having a prosthetic limb across the Asia region.
- To build a comprehensive database of disabled elephants across Asia, including information about each elephant (e.g., age, gender, cause of disability), type of amputation, their current location, details of prosthesis, caregiver, and veterinary contact information, etc.
- To personally meet with each caregiver and the disabled elephant in their care, and to work alongside each caregiver for sufficient time to capture:
    - Detailed information regarding their current design and materials used for the prosthesis.
    - Details of their daily routine and practices so as to develop a best practice elephant prosthetic manual.
- The design and construction of a tailored Universal Prosthetic Leg Device (UPLD) with input from appropriate experts (caregivers, veterinary doctors, mechanical engineers, etc.)
- The development of an awareness campaign to ensure a network of well-connected individuals and wildlife organizations to alert **ElephantProsthetics.org** of any newly identified disabled elephants and to assist with the rehabilitation of such elephants.
- The incorporation of **ElephantProsthetics.org** data into the wider, comprehensive, centralized Human-Elephant Conflict Management System (HECMS) database.

Exploring the wide potential of linking *in situ* and *ex situ* conservation in elephants – a promising approach

Christian Schiffmann[1], Arne Lawrenz[2]
[1]*Tierbegegnungszentrum TBZ, 79618 Rheinfelden, Germany*
[2]*Grüner Zoo Wuppertal, 42117 Wuppertal, Germany*

One major threat for elephants around the globe is the decrease in adequate habitats. In their range countries, elephants are increasingly living in fragmented populations of limited-size. Managing these populations in a sustainable way under the given habitat capacity presents a challenging task. This situation is very similar to the *ex situ* populations of the African and Asian elephant in European zoos.

As a working group of the EAZA Elephant TAG (ETAG), the Conservation Group supports both, *in situ* as well as *ex situ* conservation efforts by elephant-holding zoological institutions in Europe. In the latter, many lessons have been learned over the decades regarding demographic, veterinary, behavioural and reproductive issues and how they can be approached. Sharing this knowledge with organizations managing *in situ* populations will be an efficient implementation of the One Plan Approach in the conservation of the African and Asian elephant. Facilitating and promoting this link between *in situ* and *ex situ* conservation projects presents the overarching objective of the ETAG Conservation Group.
Keywords: zoo elephants, EEP, population management, One Plan Approach

The Sri Lanka elephant project: An interdisciplinary research and conservation effort
Chase A. LaDue[1,2], Rebecca J. Snyder[1,2], Rajnish P.G. Vandercone[2,3]
[1]*Department of Conservation, Education, and Science, Oklahoma City Zoo and Botanical Garden, Oklahoma City, OK, USA*
[2]*The Sri Lanka Elephant Project, Dambulla, Sri Lanka*
[3]*Department of Zoology, University of Peradeniya, Peradeniya, Sri Lanka*

Sri Lanka hosts the highest concentration of free-ranging Asian elephants, and as such, human–elephant conflict is especially prevalent. As the country develops strategies to mitigate this conflict, there is also interest in managing natural landscapes for nature-based tourism, and so it is important to maintain healthy elephant populations on the island. To help address these challenges, the Oklahoma City Zoo and Botanical Garden and the University of Peradeniya founded The Sri Lanka Elephant Project as an interdisciplinary research initiative to provide stakeholders with tools and information to assist in sustainable conservation. Our research program comprises two major themes. First, we conduct animal-centered research on elephant demographics, behavior, and physiology to understand how individuals respond to environmental pressures, including changing resource availability, complex social landscapes, and increasing human activity. To do this, we combine various measures and techniques, including behavior sampling through live observations and camera trapping, and non-invasive monitoring for hormones and gut microbiome communities. Second, our human-centered research seeks to engage community members to better understand the impact of human–elephant conflict and ecotourism on attitudes and perceptions towards elephants and conservation. We also seek to develop conservation capacity in Sri Lanka by training and paying early career scientists on our field team and by funding independent student research projects. Through these actions, we strive to develop a sustainable model for elephant conservation in Sri Lanka.
Keywords: behavior; physiology; wellbeing; human–elephant conflict; tourism; capacity building

Global conservation powerhouses unite to launch the first center for species survival for Asian elephants in India
Adam Felts
Columbus Zoo and Aquarium

The IUCN Species Survival Commission (SSC), the Wildlife Trust of India (WTI), and the Columbus Zoo and Aquarium (CZA) have joined forces in a unique partnership to establish a new Center for Species Survival (CSS) in India, focused on Asian elephants.

Currently, there are 17 other CSSs deployed around the world, all of which are housed at leading conservation organizations, and most at zoos and aquariums. CSS partnerships recognize that accredited zoos and aquariums like the Columbus Zoo offer critical expert knowledge and data from decades of caring for endangered species and engaging with visitors to raise awareness.

Asian elephants, an endangered species of cultural and ecological significance, face numerous threats across their range across 13 countries, including Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand, and Vietnam. To counter these challenges, Asian Elephant partners are building off their global connections and collaborating with representatives from each of these countries to strategically create a hub for research, conservation planning, public awareness, and capacity-building within the species' native range.

The population of Asian elephants in their native ranges continues to decline rapidly. According to the IUCN Red List of Threatened Species, researchers estimate that the species' habitat has dwindled to just 15 percent of its historic range. CSS Asian Elephant is set to become a beacon of hope for the conservation of this iconic species and a model for collaborative species survival initiatives worldwide. This partnership highlights the shared commitment of these organizations to safeguard the future of Asian elephants and their habitats.

Asian elephant support update on care and conservation projects in Asia

Mary Miller
Asian Elephant Support, USA

Founded in 2006, Asian Elephant Support is an all volunteer-run not for profit organization that is dedicated to the care and conservation of elephants in Asia. Our focus is providing financial support for those that are working to help captive elephants and protect wild populations, creating awareness about the needs of elephants for the future, and providing educational opportunities for those working and living in the regions of the 13 range countries in which Asian elephants exist. The ongoing struggle to help Asian elephants remains. Asian Elephant Support would like to share some of our recent projects with the delegates of the 2024 International Elephant Foundation Virtual Conference.

Project 1: Inspiring Human Elephant Coexistence among community through street theatre and awareness programs
Project 2: Veterinary Assistant Training and Workshop in Myanmar
Project 3: Coordinating Civil Society Responses to Decrease Human-Elephant Conflict in the Dong Phayayen-Khao Yai Forest Complex, Thailand
Project 4: Chiang Mai University mobile veterinary unit
Project 5: Aceh wildlife veterinary program

Creating compelling, resonant and entertaining stories to engage and build audiences.

Fairlie Arrow
Kalamo Productions

Introduction: As a keystone species, Elephants face a variety of threats that demand effective communication strategies to promote and improve their conservation, but in order to draw a viewer in, delicate and complex building-blocks must be employed to create an entertaining, informative and resonant story.

Objectives: This presentation explores the critical role of honest and well-crafted visual storytelling (film) in elephant conservation and research. We will examine how these narratives can benefit the conservation community and engage, educate, and inspire the global public with both long and short-form film.

Methods: Through case studies of successful documentaries and films, we analyze the techniques and approaches that create compelling and truthful stories. We also investigate the impact of these films on public awareness, policy change, and community involvement.

Results: Authentic and emotionally resonant visual stories significantly enhance public understanding and empathy towards elephants and the communities that are directly affected. Effective storytelling leads to increased support for conservation initiatives and fosters a stronger connection between the audience and the natural world.

Outline There is more content on platforms like YouTube, Instagram, Facebook and TikTok than ever before, featuring videos and films that range from less than 30 seconds to more than 90 minutes. While this unprecedented access to video creation creates more opportunity than has ever been seen, it also creates a lot of noise. The only way to cut through this noise is to create compelling, well-structured, magnetic stories that engage viewers on a deeper emotional level and build lasting audiences. These transcendent films and videos require balance, structure, conflict and character. They must invite an audience into their world with the promise of answering questions that they didn't know they previously held. They must engage them on levels that are unexpected, all while entertaining them at the same time. In our current documentary, "Of Tusks and Tears" we strive to maintain this delicate story-ecosystem in order to tell the story of farmers living in Mfuwe who've come into contention with the elephants that have lived in the area for centuries. Though most of of our viewers will find it difficult to relate to the farmers' plight with the elephants, they can easily relate to the more universal themes found in their struggle to feed and raise their families, as well as their struggle to live with the natural world, when they so often find themselves in conflict with it. Audiences are invited into a previously unseen world and reveals conflicts and characters that they didn't know existed, while expanding their view of the natural world and our place in it. The story is told through the eyes and voices of characters from every angle of the conflict, a multi-faceted perspective that film is uniquely suited to capture and relate, the next-best-thing to seeing it in-person. Wildlife conservation organizations have a great advantage in creating films and partnering with filmmakers. This unique advantage is found in their pre-existing audiences, comprised of people who both love the natural world, but have also demonstrated their willingness to take action to create change. Engagement and development of these audiences should be a priority for conservation organizations, who often have unprecedented access to stories that can easily cut through the digital noise of the modern world with ease. Audiences yearn for truth and beauty in their stories, and partnerships between conservation organizations and filmmakers provide the technical ability to structure and develop the stories that conservationists have first-hand knowledge of and access to.

TikTok for good: how social media can make a positive impact for pachyderms

Erin Reilly
San Diego Zoo Wildlife Alliance

Social media has its pros and cons, but is a powerful tool when utilized correctly. TikTok originated

as an app for dance trends and lip-syncing videos but has transformed into one of the world's most popular platforms with a community of over 1.5 billion active users as of April 2024. Tune in to this session and learn how San Diego Zoo Wildlife Alliance Social Media Planner Erin Reilly is working in collaboration with the International Elephant Foundation to create powerful content that is raising awareness about the organization's conservation efforts while reaching new audiences online.

WEDNESDAY, JULY 31, 2024

The Wildlife Ranger Challenge
Charlie Mayhew
Tusk

The Wildlife Ranger Challenge was created by Tusk in 2020, with the mission to support wildlife rangers during the Covid-19 crisis and celebrate their dedication. The founding donor of the Wildlife Ranger Challenge is the Scheinberg Relief Fund, established by businessman and philanthropist Mark Scheinberg and his family. The Wildlife Ranger Challenge is the world's largest celebration of solidarity, support and fundraising for the ranger profession. More than a 100 teams of rangers spanning the African continent compete every year in a series of challenges through June-September, culminating in a coordinated 21km race across their respective protected areas in September. A global campaign #ForWildlifeRangers creates a united front for conservation, driving donations to secure vital funding and connecting virtual race participants around the world to run in tandem with Africa's biodiversity guardians.

Elephants as crime victims: efforts to protect elephants from illegal trafficking in Sri Lanka
Jessica Rizzolo
Oregon State University

In Sri Lanka, possession of Asian elephants illegally captured from the wild for commercial use and/or as status symbols is prevalent yet violates both animal welfare and the legal provisions of the Fauna and Flora Protection Ordinance. Investigations of illegal elephant calf captures within Sri Lanka (Jasinghe and Fernando, 2016) has revealed that this practice occurs in a wide range of geographic locales, with the exception of the Northern and Eastern Provinces. Most illegal captures occur within (or at the borders of) protected areas in the Dry and Intermediate Zones. Calves are captured when injured or trapped in illegal agricultural wells, when found along seasonal migration routes, and/or from farmland that borders protected areas. These calves are then laundered (presented and registered as legally captive-born) by multi-sector criminal networks that rely upon forged documents. Most calves are used for the tourism trade, religious pageants, and celebratory functions (Jasinghe and Fernando, 2016)

In this presentation, we first outline current efforts by the Centre for Eco-cultural Studies (CES) in Sri Lanka to prosecute and deter the illegal capture, trafficking, and possession of Asian elephants in over 20 court cases at various levels of Sri Lanka's legal system. After providing an overview of current Sri Lankan law as it relates to captive-held and wild elephants, we discuss unique legal strategies that CES has utilized to argue elephants' cases in court. This includes novel linkages of

portions of the Sri Lankan constitution and the Fauna and Flora Protection Ordinance that refer to, respectively, the obligation and the right of Sri Lankan citizens to advocate for elephants.

Secondly, we offer a proposal, drawn from CES' casework and from current scholarship on animal victim statements (Whitfort, 2019)., on how to conceptualize Asian elephants as victims of crime. Animal victim statements provide legal parties (judges, courts, etc.) with information on the biological, ecological and social repercussions of wildlife crime for the wildlife themselves, which can improve the likelihood of sentences appropriate to the severity and circumstances of the crime. In Sri Lankan law, we contend that this would be congruent with conceptualizing elephants as what is known as the "aggrieved party" in court.

In the case of Asian elephants in Sri Lanka, such a victim-focused approach would involve analysis of the psychosocial well-being of the elephant and the inclusion of elephant communiques, e.g., how elephants communicate distress through stereotyped behavior or communicate social preferences for herd living versus individual confinement. Such a model would also seek to best rehabilitate (and potentially reintroduce) the confiscated elephant. It would thus prohibit current actions such as returning the elephant to the alleged illegal captor which, from a psychosocial perspective, further traumatizes and destabilizes the elephant, which can lead to increased aggression and other behaviors that are detrimental to both Asian elephants and humans in their proximity (Rizzolo and Bradshaw, 2019). We conclude with recommendations for how victim impact statements and legal strategies can be combined with other strategies, such as increased capacity-building, monitoring, and policy reforms, to address illegal live elephant trafficking in Sri Lanka.

Keywords: crime; animal victims; illegal trade; captive; wild

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Elephant Response Units: Snare removal from Sumatran elephant calf

Christopher Stremme
Komunitas untuk Hutan Sumatera

The 126,000 hectare Way Kambas National Park (WKNP) located on the south-eastern coast of the province of Lampung in Sumatra, is one of the last strongholds of the critically endangered Sumatran elephant. Its current population of about 160-180 animals is one the largest (if not the largest) remaining connected population of Sumatran elephants, of which less than 1200 individuals remain in the wild.

Illegal activities inside the WKNP such as logging, poaching, land cultivation, and cattle grazing, especially on its boundaries, threaten the Park and contribute to increasing Human Elephant Conflicts (HEC). HEC has frequently occurred in areas where the WKNP borders farmland. Such conflict causes loss of crops, as well as damage to houses and other properties. This leads to anger from local communities against wild elephants, threatening their protection and habitat. Intensive patrolling and

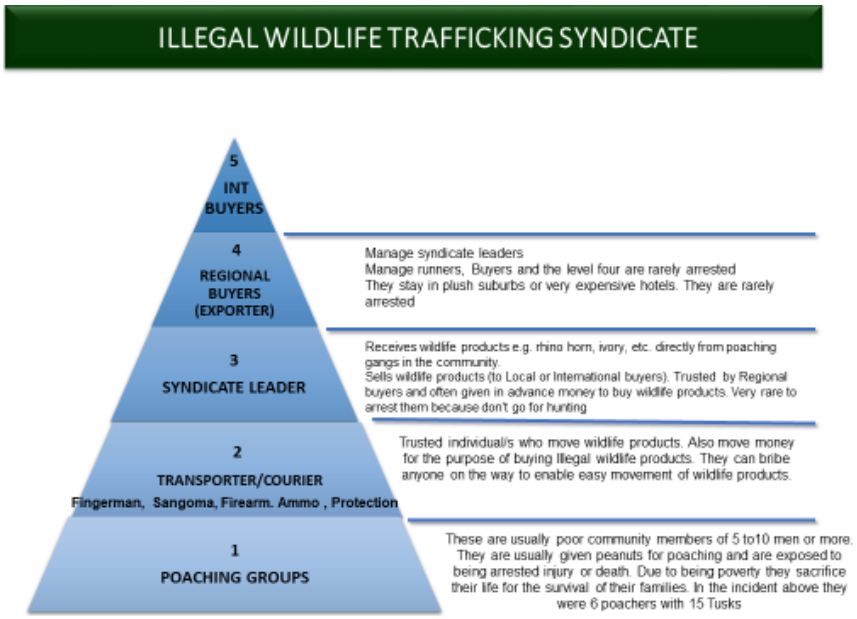
law enforcement support activities as well as sustainable HEC mitigation strategies are a crucial need to prevent conflict and ensure the protection of the National Park.

To better address these issues, WKNP, in collaboration with KHS, implements the Elephant Response Unit (ERU) program, which currently consists of 4 trained elephant mounted patrol units operating from their base camps located inside the WKNP close to its borders in HEC hotspots. The teams of the elephant mounted patrols consist of 4-6 specially trained elephants, (originally from the WKNP main elephant camp, where elephants captured from HEC areas some 20-25 years ago are managed), mahouts, forest police and local community members.

Are we conservation heroes or conservation villains?
Amos Gwema

When we talk about wildlife conservation we usually talk about research, resource allocation for ranger patrols, motor vehicles for patrols, fuel for patrol vehicles etc. We rarely mention about community awareness campaigns with the aim of teaching community dangers associated with committing wildlife crime. The community members are vulnerable to poaching syndicate leaders who exploit them by promising attractive monetary rewards if they get elephant tusks, pangolin skins, rhino horns etc. Resultantly community members will engage in poaching leading to arrest, some are shot, wounded and some are shot dead. No concern is raised when such happens. The question is what is the source of rifles recovered from poachers? Who are the buyers? etc. According to poaching triangle below those from level 2 going up, are rarely accounted and they will continue recruiting other villagers for poaching expedition. The question is are we wildlife conservation heroes or villains?

Are wildlife conservationists heroes or villains and what should we do to conserve wildlife effectively. Is killing a human being for wildlife conservation justified? So the death sentence still exists for those engaging in poaching. What should we do? Are we conservationist's heroes or villains?



Northern Rangelands Trust 9 Teams
Ian Craig and Samuel Lekimaroro
Northern Rangelands Trust

The 9-1, 9-2 team's efforts address escalating insecurities in the region and enhances Northern Rangelands Trust's Community Policing Initiative through which security of wildlife, people and their property are ensured. Of particular note are the key conservation outcomes that are achieved by the initiative. These include a continued reduction in the illegal killing of elephants, the illegal killing of other wildlife, including the critically endangered black rhinos; improving the security network communication platform; and establishing and supporting other security teams that provide security for wildlife, communities and tourism. The ethnic diversity within the NRT 9-1 and 9-2 teams has proven to be one of their greatest strengths. Each community from the conservancies they cover is represented in the team and they work together under independent and experienced leadership. These teams work closely with the local communities seeking information and local support in a manner that is not normally possible through conventional law enforcement efforts. These specialized teams have successfully supplemented the National Police Service (NPS) efforts to curb livestock theft, road banditry and general insecurity across the landscape through intensified and well-coordinated patrol efforts. The NRT 9-1 and 9-2 team's elephant protection and monitoring efforts are guided by data collected from collared elephants and this ensures their presence within areas with a high concentration of elephant population. The team also conducts conservation awareness sessions during their patrols and interaction with the community members and because of this, community members now appreciate the importance of wildlife living amongst them. Information on elephant movement to the community members has helped to reduce cases of human elephant conflict.

Conservation Lower Zambezi – Working today to protect tomorrow
Peter Longwe
Conservation Lower Zambezi

Conservation Lower Zambezi (CLZ) is a non-profit organization committed to the protection of wildlife and the sustainable use of natural resources in the Lower Zambezi, Zambia. CLZ was established in 1994 and focusses on three main pillars of support: Wildlife Protection, Environmental Education, and Community Empowerment. The organization works in close partnership with Zambia's wildlife authority, The Department of National Parks and Wildlife, to support conservation of wildlife and natural resources in the Lower Zambezi National Park and surrounding Game Management Areas while building opportunities for local communities.

Tsavo Trust – Thriving biodiversity, sustainable livelihoods, and strong partnerships in the greater Tsavo Ecosystem
Joseph Kyalo Kimaile and Nicholas Njogu
Tsavo Trust

The **Tsavo Conservation Area** (TCA) is vast and largely roadless forming 49% of Kenya's formal Protected Areas making Tsavo Nationally and Globally important. Key species include: 18% of Kenya's black rhino population (211 individuals), large numbers of elephants (at least 16,000 today – Kenya's largest elephant herd) including the iconic "Tuskers", and many other high value species. Many of these species are subject to intense pressure including Illegal Wildlife Trade (IWT) – ivory,

rhino horn and bushmeat poaching; illegal livestock grazing; constant Human Wildlife Conflict (HWC); mega-infrastructure developments; habitat destruction; climate change – drought and few conservation benefits filtering through to communities bordering Protected Areas. Tsavo Trust's mission is to safeguard biodiversity and empower communities in the Tsavo ecosystem. We achieve this through a meaningful partnership with the Kenya Wildlife Service (KWS) and Wildlife Research and Training Institute (WRTI) in the protection and monitoring of high value species under our flagship program the Big Tusker Project, providing support for aerial and ground biodiversity monitoring, anti-poaching and security operations, and also by attracting additional funding support to the TCA. Tsavo Trust is also pioneering the establishment of community conservancies in the Tsavo ecosystem (outside of the Taita-Taveta Ranches), providing much needed community development benefits and increasing the habitat available for wildlife.

Conservation Joint Operations Command Center
Mike Keigwin
Uganda Conservation Foundation

The Uganda Conservation Foundation (UCF) supports the Uganda Wildlife Authority (UWA) to recover and manage protected areas, promoting regional recovery and reducing poaching and wildlife crime. We believe that sustainability includes the need for protected areas to be well managed. This requires ensuring rangers and managers have what they need to carry out their mandated roles professionally, from infrastructure and equipment to capacity building and leadership.

Over the past five decades, parks were decimated due to civil unrest and war. UCF's support provides for a sustainable foundation of protected area management, from which greater operational performance can be realized. In the absence of infrastructure and capacity in over 80% of the parks, UCF has focused investment into the long-term foundations of protected area management across the whole region, including ranger posts, communications networks, command and veterinary centers, as well as more recently, the UWA training academy. As a result, UWA can prevent and respond to management demands, both within the park, such as anti-poaching or veterinary rescues, and outside the park in the communities, such as human-wildlife conflict mitigation.

The Joint Operations Command Centre links park-wide capacity from all departments, coordinating resources and command, enabling the UWA to be responsive to operational demands, as well as gathering park wide information for planning and reporting purposes. The integration of communication and information management systems through the EarthRanger system enables levels of real-time management, analytics and information to support managers, not possible before. Whether managing a government protected area, community owned conservancies, carrying out research, the operations room and EarthRanger system provides for situational awareness and management and information coordination tool that is changing the success of protected areas, conservation and regional development for our future generations.

EarthRanger: The Central Platform for Holistic Wildlife Protection
Swabir Seif
EarthRanger

EarthRanger is a comprehensive software solution designed to serve as the core platform for protected area management. It empowers protected area managers, ecologists, and wildlife biologists to make informed operational decisions crucial for wildlife conservation. Protected areas, which are vast expanses of land, face numerous threats such as deforestation, community encroachment, poaching, climate change, and the illegal wildlife trade. For effective management, it is essential to monitor wildlife and their habitats in real-time.

EarthRanger excels in data collection and visualization, integrating *historical and real-time data* with next-to real time field reporting to offer a unified view of collared wildlife, rangers, enforcement assets, and infrastructure within protected areas. This holistic approach allows for efficient monitoring and studying of wildlife movements across ecosystems, from specific regions to country-wide migrations.

Designed to be the central hub, EarthRanger can be seamlessly integrated with hundreds of technology providers and other reporting software like Eco-scope. This interoperability enhances interdepartmental collaboration and aids in strategic decision-making. Additionally, it supports mapping key performance indicators (KPIs) to global biodiversity metrics, ensuring that conservation efforts are aligned with international standards and goals.

By using EarthRanger as the foundation for building technology solutions, protected area managers can ensure a comprehensive, data-driven approach to wildlife protection and conservation

THURSDAY, AUGUST 1, 2024

Elephants and sustainable agriculture in Kenya (ESAK): Research progress and outreach
Bruce Alexander Schulte[1], Simon Kasaine[2], Bernard Amakobe[2], Matthew Bowers[1], Sophia Corde[1], Mwangi Githiru[2], Urbanus Mutwiwa[3], Dakota Vaccaro[1], Lynn Von Hagen[1,4], Geoffrey Wambugu[2]
[1]*Department of Biology, Western Kentucky University, Bowling Green, KY 42101, USA*
[2]*Wildlife Works, P.O. Box 310-80300, Voi, Kenya*
[3]*Department of Agriculture and Biosystems Engineering, Jomo Kenyatta University of Agriculture and Technology, P.O. Box 62 000-00200, Nairobi, Kenya*
[4]*School of Forestry and Wildlife Sciences, Auburn University, Auburn, AL 36849, USA*

Human-elephant interactions can be benign, positive, or negative, and interactions may influence the perceptions of people towards elephants, impacting conservation. Elephants raid agricultural fields that farmers rely on for nutrition and income. The *Elephants and Sustainable Agriculture in Kenya* (ESAK) project was created to enhance elephant conservation and improve food security for smallholder farmers in southeastern Kenya. ESAK was initiated by researchers at Western Kentucky University, Wildlife Works Sanctuary (Kenya), and Jomo Kenyatta University of Agriculture and Technology with support from IEF, Earthwatch, and others.

We used a conservation behavior approach to address ESAK goals: 1a) Mitigate HEC through understanding human attitudes and behaviors and 1b) test deterrent fences that are affordable, practical, and effective (APE). 2) Examine and showcase familiar climate smart agriculture (CSA) techniques that build upon Indigenous knowledge. 3) Create an elephant identification database to evaluate which elephants were primarily responsible for crop raiding. 4) Monitor elephant habitat disturbance (EHD), habitat quality, and wildlife presence. 5) Investigate structure for an elephant information network (EIN) to improve the safety of people in the vicinity of elephants. 6) Establish means to assist the local community and especially the school(s) to enhance access to general education and improve understanding about elephants.

Our study site is located within the Kasigau Wildlife Corridor (KWC) in southeastern Kenya where Wildlife Works Carbon has a REDD+ project. The KWC forms a corridor between Tsavo East and West National Parks as part of the Tsavo Conservation Area (TCA). KWC is inhabited by over 100,00 people with about 12,000-14,000 elephants in the TCA. KWC comprises dryland forest habitat covering half a million acres (200,000 ha) with private and communal tenure. We used surveys and discussions with villagers, evaluated deterrent fences, experimented with zai pit design and intercropping, conducted wildlife transects, assessed EHD, recorded sightings of incidents with elephants, and performed outreach at the Sasenyi Primary School.

Our key findings are as follows: (1a) Social: Most community members were afraid of elephants, have not received external information on how to safely live with elephants, and cannot afford to implement most modern deterrents. (1b) Fences: Our multi-year experiments with different deterrent fences revealed that the Kasaine metal strip fence best meets the requirements of APE. (2) Agriculture: Zai pits and intercropping were viable CSA techniques in the region with modifications to suit the local landscape. (3) Elephant behavior: Male elephants engaged in the most severe forms of HEC, but further work is needed to understand whether personality plays a role in the likelihood of HEC. (4) EHD: High elephant habitat disturbance did not adversely affect species richness or diversity for large birds and mammals. (5) EIN: An elephant information network to inform farmers of impending elephant presence is under development. (6) Citizen science: Sustained outreach and support at Sasenyi Primary School with assistance from Earthwatch volunteers resulted in the connection of the school to the main water pipeline, provided food and stationaries for students, and created interactive sessions with international volunteers, teachers, and students to exchange knowledge. Through learnings from the ESAK project, the school erected a CSA garden using zai pits to grow food for the students and to use it as an educational demonstration in which students and teachers actively participate.

ESAK continues to inform community members of affordable, practical, and effective means to control HEC and achieve food security, thereby enhancing appreciation of elephants in the Greater Tsavo Ecosystem, leading to improved livelihoods and the conservation of elephants.

Keywords: Climate Smart Agriculture, Conservation Behavior, Deterrent Fences, Human Elephant Conflict, Elephant Habitat Disturbance, Kasigau Corridor, Outreach, REDD+

Understanding human-elephant conflict in Sarpang, Bhutan

Tashi Wangdi
Divisional Forrest Office, Sarpang, Bhutan

Human-Elephant Conflict (HEC) is a significant issue in Bhutan, particularly in the Sarpang District, where 477 HEC incidents were recorded between 2021 and 2023. This district, covering 1946 sq km and consisting of 12 blocks, is surrounded by national parks, wildlife sanctuaries, and reserve forests along the Indo-Bhutan border. Elephants, whose home ranges span both Bhutan and the Indian states of Assam and West Bengal, migrate into agricultural areas during peak cropping seasons, causing substantial crop and property damage. This conflict leads to the loss of human lives and poses a threat to the livelihoods of local communities and the conservation of Asian elephants. To address this pressing issue, the study was conducted with the goal of enhancing harmonious coexistence between humans and elephants. The objectives were to determine the severity of HEC, identify HEC distribution, map hotspot areas, evaluate the number of people under the threat of HEC in Sarpang, and educate stakeholders and local people to enhance tolerance and positive attitudes towards elephants. The study highlighted the scale and severity of HEC in Sarpang District and provided valuable insights for future conservation efforts. These insights are expected to inform ongoing and future initiatives aimed at mitigating HEC and fostering sustainable coexistence between humans and elephants in Bhutan and similar contexts elsewhere.

Understanding local perspectives and education on human-elephant conflict conservation efforts in Sri Lanka

Avery Marie Nicholas
Honors College, University of Nevada Reno, Reno, Nevada, United States of America

This proposed research seeks to contribute an anthropological perspective regarding how ecological problems are understood in Sri Lankan communities, and the implicit bias surrounding environmental conflicts of human-elephant interaction. While significant research has been conducted in African settings concerning human-elephant conflict, there are research limitations due to differences in continents, species, and historical contexts. There have been some community sentiment research on perceptions and patterns of wildlife conflict in Sri Lanka (Fernando et al. 2005), but they are dated and have not been contextualized with one another or with respect to Sri Lanka's cultural history, to recognize future solutions within communities. The findings of my research can contribute to efforts in Sri Lanka to promote realistic and sustainable conservation habits.

Before arriving in Sri Lanka, I will create a survey that is easily distributable to multiple different persons and work with collaborators to follow the appropriate survey protocol. To create a more well-rounded sampling, I will work with the SLWCS to identify the best way to approach data collection from farmers abutting the national park, people in Dambulla and neighboring communities, local government officials, and local conservation groups. Surveys will be translated into languages Sinhala and Tamil as well as English; there will be short-answer, multiple-choice, and long-answer questions. The survey will be administered in multiple formats (paper, electronic, or oral). I will also obtain a recording device to accurately record the supplemental interviews. Using the feedback from the SLWCS staff, I will set up times to visit local individuals (farmers, government officials, and community centers) to gather data. I will aim to visit 2 sites per week to gather data. The survey will be divided into five parts: a person's understanding of what conservation efforts are, their mode of subsistence (i.e. types of crops such as tea or rice, etc.), their ontology of an elephant, their lived

history with elephants, and their understanding of community responsibility relating to conservation efforts and their implementation. The survey will be used to measure the community's tolerance of elephants and what it means to live in those environments from their cultural perspective. When I return to the United States, I will finish translating the data and create a summary of the statistics for the multiple-choice questions in the survey. For the long-response questions, I will perform a qualitative thematic analysis utilizing university-provided software and will contextualize my data and analyze any trends between communities regarding their opinions on conservation efforts and wildlife conflict

Keywords: Sri Lanka, Human-Elephant conflict, conservation, education, survey

Trunk wars: Navigating the human-elephant conflict

Prayag H.S[1], Kaveri M. J[2], Suhas K.S[3], Bharath S[4], Kishor Kumar D. G[5]
[1] *Department of Animal Genetics and Breeding, Veterinary College, Hebbal, KVAFSU*
[2] *Veterinarian, Petfully Yours Pvt Ltd, Bengaluru*
[3] *Post doctoral fellow, CIDR, Indian Institute of Science, Bengaluru*
[4]*Ph.D Scholar, ICAR- Indian Veterinary Research Institute, Izatnagar, Bareilly, U.P.*
[5]*Assistant Professor, Veterinary College, Shimoga, Karnataka*

Human-wildlife conflict, particularly between elephants and humans, presents a significant challenge globally, exacerbated by factors such as human population growth, land use transformation, and habitat loss. In India, where approximately 30,000 wild elephants roam over a relatively small area, conflicts arise due to crop depredation and human casualties. Strategies to mitigate these conflicts range from habitat modification to non-lethal deterrents, including changes in cropping patterns, land use, and the creation of corridors for elephant movement. While some methods, such as acoustic repellents and electric fences, show promise, they often prove costly and labour-intensive. Recent developments in repellents, like capsicum-based aerosols, offer potential solutions, although their effectiveness requires further study. Translocation of elephants, although practiced, presents logistical challenges and may not always be effective. Novel deterrent techniques, such as bee stings and chili-based deterrents, demonstrate promise but need rigorous evaluation. Overall, addressing human-wildlife conflict demands a multifaceted approach that considers both the immediate needs of affected communities and the long-term conservation of elephant populations and their habitats.

Keywords: Elephant, crop depredation, habitat modification, non-lethal deterrents, acoustic repellent

Multispecies anthropology and interdisciplinary approaches to HEC studies: Farmer-Asian elephant coexistence research in eastern Thailand

Anandi Gandhi[1], Brandon Hays[2], Jenjira Fungjanthuek[3], Bhichet Noonto[4]
[1] *Anthropology, University of California Santa Cruz, California, USA*
[2] *Nicholas School of the Environment, Duke University, Durham, North Carolina, USA*
[3] *Ecology, Independent Researcher, Bangkok, Thailand*
[4] *Ecoexist Society, Nonthaburi, Thailand*

Human-elephant conflict has intensified in Thailand over recent years, with 30 human deaths since January 2024 (DNP Report May 16, 2024). In Thailand, the most severe encounters occur in Eastern Thailand on fragmented agricultural landscapes (Chaiyarat et al. 2023). Within these intense conflict areas, farmer responses vary based on their agricultural systems. This presentation showcases methodologies and preliminary findings of current doctoral research on farmer-elephant coexistence

in Eastern Thailand. Initial findings show that large-scale monocrop sugarcane farmers observe different behaviors from elephants on their farms than those of agroforestry farmers. Sugarcane farmers who often face the worst damage from elephants hold distinct values, attitudes, and feelings about HEC, in contrast to agroforestry farmers who conceptualize their relationship with nature in a radically different and empathetic manner. However, even among monocrop farmers, attitudes vary between those growing cassava, durian, pineapple, and sugarcane. Agricultural landscapes mediate different kinds of relationships between farmers and elephants. Studying these differences can generate nuanced insights into the socio-ecological and agricultural conditions that facilitate coexistence.

Currently, only 12 percent of human-wildlife studies are within social sciences, and there is a great need for integration (König et al. 2020). This research aims to achieve natural and social science integration in both analysis and field research. Using multispecies anthropology concepts of Action Network Theory (Latour 2005) and Assemblages (Gan and Tsing 2018), this research allows us to simultaneously hold together farmer-elephant dynamics as well as elephant behaviour, forest health, long-term land-use changes, policies, conservation interventions, alternate farming systems, and socio-economic forces that participate in the creation of coexistence. Studying these complex farmer-elephant coexistence assemblages necessitates interdisciplinary collaborative methods. This project studies human-plant-elephant interactions together rather than separately through collaboration with conservation biologists, ecologists, policy advocates, forest department officers, village guarding groups, and farmers. In this presentation, we highlight some of these collaborative research methods. These methods include combining elephant stress hormone study with farmer emotions in relation to cultivation systems to map well-being responses onto the landscape. Another method connects local knowledge of elephant crop-raiding behavior with measuring changes in forest structure to understand the interaction between elephant behavior, forest health, and forest department management. The knowledge produced from this multidimensional fieldwork has the potential to inform agricultural and elephant management in agricultural areas and policies in Eastern Thailand.
Keywords: Human-Elephant Studies, Farmer-Elephant Coexistence, Human-Elephant Conflict, Thailand, Agriculture, Social Science Research

Assessing the effectiveness of deterrents in major elephant conflict zones using GIS analysis:
Yasmin Perry
University of Nevada - Reno

Human-elephant conflicts (HEC) bring about significant challenges to both human communities and elephant populations in Sri Lanka. These conflicts arise mainly due to competition for resources, and humans imposing on elephant habitat. This results in loss of lives for both humans and elephants, financial loss for the farmers and conservation issues which make the Asian Elephant an endangered species. The proposed research aims to assess the effectiveness of deterrent measures, including electric fences and Project Orange, in reducing HEC across major conflict zones. Geographic Information Systems (GIS) and the distribution of these deterrents can help us to observe the effects on elephant behavior and aggression levels. Gathering data through first-hand observations of elephants and second-hand reports of elephant movements and conflict incidents will be greatly beneficial in providing observations of correlations between specific deterrents and potential changes in elephant behavior.

Human elephant coexistence in the Selous-Niassa Ecosystem– Tanzania

Philipo Jacob, Felician E. Chemihanda, Musa M. Bulim, Beevans B. Biseko and David Kaberege
Selous Niassa Elephant Project

The Selous-Niassa Wildlife Corridor, spanning Tanzania and Mozambique, is a critical conservation area home to a diverse array of large mammal species. The corridor harbors different species including the elephants. Due to the ongoing settlement, cropland expansion and the ongoing community burning the fire the area experiences a heavy human elephant conflict.

On average each year more than 350 acres are raided, 10 houses are destroyed and 3 -4 people are either killed or injured by elephant making the conservation of elephants in the corridor a nightmare as it attracts negative attitude to communities when conversing them to conserve. The climate changes add a layer of conservation complexities as it attracts both communities and wildlife into the remaining wetlands hence intensifying the human wildlife/elephant conflicts.

Using funds from International Elephant Foundation (IEF) and Environmental Conservation for Wildlife and Community Enterprise (ECOWICE) we are currently working to enhance human elephant coexistence. This is done through monitoring the spatial and temporal distribution of elephants close to the villages using transects and camera traps, we are monitoring the costs associated with elephants in these areas and we provide environmental education to the youth and communities through class lesson, night cinema projections, workshops, attending village meetings, environmental clubs' establishment and strengthening.

Keywords: Selous-Niassa Wildlife Corridor, Human-wildlife conflict, Crop raiding, Biodiversity conservation, Community-based management

Creating environmental and conservation leadership in Malawi

Steven Makumba
NatureKit Organisation, Kasungu, Chisinga, Malawi

Malawi faces serious loss of natural resources and degradation of the environment due to anthropogenic activities. According to Dorothy Nampota, (2014) it was reported that the major cause of unsustainable utilization of natural resources has been identified as the challenge of people not having acquired knowledge, values and positive attitudes to address environmental issues. The influx of environmental degradation was aligned to inadequacy of environmental knowledge among communities hence an increased illegal wildlife activities. According to the KAP survey that was conducted it deduced that a majority of people do not value conserving of wildlife. The survey revealed that the current elephant conservation status and its negative impacts, is unknown to general local communities. Information on elephant conservation is restricted to conservationist, thus creating myths and misconception on elephants' conservation to locals. This gap was a setback to conservation efforts as communities were not involved in conservation efforts. Being devoid of community engagement fuels illegal wildlife activities due to lack of sense of ownership and belonging.

Our project prioritized elephant conservation activities and concerns within communities through Participatory Rural Appraisal (PRA) tools. This tool facilitated community engagement in all projects steps to ensure full participation of communities in elephant conservation in Chisinga Area. The project provided capacity building on bee keeping, efficiency cooking stoves and briquettes making.

To facilitated effective dissemination of knowledge and understanding for an intensive community engagement the project offered conservation education, advocacy and awareness on conservation of elephants. Conservation education and awareness centered on; general information on elephants, threats facing the elephants, their ecology, their environment, wildlife crimes, conservation importance and roles that communities can play in conserving elephants.

The project has been a major boost to elephant conservation in the project areas. This project pivoted on elephant conservation but has managed to confirm that elephants are key species in an ecosystem. Through this project community have acquired effective knowledge and understanding about elephants conservation and this has cleared myths and misconception, hence influencing community engagement in conservation issues. The issues of elephants conservation that were happening in Chisinga and other part of Chulu have been reversed and communities are empowered and possess a sense of ownership and belonging to nature conservation.

Keywords: Human wildlife Conflict, Community engagement, conservation education, elephants conservation and environmental degradation.

Smallholder farmers' knowledge, perception and practices regarding elephants restraining poliwire fences in Mambova Wildlife Corridor, Southern Zambia

Edgar Hichoonga[1], Vincent Nyirenda[1], Kerryn Carter[2], Chester Kalinda[3], Ngawo Namukonde[1]
[1]*Department of Zoology and Aquatic Science, School of Natural Resources, the Copperbelt University, Jambo Drive, Riverside, P.O. Box 21692, Kitwe, Zambia.*
[2]*Elephant Connections Research Project, Zambia.*
[3]*Bill and Joyce Cummings Institute of Global Health, University of Global Health Equity, Kigali, Rwanda.*

Human-elephant conflict (HEC) poses major challenges for communities living within elephant corridors, affecting livelihoods, crops and personal safety. We conducted 60 semi-structured interviews (22 females, 38 males) in Mambova farming community, in Southern Zambia, to assess the influence of newly established solar-electric poliwire fences on their perceptions, attitudes, and practices towards crop-raiding elephants. These fences were implemented as a HEC mitigation measure between 2017 and 2021 around 17 mixed-produce gardens. The study found that community perceptions varied, and elephants and hippos caused significant crop damage to vegetable gardens, particularly during the dry season (95-96.3% of incidents between July and November). Farmers reported elephants mainly attacked their gardens at night (21:00 to 03:00 hrs.), affecting crops like maize (Zea mays) and rape plants (Brassica napus). Most respondents (96.7%) found the solar-electric poliwire fence more effective in preventing crop damage than traditional mitigation measures such as drumming, fire and guarding. While some farmers were uncomfortable with elephants in their area (50%), others valued their presence for tourism and education (35%). A holistic approach, combining education, awareness campaigns, and conservation initiatives, is needed to manage HEC effectively. Understanding farmer perspectives and local knowledge about elephant behavior and migration is vital for sustainable coexistence.

Keywords: Community Engagement, Crop damage, Crop protection, Human-elephant conflict; poliwire fencing

Conservation Education and human-elephant conflict mitigation in Arabuko-Sokoke Forest Ecosystem, Kenya

Jessica Carey
Friends of Arabuko-Sokoke Forest

The Arabuko-Sokoke Forest is the largest remaining fragment of dry coastal forests of East Africa, which once stretched from Somalia to Mozambique. It is a crucial habitat for many rare and endangered species, including the African elephant, the Golden-rumped elephant shrew, and various bird species (International Elephant Foundation) (Pachyderm Journal).

Historically, the forest has faced threats from illegal logging and poaching, which have led to significant habitat degradation. Conservation efforts have been ongoing to preserve the forest's biodiversity and protect it from further destruction (International Elephant Foundation).

Migration patterns critical for the survival of African elephants (Loxodonta africana) between Tsavo East National Park and the Arabuko Sokoke Forest Reserve in Kenya are evolving. Shaped by human development, conservation efforts and environmental changes and challenges.

In the last three years, due to extended drought in the Tsavo East NP, the elephants have been tracing their routes back to the Arabuko-Sokoke forest, causing an immense elephant-human conflict, destroying farms, community water pans and causing human fatalities. In (July 2023), about 600 elephants are dispersed between communities on Western boundary of ASF.

Getting along with elephants and three days teachers' workshop in Odisha

Mamatha Sathyanarayana
De Paul International College, Mysore

India holds the largest population of wild Asian elephants out of which Odisha a state with 30 civil districts with uniqueness in eco-system. Besides this, the aboriginal and ethnic people are accustomed to living in most hostile and diverse atmospheric conditions. It has rich biodiversity and possesses a rich eco-system. Odisha along the East Coast of India is running parallel for 480 Km to the Bay of Bengal including the lake Chilika and vast rainforest of the Eastern Ghats. The State has an area of about 155707 Km2; forest area recorded 51345 Km2 (31.38%). Elephants in Odisha constitute 70% of the total elephant numbers of the Eastern region of India. This population is distributed within 30% of the state's geographical area. Today the elephant population in Odisha faces serious conservation challenges and one of the frequently happening challenges is human-elephant conflict in different regions of Odisha. Broadly there are three elephant reserves in Odisha - Mayurbhanj, Sambalpur and Mahanadi elephant reserve and frequent human-elephant conflict regions mostly are- Rayagada and Koraput region, Dhenkanal Forest, Baripada region, etc. Prioritizing the two districts – Rayagada and Koraput we conducted 3 days of teachers' workshop at Gunupur, Odisha. First we had pilot study and we had pre-workshop survey includes 200 respondents from the following villages from two districts- Hathimunda, Jhodipadar, Pali Jhodipadar, Jambkoli, Rupapadar, Bala, Harlaguda, Nandrampur. The present study talks about how the people from the study area behave towards elephants when they counter each other ; their attitude towards the elephants and their thought towards human and elephant eco-system. The study also explains about the traditional practice applied to stay away from elephant. The study area is dominated by tribal population who originally depend on forest resources and agriculture practice for their survival, having poor knowledge and awareness about the elephant

behaviour towards human, losing their agriculture products as attacked by elephants, surviving with fear and loss. In the study field study and survey tools have been used with a semi-structured questionnaire, some case studies have been done and collected feedback from the participants in the 3 days workshop.

Keywords*:* Elephant, Human, Environment, Traditions, conflict

Investigating Reproductive and Metabolic Aging in Captive Asian (*Elephas Maximus*) and African (*Loxodonta Africana*) Elephants in US Zoos Through Long-Term Hormone Monitoring

Natalia A. Prado[1], Aaron Comerford[1], Steve Paris[2], Janine L. Brown[2]
[1]*Adelphi University; Research Associate*
[2]*Smithsonian National Zoo and Conservation Biology Institute*

Understanding how elephants age endocrinologically would aid breeding and captive management programs provide ever increasing levels of care that are fine tuned to the needs of a growing geriatric population. In 2004 and 2016, large scale hormonal studies were published for African and Asian Elephants in zoos across North America. Our objectives were to leveraged the large hormonal data collected during these two studies, approximately 16 years apart, in order to: 1) investigate age related endocrine changes in both species, and 2) determine at what age those changes, if any, start to occur. 10 hormones were investigated for this study related to both reproductive (progestogens, prolactin, LH and FSH) and metabolic function (serum cortisol, fecal corticosterone, TSH, free T4, total T4 and T3). Elephants were matched across the two studies, divided into different age categories, and screened for regular ovarian cycles during the two collection periods. Overall, our results demonstrated significant age-related changes in progestagen, prolactin, TSH and FSH in both species indicating some similarities in reproductive aging. Additionally, we found serum cortisol concentrations increased in Asian elephants with age but this was not observed in the African elephants in the study, indicating a potential species difference in metabolic aging. Finally, in Asian elephants we found significant decrease in progestagen levels occurred within the age range of 15.8-34.0 years old, followed by levels remaining relatively stable thereafter in our study population, though this was not related to cessation of ovulatory cycles as all the elephants on the study exhibited normal ovarian activity at the time of sample collection. These findings will allow us to better understand how and when elephants age endocrinologically in order to aid elephant caretakers better understand the needs of an aging population under human care.

Use of Onsite Reproductive Hormone Monitoring to Predict Parturition for Five African Elephant Births

Leon Krause[1], Jonathan Aaltonen[1], Jessye Wojtusik[1], Monica A Stoops[1]
[1] *Reproductive Sciences, Omaha's Henry Doorly Zoo & Aquarium, Omaha, Nebraska, United States*

Introduction: African elephants experience a gestation length varying from 20-22 months, though much longer and shorter cases have been recorded. The uncertainty of birth can be mitigated by monitoring for the characteristic pre-parturition decline in progestogens. Serum is the preferred sample matrix for this analysis as it captures circulating hormone concentrations. Urine samples only lag by a few hours but are easily contaminated. Fecal samples are more easily collected, but hormone metabolites present in fecal samples accumulate over the total gut transit time, which in elephants can be 20-51 hours. Fecal samples also require processing before hormone testing. Most assessments of

elephant pre-parturition fecal progestogens have been performed retrospectively. An onsite endocrine lab monitored five African elephant births in the present study, with the goals to monitor serum and fecal progestogens to diagnose birth, observe lag time between serum and fecal detection of progestogen decline, and adjust the lab's existing fecal processing method to report same-day fecal progestogen levels.

Materials and Methods: Serum and fecal samples were collected biweekly to daily from adult female African savanna elephants (n = 5) for a period of over three years and tested for progestogens by enzyme immunoassays (Arbor Assays K025-H) with frequency increasing from weekly to daily as the window of possible birth approached. Elephants had free choice to participate in blood collection. For two females, blood collection was not feasible after early pregnancy. They were therefore monitored solely by noninvasive fecal sampling during the peri-parturient period. Shorter wet feces processing times were trialed (30 minutes, 1.5 hours, 3 hours, 3.5 hours, 5 hours, and 7 hours) and compared to the lab's established method of extracting overnight (15-20 hours). 3-hour extractions were used for same-day testing during the final birth and verified by standard overnight extractions the following day.

Results: Diagnostic pre-birth declines in progestogens happened 3 days before birth in serum samples (n = 3 births) and 2-4 days before birth in fecal samples (n = 5 births). The lag of fecal progestogen detection was ~24 hours. In the fecal extraction time trials, samples with 3-hour extraction times resulted in final progestogen values not significantly different from those using the overnight extraction method (p = 0.16-0.57). Shorter extraction times tended to produce slightly lower values, though not statistically different from the overnight method in most trials.

Discussion: The elephants' freedom of choice regarding collection of invasive samples was an important consideration during their intensive birth monitoring. Whenever serum samples became unavailable, fecal samples showed sufficient capacity to provide advance warning of birth. Overnight processing coupled with gut transit time and assay duration presented an essential two- to three-day lag in fecal results. The shorter extraction time in this study allowed lab staff to prepare the sample, perform the multi-hour assay, and report results before the end of the workday. High frequency of assessments provided two to four days of warning before each birth. This was especially useful for the first dam, who gave birth about one week earlier than expected. Prior longitudinal knowledge of each elephant's minor differences in baseline and pregnancy progestogen values was critical to the ability to perform these assessments. Dedicated reproductive scientists can interpret these nuances and fulfill a proactive role in the care of elephants in managed settings. This study demonstrates that onsite endocrine monitoring is of great value to any institution planning to breed elephants, and that intensive monitoring for elephant birth can be performed solely with noninvasive fecal sampling.
Keywords: Endocrinology, Hormone, Progestogen, African elephant, Parturition

FRIDAY, AUGUST 2, 2024

Elephant endotheliotropic herpesvirus (EEHV) updates from the North American EEHV Advisory Group

Lauren L. Howard[1], Erin L. Latimer[2], Deborah Olson[3], Daryl Hoffman[4], Priya Bapodra-Villaverde[5], Paul D. Ling[6] and Gary S. Hayward[7]
[1]*Peel Therapeutics, Salt Lake City, Utah, U.S.A.*
[2]*National Elephant Herpesvirus Laboratory, Smithsonian's National Zoo & Conservation Biology Institute, Washington, DC, U.S.A.*
[3]*International Elephant Foundation, Azle, Texas, U.S.A.*
[4]*Pittsburgh Zoo & Aquarium, Pittsburgh, Pennsylvania, U.S.A.*
[5]*Columbus Zoo and Aquarium, Powell, Ohio, U.S.A.*
[6]*Department of Molecular Virology and Microbiology, Baylor College of Medicine, Houston, Texas, U.S.A.*
[7]*Johns Hopkins University, Baltimore, Maryland, U.S.A.*

The North American EEHV Advisory Group (NA EEHV AG) was established in 2013 and is a group of thirty-five subject matter experts united by a shared purpose to protect elephants from EEHV. The group functions as a cross-disciplinary husbandry, medicine, research, and outreach team that connects efforts to prevent elephant deaths from EEHV hemorrhagic disease (EEHV-HD) globally.

As of February 2024, thirty-two deaths from EEHV have been documented in Asian elephants (*Elephas maximus*) born in North America, along with at least eighteen Asian elephant survivors of EEHV-HD.[3, 4, 5, 6, 7, 8, 9] Between 2019 and February 2024, more than 15 cases of EEHV-HD in African elephants (*Loxodonta africana*) born in or imported to the US were documented, including seven deaths.[1, 2, 5]

In November 2023, at the 5th EEHV in Asia Working Group meeting, held in Chiang Mai, Thailand, collaborating Asian elephant range country veterinarians identified a total of 227 cases of EEHV-HD in Asian elephants across twelve countries, with 158 cases confirmed via PCR and 69 cases suspected but not confirmed due to limited access to diagnostic laboratories. The EEHV Asia Working Group identified the need for further training and capacity building in range countries, which the NA EEHV AG will continue to provide, along with other partners.
In March 2024, the NA EEHV AG hosted a virtual Global EEHV Symposium. The meeting included presentations on immunity, vaccine development, diagnostics and pathophysiology, evidence-based management, new EEHV case reports, and first ever talks from South America and on mental health support during EEHV.

The NA EEHV AG has undergone a 6-month project of strategic planning and has identified three strategic priorities and a detailed work plan for achieving the group vision of Zero EEHV Deaths. The three strategic priorities are focused on 1. Effective Prevention, 2. Rapid Response & Comprehensive Treatment, and 3. Training & Communication. Key aspects of the plan include updates and enhancements to www.eehvinfo.org , roll out of a new EEHV Resource Database tool for elephant care stakeholders, deployment of a country wide EEHV serology and herd dynamics survey, and evaluation of the steps needed to better standardize qPCR results across multiple zoo-based EEHV PCR laboratories.

The mission of the NA EEHV AG is to be at the forefront of EEHV knowledge, advancing best practices for prevention, diagnosis, and treatment of EEHV and providing hope and a path forward for elephants and the people that care for them. Together with the AAZV and elephant communities, Zero Deaths from EEHV is more achievable than ever before.
Keywords: EEHV, *Elephas maximus*, hemorrhagic disease, herpesvirus, *Loxodonta africana*

Closing the Gap – EEHV shedding and viremia in African elephants
Zachary LaGrange[1], Laura Adamovicz[2], Josephine Braun[1], Lauren L. Howard[3], Patricia Gaffney[1]
[1]*Disease Investigations, San Diego Zoo Wildlife Alliance, San Diego, CA, USA*
[2]*Wildlife Epidemiology Laboratory, University of Illinois, Urbana, IL, USA*
[3]*Peel Therapeutics, Salt Lake City, UT, USA*

Introduction: Elephant endotheliotropic herpesvirus (EEHV) causes acute, hemorrhagic disease (EEHV-HD) in elephants and is the single largest cause of death in Asian elephants (*Elephas maximus*) born in North America and Europe. In African elephants (*Loxodonta Africana*), EEHV was thought to be less clinically significant until 2019. Since 2019, there have been seven deaths in African elephants and numerous cases of EEHV-HD in African elephants that survived following aggressive treatment. Veterinarians and elephant care managers utilize the research and experience from Asian elephants to guide the monitoring and treatment of African elephants diagnosed with EEHV-HD because of the extensive knowledge base in Asian elephants. This research presents a dataset on African elephants collected by San Diego Zoo Wildlife Alliance and its partners to help close the knowledge gap of EEHV in African elephants.

Materials and Methods: Samples were collected from 26 elephants (24 African and 2 Asian elephants) across 4 institutions: 8 San Diego Zoo Safari Park, 5 San Diego Zoo, 5 Reid Park Zoo, 8 Sedgwick County Zoo. Blood, trunk wash, saliva swab, and feces were collected on a weekly basis for one year between July 2020 and November 2021. DNA extractions were conducted following protocols described by Stanton et al. 2012 (blood), Hardman et al. 2012 (trunk wash), Virginia Pearson from Glenn Rall Laboratory (saliva swab), and Bourgeois et al 2019 (feces). The presence or absence of EEHV was assessed using Real-Time PCR following the protocols of Stanton et al. 2010 and 2012. These protocols were also informed by Erin Latimer of the National Elephant Herpesvirus Laboratory. Descriptive statistics were used to analyze virus presence/absence in relation to time, EEHV species, sample type, and institution.

Results: Over 5,000 samples were collected and over 15,000 EEHV qPCR tests run. EEHV -2, -3/4/7, and -6 were detected in all four sample types, and across all four locations. More than one EEHV species was detected in several samples. EEHV 3/4/7 was detected most frequently across all samples, followed by EEHV 2, then EEHV 6. Most elephants shed at least two EEHV species in their trunk wash at some point during the study. EEHV was detected most frequently in trunk washes and saliva swabs, only a small percentage of blood and fecal samples tested positive.

Discussion: A first of its kind sample and dataset was collected in a collaborative effort to build the knowledge base on EEHV in African elephants. It shows the presence of multiple EEHV species in elephants across time, and how viremia and viral shedding varied over time and across institutions. This dataset will be further analyzed together with behavioral, biological, and other diagnostic data to better understand viral dynamics within these managed populations. Insights can be used by

elephant care professionals to inform recommendations for management of EEHV in African elephants.
Keywords: EEHV, qPCR, blood, trunk wash, feces, saliva

Can a primary EEHV infection in an Asian elephant (*E. maximus*) be induced by (social) stress?
Chrispijn Schilp[1], Heleen Post-Van Engeldorp Gastelaars[1], Christine Kruger-Velema[2], Willem Schaftenaar2
[1]*DierenPark Amersfoort, The Netherlands;*
[2]*Rotterdam Zoo, The Netherlands;*

Amersfoort Zoo, the Netherlands lost two Asian elephant (E. maximus) calves to EEHV-HD the past years. Both EEHV1A and EEHV1B were detected. At time of infection, serum antibody levels against EEHV1A and EEHV1B were very low in both calves. In order to increase antibody levels protecting the youngest calf (eighteen months old), a plan was developed to induce shedding within the elephant herd provoking an infection under protective levels of maternal antibodies. Our hypothesis was that reactivation of herpes, by using natural stressors induced in the herd, induces shedding of the dormant EEHV. The first stressor consisted of randomly played vocalizations of two adult female Asian elephants, mourning the death of a stillborn calf. A second stressor was the introduction of the breeding bull into our herd simultaneously with the vocalizations. The third stressor we introduced was olfactory exposure to fresh feces, originating from another elephant herd, nearby the enclosure.

An unforeseen stressor was the death of the matriarch of the herd, shortly after we finished the exposure to the first three stressors. During the study period stress-related behaviors, fecal cortisol levels, and herpes shedding were monitored. The bull shed large quantities of EEHV1 for several weeks. Sequencing of a sample taken one week after the start of the stress induction revealed shedding of EEHV1A. Based on her seroconversion to EEHV1B (serum antibody screening, ELISA) we assume that shedding by the adults resulted in an a-symptomatic infection with EEHV1B in the calf. An increased level of antibodies against EEHV1B was still present after 18 months.
Keywords: EEHV infection, Natural social stressor, Seroconversion, Cortisol, Fecal samples

EEHV-specific nanobodies - a potential (prophylactic) treatment for EEHV-HD?
Tabitha E. Hoornweg[1,], Willem Schaftenaar[2], Victor P.M.G. Rutten [1,3], Cornelis A.M. de Haan[1,*]
[1]*Division Infectious Diseases and Immunology, Faculty of Veterinary Medicine, Department of Biomolecular Health Sciences, Utrecht University, Utrecht, The Netherlands.*
[2]*Veterinary Advisor EAZA Elephant TAG, Rotterdam Zoo, Rotterdam, The Netherlands.*
[3]*Faculty of Veterinary Science, Department of Veterinary Tropical Diseases, University of Pretoria, Onderstepoort, South Africa.*

Introduction: The elephant endotheliotropic herpesviruses (EEHVs), comprising seven species and several subspecies, naturally infect Asian (*Elephas maximus*) or African elephants (*Loxodonta species*). While all adult elephants are (latently) infected with at least one EEHV (sub)species, young elephants with low to non-detectable antibody levels against the infecting EEHV (sub)species may develop acute, fatal hemorrhagic disease (EEHV-HD). Notably, the disease is very rare in calves under one year of age, who have EEHV-specific antibody levels comparable to their dams. As soon as these maternal antibodies begin to wane, the risk on EEHV-HD significantly

increases. These observations imply that antibodies play a crucial role in protection against EEHV-HD, suggesting their potential use as a (prophylactic) treatment to prevent or treat EEHV-HD.

Materials and Methods: In this study, we aimed to develop EEHV-specific nanobodies, which are the antigen-binding domains of camelid heavy chain-only antibodies. Nanobodies function largely similar to conventional antibodies but offer several advantages, including smaller size, lower immunogenicity, and easier selection and production.

Results: To date, we have generated 22 distinct nanobodies that recognize the EEHV gB antigen, one of the viral surface proteins essential for infection. The specificity of the nanobodies ranges from EEHV1A-specific to broadly reactive. Given that only a subset of gB-specific antibodies, particularly those recognizing subdomains I and II of the gB protein, are known to neutralize (and thus protect against) infection, we evaluated which gB subdomain our nanobodies recognize. Eight nanobodies were found to recognize gB subdomain II, 12 nanobodies bind to subdomain IV, and the characterizations for two nanobodies are still ongoing.

Discussion: To date, we have produced eight individual nanobodies that could potentially protect against EEHV infection. To determine whether these nanobodies are indeed neutralizing, an EEHV infection assay is required, which is currently still lacking. Awaiting such an assay, the produced nanobodies may serve as valuable tools for EEHV research and the development of novel diagnostic assays, particularly an EEHV strip test.

Keywords: Asian elephant, EEHV, EEHV-HD, gB, antibody, nanobody, prophylaxis

Generation of a multiantigen mRNA Vaccine for elephant endotheliotropic herpesvirus (EEHV)

Jessica Watts[1], Jennifer L. Spencer Clinton, Ph.D.[2,3], Jeroen Pollet, Ph.D.[2,3], Rongsheng Peng[1], Jie Tan[1], Paul Ling, Ph.D.[1]

[1]*Department of Molecular Virology and Microbiology, Baylor College of Medicine, Houston, TX, USA,*

[2]*Department of Pediatrics, Division of Tropical Medicine, Baylor College of Medicine, Houston, TX, USA,*

[3]*National School of Tropical Medicine, Baylor College of Medicine, Houston, TX USA*

Hemorrhagic disease (HD) associated with elephant endotheliotropic herpesvirus (EEHV) infection occurs in captive and wild Asian elephants world-wide and is the leading cause of death among juvenile Asian elephants in North America and Europe. Despite the development of sensitive diagnostic tests and improved protocols for treating EEHV-associated illness, survival is not guaranteed. There is a critical need for the development of an effective vaccine to reduce mortality from EEHV-HD. To address this, we generated a multi-antigenic EEHV mRNA that encodes the EEHV1A subtype glycoproteins gB, gH, gL, and gO, which represents the conserved entry machinery for several herpesviruses in the betaherpesvirus subfamily. These glycoproteins also stimulate naturally occurring humoral and cellular immunity in infected elephants. Lipid nanoparticles encapsulating modified mRNAs for the glycoproteins were used to vaccinate mice to assess immunogenicity. CD-1 mice vaccinated once generated detectable antibody titers against gB, gH, and gL that increased significantly three weeks following a booster dose. Activated $CD4^+$ and $CD8^+$ T-cells secreting cytokines associated with a T_H1 response were induced against all four glycoproteins. No adverse effects were observed following one or two doses of the vaccine. Findings from this study represent a crucial step towards moving this candidate EEHV1A mRNA vaccine into clinical trials in Asian elephants.

Elephant Orphan Conservation and Herd Reintegration

Adine Roode
Hoedspriut Elephant Rehabilitation and Development (HERD)

The ability to reintegrate African elephant orphans into a new herd and family structure is a critical step for the social well-being of an orphan and contributes to the general health of a newly orphaned elephant calf. Understanding the value of the reintegration process is highly beneficial for custodians who aim to offer the best possible care for any elephant orphan.

In the early years of HERD Trusts' establishment, we were faced with the challenge of finding a way to reintegrate our first elephant orphan(Jabulani) into an accepting elephant herd, to meet his needs for a loving social structure. As South Africa's first elephant orphanage, this was no easy task, but the experience led us to innovate and gather a unique understanding of the intricacies of the elephant orphan reintegration process.

Currently, HERD Trust hosts a successfully integrated elephant herd known as the 'Jabulani herd', a group of elephants consisting of unrelated individuals and many of whom were introduced to each other in 2002. From 2002 to 2020, 6 elephant orphans were introduced, with most introductions happening from 2016. During that period, 5 elephant calves were born to females in the herd and today the Jabulani herd stands as a testament to the importance of taking a holistic approach to elephant orphan conservation. African elephants are a socially complex species, dependent on their herd members for the comfort, protection, and the raising of young calves. Considering the welfare of elephant orphans and knowing the importance of socializing and bonding of elephant calves with females, mothers, allo-mothers, and females from different ages, the Jabulani herd has shown great potential in contributing towards the case study of integrating orphaned elephants as soon as possible into the herd.

In this talk, Adine (the founder of South Africa's first dedicated elephant orphanage) will discuss HERD Trusts' elephant conservation journey and the wisdom gathered along the way. Adine will cover an array of topics, from integration and elephant orphan care to directions for future research as well as providing an overview of the current state of the herd.

Examining dyad proximity and social bond dynamics in a herd of African savannah elephants (*Loxodonta africana*) during release from semi-captivity in to the wild

Keneilweone Linah Kejekgabo[1*], Gaseitsiwe Masunga[1], Kate Evans[2], Emily Bennitt[1]
[1] *Okavango Research Institute, University of Botswana, Maun, Botswana*
[2] *Elephants for Africa, Kumaga, Botswana*

Introduction: Spatial proximity for gregarious species such as elephants is crucial for social interactions and relationship maintenance. Studies show that stronger social associations correlate with the time members spend in close proximity. Elephants that have been in captivity for extended periods have shown the ability to form strong familial bonds, sometimes resembling a wild breeding herd. Nevertheless, these artificially created bonds are susceptible to disruption from various factors such as translocations and little is known about how these bonds are maintained post translocation and release. This study is part of ongoing research on the release of a mixed relation semi-captive

herd of African savannah elephants using a soft release method and it examines the effects of release on the social associations within the herd using dyad proximity.

Materials and Methods: Six adult female elephants were fitted with GPS Vertex plus satellite collars to capture GPS fixes at intervals of 30 minutes. 15 dyads were generated from the collared elephants and proximity within the dyads was computed throughout the soft release programme. A GLMM was used to analyse the change in dyad proximity at every phase of the soft release, taking into consideration times of day and enclosures the elephants overnighted in while under human care. **Results:** Model output showed that dyad proximity was altered by the soft release. We found out that proximity was decreasing within the dyads as the release progressed. However, mother-daughter dyad and older non-kin females consistently maintained high levels of proximity throughout the release, while the sibling dyad had varying levels of proximity. Instances of high proximity across the dyads were observed at varying phase of the release and were linked to events such births, possibly instigating allomothering behavior, as well as other factors such as reduction of enclosures sizes.

Discussion: Findings from our study suggest that bonds established among non-kin elephants through years of captivity may not persist post release. This implies that when planning social groupings in captivity, the focus should be on genetic relatedness to support lasting social bonds post-release. It is important that release programs are tailor made such as releasing older females or genetically related individuals together to minimize any disruption in social bonds. In conclusion, understanding natural social tendencies of elephants whether they are in captivity or natural habitat is a vital management approach to improving translocation and release success and most importantly the wellbeing of released elephants.

Keywords: Dyad, proximity, release, semi-captivity, social association, translocation

Dynamic occupancy modelling of Asian elephants (*Elephas maximus*) reveals increasing landscape use in Nepal

Ashok Kumar Ram[1], Babu Ram Lamichhane[2], Naresh Subedi[2], Nabin Kumar Yadav[3], Ajay Karki[1], Bivash Pandav[4], Cory Brown[5], Top B. Khatri[6], and Charles B. Yackulic*[7]

[1] *Department of National Parks and Wildlife Conservation, Babarmahal, Kathmandu.*
[2] *National Trust for Nature Conservation, Khumaltar, Lalitpur.*
[3] *Ministry of Forests and Environment, Madhesh Pradesh, Janakpur, Nepal.*
[4] *Wildlife Institute of India, Dehradun.*
[5] *US Fish and Wildlife Service, Washington D.C. USA.*
[6] *Ecosystem Based Adaptation Program (EBA) II, Kathmandu*
[7] *Southwest Biological Science Center, U.S. Geological Survey, Flagstaff, AZ, USA.*

Large mammals with general habitat needs can persist throughout mixed used landscapes, however, increasing human threats often restrict them to protected areas. Conservation efforts, especially for reducing conflicts with humans, can enhance tolerance of species like Asian elephants (*Elephas maximus*) in human-dominated landscapes. Here, we examine how elephant use of the Chure Terai Madhesh Landscape (CTML) covering the entire elephant range of Nepal changed between 2012 and 2020. We systematically surveyed ~42,000 km^2 of potential habitat, by dividing the study area into 159 grid cells of 15x15 km^2 and recording elephant signs during the cool dry season in three years (2012, 2018 and 2020). We analyzed the survey data in a single-species multi season (dynamic) occupancy modeling framework to test hypotheses regarding the influence of environmental and management conditions in landscape use by elephants over time. The best-

supported model included protected area effects on initial use, colonization, and detection probability as well as temporal variation in colonization and detection probability. Initial use and colonization rates were higher in protected areas, however elephants increasingly used both protected areas and outside protected areas, and the difference in use between protected areas and outside protected areas declined as elephants use became prevalent across most of the landscape. While elephants were patchily distributed in the first year of surveys consistent with past descriptions of four sub-populations, elephant use consolidated into a western and eastern region in subsequent years suggesting two sub-populations. The only gap in their distribution occurs in the area west of Chitwan National Park and east of Banke National Park. Increasing elephant use outside protected areas may cause higher human-elephant conflicts. Management interventions that focus on reducing conflicts can promote human-elephant co-existence in the landscape.

Keywords: Asian elephant, dynamic occupancy, protected area, Chure Terai Madhesh Landscape (CTML)

The effectiveness of camera trap videos for identifying wild Asian elephants

Sasha Montero-De La Torre[1,&], Sarah L. Jacobson[1,2], Martin Chodorow[1,2], Marnoch Yindee[3], Joshua M. Plotnik[1,2*]

[1] *Department of Psychology, Hunter College, City University of New York, New York, NY, USA*

[2] *Department of Psychology, Graduate Center, City University of New York, New York, NY, USA*

[3] *Akkhraratchakumari Veterinary College, Walailak University, Thasala, Nakhon Si Thammarat, Thailand*

[&]*Current Institution: California National Primate Research Center, University of California, Davis, California, USA*

As Asian elephants navigate their fragmented environment in search of food resources, they often interact with humans, sometimes negatively. To implement more effective mitigation strategies for human-elephant conflict, we argue that identifying 'problem' individuals first is crucial. Many techniques have been used to identify individual elephants throughout a landscape, and camera traps are known to be a minimally invasive tool that can be placed inconspicuously in an elephant's environment. In the present study, we used day and night videos captured from 34 remote-sensing cameras placed in the Salakpra Wildlife Sanctuary and surrounding agricultural areas, where there are at least 300 wild elephants. Based on previous elephant identification studies conducted from direct observation and photographs, we identified a total of 24 morphological characteristics (e.g., presence of tusks, back shape, ear shape, tail length, etc.) to test whether remote-sensing camera trap videos would be as effective for systematically differentiating unique individuals. We hypothesized that camera trap videos could be used to effectively identify adult elephants with a low probability of misidentification. A total of 475 videos were used to identify 107 Asian elephants: 72 adults, 11 sub-adults, 20 juveniles, and four infants. To understand if camera trap videos were as effective as other methods for identifying adult individuals, we used a misidentification calculation from Goswami et al., 2012. For our adult misidentification calculations, we included the most frequent trait from 19 morphological characteristics, to calculate the probability that any two individuals would show the same combination of morphological features within the subset of videos (p_{max}^2= 0.006). We found that ear lobe shape, tail brush type, ear top folds, and tears are the characteristics that most distinguish two adult individuals. These results suggest that remote-sensing camera trap videos can be as effective as direct observations and photographs for identifying individual wild adult elephants. As this identification methodology is an important foundation for monitoring wild Asian elephant behavior, we hope these methods serve as a useful tool for others when identifying Asian elephants and promote the use of remote-sensing camera traps.

Keywords: Wild Asian elephants$_1$, camera traps$_2$, remote-sensing$_3$, Thailand$_4$, elephant behavior$_5$, human-elephant conflict$_6$

Reference: Goswami, V. R., Lauretta, M. V., Madhusudan, M. D., & Karanth, K. U. (2012). Optimizing individual

identification and survey effort for photographic capture–recapture sampling of species with temporally variable morphological traits. *Animal Conservation*, *15*(2), 174-183.

Innovation in wild Asian elephants across landscapes

Sarah L. Jacobson[1, 2], Marnoch Yindee[3], Joshua M. Plotnik [1, 2]
[1]*Department of Psychology, Hunter College, City University of New York, New York, NY, USA*
[2]*Department of Psychology, The Graduate Center, City University of New York, New York, NY, USA*
[3]*Akkhraratchakumari Veterinary College, Walailak University, Thasala, Nakhon Si Thammarat, Thailand*

Negative interactions between humans and wild elephants can occur when elephants forage in agricultural crops. People erect barriers to keep elephants out of fields, but these barriers are often ineffective because elephants figure out a way to get around them. The ability to innovate may allow some individuals to be more successful in navigating barriers and accessing resources in human-dominated landscapes than others. Therefore, we investigated how innovation varied in individual wild Asian elephants (*Elephas maximus*) living in and around Salakpra Wildlife Sanctuary in western Thailand. We used puzzle boxes with multiple possible solutions to test innovation in both the natural habitat of the protected sanctuary and along the border of the sanctuary near human-dominated landscapes, where elephants are faced with novel challenges associated with agricultural development. Elephants tested near human-dominated landscapes were more likely to interact with the puzzle box in their first exposure and exhibited greater exploratory diversity in their interactions with the puzzle compared to elephants inside the sanctuary. However, success opening puzzle box doors and the overall number of door types elephants opened across visits were not influenced by landscape. Instead, there was a lot of individual variability in innovation in both landscapes, suggesting that differences in this ability may not be a defining characteristic that influences elephants' use of human areas. Elephants' initial decisions to engage with novelty do differ across landscapes, which can ultimately affect their opportunities to innovate. Knowledge about individual variation in innovation and factors associated with it within an elephant population can contribute to the development of better methods of mitigating negative interactions between people and elephants.

Spatial Capture-Recapture (SCR) Point Process Analysis for Elephant Populations in Trumon District, South Aceh, Aceh Province

Abdullah Abdullah[1,2], Zulfikar Zulfikar[2], Yuri Gagarin[2], Samsul Muarrif[2], Hendra Yulisman[1,2]
[1] *Department of Biology Education, Syiah Kuala University, Banda Aceh, Aceh Province, Indonesia*
[2] *Research Center for Elephant Conservation and Biodiversity Forest, Syiah Kuala University, Banda Aceh, Aceh Province, Indonesia*

The Sumatran elephant (*Elephas maximus sumatranus*) serves as an umbrella species, directly influencing ecosystem landscapes. The sustainability of their population is threatened by significant habitat disturbances and a lack of comprehensive understanding of their natural behaviors, which are critical for effective population management. In Aceh Province, Indonesia, the conservation of the Sumatran elephant population is an urgent ecological issue. Sustainable conservation planning necessitates identifying population sizes within each elephant pocket in Aceh, estimating population distribution, and assessing habitat conditions. This study was conducted in the Trumon Landscape area, South Aceh Regency, Aceh Province, Indonesia. Data collection involved purposive sampling surveys along elephant routes, recording environmental conditions, and other habitat-related

parameters. Descriptive analysis and Geographic Information System (GIS) techniques were employed. The data collected included the Sumatran elephant's ecological needs (e.g., activity space, foraging locations, predator avoidance, resting and reproduction sites) and daily activity patterns (time budget) based on habitat and resource utilization strategies. Habitat variables correlated with elephant habitat use included resource availability (food, tree bark, rubbing trees) and constraints (slope, elevation, disturbance distance, water source distance, primary forest distance, presence of large herbivores, and predators). Analysis indicated that habitat suitability and potential areas for habitat enrichment exist, particularly in non-protected forest areas that have been converted into oil palm plantations, thus providing opportunities for forage enhancement. The estimated population of elephants actively using the core area is 39 individuals, with an Rhat value of 1. This core area, located in the fragmented elephant pocket within the Trumon Forest area, South Aceh Regency, Aceh Province, is of significant importance. The study highlights the necessity of understanding the ecological requirements and movement patterns of the Sumatran elephant to develop effective conservation strategies. The fragmentation of habitats, influenced by factors such as new agricultural developments and human settlements, necessitates targeted conservation efforts. Enhancing forage availability in converted landscapes can improve habitat suitability and support population growth. Continuous monitoring and habitat management are essential to mitigate the impacts of habitat disturbances and promote the long-term survival of the Sumatran elephant in Aceh Province.
Keywords: spatial capture-recapture, point process, elephant populations

Relationship between shared space-use and between-clan dominance in the Asian elephants, Nagarahole-Bandipur National Parks, southern India

Chowdari Jabili[1], Nandini S[1], Gautam H[1], Keerthipriya P[1], Revathe T[1], Ankana S[1], Athira TK[1], Thanikodi M[1], Choudhary D[1], Vidya TNC*
[1]*Evolutionary And Organismal Biology Unit, JNCASR, Bengaluru, India*

Introduction: Groups of animals are expected to be more familiar with each other if the extent of co-occurrence is high or if the space shared in terms of home-range overlap is large. Increased familiarity between groups, as a consequence of greater co-occurrence or home-range overlap, is expected to result in lowered agonism and more resolved dominance between those groups. Female Asian elephants are organised into clans that show fission-fusion dynamics. Although they are non-territorial and have overlapping home-ranges, frequent between-clan agonism had been observed at a resource-rich grassland used by the Kabini elephant population in southern India. We wanted to find out whether this between-clan agonism was a function of familiarity. Therefore, we tested for a negative correlation between shared space-use, as a proxy of familiarity, and the number of agonistic encounters between clans in this population.

Materials and Methods: The study was conducted as a part of the long-term Kabini Elephant Project in Nagarahole and Bandipur National Parks, southern India. Data from identified females (identified using natural physical characteristics) seen from 2009 to 2022 were used. We assigned females to clans based on social network analysis. We used GPS locations of sightings to calculate the home ranges of clans (using minimum convex polygons) and the extents of co-occurrence between pairs of clans. We recorded agonistic interactions between clans in the Kabini grassland, which is a high resource area and a small part of the home range, which largely covers forest habitat.

Results: Based on 16 focal clans, we found a significant positive correlation (Mantel test R^2=0.61, P<0.001) between the number of co-occurrences of clans in the Kabini grassland and the number of

agonistic between-clan interactions there. We also found a very small but significant positive correlation between the number of agonistic interactions and the extent of resolved dominance between clans. However, we found no correlation between the extent of home-range overlap of clans in the study area and between-clan agonism in the Kabini grassland. The extent of home-range overlap of clans was weakly correlated with the extent of co-occurrence in the grassland.

Discussion: We did not find evidence of familiarity (inferred from overall home range overlap) on agonism between clans. If there were clear hierarchies between clans, one might have expected to find avoidance in the grassland, which was not found, based on home-range overlap and grassland co-occurrence data. The positive correlation between co-occurrence and agonism in the grassland could be a consequence of the high resource habitat during the lean season.
Keywords: Familiarity, Home-range overlap, Extent of co-occurrence, Agonism, Between-Clan Dominance.

Mammalian and Avian Community Response to African Elephant (*Loxodonta africana)* Habitat Disturbance in Southeastern Kenya

Dakota Vaccaro [1], Bruce A. Schulte[1]
[1] *Department of Biology, Western Kentucky University, Bowling Green, Kentucky, USA*

Introduction: African elephants (*Loxodonta africana*) play a significant role in the modification of their habitat, foremost by decreasing woody vegetation cover and density. Little is known regarding the effects of elephant habitat disturbance (EHD) on medium-to-large mammal and bird communities. With increasing elephants populations, high levels of EHD could result in habitat degradation and negatively impact certain wildlife communities. To examine this relationship, we compared mammal and avian community assemblages, richness, and diversity across differing severities (low, medium, high) of elephant disturbed habitats (woodland, shrubland, mixed-wood/shrubland) within Rukinga Wildlife Sanctuary (RWS) in southeastern Kenya.
Material and Methods: From June-November 2022, we collected wildlife detection data via driving transects and surveyed EHD through observation of elephant tree damage.
Results: While EHD levels did impact how bird and mammal communities assembled, possibly through vegetation modification and increased habitat heterogeneity, EHD had no negative impacts on species richness and diversity in the three habitat types. Richness and diversity were highest in high EHD areas within shrubland habitat and showed no difference across EHD levels for the other two habitats.

Discussion: Overall, this study provides evidence that elephants in RWS are not disturbing habitats to an extent that negatively impacts sanctuary viability, and at least for shrubland habitat appear to enhance it. Additionally, smaller wildlife habitats may be able to mitigate lasting elephant overpopulation damages through increased connectivity to other protected areas.
Keywords: community, disturbance, diversity, Kenya, richness, vegetation

Self-directed behaviours in captive African elephants increase with tourist numbers and close interactions

Maud Bonato[1], Primrose Manning[2], Dakota Guy[2], Christina Tholander[2] & Jarrett Joubert[2]
[1] *Department of Biological Sciences, University of Venda, Thohoyandou, Limpopo, South Africa*
[2] *African Elephant Research Unit, Knysna Elephant Park, Plettenberg Bay, Western Cape, South Africa*

Captive African elephants face numerous welfare issues through their use in the tourism industry, often stress-related and linked to high levels of tourists and human interactions. The current research set out to investigate whether the use of self-directed behaviour (SDB) was associated with situations of supposed stress or apprehension. For that purpose, we recorded self-directed behaviour in a population of 9 African elephants housed at the Knysna Elephant Park. SDBs were recorded as they occurred, with each elephant being used as a focal individual and followed for a period of 30 mins. The number of tourists present in the field (0: None; 1-20: low; 21-40: moderate; >40: high), the number of tourists within 5m of the focal elephant (0: None; 1-10: low; >10: high) and the nature of the tourist interaction (None, Feeding, Touching). In total, 262 observations were recorded between October 2021 and May 2023. Preliminary analyses showed that elephants performed SDBs at a rate of 1.05 ± 0.02 per minute, ranging from 0 to 13. The expression of SDBs was more predominant in the afternoon as compared to the morning (0.66 ± 0.004 per min vs. 0.53 ± 0.004 per min, respectively; $P<0.0001$) and more predominant during the Feeding and Touching interactions (0.91 ± 0.005 per min vs. 0.50 ± 0.004 per min, respectively) as compared to when the elephants were not part of any interactions with tourists (0.42 ± 0.005 per min; $P<0.001$). Furthermore, the number of tourists present in the field and within 5m of the focal individual also affected the rate of SDBs, with higher numbers of tourists resulting in a higher number of SDBs per minute (in the field: None: 0.47 ± 0.004; Low: 0.47 ± 0.04; Moderate: 0.53 ± 0.005; High: 0.98 ± 0.007; $P<0.0001$; within 5m of the focal elephant: None: 0.24 ± 0.01; low: 0.73 ± 0.004; High: 0.93 ± 0.004; $P<0.0001$). These results suggest that close interactions with large numbers of tourists are sources of anxiety and/or stress for captive elephants. Further research is therefore needed to determine the optimal level of interactions and the number of tourists that would ensure the welfare of captive elephants.

Keywords: Animal-tourist interactions; animal behaviour; animal welfare; *Loxodonta africana*.

20th International Elephant Conservation & Research Symposium

Chat transcripts

TUESDAY JULY 30, 2024

0:32:36	Julie Bates IEF:	Welcome to the 20th International Elephant Conservation & Research Symposium!
0:32:41	Jill Donaldson:	Hi to all! Looking forward to the sessions this week.
	International Elephant	
0:33:09	Foundation:	Reacted to "Hi to all! Looking ..." with ♡
0:33:26	Getachew M:	Reacted to "Welcome to the 20th ..." with ♡
0:33:33	Jodie Berezin:	Reacted to "Welcome to the 20th ..." with ♡
	International Elephant	
0:34:00	Foundation:	Welcome everyone. Here is the most up to date Program
	International Elephant	
0:47:35	Foundation:	dolson@elephantconservation.org
	International Elephant	
0:49:53	Foundation:	Welcome, Dr. Roca!
		Good morning, afternoon or evening everyone! Welcome. If you have any questions for Dr. Roca,
0:51:15	Kristi Burtis:	please put them in the chat.
0:51:44	Ashokram:	Good morning/Good afternoon every one.
0:52:07	Tina Chiarelli:	Reacted to "Good morning/Good af..." with ♡
	International Elephant	
0:52:29	Foundation:	Reacted to "Good morning/Good af..." with 👍
1:25:33	Philipo Jacob:	why do we call different species while they can breed between the two?
		Is there a similar concept to Mayer's for subspecies? Can you briefly explain how we 'prove' distinct
1:32:35	Lizzie McLean:	subspecies genetically? I am particularly interested in the Borneo subspecies of Asian elephants.
1:44:02	Lizzie McLean:	Replying to "Is there a similar c…"
		Thanks! Great presentation!
	International Elephant	
1:45:01	Foundation:	Reacted to "Thanks! Great presen..." with ♡
1:45:27	Lizzie McLean:	Reacted to "Thanks! Great presen…" with ♡
1:45:43	Philipo Jacob:	thanks very much.....so informative
	International Elephant	
1:45:50	Foundation:	Reacted to "thanks very much....." with ♡
1:46:20	pearsov:	Yes we have tested for EEHV in fresh elephants Virginia riddle pearson
	International Elephant	
1:46:23	Foundation:	👌
	International Elephant	
1:46:29	Foundation:	Reacted to "Yes we have tested f..." with ♡
1:46:34	Deborah:	Excellent presentation Dr. Roca!!
	International Elephant	
1:47:05	Foundation:	Reacted to "Excellent presentati..." with ♡
		Virginia meant to type lL.cyclotis. We think there is distinct variation in EEHV3A and EEHV3B in
1:47:48	pearsov:	Gabon forest elephants. We tested saliva from 25 L.cyclotis from Gabon
1:48:00	Natalia Prado:	Reacted to "Virginia meant to ty..." with ♡
		Thank you Dr. Roca!! If anyone currently working with Forest elephants is interested in sampling for EEHV, please get in touch with any protocol questions! Lauren Howard:
1:48:20	Lauren Howard:	drlaurenhoward@hotmail.com
	International Elephant	
1:48:20	Foundation:	Reacted to "Virginia meant to ty..." with 👍
	International Elephant	
1:48:36	Foundation:	Reacted to "Thank you Dr. Roca!!..." with ♡
1:48:46	Natalia Prado:	Reacted to "Thank you Dr. Roca!!..." with ♡
1:48:46	Kristi Burtis:	Reacted to "Thank you Dr. Roca!!..." with ♡
		Mayr (who promulgated the biological species concept) and O'Brien (my mentor in the elephant work) did address some subspecies issues, here:
1:49:09	Al Roca:	https://www.science.org/doi/10.1126/science.251.4998.1187
1:49:36	Al Roca:	Reacted to "Thanks! Great presen..." with ♡
1:49:41	Al Roca:	Reacted to "thanks very much....." with ♡
1:49:45	Al Roca:	Reacted to "Yes we have tested f..." with ♡
1:49:53	Al Roca:	Reacted to "Excellent presentati..." with ♡
1:50:02	Al Roca:	Reacted to "Virginia meant to ty..." with ♡
1:50:14	Al Roca:	Reacted to "Thank you Dr. Roca!!..." with ♡
	International Elephant	
1:50:46	Foundation:	Reacted to "Mayr (who promulgate..." with 👍
1:52:15	Al Roca:	Replying to "Is there a similar c..."
		I just put a link to a subspecies reference below
1:53:09	Lizzie McLean:	Replying to "Mayr (who promulgate…"

		Thanks very much! I conducted the recent Red List assessment for the Bornean elephant. We treated it as a distinct conservation unit a the basis of a combination of morphological and genetic evidence. I am interested in the general definitions tho and other case studies. Thanks again.
2:00:40	Al Roca:	Reacted to "Welcome, Dr. Roca!" with ♡
2:05:52	Ashokram:	Replying to "Mayr (who promulgate..."
		Nothing we listened. Please increase the volume of speaker
	International Elephant	
2:09:03	Foundation:	Replying to "Mayr (who promulgate..."
		There is nothing we can do to change the volume. Please try a pair of headphones
	International Elephant	
2:09:28	Foundation:	Reminder to put questions for this speaker in the Chat
		It is unusual to find debris, dirt and grass in the airways of animals (generally indicates aspiration). Do you know if this is considered normal for wild elephants or is it thought this could be
	Jennifer Dagostino - OKC	contaminants introduces from the oral endotracheal intubation technique? Also haw far were you
2:13:13	Zoo (she/her):	able to get with the 3 meter scope? Trachea, mainstem bronchi or further down?
2:16:20	Victor PMG Rutten:	Any specific reason why you perform this procedure in wild elephants in the field?
2:17:28	Ashokram:	Replying to "Mayr (who promulgate..."
		Thank you. Now good.
2:18:33	Stacey Engel:	I apologise about the sound. I am not sure what the issue is
	International Elephant	
2:18:56	Foundation:	Replying to "I apologise about th..."
Hard to know. It showed you as unmuted but we couldn't hear you		
	International Elephant	
2:19:05	Foundation:	Replying to "I apologise about th..."
		But there's a question in the chat
		The oral endotracheal tubes are cleaned and sterilised before inserted into the elephants. This was usually seen in bronchoalveolar lavage fluid of elephants previously. We think this contaminants are
2:19:43	Stacey Engel:	due to the nature of elephants and larger airways.
	International Elephant	
2:19:44	Foundation:	Replying to "It is unusual to fin..."
		@Stacey Engel
	International Elephant	
2:19:54	Foundation:	Replying to "Any specific reason ..."
	International Elephant	
2:20:06	Foundation:	Reacted to "The oral endotrachea..." with 👍
2:21:43	Himal Sawad:	Dr. Stacy Engel, Can we have your Email ?
	International Elephant	
2:23:12	Foundation:	Replying to "Dr. Stacy Engel, Can..."
		We managed to insert the endoscope as far as we could without forcing the tube and causing
2:23:29	Stacey Engel:	damage to the elephant.
	International Elephant	
2:25:09	Foundation:	Reacted to "We managed to insert..." with 👍
2:25:22	pearsov:	Dr. Ronsen, Did you test for EEHV in the organs? Virginia Riddle Pearson
2:26:45	Laura Rosen:	Dr. Ronsen, Did you test for EEHV in the organs? Virginia Riddle Pearson
		Our colleagues in the UK did microarray and WGS analysis for viruses and did not detect anything We use these samples for mycobacterial culture to diagnose TB in these elephants. It is more
2:26:48	Stacey Engel:	sensitive to determine established infection than in trunk washes.
	International Elephant	
2:26:59	Foundation:	Reacted to "Dr..Ronsen, Did you ..." with 👍
	International Elephant	
2:27:05	Foundation:	Reacted to "We use these samples..." with 👍
2:27:08	Stacey Engel:	My email is engelsc@sun.ac.za. Thank you reaching out
2:41:44	Julie Pellman:	Are the elephants in captivity or in the wild? How did they lose their limbs>
2:43:26	Ilya Kablam:	They are in the wild when they lose their limb, caused by snares
2:47:18	Himal Sawad:	Wish to work with your organization in future days. And wish I could apply my practical knowledge there.
2:48:18	Steven Bukvic:	Hello Himal. Please contact me via steven.bukvic@elephantprosthetics.org
2:48:20	Ilya Kablam:	Thank you for your questions!
2:48:30	Ilya Kablam:	Reacted to Hello Himal. Please ... with "👍"
2:50:52	Kristi Burtis:	Thank you for all you do for elephants but also serve as inspiration for people who are amputees.
	International Elephant	
2:51:04	Foundation:	Reacted to "Thank you for all yo..." with ♡

2:51:08	International Elephant Foundation:	Reacted to "Thank you for your q..." with ♡
2:51:11	International Elephant Foundation:	Reacted to "Hello Himal. Please ..." with ♡
2:51:16	T. Sittisak:	Reacted to "Thank you for all yo..." with ♡
2:51:18	International Elephant Foundation:	Reacted to "Wish to work with yo..." with ♡
3:00:07	Ilya Kablam:	Reacted to Thank you for all yo... with "♡"
3:01:06	International Elephant Foundation:	@Christian Schiffmann Question that was asked: How has cooperation been ex situ facilities helped expand our knowledge— for example, one zoo might have a few animals but the sample size increases through cooperation
3:04:23	Christian Schiffmann:	Cooperation between elephant-keeping zoos is a relevant factor to enable corresponding research on aspects of elephant physiology. Only by cooperation, reliable results corroborated by robust sample sizes can be reached. So, teamwork & cooperation are definitely key factors.
3:04:50	International Elephant Foundation:	Reacted to "Cooperation between ..." with ♡
3:13:47	Lauren Howard:	Awesome program Chase and OKC, thanks for sharing!
3:14:16	International Elephant Foundation:	Reacted to "Awesome program Chas..." with ♡
3:14:31	Christina AERU:	Really inspiring! Thank you for sharing, Chase!
3:14:45	Jill Donaldson:	Chase, you rock!
3:14:50	International Elephant Foundation:	Reacted to "Chase, you rock!" with ♡
3:14:51	Himal Sawad:	You are doing great sir. Heard about the news regarding the Elephant of Srilanka.
3:14:52	Chase LaDue (OKC Zoo):	Reacted to "Awesome program Chas..." with ♡
3:14:52	International Elephant Foundation:	Reacted to "Really inspiring! Th..." with ♡
3:14:57	International Elephant Foundation:	Reacted to "You are doing great ..." with ♡
3:14:58	Chase LaDue (OKC Zoo):	Reacted to "Really inspiring! Th..." with ♡
3:15:02	Chase LaDue (OKC Zoo):	Reacted to "Chase, you rock!" with ♡
3:15:05	Chase LaDue (OKC Zoo):	Reacted to "You are doing great ..." with ♡
3:22:11	Amber:	Awesome work Adam!
3:27:40	International Elephant Foundation:	Reacted to "Awesome work Adam!" with ♡
4:01:31	Kristi Burtis:	https://www.tiktok.com/@elephantsief Follow us on TikTok TODAY and be entered to win a 25th anniversary IEF hat!
4:09:39	Kristi Burtis:	Here is a QR code
4:09:54	International Elephant Foundation:	Reacted to "Here is a QR code" with ♡
4:10:07	International Elephant Foundation:	Reacted to "IMG_4167.PNG" with ♡
4:19:02	Lizzie Webber - Trunks & Leaves - UK (she/her):	Thank you Erin - and all the speakers today :)
4:19:12	International Elephant Foundation:	IEF <3s Erin!
4:19:19	International Elephant Foundation:	Reacted to "Thank you Erin - and..." with ♡
4:19:32	Tina Chiarelli:	Reacted to "IMG_4167.PNG" with 👍🖼
4:19:57	International Elephant Foundation:	https://www.tiktok.com/@elephantsief Follow us on TikTok TODAY and be entered to win a 25th anniversary IEF hat!
4:21:29	Fairlie Arrow:	Thank you for having us and I hope that we can help you in the future. Don’t hesitate to contact us for help or advice
4:22:00	International Elephant Foundation:	Replying to "Thank you for having..."
4:23:43	Tashi Wangdi:	Thank you so much for presenting and answering the questions. We appreciate your insights into storytelling to make a conservation impact I also make videos about elephants to educate people, but I don't get many views. The most I've gotten is 150k. Could you please give me a tip on how to get more views?

4:26:52	Keneilweone Kejekgabo:	Thank you for having us, and thank you to the wonderful presenters for today. It was eye openning!
4:26:53	Chase LaDue (OKC Zoo):	Thank you IEF and everyone!

WEDNESDAY JULY 31, 2024 WORLD RANGER DAY

	International Elephant	
0:32:12	Foundation:	Today's updated program agenda.
0:36:46	Jill Donaldson:	Thank you for the video. Very powerful.
	International Elephant	
0:36:56	Foundation:	Reacted to "Thank you for the vi..." with ♡
	International Elephant	
0:37:53	Foundation:	Replying to "Thank you for the vi..." Thank you, Jill. <3 Thank you Charlie for your presentation! Please consider joining in a Ranger Challenge to support the work you heard today!. Thank you to all of our Rangers around the World who protect our
0:51:56	Kristi Burtis:	Wildlife!!
	International Elephant	
0:52:06	Foundation:	Reacted to "Thank you Charlie fo..." with ♡ This is work done by an Elephant Response Unit in Way Kambas National Park in Sumatra, Indonesia.
	International Elephant	They protect what is likely the largest connected breeding herd of this critically endangered species.
1:11:09	Foundation:	With longtime funding from IEF
1:12:28	Rebecca Wilks:	Reacted to "This is work done by..." with ♡
	International Elephant	
1:13:32	Foundation:	Reacted to "They are the wildlif..." with ♡
1:14:40	Deborah:	They are the wildlife rangers of Sumatra!
	International Elephant	
1:14:45	Foundation:	Reacted to "They are the wildlif..." with ♡
1:14:48	Himal Sawad:	Is that Povidine Iodine ?
1:14:53	mkeig:	Without wonderful interventions like this, in your experience, what is the chance of an adult or young elephant surviving? We have very many incidents
1:14:55	Kristi Burtis:	Reacted to "They are the wildlif..." with ♡
1:16:10	mkeig:	A clay paste is proposed and used on horses, and being trialed on giraffe. Is this something you've tried?
1:18:52	Julie Pellman:	Did the calf return to the wild? Who was the mother that the calf was nursing from?
1:19:04	Deborah:	The calf is nursing off of one of the ERU female elephants who had given birth earlier
	International Elephant	
1:19:59	Foundation:	Reacted to "The calf is nursing ..." with 👍
1:26:06	Julie Pellman:	Could we see the video you are developing?
	International Elephant	
1:27:32	Foundation:	Replying to "Could we see the vid..." He had the link at the end of his slides. You can grab it from the replay once the symposium is finished.
1:29:02	Getachew M:	Reacted to "He had the link at t..." with 👍
2:15:26	Kristi Burtis:	https://www.tiktok.com/@elephantsief
2:17:51	Kristi Burtis:	My apologies Francis. She is here to answer any questions you may have so please post your questions.
2:28:51	Deborah:	Are snares an issue like in other parts of Africa?
2:35:58	Kate Evans:	Keep up the great work
	International Elephant	
2:38:34	Foundation:	Reacted to "Keep up the great wo..." with ♡
	International Elephant	
2:42:40	Foundation:	Another example of how seeing wildlife in person helps conservation
	International Elephant	
2:58:47	Foundation:	Reminder to put questions in the chat.
3:12:48	Kate Evans:	Thanks
	International Elephant	
3:16:57	Foundation:	Reacted to "Thanks" with ♡
4:00:51	Kate Evans:	Lovely to see I am not the only person whose children join my meetings and presentations 😀
	International Elephant	
4:01:01	Foundation:	Reacted to "Lovely to see I am n..." with ♡
	International Elephant	
4:01:33	Foundation:	Replying to "Lovely to see I am n..." We always welcome the next generation of conservationists <3

	International Elephant	
4:02:49	Foundation:	This is the best we can do with this sound. Please use headphones
4:02:55	Jessica Rizzolo (she/her):	Hello! Was there a change in the order of presentations? I had to join late
	International Elephant	
4:05:58	Foundation:	Replying to "Hello! Was there a c..." Hi Jessica, you are correct. Unfortunately the day's program was rearranged. We are sorry to have missed you earlier when your talk was presented
4:08:29	Jessica Rizzolo (she/her):	Replying to "Hello! Was there a c..." OK thank you! I apologize for not signing on earlier; I would have rearranged my childcare had I known.
	International Elephant	
4:10:24	Foundation:	Replying to "Hello! Was there a c..."

No worries, we had last minute changes. But if you stay on until the end we will open it up to questions for you if you want

4:11:17	Jessica Rizzolo (she/her):	Replying to "Hello! Was there a c..." I have another meeting in 15 minutes but thank you for the option!
	International Elephant	
4:11:27	Foundation:	Reacted to "I have another meeti..." with ♡
4:14:54	Kristi Burtis:	Replying to "Hello! Was there a c..." Jessica we had a question after your presentation. So I will reintroduce you and remind the attendees of your talk and ask the question. It will be fast.
4:15:15	Kristi Burtis:	Replying to "Hello! Was there a c..." Ok I will out it in the chat now so you can answer
4:17:06	Kristi Burtis:	@Jessica Rizzolo (she/her) regarding your presentation Elephants as crime victims: Is this work based on work in any other region?
4:20:05	Jessica Rizzolo (she/her):	Thanks for this question! Yes, this is based on Amanda Whitfort's work in Hong Kong with numerous species. https://globalinitiative.net/analysis/species-victim-impact-statements-envitonmental-crime/
4:20:21	Kristi Burtis:	Reacted to "Thanks for this ques..." with 👍⿴
	International Elephant	
4:23:18	Foundation:	Reacted to "Thanks for this ques..." with ♡
4:56:41	Lizzie Webber:	Reacted to "Lovely to see I am n…" with ♡
4:59:01	Jill Donaldson:	I am sorry, I am not knowing which topic are we on and who is speaking
	International Elephant	
4:59:31	Foundation:	Last talk for today on this updated program
4:59:44	Himal Sawad:	Please can you increase volume? you are not audible properly.
4:59:54	Kristi Burtis:	Community Elephant Guards Christin Winter
	International Elephant	We cannot do anything about the audio. This is the loudest this recording will go. We suggest using
5:00:13	Foundation:	headphones
5:03:16	Jill Donaldson:	Replying to "I am sorry, I am not..." thks, I had an original agenda draft. All set now.
	International Elephant	
5:03:24	Foundation:	Reacted to "thks, I had an orig..." with ♡
	Lizzie Webber - Trunks &	
5:15:15	Leaves - UK (she/her):	Thank you :)

THURSDAY AUGUST 1, 2024

	International Elephant	
0:32:25	Foundation:	Welcome everyone! Here is the updated program.
0:32:26	Getachew M:	Reacted to "Program agenda 7-31-24.pdf" with 👍
	International Elephant	
0:35:22	Foundation:	https://www.tiktok.com/@elephantsief
	Lizzie Webber - Trunks &	Thoroughly enjoying the trumpetty track ☺ Is anyone able to tell me the name of it? (I have an idea
0:40:03	Leaves - UK (she/her):	for a tiktok video brewing for our NGO ;) Many thanks!
0:40:51	Deborah:	Thank you to Big Brass Band for creating and donating this wonderful elephant video to the International Elephant Foundation.
	Lizzie Webber - Trunks &	
0:41:10	Leaves - UK (she/her):	Reacted to "Thank you to Big Bra..." with ♡

0:41:40	Lizzie Webber - Trunks & Leaves - UK (she/her):	Replying to "Thank you to Big Bra..." Thank you Deborah!
0:45:30	Julie Pellman:	Excellent film!!!!
0:45:45	International Elephant Foundation:	www.bighornbrass.org
0:46:06	Julie Pellman:	Is the film available online?
0:46:59	International Elephant Foundation:	Replying to "Is the film availabl..." We will see if Big Horn Brass has it on their YouTube, if not we will post on ours.
0:47:57	Deborah:	Please don't be shy and add your questions to this chat
1:06:14	International Elephant Foundation:	Do you feel the research on bee fence mitigation is generalized to many areas in Africa or the areas in which you studied?
1:07:28	Kate Evans:	Not something that worked in our area of Botswana - too dry for the bees we found
1:08:09	International Elephant Foundation:	Reacted to "Not something that w..." with 👍
1:08:11	Maud:	Bee hives fencing does not always work, especially in dry areas of Africa - i.e north of South Africa
1:08:12	Kate Evans:	I do - let me find their details, they partner with conservation organisations
1:08:21	International Elephant Foundation:	Reacted to "Bee hives fencing do..." with 👍
1:08:26	International Elephant Foundation:	Reacted to "I do - let me find t..." with ♡
1:11:22	Deborah:	Curious if any of you are aware of NGOs whose mission is specifically keeping young girls in school by constructing female only ablution blocks.
1:11:36	Deborah:	Thank you Kate
1:12:16	Kate Evans:	They work with a growing number of organisations in Kenya, Uganda and shortly Tanzania helping them to start primary health projects with a focus on the unmet need for family planning. e.g. women's health.
1:12:28	Kate Evans:	https://www.chaseafrica.org.uk
1:22:41	International Elephant Foundation:	Reacted to "They work with a gro..." with ♡
1:23:25	International Elephant Foundation:	Reacted to "https://www.chaseafr..." with ♡
1:23:29	Lizzie Webber - Trunks & Leaves - UK (she/her):	Thank you Tashi :)
1:23:50	Kate Evans:	Thank you Given the level of conflict and overlap pf lands what hope to you have for elephants in your region
1:24:07	International Elephant Foundation:	Reacted to "Thank you Tashi :)" with ♡
1:24:13	Natalia Prado:	Reacted to "Thank you Tashi :)" with ♡
1:28:26	Kate Evans:	Thanks for what you do, Tashi, and I am grateful for the long-term vision of your leaders.
1:29:02	International Elephant Foundation:	Reacted to "Thanks for what you ..." with ♡
1:30:19	Lizzie Webber - Trunks & Leaves - UK (she/her):	Reacted to "Thanks for what you ..." with ♡
1:30:27	Julie Pellman:	Thank you
1:39:23	Avery Nicholas:	Reacted to "Thanks for what you ..." with ♡
1:45:09	Julie Pellman:	What efforts might make community members feel that they need to take some responsibility for the situation and that this might benefit them.
1:47:31	International Elephant Foundation:	Replying to "What efforts might m..."
1:50:00	Avery Nicholas:	Replying to "What efforts might m..." @Avery Nicholas One project that was a great example of community initiative and collaboration was Project Orange Elephant (POE) where the SLWCS donated citrus plants for community members to take care of. Citrus plants are an excellent deterrent for elephants and this in turn after the plants had matured (about 3-4 years) made the farmers a profit.
1:52:12	International Elephant Foundation:	Reacted to "One project that was..." with 👍
1:52:46	Kate Evans:	Reacted to "One project that was..." with 👍▨
2:15:55	Himal Sawad:	Thank you for the explanation maam. It was informative. Anandi Maam, Can we have your Email please.

	International Elephant	
2:16:10	Foundation:	Replying to "Thank you for the ex..."
		@Anandi G
2:17:20	Kate Evans:	So interesting - loved the colour coding of responses - very useful
	International Elephant	
2:18:18	Foundation:	Reacted to "So interesting - lo..." with ♡
2:19:18	Anandi G:	Replying to "Thank you for the ex..."
		Thank you Himal! agandhi2@ucsc.edu
2:19:28	Anandi G:	Reacted to "So interesting - lo..." with ♡
	International Elephant	
2:19:35	Foundation:	Reacted to "Thank you Himal! aga..." with ♡
2:36:49	Julie Pellman:	Why the burning ?
2:50:03	Julie Pellman:	Are they burning to clear areas? When they moved their agriculture do they move their dwellings
2:52:18	Philipo Jacob:	they burn where they dont cultivate to reduce the incident of fire escaping when they burn their farm, because it will be easier to trace who did it in case it escapes from your farm
	International Elephant	
2:53:53	Foundation:	Reacted to "they burn where they..." with 👍
3:06:43	Kate Evans:	So encouraging - and very alike to what we are doing in Botswana, so nice to know your approach to conservation.
	International Elephant	
3:07:15	Foundation:	Reacted to "So encouraging - and..." with ♡
3:13:12	Julie Pellman:	Sorry it was hard to hear. What kind of stoves are there? How are the fuel efficient stoves designed? What makes them fuel efficient? I was in the rainforest of Guyana and saw kitchens outside the home
3:14:11	Philipo Jacob:	Tanzania Forest Conservation Group (TFCG)
	International Elephant	
3:14:19	Foundation:	Reacted to "Tanzania Forest Cons..." with 👍
3:14:46	stv:	Ripple Africa
3:16:26	stv:	United for purpose, C quest Capital, Total Land Care, Climate Impact Partners
	International Elephant	
3:16:32	Foundation:	Reacted to "Ripple Africa" with 👍
	International Elephant	
3:16:36	Foundation:	Reacted to "United for purpose, ..." with 👍
3:16:49	stv:	Self help Africa
	International Elephant	
3:18:31	Foundation:	Reacted to "Self help Africa" with 👍
3:29:25	Kate Evans:	What is the average field size in your region?
3:38:02	Elephant Connection:	hichoongaedgar@gmail.com , +260977459694, Zambia.
	International Elephant	
3:38:23	Foundation:	Reacted to "hichoongaedgar@gmail..." with ♡
3:49:31	Julie Pellman:	Very interesting preswenta
4:18:35	Jill Donaldson:	Deborah, thks for all of your work on this seminar…content, keeping it moving
	International Elephant	
4:18:42	Foundation:	Reacted to "Deborah, thks for al..." with ♡
4:37:25	Christina AERU:	Fantastic presentation Natalia, please share your email again
4:38:44	Himal Sawad:	Very informative presentation. Thank you for the presentation.
	International Elephant	
4:39:09	Foundation:	Reacted to "Fantastic presentati..." with ♡
	International Elephant	
4:39:12	Foundation:	Reacted to "Very informative pre..." with ♡
4:39:26	Natalia Prado:	nprado@adelphi.edu
	International Elephant	
4:39:30	Foundation:	Reacted to "nprado@adelphi.edu" with ♡
4:39:46	Christina AERU:	Thank you - I will get in touch!
	International Elephant	
4:40:32	Foundation:	Reacted to "Thank you - I will g..." with ♡
4:41:08	Natalia Prado:	Reacted to "Thank you - I will g..." with ♡
4:41:23	Natalia Prado:	Replying to "Thank you - I will g..."
		Thank you!
4:41:35	Christina AERU:	Reacted to "nprado@adelphi.edu" with ♡
4:41:50	Christina AERU:	Reacted to "Thank you!" with ♡
4:45:21	Natalia Prado:	Reacted to "Very informative pre..." with ♡
4:58:35	Himal Sawad:	Sir, Do you have any plan to conduct this parturition experiment on Asian elephant?
4:59:29	Christina AERU:	Thank you for another very informative day

	International Elephant	
4:59:36	Foundation:	Reacted to "Thank you for anothe..." with ♡
5:01:18	Himal Sawad:	Excited for tomorrow. Today session was really informative. Thanks to all.

FRIDAY AUGUST 2, 2024

	International Elephant	
0:32:56	Foundation:	Good Morning, Afternoon, or Evening everyone!
0:35:59	Getachew M:	Reacted to "Good Morning, Aftern..." with ♡
0:36:08	Jill Donaldson:	Chase Rocks!
	International Elephant	
0:36:15	Foundation:	Reacted to "Chase Rocks!" with ♡
0:36:40	Ashokram:	Good morning and Namaste every one
	International Elephant	
0:37:17	Foundation:	Reacted to "Good morning and Nam..." with ♡
0:37:31	Chase LaDue:	Reacted to "Chase Rocks!" with 🙏
0:38:05	Chase LaDue:	Good morning/afternoon/evening everyone! If you have any questions for the speakers, please put them here in the chat and we will field them to the speakers after each talk.
0:56:44	Julie Pellman:	As new molars come in do they fall out or are they just added to the mouth? I guess I did not pick this up
0:59:39	Deborah:	Thank you Ellen for this great talk!
	International Elephant	
1:00:00	Foundation:	Reacted to "Thank you Ellen for ..." with ♡
	International Elephant	
1:00:10	Foundation:	Thank you, Ellen!
	Karin Schwartz - Roger	With the need for serology analysis, is there a link to biobanking processes and request for elephant
1:15:27	Williams Park Zoo:	holders to collect blood samples?
	International Elephant	
1:15:39	Foundation:	Replying to "With the need for se..."
1:16:41	Kristi Burtis:	Great presentation Dr. Howard!!
	International Elephant	
1:17:33	Foundation:	Reacted to "Great presentation D..." with ♡
1:17:38	Lauren Howard:	Replying to "With the need for se..."
		Thanks for the question, Karin! We have a major initiative underway asking every institution with elephants to submit samples for serology (if they haven't already within the last 18 months). You can contact Dr. Jennifer Yu at jennhyu@gmail.com with questions, or contact me!
	International Elephant	
1:18:46	Foundation:	Reacted to "Thanks for the quest..." with 👍
1:19:04	Patty Gaffney:	Hi Lauren. Eager to hear more about the EEHV advisory group plans for PCR validation study across labs.
		For pursuing EEHV PCR lab standardization, we have expert collaborators at Cornell Diagnostic Lab who are ready to dive in and lead the process. We are looking for a funding source to get started - if
1:20:55	Lauren Howard:	anyone's institution is interested in supporting this important initiative, please let me know!
1:21:27	Lauren Howard:	Reacted to "Great presentation D..." with ♡
	International Elephant	
1:21:48	Foundation:	Reacted to "Hi Lauren. Eager to..." with 👍
	International Elephant	
1:21:52	Foundation:	Reacted to "For pursuing EEHV PC..." with 👍
1:22:22	Karin Schwartz - Roger Wi	Replying to "With the need for se..."
		Thanks, Lauren! I'm on the AZA Biobanking Scientific Advisory Group and this is something that would be a topic of conversation to see how we can assist in this effort.
	International Elephant	
1:23:17	Foundation:	Reacted to "Thanks, Lauren! I'm ..." with ♡
1:23:27	Lauren Howard:	Replying to "With the need for se..."
1:24:05	Jill Donaldson:	Sounds awesome, can you email me? drlaurenhoward@hotmail.com Replying to "As new molars come i..."
		In their lifetime normally elephants usually have 26 teeth at any one time. Throughout their lives, elephants have 6 sets of teeth that grown one set after another.
1:28:50	Chatchote Thotaram:	Any correlation between shedding and stress
1:29:53	Patty Gaffney:	We will be looking at fecal and serum cortisol levels compared to shedding and viremia
1:30:09	Zack LaGrange:	Reacted to "We will be looking a..." with 👍
1:32:12	Chase LaDue:	Thank you for your patience as we work through audio issues.

	International Elephant	
1:32:41	Foundation:	Reacted to "Thank you for your p..." with 👍
1:33:02	Lauren Howard:	Awesome presentation, Zack!! Can't wait to see what your PostDoc discovers!
1:34:18	Zack LaGrange:	Replying to "Awesome presentation..." Thank you Lauren! Excited as well to see it all come together!
1:45:04	Julie Pellman:	Am I to assume that stress in elephants enhances vulnerability to disease as in humans and also that mothers can transfer immunity to calves?
1:46:29	Nat Rourke:	Replying to "Awesome presentation..." were you concerned you could trigger EEHV HD in Yindi during the stress event
1:47:01	Suki Chan:	Cortisol level related to the shedding ?
1:47:52	Lauren Howard:	We know through research that elephant mothers pass on EEHV antibodies to their calves through the placenta, before they are born.
1:48:40	Chrispijn Schilp:	During this project we also collected individual fecal samples and performed observation. These results are yet to be analysed completely and integrated
1:50:07	Lauren Howard:	There are a lot of theories about EEHV and stress, but not a lot of peer reviewed literature (yet!). That's why these studies are so important. Thank you, Chrispijn!
1:50:23	Chrispijn Schilp:	Replying to "Awesome presentation..." Yes this was indeed a great concern, but after discussions with the keepers and staff we decided this was needed.
1:51:51	Chrispijn Schilp:	Replying to "Awesome presentation..." If we would not do this the gap-window would be lost and antibody-titers would continue to decline and she would be at risk to stress and exposure to HD for the rest of her life as well
1:53:23	Chrispijn Schilp:	Thank you Lauren. It is planned to integrate these results with the cortisol and observations… we hope to publish soon
2:00:17	Dr Steven Bossuyt:	Would be easy to produce enough antibodies to treat an elephant in the lab?
2:00:55	Dr Steven Bossuyt:	Thank you
2:01:09	Chatchote Thotaram:	These 8 potential nanobodies are specific to subtype of EEHV?
2:01:29	Lauren Howard:	Llamas, who knew!?!? Such cool work, thank you Tabitha!!
2:01:46	Tabitha Hoornweg:	Replying to "These 8 potential na..." We are currently looking into their specificity. They at least recognize EEHV1A.
2:02:41	Tabitha Hoornweg:	Replying to "Llamas, who knew!?!?..." Thanks Lauren. I thought it was nice data to share. Hope the llamas can help our young elephants!
2:13:56	PGH Zoo:	Can you talk a little bit about the titer levels you have seen in Tess since she received the vaccine?
2:21:00	Chatchote Thotaram:	Replying to "These 8 potential na…" Thank you. Tabitha!
2:29:13	ebw:	Can you discuss the milk supplementation you provide to orphans, specifically what formulation you are feeding. Thank you.
2:32:34	adineroode:	Replying to "Can you discuss the ..." The perfect formula was taken off the market. We are manufacturing our own milk formula based on high protein and fat, but it needs to be altered and adapted frequently as it changes during lactation.
2:33:52	ebw:	Replying to "Can you discuss the ..." Can you provide more specifics about the formulation for very young elephants?
2:35:57	ebw:	Replying to "Can you discuss the ..." Also, what was the perfect formula taken off the market?
2:39:54	Suki Chan:	Could you elaborate more about how to introduce the orphan calf to the herd safely? Any precautions?
2:40:30	adineroode:	Replying to "Can you discuss the ..." Neonates are the most difficult but not 1 orphan was raised on exactly the same formula as it needs to be altered. I used in critical times where people don't get product lactose free formula of babies, but it is not sustainable and really just for a few weeks. The little ones battle to absorb the protein and don't digest it and carbs are too high. Probiotics are essential - shit shakes works the best - take dung of healthy elephants and soak in lukewarm water and put through a sieve. Use it as base to mix formula Coconut oil is a base for fat where they get their energy from, but needs to be carefully added.
2:41:14	ebw:	Replying to "Can you discuss the ..." Thank you.
2:41:54	Julie Pellman:	Excellent presentation. Are you integrating the elephants into the wild? I like your comprehensive approach helping elephants and people. What is your website?
2:44:33	Leanne Henry:	Which elephant did you try to introduce to the wild? Mambo?
2:45:20	Suki Chan:	Thank you for sharing your experience to us. Thank you.

		Do you have the monitoring system after releasing, if yes, how and how long? Thanks for great
2:45:52	Zaw Min Oo_MTE:	presentation
2:47:15	Julie Pellman:	So you will release them into different sites? Will you release them as a group?
2:48:26	adineroode:	Replying to "So you will release ..." Herd.org.za
2:50:05	adineroode:	Replying to "Which elephant did y..." Mambo will be a good one to release, but he was still a baby then.
2:50:19	adineroode:	Replying to "Excellent presentati..." Herd.org.za
2:52:24	adineroode:	Replying to "Excellent presentati..." Thanks, approach is to help the elephant orphans from human animal conflict, but then create a value to the elephants as 'ambassadors' for their species through education, and creating jobs. That brings in a sense of of belonging to the communities that they add a value to look after wildlife and specific elephants here
2:53:49	adineroode:	Replying to "Do you have the moni..." I have some baselines, but will assist do partnership. For example they won't have names anymore, break the bond with them etc
2:54:42	adineroode:	Replying to "So you will release ..." Yes will release in a group but not the whole group, and in another area.
3:32:18	Julie Pellman:	This is being done in NYC to identify humpback whales. Do you have a catalogue of the animals to keep track of them over time?
3:34:56	Sasha Montero-De La Torre:	Replying to "This is being done i..." Here is the database we used to catalog the animals: https://www.airtable.com/platform
3:35:24	Chase LaDue (Oklahoma City Zoo):	Reacted to "Here is the database..." with 🙏
3:37:48	Natalia Prado:	Reacted to "Here is the database..." with 👍
4:00:17	Chase LaDue (Oklahoma City Zoo):	If you are experiencing issues with low volume on this presentation, we suggest using headphones. Thank you for your understanding!
4:35:18	International Elephant Foundation:	Here is the Press Release about Richard Lair, friend and mentor to many.
4:35:26	Natalia Prado:	Thanks Chase for moderating a great session.
4:35:34	Maud:	Reacted to "Thanks Chase for mod..." with 👍
4:35:39	International Elephant Foundation:	Reacted to "Thanks Chase for mod..." with ♡
4:36:00	Christina AERU:	Thank you Chase and IEF team for an amazing conference
4:36:07	International Elephant Foundation:	Reacted to "Thank Chase and IEF ..." with ♡
4:36:49	Chase LaDue (Oklahoma City Zoo):	Reacted to "Thanks Chase for mod..." with 🙏
4:36:50	Julie Pellman:	Many thanks for a great conference! Hope next year's symposium is either online or hybrid. I learned a lot.
4:36:51	Chase LaDue (Oklahoma City Zoo):	Reacted to "Thank you Chase and ..." with 🙏
4:36:59	International Elephant Foundation:	Thank you to everyone who presented! And for all attendees and the thoughtful questions!
4:37:13	Tashi Wangdi:	Thanks everyone for having me. I have really enjoyed 4 days Symposium. It was very informative for me Thanks so much IEF
4:37:20	International Elephant Foundation:	Reacted to "Thanks everyone for ..." with ♡
4:38:04	Julie Pellman:	Will there be an online option in 2025?
4:38:34	International Elephant Foundation:	Replying to "Will there be an onl..." We have not dealt with that aspect of the conference yet, so that will be TBD
4:39:19	Kristi Burtis:	Great symposium!!!
4:39:26	Julie Pellman:	Replying to "Will there be an onl…" Hope so!! I am in NYC and as a psychologist, I will not get funding for this conference, but I would like to attend
4:39:27	Chase LaDue (Oklahoma City Zoo):	Thank you Sarah, Julie, and Debbie!!
4:39:27	International Elephant Foundation:	Reacted to "Great symposium!!!" with ♡
4:39:44	Natalia Prado:	Thank you for a great symposium everyone
4:39:51	International Elephant Foundation:	Reacted to "Thank you for a grea..." with ♡
4:39:57	International Elephant Foundation:	Reacted to "Thank you Sarah, Jul..." with ♡

20th International Elephant Conservation & Research Symposium

Participants

First Name	Last Name	Email Address
Adam	Felts	adam.felts@columbuszoo.org
Abdullah	Abdulllah	abdullah@usk.ac.id
Adine	Roode	adine@jabulanisafari.com
Aleksandra	Wysocka	a.wysocka@zoo.waw.pl
Aleksandra	Grubin	pasavetnici@gmail.com
Alexandra	Carrier	alexandracarrier19@gmail.com
Alfred	Roca	roca@illinois.edu
Alia	Moller	alia@tsavotrust.org
Amber	Alink	aalink@cabq.gov
Amber	Alford	alfordashford@gmail.com
Amos	Gwema	amosigwema@gmail.com
Amy	Mathews	amathews@white-oak.org
Anandi	Gandhi	agandhi2@ucsc.edu
Andani	Mavhila	21009657@univen.ac.za
Andreas	Buberl	a.buberl@zoovienna.at
Ashok Kumar	Ram	ashokram.dnpwc@gmail.com
Avery	Nicholas	avnicholas12@gmail.com
Ayuko	Morita	ayukomorita@gmail.com
Bruce	Schulte	bruce.schulte@wku.edu
C.	Bradford	cbradford@cabq.gov
Calli	Hamlin	chamlin@cabq.gov
Charlie	Mayhew	charlie@tusk.org
Chase	LaDue	cladue@okczoo.org
Chatchote	Thitaram	cthitaram@gmail.com
Chowdari	Jabili	jabili@jncasr.ac.in
Chris	Hamblen	sitpha@yahoo.com
Chrispijn	Schilp	cschilp@dierenparkamersfoort.nl
Christian	Schiffmann	c.schiffmann.elephantproject@gmail.com
Christin	Winter	christin@ehranamibia.org
Christina	Tholander	christina.tholander@gmail.com
Christine	Bagtas	cbagtas@pittsburghzoo.org

Christopher	Stremme	stremmegajah@gmail.com
Dakota	Guy	research@aeru.co.za
Dakota	Vaccaro	dakota.vaccaro975@topper.wku.edu
Deborah	Olson	dolson@elephantconservation.org
Debra	Corbett	debdogs548@gmail.com
Donna	Sisak	ONATURAL5@MSN.COM
Edgar	Hichoonga	hichoongaedgar@gmail.com
Eileen	Keating	vet@elephants.com
Ejigu	Worku	yismake1998@gmail.com
Ellen	Weidner	ebwvmd@yahoo.com
Erin	Latimer	eelatimer@gmail.com
Erin	Reilly	ereilly@sdzwa.org
Esther Lonnie	Baking	elbaking@wwf.org.my
Fairlie	Arrow	Fairlie@Kalamoproductions.com
Frances	Hannha	frances@conservationlowerzambezi.org
Gary	Johnson	gary@visitthepreserve.com
Getachew	Muche	gechozol@gmail.com
Glenn	Sullivan	gsullivan@zoo.nsw.gov.au
H.	Drumm	hdrumm@cabq.gov
Hannah	Rowland	hannah.rowland@zsl.org
Hazel	Greene	hazel-greene@att.net
Himal	Sawad	veticomedico@gmail.com
Ian	Craig	ian.craig@nrt-kenya.org
Jabili	Chowdari	jabili@jncasr.ac.in
Jamie	Gray	Jamie.Gray@zsl.org
Jen	O'Dwyer	jodwyer@zoo.org.au
Jennifer	Grimley	jgrimley712@gmail.com
Jennifer	Yu	jennifer.yu@viewildlife.org
Jessica	Rizzolo	jessica.b.rizzolo@gmail.com
Jessica	Carey	jes@friendsarabukosokoke.org
Jodie	Berezin	jlberezin@gmail.com
Jordan	Hayes	jordan.hayes@buschgardens.com
Joseph Kyalo	Kimaile	kyalo@tsavotrust.org
Josephine	Braun	jbraun@sdzwa.org
Julie	Pellman	juliepellman@hotmail.com
Julie	Evans	julieokapi@sbcglobal.net
Julie	Bates	jbates@elephantconservation.org
Justine	Broers	Justine.Broers@uliege.be
Kari	Johnson	kari@visitthepreserve.com

Karin	Schwartz	kschwartz@rwpzoo.org
Kate	Evan	kate@elephantsforafrica.org
Katerina	Pirelli Zucchetta	kat@borneowp.org
Katie	Pilgram-Kloppe	pilgram@stlzoo.org
Kaveri	Jambagi	kaverijambagi3@gmail.com
Keneilweone	Kejekgabo	201501365@ub.ac.bw
Kristen	Wolfe	kristen.wolfe@disney.com
Kristin	Windle	kwindle@houstonzoo.org
Lai Ying	Chan	sukichan_325@hotmail.com
Laura	Rosen	kazaepi@gmail.com
Lauren	Howard	drlaurenhoward@hotmail.com
Lauren	Ingram	info@isaraelephant.org
Leanne	Henry	kandula7221@cs.com
Leon	Krause	leon.krause@omahazoo.com
Lindsey	Eagan	lindsey@asianelephantsupport.org
Lisa	Abegglen	lisa.abegglen@hci.utah.edu
Lizzie	McLean	drlizziemclean@gmail.com
Lizzie	Webber	lizzie@trunksnleaves.org
Lucy	Rutherford	l.rutherford@chester.ac.uk
Lynn	Tupa	ltupa@cabq.gov
Malaka	Abeywardana	mkasuns@gmail.com
Mark	Shlosberg	mark.shlo@hotmail.com
Mary	Miller	mary@asianelephantsupport.org
Maud	Bonato	maud.bonato@univen.ac.za
Melissa	Lynn	mel13311@gmail.com
Michael	Kreger	michael.kreger@columbuszoo.org
Michael	Keigwin	mkeigwin1@gmail.com
Michelle	Szydlowski	michelle@szyd.me
Mike	McClure	mcclureinternational@gmail.com
Monica	Stoops	monica.stoops@omahazoo.com
Natalia	Prado	nprado@adelphi.edu
Natalie	Rourke	nrourke@zoo.org.au
Nicholas	Njogu	nicholas.njogu@tsavotrust.org
Pamela	Loughmiller, PhD	pamela.loughmiller@gmail.com
Patricia	Gaffney	pgaffney@sdzwa.org
Patrycja	Kasprzak	p.kasprzak096@gmail.com
Patryk	Pycinski	patryk.t.pycinski@gmail.com
Paul	Ling	pling@bcm.edu
Peter	Longwe	peter@conservationlowerzambezi.org

Philipo	Jacob	philipo.mtweve@sua.ac.tz
Philipo Jacob	Mtweve	philipo.mtweve@sua.ac.tz
Polite	Mpofu	mpofupolite323@gmail.com
Rachel	Harris	rachel@ehranamibia.org
Ravi	Corea	ravi@slwcs.org
Rebecca	Wilks	R.C.Wilks@sms.ed.ac.uk
Richard	Moller	richard@tsavotrust.org
Rob	Bernardy	rbernardy@houstonzoo.org
Rob	Browning	grbrowning@sdzwa.org
S. Jill	Donaldson	jilljambo44@gmail.com
Samuel	Lekimaroro	samuel.lekimaroro@nrt-kenya.org
Sarah	Jacobson	sjacobson@gradcenter.cuny.edu
Sarah	Conley	sconley@elephantconservation.org
Sasha	Montero-De La Torre	smontero@ucdavis.edu
Seth	Groesbeck	sethgroesbeck@ongov.net
Sevanna	Stewart	sevanna@elephantpreserve.org
Simon	Kasaine	kasainesimon@gmail.com
Stacey	Engel	engelsc@sun.ac.za
Steven	Bossuyt	StevBossuyt@aol.com
Steven	Bukvic	steven.bukvic@elephantprosthetics.org
Steven	Makumba	stevenmakumbajunior@gmail.com
Sugasini	Dhavamani	dhavamsuga@gmail.com
Susan	Mikota	smikota@elephantcare.org
Swabir	Seif	swabir.seif@connectedconservation.foundation
Tabitha	Hoornweg	t.e.hoornweg@uu.nl
Tanya	Kerr	tjkerr@sun.ac.za
Tashi	Wangdi	twmetolhazey@gmail.com
Thomas	Bakke	tbakke@pittsburghzoo.org
Tina	Chiarelli	Tina.Chiarelli@ucf.edu
Tracey	Manning	traceyannmanning@icloud.com
Victor P.M.G.	Rutten	v.p.m.g.rutten@uu.nl
Virginia	Pearson	virginia.r.pearson@gmail.com
Wendy	Kiso	wendy@colossal.com
Willem	Schaftenaar	W.Schaftenaar@rotterdamzoo.nl
Yasmin	Perry	yyaassmmiinn16@gmail.com
Zachary	LaGrange	zlagrange@sdzwa.org