

SAFE Species Program Annual Report: African Vulture SAFE

The purpose of the Annual Report is to:

- 1) Update AZA and the Wildlife Conservation Committee on the SAFE species program's progress towards its goal(s) and objectives (e.g., significant changes made to the program plan, coverage received, or materials developed).
- 2) Assist AZA and the WCC in monitoring additions or resignations of Program Partners and changes in program leadership.
- 3) Provide timely content for communications, such as in *Connect*, social media, press releases, species awareness days, etc.

Notes:

Annual reports are due to AZA (safe@aza.org) and the program's WCC Liaison by **January 31st**.

This template is available in Word format at <https://www.aza.org/safe-program-resources>

Program Leader(s): Corinne Kendall, North Carolina Zoo (through 12/11/23) Estelle Sandhaus, Santa Barbara Zoo (from 12/11/23)

Vice Program Leader(s): Molly Maloy, Denver Zoo (through 12/11/23); Sarah Woodhouse, Lincoln Children's Zoo (from 12/11/23)

WCC Liaison: Lisa Kelley, Saint Louis Zoo

Date: 25 Feb 2024

Year when program plan was approved: 2023

Please circle length of current program plan: 3 years / 5 years

Content provided under the following questions may be used for public communications.

1. Please write a short summary (~500 words) about 1-2 objectives where you made important and meaningful progress over the past year. If this is the final year of your program plan, please focus on those objectives where you made the most progress toward your plan's overarching conservation goal(s). Please include authorship credit and attach high-resolution project-related photos (resolution of 300 dpi at 5x7 inches) and photo credit information, if available^{1*}.

African Vulture SAFE had another productive year, making progress on each of its nine strategic objectives. Notably, substantial progress has been made in supporting the development of national action plans for vultures. Results from the North Carolina Zoo's (NCZ) long-term Tanzania vulture study underpin and have driven the development of Tanzania's first national vulture action plan, which was in part funded by a SAFE grant and co-developed by NCZ and Tanzania Wildlife Research Institute. A draft of the 10-year plan was launched at a key scientific conference in December. In Kenya, The Peregrine Fund (TPF) is part of the team developing the first national vulture action plan, and in cooperation with partners held the first expert and stakeholder meetings for plan development during the final months of 2023. In a highlight from ongoing monitoring efforts in multiple regions,

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NCZ's long-term monitoring project in Tanzania has recorded a significant annual decline of 25% per year, due to poisoning, linked to carnivore-livestock conflicts and bushmeat poaching, and increasingly harvest of body parts for belief-based use / trade. As this could result in vulture extinction in Tanzania or localized extirpation in the next 20-30 years (Kendall et al., 2023), poisoning prevention in the region is of critical importance. NCZ has therefore initiated a community-based project in western Tanzania where tagged vultures have been poisoned. This new project was supported by a knowledge exchange field visit with TPF, which has already been doing similar work in Kenya. In the midst of continued powerline incidents in South Africa, VulPro has continued to work to mitigate dangerous lines and to expand its cape vulture rehabilitation and captive breeding program, with 55 vultures rehabilitated this year and 16 Cape Vulture chicks hatched. In order to increase program capacity, VulPro has partnered with and relocated their breeding facilities to Shamwari Private Game Reserve, which is now home to the largest captive breeding program for African Vultures in the world.

2. Attach your current program summary table and include actions taken over the past year as they relate to specific objectives in the program plan.

Strategic Objective 1. Continue and expand population monitoring of target vulture species

Tanzania/North Carolina Zoo:

- Our long-term monitoring project in Tanzania has been critical to track vulture population change in the past ten years, recording a significant annual decline of 25% per year, primarily due to poisoning, linked to carnivore-livestock conflicts and bushmeat poaching, and increasingly harvesting body parts for belief-based use / trade. This could result in vulture extinction in Tanzania or localized extirpation in the next 20-30 years (Kendall et al. 2023, see publications list).
- Dry season surveys were not conducted in Tanzania for 2023. Four standardized transect surveys of 310 km were completed in Kafue and compared to results from 2016, 2021 and 2022, vulture abundance remains stable.
- 22 tagged vultures (from a total of 42; 52%) were recorded as breeding in 2023 (9 in Zambia, 9 in Tanzania, 3 in Uganda and 1 in Zimbabwe).
- To monitor vulture nests at a regional scale (especially for tree nesting vultures), we are working with Howard Frederick (who leads on using camera technology and conducting subsequent analysis from aerial surveys) and the Allen Institute for AI, to develop a vulture nest recognition system via machine learning. This will be able to utilize 100,000s of images from mammalian aerial census photos across Africa. The system is in the validation stage of the model outputs.

South Africa/VulPro:

- In 2023 VulPro successfully monitored 6 Cape Vulture colonies across northern parts of South Africa. A total of 2,268 breeding pairs were observed in initial surveys and a total of 2,295 active nests for the year were recorded. The 6 Cape Vulture colonies surveyed comprise approximately 50 – 60% of the entire breeding population, with Kransberg and Manutsa being two of the largest colonies. Breeding success across the colonies varied between 25% and over 100%. The colony at Moletjie showed the largest decline in numbers, whilst Kransberg and Skeerpoort were the only colonies to show an increase in breeding success this year. The overall breeding success for the year across all 6 of the colonies was 83%.
- In addition to the 6 monitored colonies, a site survey was carried out on a property near the Zastron Colony in Free State Province. This area was once a breeding ground for Cape Vultures, and after an absence of over 20 years, reports of vultures returning to the colony had been made by the National Museum in 2020. VulPro returned to the site this year as local farmers reported

seeing vultures returning to the colony to roost. No evidence of breeding was observed during the site survey this year, but VulPro will continue to monitor the area.

Strategic Objective 2. Reduce poisoning prevalence

Northern Kenya/The Peregrine Fund

- The Coexistence Co-op has continued to make great progress in motivating communities to build predator-proof bomas to prevent wildlife conflict and poisonings. Their most recent assessment in July 2023 revealed 818 bomas had been built by community members, which was a 37% increase over boma numbers from the previous survey done in September 2022. Their team has trained over 5000 people since the project began in 2018, involving 360 one-day trainings, or 72 trainings per year.
- The Coexistence Co-op hosted a mixed team from Tanzania and Uganda (North Carolina Zoo and Wildlife Conservation Society), for training on the program (additional details below), as well as Dr. Laura Perry, the Behaviour Change Coordinator based at the Global Center for Species Survival at the Indianapolis Zoo, to help improve program evaluation.

Tanzania/Kenya/Uganda, North Carolina Zoo:

- 2 poison response trainings were conducted in Tanzania, training a total of 38 participants. 22 rangers were from northern Tanzania (from Community Wildlife Management Area, Game Reserve, Conservation Area and private ranch), whilst 16 participants were village forest guards and village natural resource committee members from a wildlife corridor in southern Tanzania where NCZ will focus some community trainings in 2024. Overall, during these trainings knowledge acquisition improved from 25% to 75% when comparing pre- and post-evaluation results.
- NCZ initiated a community-based project in western Tanzania where tagged vultures have been poisoned. This will be focused on community trainings in hazards of pesticide use and human-wildlife conflict, evaluating the impact of these trainings on people's attitudes and behavior. To ensure we learn from projects already doing similar work, a knowledge exchange field visit to the Peregrine Fund's (TPF) Co-existence Co-op in Kenya in May 2023 brought together a mixed team from Tanzania and Uganda (NCZ and Wildlife Conservation Society (WCS)) to learn more about TPF's work and experiences. Laura Perry, Social Scientist, Indianapolis Zoo, also joined to assist NCZ and TPF in improving / developing evaluation tools. The work in Tanzania is a collaboration between NCZ, Lion Landscapes and WCS. Initial baseline mapping of over 2000 households from agropastoral communities was completed in 2023 to enable focal areas to be targeted for in-depth interviews and community trainings in 2024.
- Expansion of regional-wide landscape/ecosystem monitoring of tagged vultures to identify and respond to poisoning and other illegal activities. Via an automated analysis of tagging data using MoveApps and Earth ranger software, NCZ now works with 10 partner organizations across 6 countries and administers the system together with the Endangered Wildlife Trust.

Strategic Objective 3. Improve knowledge of vulture biology

Tanzania/Zambia, North Carolina Zoo:

- 15 satellite tags deployed (10 White-backed vultures and 2 White-headed vulture) – 1 in Queen Elizabeth NP, Uganda, 1 in Selous GR, Tanzania and 5 in Kafue NP and 5 in North Luangwa NP and 3 in Nsumbu NP, Zambia.

- In Zambia in particular, where we work within a partnership of vulture projects, our tagging focused on gaps in vulture ranging from around 50 tags already deployed. We focused in south Kafue where the central and north-tagged vultures do not travel or forage. This brings the units to 17 across Kafue NP, which African Parks are using to inform landscape monitoring. Movement patterns continue to suggest possible subpopulation structure of White-backed vultures in Kafue. Birds traveling south-west from Kafue highlighted a regularly used corridor route, which is important for lion and elephant conservation. Birds regularly traveled to the greater Chobe ecosystem in Botswana and helped detect some illegal activity from September 2023 onwards.
- Vultures tagged in North Luangwa mostly stayed in this section of the ecosystem, again suggesting some subpopulation structure of White-backed vultures between north and south parts of the larger Luangwa ecosystem.

South Africa/VulPro:

- PhD candidate Mattie Purinton is assessing the effects of regional food predictability on the foraging behavior of African White-Backed Vultures throughout sub-Saharan Africa. With the GPS telemetry data Mattie has been given access to by the North Carolina Zoo, the Peregrine Fund, HawkWatch, and VulPro, Mattie has calculated several metrics for large and small-scale foraging behaviors of 74 African White-Backed Vultures. Mattie presented this research and some preliminary findings in November 2023 at the European Vulture Conference in Cáceres, Spain, and plans to publish findings early in 2024.

St. Augustine Alligator Farm:

- Megan Victoriano began the planning stages of a plumage and maturation study with Hooded Vultures; data collection is anticipated to begin in Spring 2024. Information from this study will aid in age approximations in wild studies and was requested by the IUCN Vulture Specialist Group.

Strategic Objective 4. Monitor and reduce threat of infrastructure collision and electrocutions

South Africa/VulPro:

- Once again, most of the rehabilitation cases that came into VulPro were a result of power line incidents. VulPro continues to work with Eskom and Endangered Wildlife Trust to have dangerous lines mitigated.
- In 2023, 42 powerline incidents were reported to VulPro. These 42 incidents involved a total of 66 birds, including 56 Cape Vultures, seven African White-backed Vultures, one Lappet-faced Vulture, and two other bird species. Unfortunately, there are most likely many other incidents throughout the country that have gone unreported.
- Saffiya Ginel (an MSc Candidate) has begun research utilizing VulPro's tracking data, with a focus on all the vulture species in the VulPro database. Saffiya will be exploring flight heights and assessing how this relates to collision risks across Africa. Tracking data from partners in Kenya and Tanzania has also been incorporated into this work.

Strategic Objective 5. Enhance rehabilitation, breeding, and release of Cape Vultures

South Africa/VulPro:

- VulPro has rescued 154 birds this year, had 16 captive-bred vultures hatched, and released 55 birds.
- VulPro has noted remarkable change and support within the Vivo Community adjacent to the largest breeding colony of Cape Vultures in the Blouberg Nature Reserve of Limpopo Province.

After more than three years with not one vulture having to be taken in for rehabilitation due to the sale of vultures into the muti markets, the channels of communication have been opened and VulPro has begun to receive calls for injured, grounded, and illegally held vultures from this area.

- VulPro has, as part of their breeding program expansion, partnered with Shamwari Private Game Reserve. The captive breeding program has been moved to the Reserve, and is now home to the largest captive breeding program for African Vultures.
- For the first time, and VulPro believes this to be the first for the species on a global scale, VulPro, in partnership with the Faculty of Veterinary Sciences of the University of Pretoria, has successfully taken semen from two of their male Lappet-faced Vultures, and artificially inseminated two females whose eggs had been infertile for the two prior seasons.

Strategic Objective 6. Increase Public Engagement in Vulture Conservation

South Africa/VulPro:

- VulPro launched a new school-based educational program, VulCha (Vulture Champions) in March 2023. They revisited Marumafase Secondary School and Biokotso Primary School near the Blouberg Nature Reserve, Limpopo, and plans to add to participating schools in 2024.

Cheyenne Mountain Zoo:

- Held on-grounds IVAD event: <https://www.cmzoo.org/international-vulture-awareness-day-ivad/>
- IVAD keeper talk video: <https://www.youtube.com/watch?v=1M3PNNQugw4> (also shared on Facebook and Instagram)
- Vultures additionally used in social media posts for homeschool programming: <https://www.instagram.com/p/CyWShn1iXpr/> and <https://www.facebook.com/CMZoo/posts/pfbid02QHTVcm4zCJiDaFfuL4RjSMiHi1Q1jzsts5HEYWNBQTJrBRJ6Mecd8dS3D3vV3XxEI>

Santa Barbara Zoo:

- Held on-grounds IVAD event and engaged via social media
 - Zoo socials, e.g., <https://www.instagram.com/p/CwqQDAfvWhi/>
 - Local press, blogs
 - <https://goletavoice.com/event/international-vulture-awareness-day-at-the-santa-barbara-zoo/>
 - <https://www.nbcalosangeles.com/worth-the-trip/international-vulture-awareness-day-lovingly-honors-natures-cleanup-crew/3214801/>
 - <https://mommypoppins.com/los-angeles-kids/event/events/international-vulture-awareness-day-santa-barbara-zoo>
 - Local artist with Jesi Nicorolo hosted interactive sculpture of a California Condor made entirely of recycled materials (connecting local vultures with African vulture conservation)

Dallas Zoo:

- Scavenger hunt held at Dallas Zoo with 100 participants (scavenging for scavengers)

Strategic Objective 7. Increase Funding Directed at African Vulture Conservation

One new organization joined AV SAFE, and one previously committed organization re-joined. A new membership requirement was instituted with a minimum \$1500 contribution from each member institution annually. The Program has additionally begun support to the recently created African Raptor Leadership Grant, which is being implemented by the Raptor Research Foundation

(<https://raptorresearchfoundation.org/grants-awards/african-raptor-leadership-grant/>). Grants are awarded to local African students carrying out raptor research dissertations as part of their degrees with an appropriate local mentor. This fund provides another impactful area of giving for partners, and will also serve to support capacity building in AV SAFE range countries. Finally, AZA's SAFE and CGF grants continue to be important sources of funding for this group.

Strategic Objective 8. Develop National Action Plans for African Vultures

Kenya/The Peregrine Fund

- The Peregrine Fund-Africa (TPF-Africa) is a main supporter of the development of Kenya's Vulture Multi-species Action Plan. This plan will provide a blueprint for all future vulture research and conservation projects in Kenya. They began this process, which is led by the Kenya Wildlife Service (KWS), this past July with a 2-day experts meeting held at the National Museums of Kenya to draft an initial plan. Over the last 3 months of 2023 they held four regional stakeholder meetings for consultations and further input into the plan. Those meetings were held in vulture strongholds of northern Kenya (Laikipia, Meru, Isiolo and Marsabit), Amboseli (Kajiado county), Mara (Masai Mara and Nakuru), and Tsavo (Taita, Tsavos, Coast). The core team including KWS, TPF-Africa, Nature Kenya, National Museums of Kenya and Wildlife Research & Training Institute (WRTI), has engaged stakeholders from KWS regional offices, county governments, universities and NGOs representing wardens, resource managers, scientists and vets.

Tanzania/North Carolina Zoo:

- Results from our long-term Tanzania vulture study underpins and has driven the development of Tanzania's first national vulture action plan, funded by a SAFE grant, and co-developed by NCZ and Tanzania Wildlife Research Institute (TAWIRI). This is a critical step towards national recognition of the importance of vultures and the threats they face, and should enable more coordinated, collaborative and broader conservation efforts.
- A technical meeting was held in May with a 16-member technical team from government wildlife authorities and academic institutions to review current data, assess threats, and develop a draft of the 10-year plan. The draft was validated with a 30-strong group of diverse stakeholders in October and launched at the TAWIRI scientific conference in December.

Front and back covers of the Tanzania vulture action plan:



Strategic Objective 9. Train and mentor in-country nationals in vulture research and conservation

Kenya/The Peregrine Fund:

- In December TPF-Africa began a new raptor training program for rangers, aimed at helping them to develop raptor identification skills and to provide them with basic knowledge about raptor monitoring. The program's aim is to work in collaboration with conservancies in northern Kenya that are keen to monitor raptors in order to develop long-term monitoring programs. Because northern Kenya is vast and raptors are not found in high densities, improving the identification skills of field-based rangers and developing an online support network to hone their skills is essential for monitoring Kenya's increasingly threatened birds of prey. Their first 2-day trainings were conducted at OI Jogi and Mpala conservancies.

Tanzania/North Carolina Zoo:

- Continued support to Sokoine University of Agriculture (SUA) MSc student (Vainess Laizer), who completed her MSc in 2023 on vulture nest surveys in the Grumeti landscape, northern Tanzania, which showed declines in nests overall and low overall breeding success of 29.4%. A manuscript has been submitted for publication in relation to this work. We will co-fund and advise Vainess as she pursues her PhD in 2024 to continue and expand this important work across the Serengeti ecosystem.

South Africa, VulPro/Lincoln Children's Zoo:

- During VulPro's annual health checks, Dr. Sarah Woodhouse (Lincoln Children's Zoo) gave a two-day training course to colleagues from four other wildlife rehabilitation centers nationwide. They were trained to handle vultures, draw blood, create blood smears for analysis, and provide emergency treatment. They also received firsthand experience in treating new rehabilitation cases.

African Raptor Leadership Grant:

- African Vulture SAFE is supporting the new African Raptor Leadership Grant (<https://raptorresearchfoundation.org/grants-awards/african-raptor-leadership-grant/>). The goal of this granting program is to forward conservation of African raptors by increasing the number of

raptor champions in Africa by 30% over the next ten years by providing education and mentorship opportunities to residents of African countries. Our aim is to support vulture-specific projects within the grant.

3. List and explain any substantive revisions made to the approved program plan or timeline of actions.

The initial African Vulture SAFE Action Plan was completed in February 2018 and used through February 2022 (after we had been given a one-year extension due to delays associated with the COVID-19 pandemic). The Action Plan for 2022-2027 was approved in April 2023. Substantive revisions have not been made to this approved program plan, nor to the timeline of actions.

4. Describe how your program offers open meetings (e.g., online, at AZA conferences) that are accessible to interested AZA or non-AZA parties.

In 2023, the Steering Committee met virtually three times: on 15 March before the Midyear Meeting with special emphasis on giving partners the opportunity to discuss the nearly finalized action plan and renewed partner commitments; on 20 September after the Annual Conference, and on 11 December with special emphasis on program leadership transition. These meetings were held virtually and scheduled via poll to ensure a time conducive to all partners' time zones. Additionally, the Chair met with steering committee member/potential new Chair at the Annual Conference.

5. Indicate any changes (i.e., additions and removals) made to the list of Program Partners since submission of your last Annual Report. **Attach completed Statements of Institutional Support for new Program Partners.**

- Lincoln Park Children's Zoo joined this year, and San Diego Zoo Wildlife Alliance re-engaged as a Program Partner this year.
- Denver Zoo, Brandywine Zoo, and Blank Park Zoo have left the program.

6. Provide a list of non-AZA people or organizations with which you collaborated over the course of the year, specifically identifying those that are new collaborators this year.

- Allen Institute for AI
- Endangered Wildlife Trust
- Frankfurt Zoological Society
- Kenya Wildlife Service
- Lion Landscapes/Ruaha Carnivore Project
- National Museums of Kenya
- Nature Kenya
- Panthera
- The Peregrine Fund
- Shamwari Private Game Reserve
- Tanzania Wildlife Research Institute (TAWIRI)
- University of Pretoria Faculty of Veterinary Science
- VulPro
- Wildlife Conservation Society, Ruaha-Katavi Landscape Program
- Wildlife Research and Training Institute

7. Briefly list communications or media coverage received by the program (e.g., links or citations to notable news coverage, publications, or conference presentations) and attach electronic copies of, or links to, any materials developed (e.g., publications, education materials, marketing products, videos) over the course of the year.

North Carolina Zoo:

- North Carolina Zoo disseminated their work via newsletters to specialist groups, such as the Raptor Taxon Advisory Group and the IUCN Vulture Specialist Group, and contributed to popular articles for various media outlets (e.g., <https://www.nytimes.com/2023/11/12/science/vultures->

[conservation-intelligence.html](https://reasonstobecheerful.world/vultures-and-lions-zambia-kafue-national-park-conservation/), <https://reasonstobecheerful.world/vultures-and-lions-zambia-kafue-national-park-conservation/>).

Publications:

1. Kendall, C.J., Bracebridge, C., Lynch, E., Mgumba, M., Monadjem, A., Nicholas, A., & Kane, A., (2023). Comparison of transects and telemetry to determine short-term population trends in a globally threatened species. *Conservation Biology*. <https://doi.org/10.1111/cobi.14146>.
2. Peters, N., Kendall, C. J., Davies, J. G., Bracebridge, C., Nicholas, A., Mgumba, M. P., & Beale, C. M. (2023). Identifying priority locations to protect a wide-ranging endangered species. *Biological Conservation*, 277, 109828.

Results from their vulture research were also presented at the International Congress for Conservation Biology in Kigali, Rwanda and at the European Vulture Conference in Cáceres, Spain.

The Peregrine Fund:

- Some of the team attended Kenya's first Wildlife Scientific Conference and presented two posters about the Coexistence Co-op project and Kenya's raptor declines. Darcy Ogada gave a keynote address, about the drivers of vulture poisoning in Africa, to over 400 attendees of the European Vulture Conference in Cáceres, Spain.

VulPro:

Publications:

1. Cervantes F, Murgatroyd M, Allan DG, Farwig N, Kemp R, Krüger S, Maude G, Mendelsohn J, Rösner S, Schabo DG, Tate G, Wolter K and Amar A. 2023. A utilisation distribution for the global population of Cape Vultures (*Gyps coprotheres*) to guide wind energy development. *Ecological Applications*. IF: 6.105
2. McClure CJW, Rolek BW, Kemp R, Wolter K. 2023. Combining trends from disparate monitoring programs to inform Red List assessments: The case of the Cape Vulture (*Gyps coprotheres*). *Biological Conservation*. 284: 110175. <https://doi.org/10.1016/j.biocon.2023.110175>
3. Wild TA, van Schalkwyk L, Viljoen P, Heine G, Richter N, Vorneweg B, Koblitz JC, Dechmann DKN, Rogers W, Partecke J, Linek N, Volkmer T, Gregersen T, Havmøller RW, Morelle K, Daim A, Wiesner M, Wolter K, Fiedler W, Kays R, Ezenwa VO, Meboldt M and Wikelski M. A multi-species evaluation of digital wildlife monitoring using the Sigfox IoT network. 2023. *Anim Biotelemetry* 11:13. <https://doi.org/10.1186/s40317-023-00326-1>

Presentations:

1. The effects of food predictability on the foraging ecology of African White-backed Vultures (*Gyps africanus*)
8. Please list the contact information for your program's Dedicated Fund Account.

Kelsey Kriesch, Zoo Atlanta (Keeper – Birds), AV SAFE Account Manager, kkriesch@zooatlanta.org

For any private matters that the WCC could assist with, please contact your WCC Liaison or AZA's Conservation Coordinator.