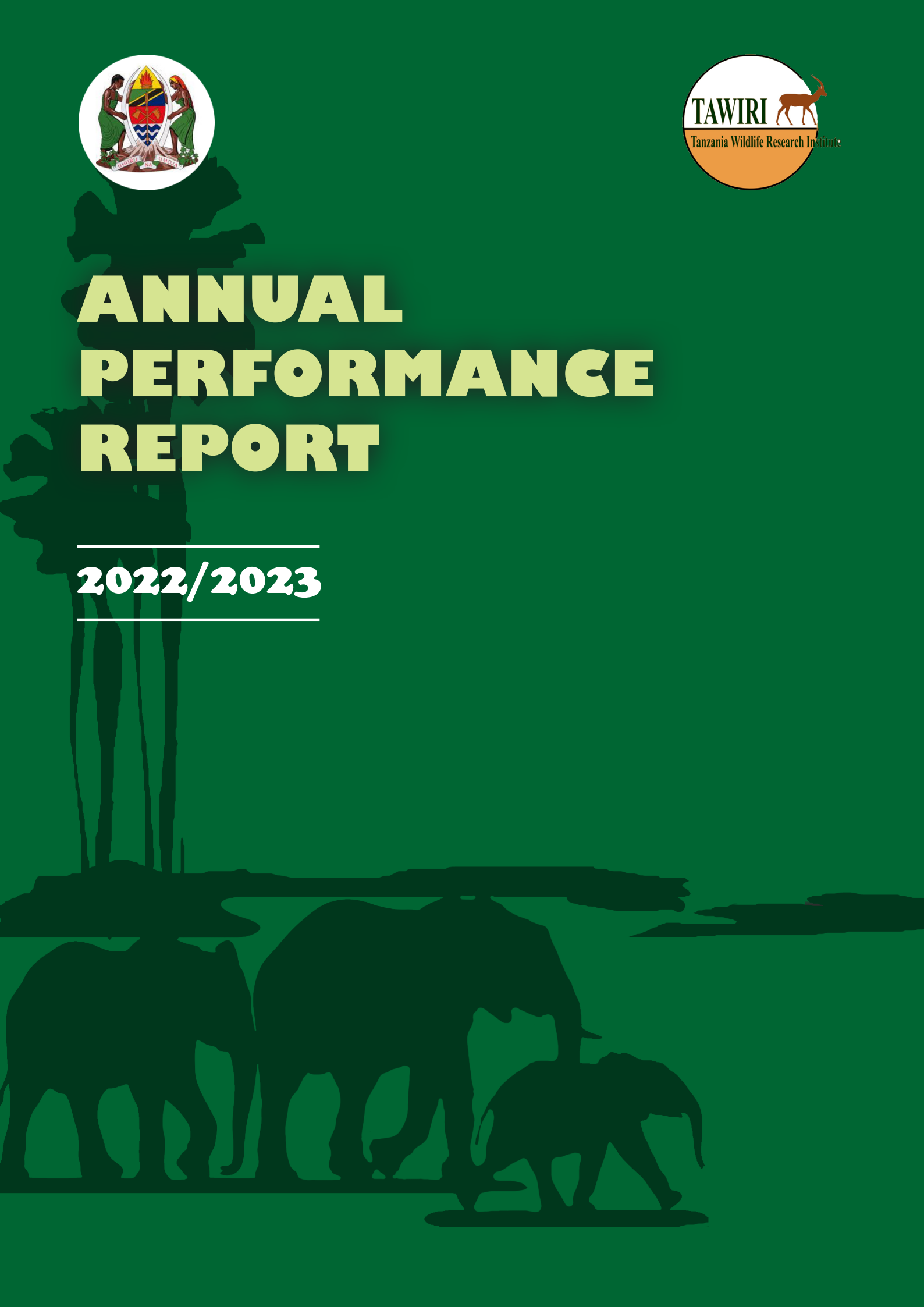


# ANNUAL PERFORMANCE REPORT

## 2022/2023

**MINISTRY OF NATURAL RESOURCES AND TOURISM**

**TANZANIA WILDLIFE RESEARCH INSTITUTE**
**(TAWIRI)**

# ANNUAL PERFORMANCE REPORT
# 2022/2023

## LIST OF ACRONYMS

| | |
|---|---|
| CIMs | Conservation Information and Monitoring Section |
| CCHF | Crimean-Congo Haemorrhagic Fever |
| ESIA | Environment Social Impact Assessment |
| FYDP | Five Year Development Plan Phase III |
| FY | Financial Year |
| GFD | Giraffe Skin Disease |
| HEC | Human Elephant Conflict |
| ICMP | Integrated Corridors Management Programme |
| KWRC | Kingupira Wildlife Research Centre |
| KTPIP | Kenya-Tanzania Power Interconnection Project |
| KST | Kihansi Spray Toad |
| LUP | Land Use Plans |
| MNRT | Ministry of Natural Resources and Tourism |
| NCAA | Ngorongoro Conservation Area Authority |
| NP | National Parks |
| NWRC | Njiro Wildlife Research Centre |
| PAs | Protected Areas |
| REC | Research Ethical Clearance Committee |
| REGROW | Resilience Natural Resources for Tourism Growth |
| RPs | Research Programs |
| SWRC | Serengeti Wildlife Research Centre |
| SWRI | Serengeti Wildlife Research Institute |
| SHWRC | Southern highlands Wildlife Research Centre |
| SP | Strategic Plan |
| SOP | Standard Operating Standards |
| STEP | Southern Tanzania Elephant Program |
| SRF | Systematic Reconnaissance Flight |
| TANAPA | Tanzania National Parks |
| TAWA | Tanzania Wildlife Management Authority |
| TAWIRI | Tanzania Wildlife Research Institute |
| TFS | Tanzania Forest Service Agency |
| TRS | Tabora Research Station |
| TR | Treasury Registrar |
| ToTs | Trainee of Trainers |

| | |
|---|---|
| WWRC | Western Wildlife Research Centre |
| WWF | World Wildlife Fund |
| WCST | Wildlife Conservation Society of Tanzania |
| WMA | Wildlife Management Area |

Hon. Angellah Jasmine Kairuki (MP)
The Minister for Natural Resources and Tourism
Ministry of Natural Resources and Tourism,
Prime Minister Road,
P. O. Box 1351,
40472, **DODOMA**

Honourable Minister,

**RE: SUBMISSION OF ANNUAL PERFORMANCE REPORT FINANCIAL YEAR 2022/2023**

Pursuant to the requirement of Section 26 of the Tanzania Wildlife Research Institute Act No. 10 of 1999 (CAP 260 RE 2002) and its amendment Act. No. 5 of 2021, on behalf of the Board of Directors for Tanzania Wildlife Research Institute, I have the honour to present to you the Annual Performance Report for the year 2022/2023.

Honourable Minister, I hereby submit

Dr. David Nkanda Manyanza
**BOARD CHAIRMAN**
**TANZANIA WILDLIFE RESEARCH INSTITUTE**
**September, 2023**

## VISION AND MISSION

### VISION

To be a centre of excellence in advising and providing scientific information on biodiversity conservation and management at national and international levels.

### MISSION

Conducting and coordinating wildlife research and sharing scientific information with stakeholders for sustainable biodiversity conservation.

### CORE VALUES

TAWIRI observes the following core values in the provision of services to different stakeholders:

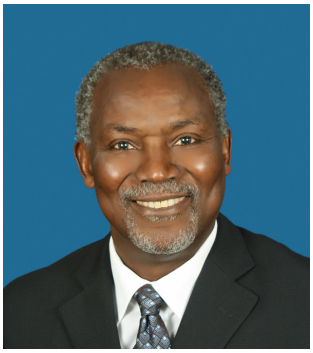
i. **Professionalism**: Provide high-quality services based on best practices and experience; maintain the highest degree of expertise and ethical standards, building value-added relationships with customers and stakeholders to deliver quality goods and services;
ii. **Efficiency**: Ensure timely implementation of plans and programs to achieve the desired objectives stipulated in the SP; to value and use public resources entrusted in an economic, efficient and effective manner;
iii. **Transparency**: Undertake duties equitably, carefully, openly and responsibly to stakeholders/ customers;
iv. **Confidentiality**: Determined to treat customers and each other with trust, secrecy and honesty. As a public institution staff will not seek or accept gifts, favours or inducements in terms of financial or otherwise in the course of discharging duties, and;
v. **Teamwork:** Benefit from collective obligations by putting together diverse expertise and experiences to achieve success.

### STRATEGIC OBJECTIVES

This plan is a roadmap that guides the institute's management to make comprehensive short and medium-term plans for appropriate decision-making. The Institute has set out five (5) objectives in its Strategic Plan (2021/22 – 2025/26) which are;

i. Intervention and prevention of HIV/AIDS and non-communicable diseases (NCDs) programmes at work place strengthened;
ii. Good governance and national anti-corruption plans enhanced;
iii. Research, Coordination and Consultancy services improved;
iv. Financial resources mobilisation and management enhanced;
v. Institutional capacity to deliver services strengthened.

## BOARD OF DIRECTORS



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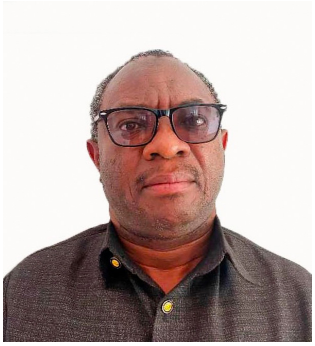
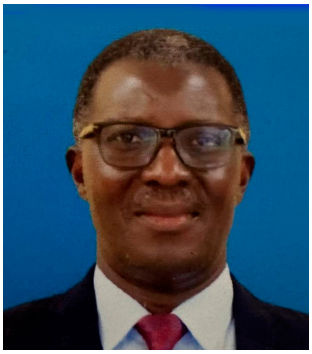
Brig. Gen (Rtd) Mary B. Hiki
Member



Prof. Jafari R. Kideghesho
Member



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CC Mabula M. Nyanda
Member

Ms. Mercy Ezekiel Mrutu
Member

Dr. Maurus J. Msuha
Member

Dr. Eblate E. Mjingo
Secretary and Director General

## MESSAGE FROM THE THE BOARD CHAIRMAN

Dear Esteemed Scientific Community,

I extend my sincere appreciation to the TAWIRI researchers, fellow Board members, and all stakeholders from the Ministry of Natural Resources and Tourism (MNRT) for joining our efforts during the Financial Year 2022/2023.

It is crucial that we prioritize wildlife and natural habitat protection through well-informed research. As the board Chairman, I firmly believe that we have a responsibility to provide timely information, advice, and innovative approaches to safeguard our biodiversity for future generations. Research-driven insights enable us to develop effective conservation strategies, address human-wildlife conflicts, and make informed decisions to ensure the long-term sustainability of our environment. Hence, I urge the Government and its partners to continue investing in wildlife research to anticipate and tackle challenges our ecosystems face. This investment will enable us to devise innovative solutions and support Management authorities in implementing conservation measures to protect our wildlife's future.

I further encourage all researchers to actively pursue wildlife research initiatives, especially focusing on our key research themes. Additionally, let's foster collaborations with external research institutions to develop ideas, conduct joint surveys, and analyse data together. I also emphasize the importance of ethical research practices, placing the welfare of the wildlife species at the forefront of our endeavours. Let's cultivate partnerships with local communities, conservation authorities, and government bodies.

On behalf of the Board of Directors, I express our gratitude to the stakeholders who have consistently trusted and supported us. We also commend the dedication and hard work of all Directors, Head of Units, Head of Sections, and TAWIRI researchers in carrying out research activities. Thank you for your dedication to this important cause.

"Tumerithishwa tuwarithishe…kazi iendeleee".

Dr. David Nkanda Manyanza
Chairman, Board of Directors
June, 2023

## MESSAGE FROM THE DIRECTOR GENERAL

This report provides TAWIRI's performance for the Financial Year 2022/2023. It includes research projects conducted, supervised and coordinated, publication of the research results and audited accounts and the Institute's capacity-building initiatives. Over the past year, our Institute has made significant advancements in our wildlife research endeavours through our dedicated team of researchers, scientists, collaborative partners and field experts.

The implementation of our Institute's activities is in line with its current Strategic Plan (2021/22 – 2025/26) which identifies five Strategic objectives that guide the Institute's performance with regard to the core function of the Institute. This financial year TAWIRI registered 201 research projects with a total of 451 researchers whereby 276 (61.2%) were Tanzanians. The research projects conducted focused on biodiversity surveys, species-specific studies, habitat assessment, human-wildlife conflict, beekeeping, technological advancements and wildlife diseases. Findings and recommendations from various research will serve as a basis for policy development and enhancing conservation efforts.

Our priorities for 2023/2024 will be to further improve our services to our stakeholders and the public in general for sustainable conservation of biodiversity in Tanzania. Last but not least I would like to cordially invite all researchers to the coming 14th TAWIRI Biannual International Scientific Conference which will be held in Arusha from 6th – 8th December 2023.

I wish to thank the Government, the Ministry of Natural Resources and Tourism and our esteemed stakeholders for their support to the Institute. Furthermore, I would like to express my gratitude to all the researchers, Management authorities and supporting staff for their dedication and hard work. Our obligation to wildlife research is vibrant in ensuring the long-term survival of our wildlife. I urge all of us to continue collaborating, innovating, and advocating for evidence-based conservation practices.

Dr. Eblate Ernest Mjingo
Director General
September, 2023

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# Chapter One

## 1.0 Introduction

The Tanzania Wildlife Research Institute (TAWIRI) was established by Act of Parliament of the United Republic of Tanzania No. 4 of 1980, under the name "Serengeti Wildlife Research Institute" (SWRI), with the overall responsibility of carrying out, coordinating and supervising all wildlife research in the country. The original name of the Institute was changed from SWRI to TAWIRI in 1999, by the Act of Parliament No.10 (CAP 260 RE 2002) in order to give its broader meaning and mandate on wildlife research throughout the country. TAWIRI is comprised of five research Centres as shown in Figure 1;

i. Kingupira Wildlife Research Centre located in Selous Game Reserve (KWRC)

ii. Njiro Wildlife Research Centre located in Arusha (NWRC),

iii. Serengeti Wildlife Research Centre located in the Serengeti National Park (SWRC),

iv. Southern Highlands Wildlife Research Centre located in Iringa Municipality (SHWRC).

v. Western Wildlife Research Centre located in Kigoma (WWRC)

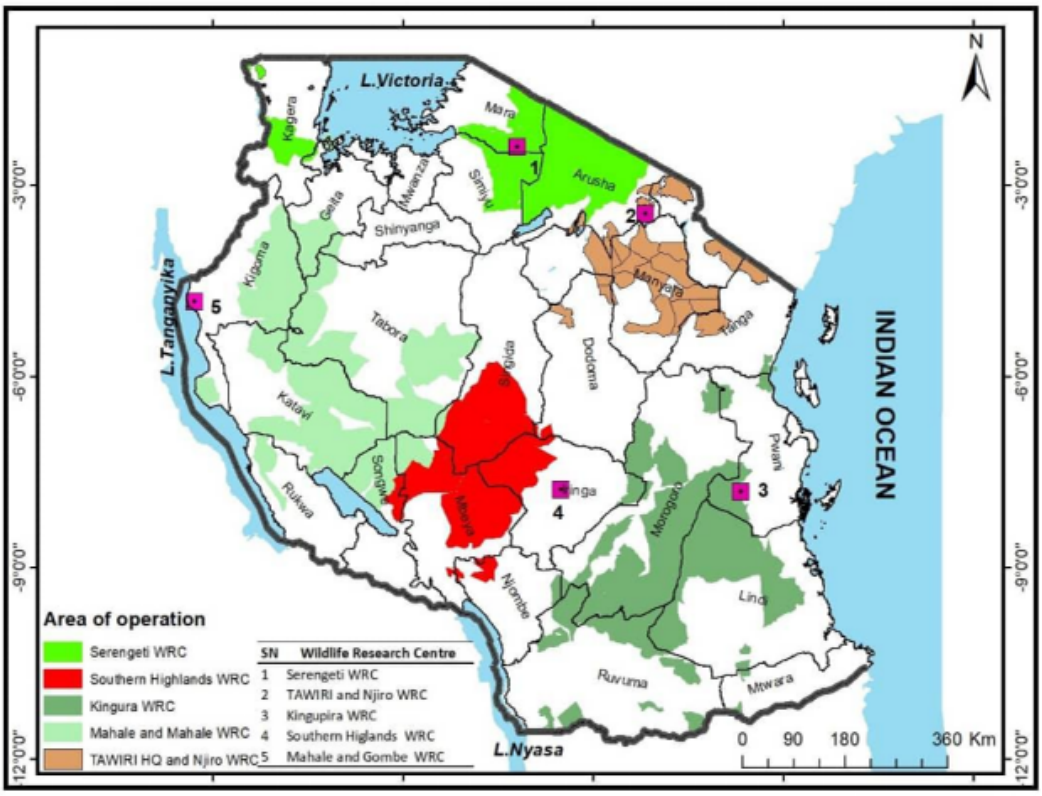


Figure 1: Location of Research Centres under TAWIRI and their respective areas of operations.

## 1.1 Purpose of the Report

The purpose of this report is;

i. To present institute's performance for the Financial Year 2022/2023,
ii. To inform stakeholders on TAWIRI research activities conducted over the past year and future plans and,
iii. To publicize the achievements of the Institute to the general public.

Tanzania Wildlife Research Institute is delighted to present the annual performance report for the Financial Year 2022/2023. The report highlights activities, progress and achievements made over the past financial year. The report presents detailed information about projects undertaken, financial performance and the impact to stakeholders. The accomplished projects/ research activities reflect our commitment to innovation, efficiency, and delivering the best services to our stakeholders. We believe in continuous improvement and commitment to enhancing our research on challenges facing wildlife in the country. Therefore, this report is a testament to our commitment to transparency, accountability, and excellence. Thank you for your continued support and trust in TAWIRI. We look forward to your feedback and suggestions as we strive to reach greater heights in the coming year.

# Chapter Two

## 2.0 Research Activities for the Year 2022/2023

Research activities performed were in alignment with Government documents such as: Wildlife Policy (2007), Wildlife Conservation Act No. 5 (2009), TAWIRI Act CAP. 260 R.E. 2002, TAWIRI (Conduct of wildlife research) Regulations (2020), Tanzania Wildlife Research Institute Strategic Plan (2021/22–2025/26), National Research Agenda (2021/22-2025/26), Tanzania Wildlife Research Agenda (2012), Beekeeping Master Plan (2020-2030), CCM Ruling Party Manifesto (2020-2025) - Article 68 and 69, Five-year Development Plan Phase III (FYDP III) (2021/22-2025/26) and Sustainable Development Goals (SGDs) 2030;1, 9, 13 and 15.

Key Priority Areas planned for the Financial Year 2022/2023 were as follows;

i. Conducting, supervising, coordinating research, and providing consultancy services related to wildlife and disseminating research results to the stakeholders.

ii. Improve institutional capacity in service delivery.

iii. Carrying out animal censuses in and outside Protected Areas (PA) where wildlife is currently found in the country.

iv. Improve Revenue collection system.

v. Strengthen ICT infrastructure systems and technology related to wildlife research.

vi. Organise TAWIRI Biennial Scientific Conference.

vii. Building and strengthening the infrastructure of the institute including the construction of TAWIRI Headquarters building at Njiro-Arusha.

## 2.1 Research Activities Planned for the Year 2022/2023

As per the TAWIRI Strategic Objective C (Research, Coordination and Consultancy services improved) the following strategies and activities were planned;

### 2.1.1 Enhance Wildlife Research Undertakings, Ethics and Management;

i. Five (5) wildlife research activities conducted by June 2023.

ii. Twenty (20) scientific papers published in peer reviewed journals.

iii. Nine (9) papers presented in scientific conferences by June 2023.

iv. Four (4) Joint Management Research Committee (JMRC) meetings for research ethics clearance conducted by June 2023.

v. One (1) species management action plan developed and reviewed by June 2023.

vi. Four (4) Collaborations with other local, regional or international Institutions established by June 2023.

**2.1.2 Improve Wildlife Population Monitoring;**

Five (5) wildlife censuses for population monitoring and human activities conducted by June, 2023.

**2.1.3 Promote Tourism Development Through Research**

Five (5) research tourism programs developed and implemented by June, 2023.

**2.1.4 Promote Public Awareness on Wildlife Research Findings;**

Three (3) annual wildlife research promotion and dissemination events increased from 2 to 3.

**2.1.5 Undertake Wildlife Health Surveillance, Disease Monitoring and Control**

Three (3) wildlife health surveillance, disease monitoring and control done by June, 2023.

**2.1.6 Undertake Consultancy Services**

Four (4) consultancy services undertaken by June, 2023.

## 2.2 Implemented Wildlife Research Activities

ENHANCE WILDLIFE RESEARCH UNDERTAKINGS, ETHICS AND MANAGEMENT;

A total of ten Institutional research projects funded by the Ministry of Natural Resources and Tourism (MNRT) through Government subvention were conducted. These projects were also used for capacity building to all researchers within the Institute. Apart from Institutional research projects, TAWIRI researchers or in collaboration with other researchers were able to undertake 20 donor funded research projects.

**2.2.1 Institutional Research Projects**

**2.2.1.1 Customer driven Research projects**

We respond to needs of wildlife management institutions by attending to their most pressing needs for knowledge to formulate effective conservation strategies. Below is the progress made in the year 2022/2023.

### 2.2.1.1 Social, Ecological and Environmental Drivers of Human-Elephant Conflicts (HEC) in Tanzania

Human wildlife conflict is among the main challenges to the conservation management authorities. In order to enhance co-existence between humans and wildlife, TAWIRI conducted a countrywide survey to investigate the status, drivers and suggested mitigation measures for HEC in various regions in Tanzania. A Cross-sectional questionnaire was administered to a total of 2,312 respondents covering 10 regions (Kilimanjaro, Arusha, Mara, Kagera, Katavi, Rukwa, Kigoma, Tabora, Morogoro and Ruvuma).

Key findings:

- 85% of the respondents reported Elephant as a cause of crop raiding
- Main driver of HEC was increased human activities near protected areas that includes; agriculture, growing elephant loving crops, changing of elephant behaviour, blocked wildlife areas such as; corridors, buffer zones, migratory routes, dispersal areas, and climate change
- Peak conflict occurs in July during crop ripening season
- Reported challenges for Consolation scheme that includes:

    Low awareness on the scheme,

    Unawareness on accessing the scheme.

    Little amount of consolation paid to victims compared to the losses.

    Payment takes too long

    Some wild animals causing loss to communities are not considered

- Current mitigation measures:

    Guarding farms (24%),

    Making noise (23.4%), and

    Use of bright lights (23.3%).

- Low Community tolerance for elephants.

**Recommendations:**

- Strengthen Education awareness on human wildlife coexistence.
- Establish, revise and promote land-use planning to minimize HEC.

- Revise the current consolation scheme to better reflect actual losses.
- Use available village game scouts to reinforce Rapid response teams to address HEC incidences timely

#### 2.2.1.2 Re-introduction of Kihansi Spray Toad in the Wild

After significant population reduction in the wild as an after effect of the construction of a hydroelectric power dam at Kihansi, the remaining population was taken and bred into captivity for re-introduction into the wild later. Re-introduction research started in 2011 and continued to date.

Progress made during 2022/2023:

- Re-introduced toads show low ability to locate food in the wild, the factor that affected their survival.
- Low survival rate, out of 1000 individuals introduced into the wild only 18% survived
- The 180 toads that survived gave birth to 31 babies
- The 31 born toad babies only 2 (6.4%) survived to maturity
- The low toad survivability could be associated with fungal infection.
- A survey on chytrid fungus was carried out,
- The results showed presence of chytrid fungus in two wetlands
- The vegetation survey realized a change in plant species composition in the gorge

Plate 1: Feeding experiment of KST at Kihansi Gorge.

### 2.2.1.3 Beekeeping in Tanzania: Enhancing Hive Occupancy and Production of Honeybee Products for Improved Livelihoods in Selected Beekeeping Potential Areas

Low beehive occupancy have been reported as a serious problem affecting both beekeeping and honey production in many parts of Tanzania. Research seeks to establish existence and extent of the problem and its causes.

Progress made in 2022/2023 for studies conducted in Tabora and Geita regions revealed the following findings:

- Low hive occupancy was noted in both Tabora and Geita regions (Figure 1)

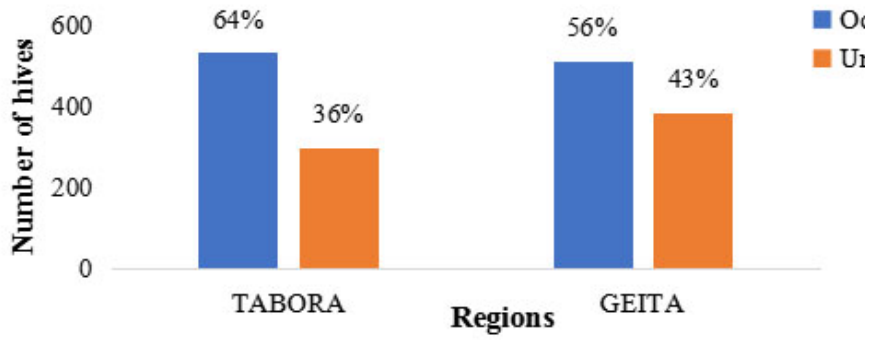


Figure 2: Beehive Occupancy in Tabora and Geita regions, Tanzania

- Low hive occupancy was associated with various factors that includes; livestock disturbance, prolonged draught, pests, use of pesticides, inadequate forageFigure 3)

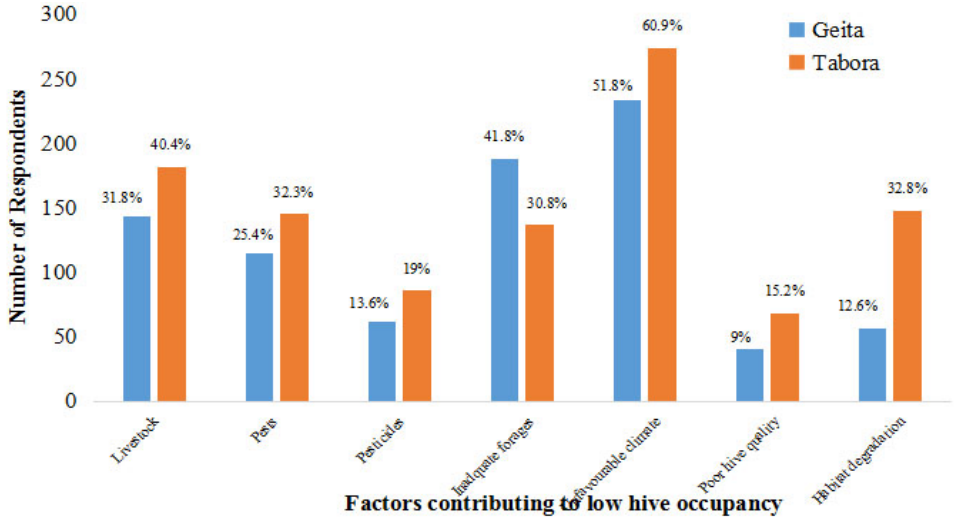


Figure 3: Factors contributing to Low hive occupancy in Geita and Tabora regions, Tanzania

- Traditional bee keepers reported percentage honey production reduction ranging from 33 to 50 (Figure 4)

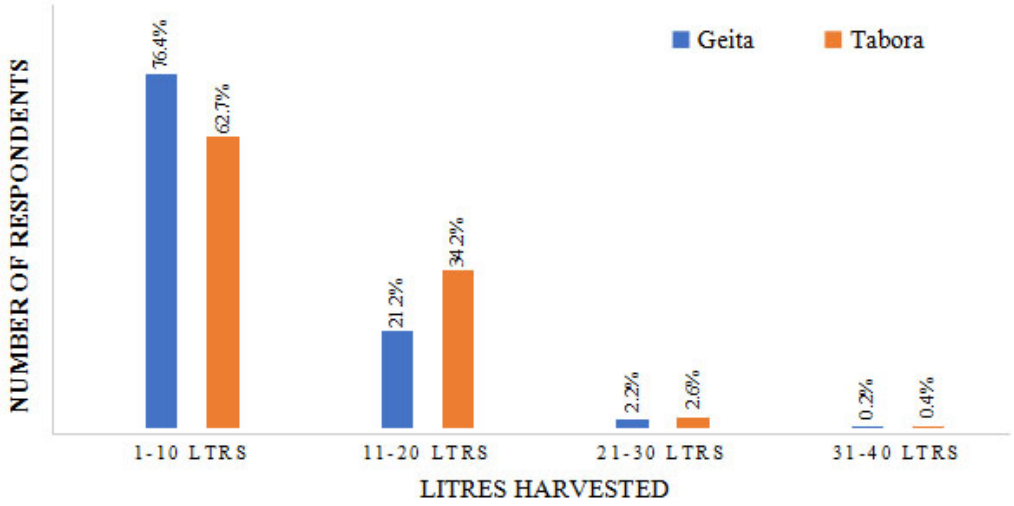


Figure 4: Honey production in Geita and Tabora regions, Tanzania

- Recommendations given to the Management Authority:
  - Conserve habitats to maintain bee colonies;
  - Establish zones in protected areas for bee keeping;
  - Use modern bee hives instead of traditional hives;
  - Restrict livestock grazing in bee keeping areas; and
  - Enhance extension services through District Beekeeping Officers.

**iv. Review of Statutory Instruments Governing Wildlife Protection, Utilisation, Management, and Development of Wildlife and Wetland Resources in Tanzania**

The overall goal of this project was to identify areas of recommendation for reform and for supporting conservation and livelihood needs based on Wildlife policy of 2007 and its legislations (the Wildlife Conservation Act (No. 5 of 2009).

**Key Findings**

- Tanzania has a robust set of statutory instruments covering various aspects of wildlife and wetland conservation and a clear delineation of responsibilities among different government agencies, however the statutory instruments are not interlinked.
- There are significant challenges in the implementation and enforcement of existing laws

and regulations perhaps due limited resources, including financial and human.

- On community involvement, there are examples of successful community-based conservation initiatives, but these are not widespread as most of the successful ones are lined only in northern Tanzania.
- There is a significant issue of human-wildlife conflict, particularly in areas adjacent to protected areas, however, consolation mechanisms for affected communities are inadequate or poorly implemented.
- UThere are opportunities for sustainable economic utilization of wildlife and wetland resources which needs a better regulation to prevent overexploitation.

**Recommendations:**

- Enhance policy harmonization and coordination to avoid overlaps and conflicts among different government agencies and stakeholders involved in wildlife and wetland management.
- Strengthen the enforcement capabilities, funding and resources for wildlife protection agencies.
- Develop and support more community-based conservation programs to ensure their participation, if possible provide incentives and support for communities to engage in sustainable resource management.
- Enhance the effective implementation of the consolation scheme for communities affected by wildlife as well as promotion of the use of non-lethal deterrents and community education to reduce the human wildlife conflicts incidences.
- Ensure sustainable economic practices through promoting alternative livelihoods that do not rely on the exploitation of wildlife and wetlands.
- Invest in research and monitoring to gather data on wildlife populations, habitat conditions, and the effectiveness of conservation measures as well as to gain data which can be used to inform policy and management decisions.

### 2.2.1.6 Population Status of Hippopotamus and Human Hippo Conflict in Peri - Urban Habitats of Busega and Mpanda Districts in Tanzania

The aim was to investigate the impact of human activities on hippo habitats in Urban and peri urban areas, and suggest appropriate mitigations

Key findings

- Hippos crop raiding on farms near the riverbank causing food insecurity
- Population status of Hippopotamus were documented (78 hippos in Busega and 46 in Mpanda).

- Higher Impact on crop damage were recorded:

  In Busega district (1,723 acres of crop farms destroyedannually).

  December was realized as a peak raiding season.

  In Mpanda (1,619 acres of crops farms were destroyed annually).

  January and March were reported to be the peak raiding months

- Crops raided wincludes maize, cassava, vegetables, and fruits.

Plate 2:A quick survey to assess hippo habitat on food availability in Busega District, Simiyu region.

**vi The use of invasive plants as raw material for production of Biomass Briquettes in Ngorongoro Conservation Area**

The purpose of the project was to improve rangeland conditions by use of invasive plant species (E. jaegeri) as alternative cooking energy source for communities living in NCA.

**Progress made:**
Developed a prototype of biomass briquettes made from Makutia grass (E. jaegeri).

Table 1: Proximate analysis of *E. jaegeri* and other common biomass materials.

| Sample name | Moisture (%) | Ash (%) | Volatile Matter (%) | Fixed Carbon (%) | heat Value (MJ/Kg) |
|---|---|---|---|---|---|
| *E. jaegeri* | 5.01 | 41.39 | 15.92 | 37.68 | 16.3 |
| Rice husk | 3.98 | 63.42 | 17.06 | 15.54 | 7.98 |
| Charcoal | 4.39 | 23.8 | 23.73 | 48.08 | 21.46 |

Table 2: Perceived combustion properties of briquettes against fuel wood.

| | Assessed properties | Briquettes from *E. jaegeri* | | Fuel wood | |
|---|---|---|---|---|---|
| | | Yes | No | Yes | No |
| i | Easy of ignition | 85 | 15 | 30 | 70 |
| ii | Less smoke produced | 85 | 15 | 25 | 75 |
| iii | High heat intensity | 95 | 5 | 35 | 65 |
| iv | Long burning time | 84 | 16 | 25 | 75 |
| v | Less ash generated | 65 | 35 | 20 | 80 |
| vi | High willingness to use | 85 | 15 | 45 | 55 |

**Future plans:**

- Expand the project to other Invasive species affected areas

Plate 5: Researcher demonstrating to villagers in NCA how to use Makutian briquettes as a source of domestic heat energy.

**vii Crocodile Exclusion Fence Construction in Rukwa and Iboma Villages-Songwe District Tanzania**

The purpose of the project was to develop a mitigation strategy for human-crocodile conflict in communities using Crocodile exclusion fence (Kizimba).
Progress made:

- Songwe district is highly affected by human - crocodile conflict resulting to death and severe injuries.
- 46% of the community in Iboma and Rukwa villages using lake Rukwa are affected by human-crocodile conflict

Two crocodile exclusion fences were constructed and installed in Rukwa and Iboma villages.
Community education on the use of exclusion fences were done to the victim villages.
Future plans:

- Construction of two exclusion fences in Buchosa and Ruvuma districts.
- Continue with public sensitization education on the use of crocodile Exclusion fences.

Plate 6: Kids swimming and women fetching water in a crocodile exclusion fence in Iboma village, Rukwa region.

viii. Wildlife Population Dynamics

The purpose of the survey was to document the status of animal species using ground count methods for tourism development in Ruaha and Nyerere National Parks.

Progress made:

Ruaha National Park:

- A total of 29 Large mammal species were recorded, with impala, greater kudu, giraffe, and elephant being the most abundant.
- Species distribution: Species were most abundant in the central zone, followed by the eastern, northern, and southern zones. The least observations were in the western zone. Interestingly, some areas with wildlife lacked all-weather roads, likely making them inaccessible during the wet season.
- Species evenness: Distribution of species differed between the northern and eastern zones, but overall diversity and richness were similar across the park.
- A total of 428 bird species were recorded.

Nyerere National Park:

Large mammals: A total of 1,514 individuals from 34 species were observed. The northern zone had more individuals, but the southern zone had higher species diversity.

Management implications: Understanding wildlife distribution is crucial for improving conservation efforts and visitor experiences.

**Overall implications:**
The study highlights the importance of understanding wildlife distribution for park management. In Ruaha, creating new road network could improve wildlife viewing opportunities, especially during the wet season. The high bird diversity in both parks suggests potential for attracting birdwatchers (ecotourism).

**ix. Assessment of vegetation and habitat dynamics**

The purpose of the study was to investigate the impact of an invasive plant species Calotropis procera and propose the suitable approach to control its spread in Ruaha National Park:

**Key findings:**
- Successful control method: Experiments showed that a low concentration (5% dilution) of glyphosate herbicide effectively killed over 50% of Calotropis procera within three months post-application, suggesting a cost-effective control method.
- The study identified a total of 272 plant species as readily available forage for wildlife species during prolonged dry periods.

The study recommends protecting areas with these valuable plant resources to ensure long-term wildlife health and park sustainability.
Maintaining enough high-quality food sources within the park can potentially reduce human-wildlife conflict caused by animals searching for food outside protected areas.

**x. Socioeconomic Perspective of Human-Wildlife Conflict (HWC) and Api-Tourism in Southern Tanzania**
This study investigated the use of non-lethal HEC mitigation methods to improve food and human security and reduce government expenditure on consolation scheme. As well as to investigate why communities does not adopt the non-lethal methods trained for a long period of time.

**Key findings:**
- Olfactory and acoustic deterrents methods tested were effective and reduced significantly elephant raiding incidences
- Food and human security were improved
- Factors that hinders adoption of non-lethal mitigation methods includes:
    - Low education of community members
    - Low household economic base
    - Poor inclusiveness of projects conducted in HEC affected areas
- The project proposed a holistic approach to mitigate HEC.
- In preparation for Api-tourism, the project trained 231 villagers on beekeeping practices and provided start-up hives

**xi. Ecology and Control of Giraffe Skin Disease (GSD) In Ruaha National Park in Tanzania**

The purpose of the study was to test potential treatment methods for Giraffe Skin Disease (GSD) in order to save the Giraffe population in Ruaha National Park.

- Treatment trial: Three treatments were tested to a total of 18 giraffes as follows:
  6 were offered with Ivermectin injection
  6 were injected with Long-acting antibiotic
  6 were given a combination of both (Ivermectin injection and Long-acting antibiotic injection)
  Control of untreated group

**Key findings:**

the combination of treatment showed the most promising response, with some giraffes fully recovering or showing significant improvement
Individual treatments by using Ivermectin and Long-acting antibiotics alone, some positive improvements were observed.
The treatments responded effectively on fresh cases compared to chronic ones.

- The study preliminarily recommends the use of ivermectin, long-acting antibiotics, or a combination of both.
- Early detection and intervention are crucial for controlling GSD in giraffe populations.

**2.2.1.2 Knowledge generation research for future solutions**

**i. The Ecology of Elephants of the Tarangire-Manyara Ecosystem**

The aim of the project is to generate knowledge for conservation of Tarangire Elephants and elephants in other areas:

**Progress made so far:**

A total of 21 elephant families with 43 calves (under 10 years old) were recorded.

| Year | Total Number of families sighted | Number of individuals sighted | Number of adult increases | Calves | Total |
|---|---|---|---|---|---|
| 2022 | 21 | 231 | | 32 | 263 |
| 2023 | 21 | 361 | 85 | 11 | 327 |

- Noted 8 families of elephant herds not sighted, probably they migrated towards the southern part of Tarangire NP, Burunge WMA and Manyara Ranch
- One rare occasion of elephant giving birth to twins was documented.
- The overall population is growing in numbers (elephants over 55 years old) at a percentage increase of 36.8. With evidence of 44 newborn recorded at an average of 22 each year.
- Human elephant conflict mitigation education awareness was given to 200 ToT (train-of-trainers) in Monduli, Babati, Same, and Mwanga Districts.

**Future plans:**

- Continue with the elephant demographic monitoring survey for 29 families
- Expand community HEC mitigation and coexistence awareness creation programs.
- Extend elephant demographic studies to new elephant families at central and southern subpopulations.

Plate 5: Ophelia the female elephant in Tarangire NP boasts impressive, large tusks.

Plate 6: Sakina, a maternal elephant with twin offspring in Tarangire NP

**ii. Long-Term Ecological study of the Serengeti Lion**

Purpose of the project is to continue enriching the long-term lion demographic database for management of lion population:

**Progress made:**

- A total of 205 individual from 21 lion prides (Barafu, Cub Valley (Sametu), Gol Kopjes (Simba East), Jua Kali, Kibumbu, Lake Magadi, Loiyangalani, Loliondo, Maasai Kopjes, Mukoma Gypsies, Mukoma Hill, Mukoma Mischief, Naabi, Plains, Tower Hill, Transect, Simba Survivors, Vumbi, Vumbi Kidogo, Young Transect and Zebra Kopjes) were sighted within central Serengeti.
- 13 lion coalitions were sighted (five coalitions of nomads and eight coalitions of resident males)

- On 11th March 2023, a famous male lion known as Bob Junior was killed by a coalition of five males at Kibumbu Kopjes
- Monitoring records from 2018 to 2023 showed that Bob Jr had fathered a total of 19 cubs of which 4 were males, and 15 females
- In mitigating human-lion conflicts in Western Serengeti, one male lion was translocated from Bukore village and released at Central Seronera
- One case of "Squamous cell carcinoma" virus was recorded from Naabi pride.

**Future Plans**

- To continue monitoring of the Serengeti lion population within the core study zones and adjacent Ikorongo and Grumeti Game Reserves (IGGR)
- To continue monitoring dispersal males' movement behaviour and human-lion conflict on communities adjacent to PAs
- To continue monitoring health status of the Serengeti Lion populations

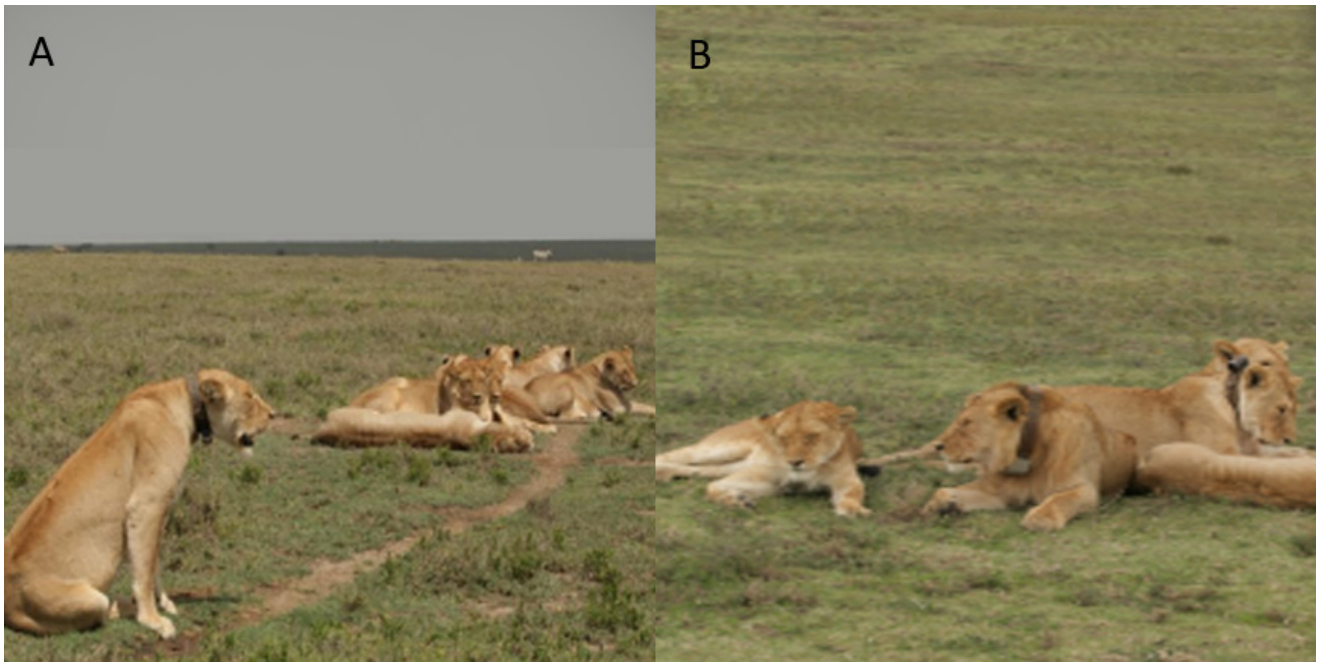


Plate 7: Cub valley (a) and transect (b) prides sighted in the Serengeti National Park

**2.2.1.10 Status of the Mahale-Katavi Wildlife Corridor in two villages of Isengule and Kasangantongwe in Tanganyika District**

The purpose of the project was to investigate practise of land use plans in two villages within wildlife corridors in Tanganyika district

**Key findings:**

- Knowledge of the presence of the wildlife corridor that partly cuts across their villages
- Claims of lack of understanding of boundaries of the corridor and hence make difficult to distinguish the corridor from other areas where they can carry out their economic activities such as agriculture, livestock grazing, etc
- Reported that historically the corridor was used by wildlife
- The corridor is still live as it is used by elephant and few resident animals
- Noted ongoing Human activities in the corridor such as agriculture, livestock grazing, poaching, logging, and charcoal making.

**iv. Chimpanzee Survey**

The purpose of the survey was to estimate Chimpanzee population in the Masito-Ugalla Ecosystem covered an area of about 5,756 $km^2$

**Key findings:**

- A population of about 700 chimpanzees was recorded
- Other large mammal species recorded includes wild dog lion, leopard, hyena, buffalo, elephant, and zebra.
- Notable anthropogenic activities including deforestation to establish crop farms, illegal human settlements, logging, traditional beehive practices, and cattle herding.

Plate 8: Sighted Chimpanzees in Masito Ugalla ecosystem, Tanzania.

### 2.2.1.3 Long term Wildlife Population Monitoring

**Improve Wildlife Population Monitoring and Wildlife Census**

The purpose of wildlife census is to generate numbers of animals, determine their distribution, and anthropogenic activities undertaken in or adjacent to protected areas. Four wildlife censuses were conducted in collaboration with other stakeholders (TANAPA, TAWA, FZS, NCAA, and RTI Tuhifadhi Maliasili).

**i. Nyerere-Selous-Mikumi Ecosystem**

This census was conducted in October-November 2022 and covered an area of 104,143 $Km^2$

**Key findings:**

- Animals with that showed stable population (No significant changes in animal numbers):

| Animal | Before | Current |
|---|---|---|
| Elephant | 15,501 ± 1,819 SE | 20,006 ± 1,793 SE |
| Duiker | 11,021 ± 741 SE | 16,758± 963 SE |
| Hippo | 31,086 ± 4,934 SE | 29,071 ± 4,146 SE |
| Giraffe | 1,858 ± 461 SE | 1,679 ± 555 SE |
| Wildebeest | 22,740 ± 3,330 SE | 19,060 ± 2,906 SE |

- Animals with a notable population decrease

| Animal | Before | Current |
|---|---|---|
| Impala | 19,296 ± 3124 SE | 14,031 ± 2,016 SE |
| Puku | 1,579± 586 SE | 496± 186 SE |
| Buffalo | 66,546± 11,470 SE | 59,878± 9,518 SE |
| Kongoni | 23,250± 2,853 SE | 18,361 ± 1,853 SE |

- Human activities observed in or adjacent to PAs

| Human encroachment | Before | Current |
|---|---|---|
| Cattle | 678,303 ± 73,205 SE | 799,411 ± 41,997 SE |
| Shoats | 171,893 ± 27,304 SE | 179,330 ± 17,448 SE |
| Sawpits | 9,015 ± 772 SE | 15,657 ± 4,633 SE |
| Huts with mabati roofs | 13,611± 5,566 SE | 16,813± 2,558 SE |

In general, though recent trends indicate stability for some species, the long-term trends indicate declining wildlife populations in this ecosystem.

**ii. Wildebeest Census in the Greater Serengeti Ecosystem**

This census was conducted from 28th to 31th March, 2023 covering an area of 4,782 km²:

**Key findings:**

- A Population of 1,571,960 individuals was estimated.
- Population trend revealed an increase of 171,000 individuals compared to the previous census.
- Most wildebeest were distributed across the southern Serengeti short grass plains.
- Notably, high concentrations of wildebeest were found in the north-western Ngorongoro crater area.

**Conservation recommendations:**

- The study emphasizes repeated wildebeests counts for a long-term monitoring of the population trends.
- Actions should be taken to mitigate or remove anthropogenic activities in or adjacent to the PAs

**iii. Saadani-Wami Mbiki Ecosystem**

This survey was conducted in September 2022, covering Saadani National Park and Wami-Mbiki Game Reserve with a total area of 3,485 km$^2$

- Low Wildlife sightings were noted in the two protected areas hindering reliable population estimates.

| Saadani NP | | Wami-mbiki Game Reserve | |
|---|---|---|---|
| **Animals** | **Number** | **Animal** | **Number** |
| Elephant | 47 | Duiker | 53 |
| Reedbuck | 43 | Impala | 46 |
| Impala | 37 | Bushbuck | 46 |
| Hippos | 36 | Kongoni | 1 |
| Elands | 36 | Reedbuck | 1 |
| Waterbucks | 28 | Warthog | 1 |
| Kongoni | 35 | | |
| Wild pigs | 24 | | |

- Human Activity: Signs of human encroachment were found in both areas, including livestock grazing, charcoal kilns, and temporary settlements.
- A significant number of cattle 3,207 and 305 shoats were observed in both parks, potentially impacting wildlife presence and lowering overall sighting rates.
- The information generated did not qualify to generate population estimates hence, repeated surveys should be conducted with improvements of counting techniques and population estimates.

**iv. Wildlife Corridors Survey (Mahale-Katavi and Moyowosi-Burigi-Chato)**

This survey was carried out from 30th November to 22nd December 2022 to assess the status of human activities in two designated wildlife corridors of Mahale-Katavi and Moyowosi-Burigi-Chato which coveres an area of 10,901 $km^2$.

**Key findings:**

- Population estimate of cattle and shoats:
- In Mahale-Gombe corridor was 52,783±26,878 cattle and 26,878 ± 4,761 shoats.
- In Kigosi-Burigi-Chato and Katavi wildlife corridor 5,143±2,300 cattle were recorded.
- High human encroachment was reavealed.
- These human activities in the surveyed area, in one way or another, deny chimpanzees' key requirements such as food, nesting trees, and cover, thus, expose them to dangers of starvation, predation, poaching, or contracting infectious diseases

### 2.2.2 Donor Funded Collaborative Research Projects

During the reporting period, the Institute conducted a total of twenty-five donor funded projects as follows;

i. Crimean-Congo Hemorrhagic Fever (CCHF): Reducing an Emerging Health Threat in Tanzania.
ii. Population size, movements, and ecology of vultures in protected areas of Tanzania. A case study of the Serengeti Ecosystem.
iii. Assessment of drivers of bushmeat consumption and trade in western Serengeti.
iv. Perceptions of electric fencing as a human-wildlife conflict management tool in the western Serengeti.
v. Black rhino research project in the Ngorongoro Conservation Area.
vi. Application of modern technology to wildlife survey techniques.
vii. Conducting a population dynamics study of the lion in the Ruvuma landscape Tanzania.
viii. Biodiversity data collection and training Conservationists in East and West Usambara, Tanzania.
ix. Balancing conservation goals and human livelihood needs: beekeeping as an incentive for conservation of chimpanzee habitat in the Masito-Ugalla Ecosystem.
x. Application of GPS technology in understanding seasonal movement, drivers to human- elephant conflicts and suggesting mitigation along Mwiba, Makao Open Area and Maswa Game Reserve boundaries.
xi. Biodiversity surveys for sustainable conservation of Usangu area in Ruaha-Rungwa Ecosystem, Tanzania.
xii. Changes from consumptive to non-consumptive use of wildlife in Msolwa area: Effects on wildlife population and tourism development in Nyerere National Park, Tanzania.
xiii. Serengeti Wild dog Conservation Project.
xiv. Improving telemetry technology application in monitoring Black Rhinocerous and African elephant in Ngorongoro Conservation Area, Tanzania.
xv. The Range and Interaction of the wildebeest Connochaetes taurinus in the increasing human pressure in Tanzania.

xvi. Long-term ecological study of African lion Panthera leo in Serengeti National Park Tanzania: Understanding population biology and behaviour of Top – Order Predator in an African Savannah ecosystem.

xvii. Biodiversity Monitoring of major river ecosystems using environmental DNA (eDNA) in Tanzania protected areas.Range use shift by the yellow baboon (Papio cynocephalus, Linnaeus, 1766) in Mikumi national park, Tanzania.

xviii. The indirect effects of Human-Elephant interactions in communities Adjacent to Mikumi NP.

xix. Evaluation of the role of provision of education in children of indigenous people in improving community livelihood in Ngorongoro Conservation Area.

**2.2.3 Special Assignments**

i. Habitat suitability assessment for the reintroduction of Southern central black rhino Diceros bicornis minor in the Nyerere national Park.

ii. Habitat suitability for the introduction of Southern white rhino Ceratotherium simum simum in Ngorongoro Conservation Area.

iii. Status and control of human-bat conflicts in Dar es Salaam City Council.

iv. Planning and translocation of three black rhinos from Tsavo west in Kenya to Ngorongoro Conservation Area as a Presidential gift from Hon. Uhuru Kenyata of the Republic of Kenya to Hon. Samia Suluhu Hassan of the United Republic of Tanzania.

**2.2.4 Scientific Papers published in Peer-Reviewed Journals**

During the financial year 2022/23 a total of 19 scientific papers were published in peer-reviewed journals, two (2) book chapters, and eight (8) scientific papers were published in the proceedings of the 13th TAWIRI Scientific Conference.

**2.2.4.1 Peer Reviewed Journal Paper**

i. Kuderna, L., Hong Gao, Mareike Janiak, Martin Kuhlwilm, Joseph Orkin, Thomas Bataillon, Shivakumara Manu, Alejandro Valenzuela, Juraj Bergman, Mariolaine Rousselle, Felipe Silva, Lidia Agueda, Julie Blank, Marta Gut, Dorein de Vries, Idrissa Chuma, Julius Keyyu +58 other authors (2023) A global catalog of whole-genome diversity from 233 primate species. Science, Accepted in February 2023. Manuscript ID: abn7829. To copy editing. *75 authors in total.

ii. Erik F. Sørensen, R. Alan Harris, Liye Zhang, Muthuswamy Raveendran, Lukas F. K. Kuderna, Jerilyn A. Walker, Jessica M. Storer , Martin Kuhlwilm, Claudia Fontsere, Lakshmi Seshadri , Christina M. Bergey, Andrew S. Burrell, Juraj Bergmann, Jane E. Phillips-Conroy, Fekadu Shiferaw, Kenneth L. Chiou, Idrissa S. Chuma, Julius D. Keyyu, Julia Fischer, Marie-Claude Gingras, Sejal Salvi , Harshavardhan Doddapaneni, Mikkel H. Schierup, Mark A. Batzer, Clifford J. Jolly, Sascha Knauf, Dietmar Zinner, Kyle K.-H. Farh, Tomas Marques-Bonet, Kasper Munch, Christian Roos, Jeffrey Rogers (2023) Genome-wide coancestry reveals details of ancient and recent male-driven reticulation in baboons. Short title: Baboon evolutionary reticulation. Science, Manuscript ID abn8153. Accepted on 03 October 2022, To Copy editing. *32 authors.

iii. Mgr. Klára Janečková; Christian Roos; Pavla Fedrová; Nikola Tom; Darina Čejková; Simone Lueert; Julius D. Keyyu; Idrissa S. Chuma; Sascha Knauf; David Šmajs (2022) Genomes of Treponema pallidum subsp. pertenue of nonhuman primate and human origin are identical. Lancet Global Health. Accepted on 17.10.2022.

iv. Diamond Hawkins, Roland Kusi, Solomaya Schwab, Idrissa S. Chuma, Julius D. Keyyu, Sascha Knauf, Filipa M.D. Paciência, Dietmar Zinner, Jan Rychtář, Dewey Taylor (2022) Mathematical modelling Treponema infection in free-ranging Olive baboons (Papio anubis) in Tanzania. Epidemics 41, 100638. DOI: https://doi.org/10.1016/j.epidem.2022.100638.

v. Dietmar Zinner, Sascha Knauf, Idrissa S. Chuma, Thomas M. Butynski, Yvonne A. de Jong, Julius D. Keyyu, Rehema Kaitila, and Christian Roos (2022) Mito-phylogenetic relationship of the new subspecies of gentle monkey Cercopithecus mitis manyaraensis, Butynski & De Jong, 2020. Primate Biology, 9, 11–18, 2022 https://doi.org/10.5194/pb-9-11-2022

vi. Jerome Kimaro; John Bukombe; Cecilia Leweri; Victor Kakengi; Janemary Ntalwila; Angela Mwakatobe; Asanterabi Lowassa; Neema Kilimba; Wilfred Marealle; Alex Lobora; Julius Keyyu (2023) Sociocultural Factors Shaping Responses to Wildlife Crop-Raiding in Communities Adjacent to Protected Areas in Southern Tanzania. Human Ecology 50(6). https://doi.org/10.1007/s10745-022-00373-x

vii. Richard, D. Lyamuya, J. Munisi Evaline, M. Hariohay Kwaslema, H. Masenga Emmanuel, K. Bukombe John, G. Mwakalebe Grayson, L. Mdaki Maulid, K. Nkwabi Ally, and D. Fyumagwa Robert. "Patterns of mammalian roadkill in the Serengeti ecosystem, northern Tanzania." International Journal of Biodiversity and Conservation 14, no. 1 (2022): 65-71.

viii. Hariohay, Kwaslema Malle, Damari Samwel Nassary, Richard D. Lyamuya, and Eivin Røskaft. "Local people's knowledge of topi (Damaliscus lunatus) and their illegal hunting for bushmeat consumption in the Serengeti Ecosystem." African Journal of Ecology (2022).

ix. Munisi J., Masenga, H., Mjingo, E., Halima, K., Nkwabi, A., Lyamuya, D., Mikole R., Timbuka, D. & Fraser, G. (2022). Distribution, diversity and abundance of small mammals in different habitat types in the Usangu area, Southern Tanzania. International Journal of Biodiversity and Conservation, 14(3), 139-149.

x. Baraka Naftal, Hamza K Kija, Christopher William, Christine Noe, Dickson Anderson, Fiona A. Stewart, Alex K. Piel Spatial and temporal pattern of wildfires in the Masito-Ugalla Ecosystem (2008-2019), Tanzania. IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT) e-ISSN: 2319-2402, p- ISSN: 2319- 2399. Volume 16, Issue 7 Ser. II (July 2022), PP 12-19 www.iosrjournals.org DOI: 10.9790/2402-1607021219 www.iosrjournals.org 12.

xi. John Bukombe, Wilfred Marealle, Jerome Kimaro, Hamza Kija, Pius Kavana, Victor Kakengi, Justice Nindi, Julius Keyyu, Janemary Ntalwila, Neema Kilimba, Fidelis Bwenge, Ally Nkwabi, Asanterabi Lowassa, John Sanare, Machoke Mwita, Cecilia Leweri, Edward Kohi, Lazaro Mangewa, Ramadhani Juma, Raymond Okick, Alexander Lobora (2022) Viability assessment of the Wami-Mbiki Game Reserve to Nyerere National Park wildlife corridor in southern Tanzania. Global Ecology and Conservation 39: 02259. https://doi.org/10.1016/j.gecco.2022.e02259.

xii. Strampelli, P., Henschel, P., Searle, C. E., Lobora, A. L., Kiwango, H., Macdonald, D. W., & Dickman, A. J. (2023). Index-based large carnivore population density and abundance estimates for the

Ruaha-Rungwa conservation complex in Tanzania. African Journal of Ecology, 61(1), 221-225.

xiii. Kibaja, M. J., Mekonnen, A., Reitan, T., Nahonyo, C. L., Levi, M., Stenseth, N. C., & Hernandez-Aguilar, R. A. (2023). On the move: Activity budget and ranging ecology of endangered Ashy red colobus monkeys (Piliocolobus tephrosceles) in a savanna woodland habitat. Global Ecology and Conservation, 43, e02440

**2.2.4.2 Book Chapters**

i. Nkwabi, A.K., Kavana P.Y. (2023). Influence of agriculture on the resilience and trophic cascade in a savanna bird community of the Serengeti ecosystem, Tanzania. Birds Conservation, Research and Ecology. IntechOpen. DOI: 10.5772/intechopen.1001358.

ii. Asanterabi Lowassa, Eliningaya Kweka, Daniel Mgori, Amani Uisso, Simon Kangwe, Furaha Mrosso, Daniel Komwihangilo, Lenadi Kiwelu, Jelly Chang'a na Abrahamu Mbwambo (2022). ''Mchango wa Sayansi, Technologia na Ubunifu katika Maendeleo ya Kiuchumi na Kijamii nchini Tanzania: Kutoka katika Taasisi kumi za Utafiti na Maendeleo''. Tume ya Taifa ya Sayansi na Teknolojia (COSTECH). ISBN 978-9-9879-4856-7.

**2.2.4.3 Papers presented in Scientific Conferences by June 2023**

During the financial year 2022/23 a total of eight (8) scientific papers were published in the proceedings of the 13th TAWIRI Scientific Conference held on 6th - 8th December, 2021 in Arusha, Tanzania as follows:

i. Odass Bilame and Janemary Ntalwila (2022). Industrialisation, Inclusive Green Growth, and Shared Prosperity Can Tanzania attain a Win-Win Solution without Compromising biodiversity? In: Proceedings of the 13th TAWIRI Scientific Conference held on 6th - 8th December, 2021 at Arusha International Conference Center.

ii. Dickson M. Wambura, Idrissa Chuma, Iddi Lipende and Robert Fyumagwa (2021). Poisoning incidence of elephant: a case report from Ngorongoro Conservation Area. In: Proceedings of the 13th TAWIRI Scientific Conference held on 6th - 8th December, 2021 at Arusha International Conference Center.

iii. Dennis Ikanda, Alphonce Msigwa, Bernard Kissui, Emmanuel Lufilisha, Godlove Mpembeni, Wilson Maanga and Idris Chuma (2021). Social distancing individuals in a translocation raises prospects for filial infanticide in a captive Serengeti lion pride. In: Proceedings of the 13th TAWIRI Scientific Conference held on 6th - 8th December, 2021 at Arusha International Conference Center.

iv. Kakengi, Alexander Victor and Genichi Idani (2021). Does honey color have any implication for antimicrobial activity? In: Proceedings of the 13th TAWIRI Scientific Conference held on 6th - 8th December, 2021 at Arusha International Conference Center.

v. Lucia Romward, Elikana Kalumanga, Fenrick Msigwa, Robert D. Fyumagwa and Alphonce Msigwa (2021). Dynamics of human- elephant conflicts in villages surrounding Ruaha National Park, Tanzania. In: Proceedings of the 13th TAWIRI Scientific Conference held on 6th - 8th December, 2021 at Arusha International Conference Center.

vi. Nicephor Lesio, Bwenda Nyundo, Masoud Muruke, and Emmanuel Mmassy (2021). Indigenous knowledge of beekeepers on honeybees' morphology and behaviour variations in the selected parts of Tanzania. In: Proceedings of the 13th TAWIRI Scientific Conference held on 6th - 8th December, 2021 at Arusha International Conference Center.

vii. Rajab Mikole, Richard D. Lyamuya, Evaline J. Munisi, Kwaslema M. Hariohay, Emmanuel H. Masenga, John K. Bukombe, Grayson G. Mwakalebe, Maulid L. Mdaki, Ally K. Nkwabi and Robert D. Fyumagwa (2021). Wild mammal road kill in the Serengeti ecosystem, northern Tanzania. In: Proceedings of the 13th TAWIRI Scientific Conference held on 6th - 8th December, 2021 at Arusha International Conference Center.

viii. Richard D. Lyamuya, Grayson G. Mwakalebe and Kwaslema M. Hariohay (2021). Traditional knowledge on wild edible vegetables consumed by local communities adjacent to the Serengeti ecosystem, northern Tanzania.In: Proceedings of the 13th TAWIRI Scientific Conference held on 6th - 8th December, 2021 at Arusha International Conference Center.

### 2.2.5 Wildlife Research Ethics Clearance and Management

Three Joint Management Research Committee (JMRC) meetings for research ethics clearance were conducted in 2022/23 (Table 3), where a total of 201 applications were tabled. Among those,126 were new, 59 renewal and 16 amendment applications. Moreover, the number of registered researchers in the year 2022/23 increased from 408 2021/22 to 451. It is impressive that the number of Tanzanian researchers increased from 235 (57.5%) to 276 (61.2%) in 2021/22 and 2022/23 respectively. During the reporting period of 2022/23 four (4) coordination trips were conducted in various areas where researchers are undertaking their research projects.

Table 3: Number of JMRC meetings held for the financial year 2022/23

| S/N | JMRC Meetings | Umber of applications | Renewal | New | Amendments |
|---|---|---|---|---|---|
| 1 | 69th | 42 | 12 | 27 | 3 |
| 2 | 70th | 63 | 17 | 40 | 6 |
| 3 | 71st | 96 | 30 | 59 | 7 |
| | **Total** | **201** | **59** | **126** | **16** |

The National wildlife research agenda has eight (8) priority themes (Table 4). It is clear that most of the research projects conducted in the year 2022/23 focused more on the Wildlife Ecology and Ecological Interactions (n = 85), followed by Biodiversity Conservation (n = 46) priority themes. Water Resources and Wetland Conservation, Beekeeping, Bee Ecology, Bee Products and Pollination Services attracted relatively low research project attention where two research projects for each thematic area were registered (Table 4). The distribution of registered wildlife research projects in relation to the wildlife research agenda is as shown in Table 4 and its details presented in Annex 1.

Table 4: Distribution of registered wildlife research projects in relation to the wildlife research agenda in 2022/23

| S/N | Priority theme | Research Ethical Clearance Committee Meeting | | | Total |
|---|---|---|---|---|---|
| | | 69th | 70th | 71st | |
| 1 | Human Wildlife Interactions | 11 | 11 | 9 | 31 |
| 2 | Biodiversity Conservation | 7 | 19 | 20 | 46 |
| 3 | Water Resources and Wetland Conservation | 0 | 2 | 0 | 2 |
| 4 | Climate Change and Ecosystem Dynamics | 3 | 4 | 1 | 8 |
| 5 | Wildlife Diseases | 6 | 5 | 5 | 16 |
| 6 | Beekeeping, Bee Ecology, Bee products, and Pollination Services | 1 | 0 | 1 | 2 |
| 7 | Wildlife Ecology and Ecological Interactions; | 8 | 24 | 53 | 85 |
| 8 | Natural Resources Governance and Infrastructure Development | 2 | 7 | 2 | 11 |
| | **Total** | **38** | **72** | **91** | **201** |

**2.2.6 One Species Management Action Plan developed and reviewed by June 2023**

One technical workshop was held at the College of African Wildlife Management in September 2022 to draft the Elephant Management Plan, which was submitted to the Ministry for inputs. The next step involved incorporation of comments from the Ministry, followed by a national stakeholder's validation workshop and submission of the final plan to the Ministry for endorsement.

**2.2.7 Other prepared working documents**

Over the reporting period the Institute finalised three research development and coordination documents that are imperative in executing day to day activities of the institute;

i. Tanzania Wildlife Research agenda 2023-2033
ii. Guidelines for Research Associateship at TAWIRI
iii. Standard Operating Procedures (SOPs) for wildlife Research Ethics Clearance

**2.2.8 Establish four collaboration with other Local or International Institutions**

Four Memorandum of Understanding were signed between the Institute and the following;

i. The School for Field Studies (The Registered Trustees of Centre for Wildlife Management Studies, Tanzania).
ii. The Aga Khan University, Arusha - Tanzania (AKU).
iii. The Wildlife Conservation Society of Tanzania (WCST).
iv. The Southern Tanzania Elephant Program (STEP).

### 2.2.9 New Research Projects

The institute in collaboration with national and international researchers developed three donor funded research proposals and submitted to different donors as follows; -

i. Co-existing with Pangolins through corridor protection for a better future building capacity to empower local communities to protect Pangolins in Kwakuchinja, Nyerere- Selous - Udzungwa and Amani - Nilo corridors, Tanzania. Submitted and funded by USAID - Tuhifadhi Maliasili Project.
ii. Long-term ecological study of African lion (Panthera leo) in Serengeti National Park Tanzania: Understanding population biology and behaviour of Top – Order Predator in an African Savannah ecosystem. Submitted and funded by Bridgearth Wildlife Film Production to the tune of USD 10,000.
iii. Biodiversity Monitoring of major river ecosystems using environmental DNA (eDNA) in Tanzania protected areas. Submitted and funded by Ratcliffe Foundation to the tune of USD 83,969.62 annually.

## 2.3 Wildlife Information, Education and Public Relation

### 2.3.1 Wildlife Education and Information Dissemination

Community Human Elephant Conflict (HEC) outreach training programmes were done to a total of 234 Trainee of Trainers (ToTs) in eight Districts namely Mbarali, Kaliua, Urambo, Mlele, Iringa Rural, Itigi, Kalambo and Nkasi. Beekeeping training was conducted where a total of 455 trainees (Males= 362, Females= 93) from five Districts namely Meatu, Monduli, Karatu, Hai and Meru participated on appropriate beekeeping practices, preparation of bee products and general protection from bees.

One hundred and twenty (120) fifth-year Bachelor of Veterinary Medicine (BVM) students from Sokoine University of Agriculture (SUA) attended a two weeks training in wildlife capture, handling and immobilisation at Serengeti Wildlife Research Center under the Veterinary Science and Laboratory section as part of their degree curriculum.

During the reporting period, two TAWIRI newsletters (Issue 10 and 11) with a total of 200 copies were produced and distributed for awareness creation and education dissemination to various stakeholders. Other publicity materials that entailed 1000 TAWIRI stickers, 50 banners, 3,000 posters, 350 Calendars and t-shirts, shirts and bags were also produced.

One hundred copies of a technical book that summarises research findings were produced and distributed to conservation stakeholders and the public at large. Also, three documentaries were produced emanating from the institute ongoing research projects and activities.

### 2.3.2 Publicity through Mass Media

During the reporting period the institute managed to organise 18 and 5, TV and Radio programs respectively. Three special articles were published in the widely read newspapers, also a number of events were posted in facebook and Twitter where a total of 389,000 viewers were recorded.

### 2.3.3 Meetings with policy makers

During the reporting period TAWIRI participated and provided a seminar to the Permanent Parliamentary committee of Land, Natural Resources and Tourism on 17th -18th, July 2022.

### 2.3.4 Special lectures for education and awareness

A total of thirty lectures were delivered to tourist groups covering different conservation topics namely wildlife conservation challenges in Tanzania, Human-wildlife conflicts, invasive species management in the Serengeti ecosystem, human-elephant conflicts, Serengeti lion ecology, and wildlife ecology and behaviour.

## 2.4 Wildlife health surveillance, disease monitoring and control

During the reporting period, the section conducted the following activities;

### 2.4.1 Investigation of wildlife diseases reported in various areas in Tanzania

A total of seven wildlife disease investigations were executed (Table 5).

Table 5: Investigation of wildlife diseases reported in various areas in Tanzania

| S/N | Date | Wildlife involved and Districts | Diseases Suspected | Activities |
|---|---|---|---|---|
| 1 | November 2022 | Eight Zebra and Four Giraffes in West Kilimanjaro Area (Longido and Siha districts) | Confirmed through microscopic examination Bacillus Anthracis | Carcasses destroyed and community awareness |
| 2 | October 2022 | Elephant deaths In Ndutu area | Highly decomposed carcass | Community awareness raising |
| 3 | October/ Nov 2022 | Elephant deaths in Babati and Kiteto | Highly decomposed carcass | Community awareness raising |
| 4 | November 2022 | Giraffe in Ruaha | Giraffe Skin disease | Sampling, Treatment trial and18 Collaring of Giraffes for monitoring |
| 5 | March 2023 | Bats in Dar es salaam | Zoonotic disease surveillance | Capture sampling and pilot control trial |
| 6 | March 2023 | Eland in Ndutu Area | Bilateral blindness | Sampling, symptomatic treatment |
| 7 | April 2023 | 162 Impala, 9 waterbucks, 1 dikdik 1 and 1 baboon in Tarangire NP | Confirmed cases of Anthrax | Burning of carcasses, disinfection and vaccination of Livestock in neighbouring villages in Monduli and Babati Districts |

### 2.4.2 Mitigation of Human-Wildlife Conflict

In efforts to minimise Human-Wildlife-Conflicts, the Institute participated in six cases of wildlife capture and translocation in various areas in the country (Table 6).

Table 6: Resolved HWC cases

| S/N | Wildlife involved in the conflict | Captured in | Translocated to |
|---|---|---|---|
| 1 | Lion in Kipatimo village in Kilwa District | Kipataimo near Selous | Government facility – Dar es salaam |
| 2 | Four Lions in human settlement in Kakonko | Human settlements in Kakonko District, Kigoma | Burigi-Chato National Park |
| 3 | Six Lions in Mdori village Babati District | Burunge WMA | Tarangire NP |
| 4 | Two Lions in Magala Village Babati District | Magala village | Tarangire NP |
| 5 | Lions in Muheza | Were not captured but they crossed to Mkomazi NP | |
| 6 | Lions in Iringa | Not yet captured One group is back in Ruaha | |

### 2.4.3 Collaring and translocation of wildlife

Different wildlife species were collared as shown in Table 7.

Table 7: Collared wildlife species

| S/N | Spp and Number of wildlife | Activity | Reason | Location |
|---|---|---|---|---|
| 1 | 1 female Wild dog | GPS collar deployment | Population monitoring and movement ecology | Rukwa Game reserve |
| 2 | 3 Male Lions | GPS collar deployment | male dispersal behaviour | Serengeti NP |
| 3 | 2Alpha male Wild dogs,<br>female Lion | GPS collar deployment | Carnivore population Monitoring | Ruaha NP<br>Mikumi NP<br>Nyerere NP/ Selous GR |
| 4 | 3 elephants | GPS collar deployment | Movement ecology in Human-Elephant conflicts | Nachingwea, Liwale and Lindi district |
| 5 | 8 Elephants | 7 GPS collar deployment | Movement ecology in Human-Elephant conflicts | Maswa- Serengeti and Ngorongoro |
| 6 | 5 Elephants | 3 recollaring | Movement ecology | Tarangire Manyara ecosystem |

### 2.4.4 Translocation for conservation purposes

The Institute in collaboration with other conservation organisations successfully conducted capture and translocation of wildlife for conservation to various areas as detailed below;

i. A total of 28 Black rhinoceros were captured in Serengeti National Park and 10 Black Maswa and Ikorongo Game reserves for identification using ear notching and transponder; and deployment of tracking gadgets for monitoring and security.
ii. Capture and translocation of wildlife to Government zoological gardens to Mlimwa (4 giraffes, 2 Zebra, 6 Impala); to Mayamaya (10 Zebra, 10 wildebeest, 7 Thomson gazelle, 4 Bushbuck and 10 guinea fowls, 2 Ostriches) and Dar es Salaam (4 impala).
iii. Translocation of Wildlife from Makoa Farm in Kilimanjaro region to Tabora zoo (Lion, leopard, serval, wildebeest, 4 owls, velvet monkey, blue monkey, pelican, white stock, marabou stock, wild pig); to Mkomazi NP (5 elephants and 4 zebra).

### 2.4.5 Attending sick wildlife

Six wildlife species were treated as shown in Table 8.

Table 8: Sick wildlife attended

| | Wildlife species | Diagnosis/ problem | Activity | Progress | Location |
|---|---|---|---|---|---|
| 1 | Adult Male Rhino“Eddie” | Standing and walking difficulties | Translocated in the Boma for Treatment close monitoring | Poor prognosis | Ikorongo |
| 2 | Male Ostrich | Diarrhoea | Sampling and treatment | Died later, post-mortem revealed ingestion of nails | Mlimwa government Zoological Garden Dodoma |
| 3 | Male Zebra | Wire snare | Snare removal and wound dressing | Animal walked freely | Serengeti National Park |
| 4 | Female Zebra | Wire snare | Snare removal and wound dressing | Good progress | Kili Golf Arusha |
| 5 | Male Zebra | Burnt wound | Wound dressing | Good progress | Ikorongo Game reserve |
| 6 | Female Lion | Limping due to wound | Wound dressing | Good progress | Serengeti National Park |

### 2.4.6 ANIMAL RESCUE

Communities leaving close to protected areas have reported an increasing number of wildlife stuck in open water bodies. To resolve reported tragedies, the Institute conducted various rescue missions in Hai, Manyara and Mbulu Districts (Table 9).

Table 9: Wildlife rescue missions

| S/N | Month | Issue | Rescue mission | Location |
|---|---|---|---|---|
| 1 | October 2022 | 1 adult elephant was stuck in a pond | Refill the pond with stones | Enduimet |
| 2 | October 2022 | 1 Juvenile giraffe in a pond | Excavate the edges of the pond and pulled | Maji marefu |
| 3 | January 2023 | 3 adult female Elephants were stuck in a pond | Excavate the pond edges and pulled | Landilen |
| 4 | March 2023 | Four intruder cheetahs in a wildlife captive facility | Open the fence and let them free in wildlife corridor | Siha district |
| 5 | May 2023 | Infant elephant stuck in a pond | Excavate the dam edges and the elephant was taken to Tabora zoo | Mbulu DC to Tabora Zoo |

In addition, wildlife in the Nyerere National Park that were trapped during impoundment of the reservoir for Julius Nyerere Hydropower Plant were rescued as shown in Table 10.

Table 10: Translocated wildlife species

| S/N | Species | Number |
|---|---|---|
| 1 | Elephant | 1 |
| 2 | Buffalo | 24 |
| 3 | Impala | 41 |
| 4 | Dik dik | 1 |
| 5 | Zebra | 9 |
| 6 | Greater kudu | 4 |
| 7 | African civet | 1 |
| 8 | Bushbuck | 14 |
| | **Total** | **95** |

**2.5 Consultancy Services**

During the reporting period, the Institute conducted three consultancy services as follows;

i. Environmental and Social Impact Assessment of the proposed 220 kV (63km) power transmission line from Rumakali HPP in Busokelo District Council to Iganjo sub- station in Mbeya Municipality: Client-TANESCO.

ii. Environmental and Social Impact Assessment (ESIA) of the proposed 400 kV (172km) power transmission line from Ruhudji HPP to Kisada sub-station in Njombe region: Client-TANESCO.

iii. Wildlife Monitoring programme for the Kenya-Tanzania Power Interconnection Project (KTPIP). Client: AfDB and JICA.

# Chapter Three

## 3.0 Planned Activities for the Year 2023/2024

During the financial year 2023/2024, the institute plan to implement the following activities according to the Strategic Plan as follows;

i. To conduct demand driven wildlife research projects of interest to stakeholders

ii. Carry-out four wildlife censuses in different ecosystems/ Protected Areas namely Serengeti ecosystem, Tarangire-Manyara ecosystem, Countrywide hippo survey and Katavi-Rukwa Lion survey

iii. Coordinate and supervise wildlife research in the country

iv. Carry-out survey on beekeeping resources base and training on appropriate beekeeping techniques throughout the country

v. Continue with the human-wildlife conflicts research and training of mitigation measures

vi. Construction and renovation of Institute buildings

vii. Organise and convene the 14$^{th}$ TAWIRI scientific conference

viii. Increase revenue collection and improvement of ICT infrastructure

ix. Dissemination of research results to various stakeholders

# Chapter Four

## 4.0 Geneal Institutional Perfomance

## 4.1 Corporate Governance

### 4.1.1 The Board of Directors

The Board of Directors of TAWIRI consists of nine members, with the Director General as a Secretary of the Board. During the last financial year under review, the Board convened two meetings, of which one was ordinary, and one was a special meeting.

### 4.1.2 Board Commitees

The Board of Directors has three committees namely; Research Programme Committee (RPC), Administration and Finance Committee (AFC) and Audit Committee (AC). During the reporting

Table 11: Board committee meetings

| S/N | Board Committees Meetings | Number of Meetings |
|---|---|---|
| 1 | Research Programme Committee | 2 |
| 2 | Administration and Finance Committee | 1 |
| 3 | Audit Committee | 2 |
| | **Total** | **5** |

The low number of meetings during the year was due to the fact that the Board was inaugurated in the second half of the financial year (January 2023).

### 4.1.3 Management Team

The Management has 17 members as per the Institute organogram. During the reporting period, eight Management meetings, one Workers council and one workers meeting were conducted.

### 4.1.4 Strategic Corporate Documents

The Institute prepared and submitted two documents namely; TAWIRI Incentive Scheme and Client Service Charter to the Treasury Registrar (TR) for review. After incorporating the TR

inputs, the documents were submitted to the Permanent Secretary, President's Office, Public Service Management, and Good Governance for quality assurance and endorsement.

## 4.2 Staff Matters

### 4.2.1 Recruitment

The Institute continued to recruit dedicated and competent staff through competitive procedures and the provision of various capacity-building programmes and maintained its recruitment policy during the reporting period review by providing equal opportunity. This enabled the recruitment of most appropriate candidates available in the market competitively and transparently to ensure that the functions of the Institute are performed effectively.

The approved staff establishment is 350. During the reporting period, 12 staff were recruited, making a total of 123 staff compared to 108 staff during the year 2021/22, the staff sex ratio was Males 89 (72%) and Females 34 (28%).

### 4.2.2 Institute Capacity Building

During this period, several employees attended long-term and short-term training, and some were still attending studies in various Institutions. A total of 44 employees attended short courses and 6 were on study leave pursuing various courses: 4 Ph.D, 1 Msc, and 1 BSc.

## 4.3 Planning and Budgeting

The Annual Plan and Budget are prepared based on the TAWIRI Strategic Plan 2021/22-2025/26 and The Budget Act No.11 of 2015. Government Subvention which forms 80% of the total revenue has continued to finance the Institute's operations. Further, internally generated income and other income form 20% of the total revenue.

# Chapter Five

## 5.0 Achievements, Challenges and Future Plan

### 5.1 Achievements

i. Conducted nine strategic wildlife research projects and 21 donor funded projects and results results shared with stakeholders

ii. Coordinated and supervised 201 research projects in the country and increased the number of Tanzanian researchers.

iii. Amendment of the TAWIRI Act CAP 260 RE 2021

iv. Conducted four wildlife censuses and results shared with wildlife Management authorities for informed decisions.

v. Enhanced capacity of TAWIRI staff in various fields and specialisation on conservation science.

vi. Securing land for establishment of office for the Southern Highlands Wildlife Research Centre at Kihesa-Kilolo, Iringa Municipality.

vii. Innovation of renewable energy (briquettes) using invasive plants.

viii. Provided training on human-wildlife conflict mitigation measures in 26 out of 53 Districts with high incidences of wildlife conflicts.

ix. Captured and translocated wildlife in the country from one place to another for conflict mitigation and conservation purposes.

### 5.2 Challenges

i. **Inadequate funding**: The Institute only received 66% of the total approved Other Charges budget of 4.21 billion. This deficit affected the implementation of planned activities of the Institute.

ii. **Inadequate working facilities and infrastructure:** The Institute had inadequate working facilities and infrastructures such as office space, vehicles, ICT and research equipment.

iii. **Lack of TAWIRI Head office building at Njiro Arusha:** This activity was not implemented due to lack of development funds.

## 5.3 Strategies to overcome the challenges

i. To create new sources of internal revenue
ii. To write competitive grant research proposals
iii. Formation of Consultancy Bureau within TAWIRI
iv. To create a conducive staff working environment as well as retention and motivation of competent researchers

REPORT OF THE CONTROLLER AND AUDITOR GENERAL

THE UNITED REPUBLIC OF TANZANIA

NATIONAL AUDIT OFFICE

# TANZANIA WILDLIFE RESEARCH INSTITUTE

# REPORT OF THE CONTROLLER AND AUDITOR GENERAL ON THE FINANCIAL AND COMPLIANCE AUDIT FOR THE FINANCIAL YEAR ENDED 30 JUNE 2023

Controller and Auditor General,
National Audit Office,-
Audit House,
4 Ukaguzi Road,
P.O. Box 950,
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Dodoma, Tanzania.
Tel: 255 (026) 2161200,
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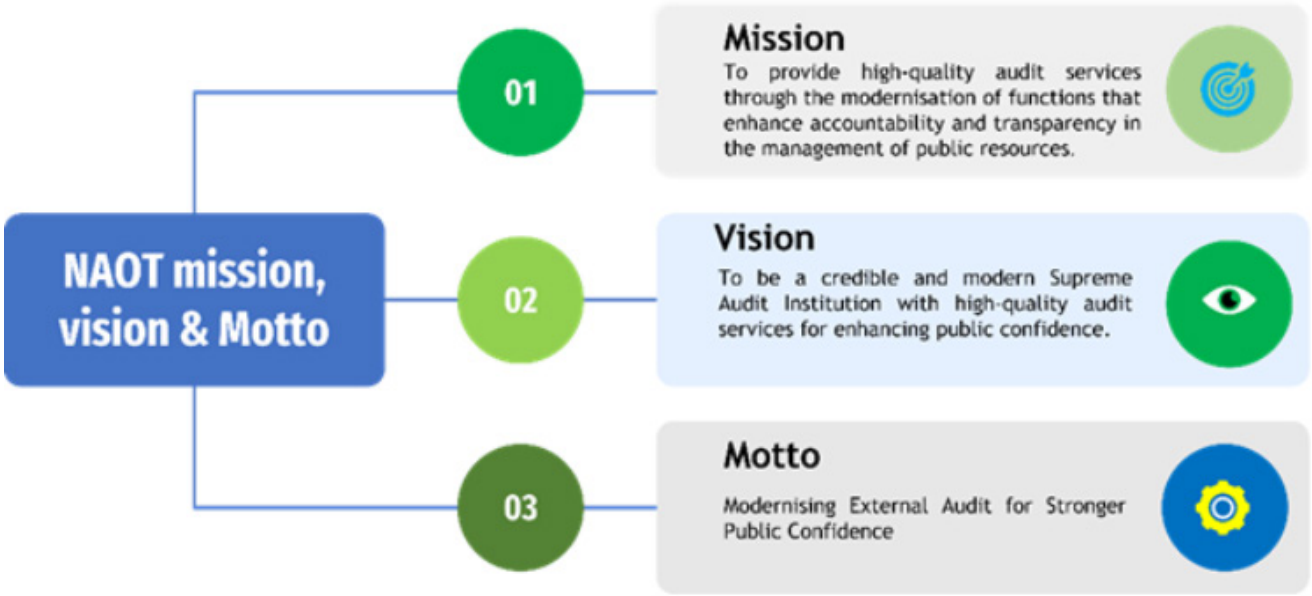
January 2024 AR/PA/TAWIRI/2022/23

## About the National Audit Office

### Mandate

The statutory mandate and responsibilities of the Controller and Auditor-General are provided for under Article 143 of the Constitution of the United Republic of Tanzania of 1977 and in Section 10 (1) of the Public Audit Act, Cap 418 [R.E 2021].




## Abbreviations

| | |
|---|---|
| CAG | Controller and Auditor General |
| HIV/AIDS | Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome |
| HQ | Head Quarter |
| ICT | Information and Communication Technology |
| IPSAS | International Public Sector Accounting Standards |
| IPSASB | International Public Sector Accounting Standards Board |
| ISSAI | International Standards of Supreme Audit Institutions |
| NAO | National Audit Office |
| NBAA | National Board of Accountants and Auditors |
| PE | Personal Emoluments |
| TAWIRI | Tanzania Wildlife Research Institute |
| TZS | Tanzania Shillings |
| URT | United Republic of Tanzania |

## 1.0 INDEPENDENT REPORT OF THE CONTROLLER AND AUDITOR GENERAL

The Chairperson of Governing Board,
Tanzania Wildlife Research Institute (TAWIRI),
206 Njiro Road,
P. O. Box 661,
23113 Lemara ARUSHA.

### 1.1 REPORT ON THE AUDIT OF FINANCIAL STATEMENTS

**Unqualified Opinion**

I have audited the financial statements of Tanzania Wildlife Research Institute (TAWIRI), which comprise the statement of financial position as at 30 June 2023, and the statement of financial performance, statement of changes in net assets and cash flow statement and the statement of comparison of budget and actual amounts for the year then ended, as well as the notes to the financial statements, including a summary of significant accounting policies.

In my opinion, the accompanying financial statements present fairly in all material respects, the financial position of Tanzania Wildlife Research Institute (TAWIRI) as at 30 June 2023, and its financial performance and its cashflows for the year then ended in accordance with International Public Sector Accounting Standards (IPSASs) Accrual basis of accounting and in the manner required by the Public Finance Act, Cap. 348.

**Basis for Opinion**

I conducted my audit in accordance with International Standards of Supreme Audit Institutions (ISSAIs). My responsibilities under those standards are further described in the below section entitled "Responsibilities of the Controller and Auditor General for the Audit of the Financial Statements". I am independent of Tanzania Wildlife Research Institute (TAWIRI) in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants (IESBA Code) together with the National Board of Accountants and Auditors (NBAA) Code of Ethics, and I have fulfilled my other ethical responsibilities in accordance with these requirements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide the basis for my opinion.

**Key Audit Matters**

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the financial statements of the current period. I have determined that there are no key audit matters to communicate in my report.

**Other Information**

Management is responsible for the other information. The other information comprises the Report of Governing Board and the Declaration by the Head of Finance but does not include

the financial statements and my audit report thereon which I obtained prior to the date of this auditor's report.

My opinion on the financial statements does not cover the other information and I do not express any form of assurance conclusion thereon. In connection with my audit of the financial statements, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work I have performed on the other information that I obtained prior to the date of this audit report, I conclude that there is no material misstatement of this other information. I have nothing to report in this regard.

**Responsibilities of Management and Those Charged with Governance for the Financial Statements**

Management is responsible for the preparation and fair presentation of the financial statements in accordance with IPSAS, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the entity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the entity's financial reporting process.

**Responsibilities of the Controller and Auditor General for the Audit of the Financial Statements**

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an audit report that includes my opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with ISSAI will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISSAIs, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.

Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my audit report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my audit report. However, future events or conditions may cause the entity to cease to continue as a going concern.

Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide those charged with governance with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, I determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. I describe these matters in my audit report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

In addition, Section 10 (2) of the Public Audit Act, Cap 418 [R.E 2021] requires me to satisfy myself that, the accounts have been prepared in accordance with the appropriate accounting standards.

Further, Section 48 (3) of the Public Procurement Act, Cap 410 [R.E 2022] requires me to state in my annual audit report whether or not the audited entity has complied with the procedures prescribed in the Procurement Act and its Regulations

## 1.2 REPORT ON COMPLIANCE WITH LEGISLATIONS

### 1.2.1Compliance with the Public Procurement laws

Subject matter: Compliance audit on procurement of works, goods, and services

I performed a compliance audit on procurement of goods, works and services in the Tanzania Wildlife Research Institute (TAWIRI) for the financial year 2022/23 as per the Public Procurement laws.

**Conclusion**

Based on the audit work performed, I state that, except for the matters described below, procurement of goods, works and services of Tanzania Wildlife Research Institute (TAWIRI) is generally in compliance with the requirements of the Public Procurement laws.

**Advance payment effected without submission of the bank guarantee/unconditional performance security**

Advance payment for TZS 356,820,511 (USD 153,141.85) were effected on 22 July 2022 for provision of service and maintenance of aircraft (5H-TWR CESSNA182) with contract awarded to Central Aviation Services Limited without submission of the bank guarantee/unconditional performance security as required by section 20 of the Special Condition of the Contract and regulation 29 of the Public Procurement Regulations, 2013 revised 2016. Further the performance bond/conditional performance security with reference number 216 dated 13 June 2022 from Phoenix Assurance was submitted by the service provider before advance payment was effected.

**Non-issuance of notices of intention to award contracts to bidders**

Notification of the intention to award contracts during the period under review were not issued for 19 tenderers for procurements worth TZS 521,587,787 as required Reg. 231 (2) of the Public Procurement Regulations, 2013 (amended 2016).

**Rejection of lowest evaluated bidders without documented justification**

The lowest evaluated bidders were rejected and award of contracts was made to six second lowest evaluated bidders for procurements totaling to TZS 127,798,166 without documented justification in the minutes of tender board meeting as required by Reg. 237 (3) of the Public Procurement Regulations, 2013 (amended 2016).

### 1.2.2 Compliance with the Budget Act and other Budget Guidelines

**Subject matter: Budget formulation and execution**

I performed a compliance audit on budget formulation and execution in the Tanzania Wildlife Research Institute for the financial year 2022/23 as per the Budget Act and other Budget Guidelines.

**Conclusion**

Based on the audit work performed, I state that Budget formulation and execution of Tanzania Wildlife Research Institute (TAWIRI) is generally in compliance with the requirements of the Budget Act and other Budget Guidelines.

Charles E. Kichere
**Controller and Auditor General,**
**Dodoma, United Republic of Tanzania.**
**January 2024**

## 2.0 FINANCIAL STATEMENTS

### REPORT OF THOSE CHARGED WITH GOVERNANCE FOR THE YEAR ENDED 30 JUNE 2023

### 2.1 INTRODUCTION

The Board of Directors has the pleasure of submitting the financial statements of the Tanzania Wildlife Research Institute (TAWIRI) for the financial year ended 30 June 2023. The financial statements which disclose the Institute's financial position as at 30 June 2023 and results of its operations for the year ended.

### 2.2 ESTABLISHMENT

TAWIRI was established by Act No. 4 of 1980 as amended by Act No. 10 of 1999 revised 2021 enacted by the Parliament of the United Republic of Tanzania.

### 2.3 OBJECTIVES, VISION AND MISSION

**The main objectives of TAWIRI are: -**

- To promote the development, improvement and protection of the wildlife industry in the United Republic;
- To carry out, and promote the carrying out of, enquiries, experiments and research in wildlife and in wildlife environment generally;
- To continue, develop and finalize all on going or projected wildlife research in the United Republic; and
- To carry out research and investigation into various aspects of wildlife for the purpose of establishing, improving or developing modern methods or techniques of wildlife and environmental conservation and the management, collection and use of wildlife and wildlife products.
- To carry out research and investigation into wildlife diseases and their causes to develop a way of preventing or controlling the occurrence of particular wildlife diseases or any category of them;
- To co-ordinate all wildlife research which is carried out within the United Republic;
- To establish and operate a system of documentation and dissemination of the findings of inquiries, experiments and research carried out by or on behalf of the Institute, or other information on wildlife acquired by the Institute;
- To undertake the collection, preparation, publication and distribution of statistics relating to wildlife, and promote and develop instruction and training in wildlife;
- In co-operation with the Government or any persons, within or outside the United Republic, to promote or provide facilities for the instruction and training of national personnel for carrying out wildlife research, and for the management of the wildlife industry;
- To advise the Government, public institutions and other persons or bodies of persons engaged in the wildlife industry in the United Republic on the practical application of the findings of inquiries, experiments and research carried out by or on behalf of the Institute;
- To assume responsibility for the control and management of the business and affairs of any Center established or deemed to have been established by or under this Act;

- To do anything or enter into any transaction which, in the opinion of the Board, is necessary or desirable for the better performance of the functions of the Institute under this Act.

**VISION**

To be a center of excellence in advising and providing scientific information on biodiversity conservation and management at national and international levels.

**MISSION**

Conducting and coordinating wildlife research and share scientific information with stakeholders for sustainable biodiversity conservation.

**2.4 MEMBERSHIP OF THE BOARD OF DIRECTORS**

The Board of Directors of the Institute consists of 10 Directors. The Board met twice during the reporting year ordinary meetings and endorsed Research Applications for financial year 2022/23, Annual Procurement Plan 2022/23 and its review, Annual and quarterly implementation Reports of Procurement Plan 2022/23, Statement of Financial Performance for 2022/23, budget and budget review of 2022/23, quarterly financial performance reports for 2022/23, Performance contracts for 2022/23, Performance contracts implementations reports for 2022/23, quarterly budget implementation reports for 2022/23, approved audited Financial Statement 2022 and endorsed seven staff to Management positions which were Acting. Also approved confirmation and promotion of employees, transfers and long-term training. Below is the list of the members of TAWIRI Board of Directors as at the date of this report.

| S/n | Name | Position | Age | Nationality | Appointed | Expire of Tenure | No of Meetings | Qualification |
|---|---|---|---|---|---|---|---|---|
| 1. | Dr. David N. Manyanza | Chairperson | 76 | Tanzanian | 18.09.2022 | 06.11.2025 | 2 | PhD. Behavioural Ecology |
| 2. | Dr. Maurus j. Msuha | Member | 56 | Tanzanian | 07.11.2022 | 06.11.2025 | 2 | PhD. Biological Anthropology |
| 3. | CC. William S. Mwakilema | Member | 59 | Tanzanian | 07.11.2022 | 06.11.2025 | 2 | MSc. Tourism Development |
| 4. | DCC. Needpeace J. Wambuya | Member | 51 | Tanzanian | 07.11.2022 | 06.11.2025 | 2 | MBA Finance and Banking |
| 5. | CC. Mabula M. Misungwi | Member | 59 | Tanzanian | 07.11.2022 | 06.11.2025 | 2 | MSc. Natural Resource Assessment and management |
| 6. | Brig. Gen (rtd) Mary B. Hiki | Member | 65 | Tanzanian | 07.11.2022 | 06.11.2025 | 2 | Dipl. Accountancy, auditing and Strategic Studies |
| 7. | Prof. Jafari R. Kideghesho | Member | 60 | Tanzanian | 07.11.2022 | 06.11.2025 | 2 | PhD. Conservation Biology |
| 8. | Dr. Amani Ngusaru | Member | 60 | Tanzanian | 07.11.2022 | 06.11.2025 | 2 | PhD. Earth Sciences |
| 9. | Adv. Mercy E. Mrutu, | Member | 52 | Tanzanian | 07.11.2022 | 06.11.2025 | 2 | LLM in ICT Law |
| 10 | Dr. Eblate E. Mjingo | Secretary | 55 | Tanzanian | 07.11.2022 | 06.11.2025 | 2 | PhD. Population Genetics and Molecular Forensic |

## Committees of the Board of Directors

There are three Committees of the Board in order to ensure high standard of corporate governance throughout the institute. The composition and responsibilities of each committee were as hereunder:

### a)Research Programmes Committee

The list of Research Programmes Committee members by the date of this report are shown below:

| S/No | Name | Position | Qualification | No of meetings | Responsibilities |
|---|---|---|---|---|---|
| 1. | Dr. Amani Ngusaru | Chairperson | PhD. Earth Sciences | 2 | Responsible for setting direction for research agenda in conducting wildlife research in the country and ensure the institute fulfils its mandate of supervision and performance of wildlife research in the country. |
| 2. | Prof. Jafari R. Kideghesho | Member | Phd. Conservation Biology | 2 | |
| 3. | Dr. Maurus J. Msuha | Member | PhD. Biological Anthropology | 2 | |
| 4 | CC. Mabula M. Misungwi | Member | MSc. Natural Resource Assessment and management | 2 | |

The Committee met twice during the year and discussed research agenda in conducting wildlife research in the country and ensure the institute fulfils its mandate of supervision and performance of wildlife research in the country. It approved Research application for financial year 2022/23.

**b) Administration and Finance Committee**

The list of Administration and Finance Committee members by the date of this report are shown below:

| S/No | Name | Position | Qualification | No of meetings | Responsibilities |
|---|---|---|---|---|---|
| 1. | DCC. Needpeace J. Wambuya | Member | MBA Finance and Banking | 2 | Responsible for all issues relating to the administration, human resources, finance and planning, budgeting and good governance |
| 2. | Adv. Mercy E. Mrutu | Member | LLM in ICT Law | 2 | |
| 3. | Dr. Eblate E. Ernest | Member | PhD. Population Genetics and Molecular Forensic | 2 | |

The Committee met twice during the year under review. During the meetings employees and Finance matters and policies were discussed. It recommended for approval of confirmation, Re-categorization, promotion of employees, transfers and long-term training.

**c) Audit Committee**

The list of Audit Committee members by the date of this report are shown below

| S/No | Name | Position | Qualification | No of meetings | Responsibilities |
|---|---|---|---|---|---|
| 1. | Brig. Gen (rtd) Mary B. Hiki | Chairperson | Dipl. Accountancy, auditing and Strategic Studies | 2 | Responsible for additional assurance regarding integrity and effectiveness of the internal controls, risk management and corporate management, approve of the internal audit strategic audit plan, review of the internal and external audit plan, provide advice to the Director General on actions to be taken on matters raised in audit reports and coordinate audit programs conducted by internal auditor and programmes conducted by Controller and Auditor General. |
| 2. | CC. William S. Mwakilema | Member | MSc. Tourism Development | 1 | |
| 3. | Mr. Eliya Hekima | Member | CPA (T) Advance Diploma in Accountancy | 2 | |

The Committee met twice during the financial year under review. During the meetings the quarterly internal audit reports were discussed which assessed internal controls, risk management, and good governance of the Institute. The committee adopted TAWIRI Audited Financial Statement for the financial year 2021/22.

**MANAGEMENT STRUCTURE**

Director General is responsible for day to day running of TAWIRI and advises the Board on the staffing needs and other resources required in undertaking TAWIRI's functions. According to the approved Organization Structure the following assists Director General:

- Director of Research Development and Coordination
- Director of Corporate Services; and
- Directors of five centre's namely Western Wildlife Research Centre, Southern Highlands Wildlife Research Centre, Kingupira Wildlife Research Centre, Serengeti Wildlife Research Centre and Njiro Wildlife Research Centre.

The institute has the following Units:

- Procurement Management Unit (PMU);
- Internal Audit Unit
- Legal Services Unit;
- Wildlife Information, Education and Public Relations Unit; and
- Information and Communication Technology and Statistics Unit.

**2.5 PRINCIPLE ACTIVITIES OF TANZANIA WILDLIFE RESEARCH INSTITUTE (TAWIRI)**

The principal activities of TAWIRI include conducting wildlife research, provision of data and information to guide the sound management of wildlife resources as well as coordinating and disseminating all research findings, data and information related to wildlife activities in Tanzania.

In executing its core functions, TAWIRI shall have due regard to: -

a. The political, economic and social aspirations of the people of the United Republic of Tanzania;
b. National and other policies being pursued by the Government;
c. The carrying out of corporate operations in conformity with principles of good governance and compliance with all statutory requirements under the laws of the United Republic of Tanzania; and
d. TAWIRI is not aligned to any political party in Tanzania.

## 2.6 SOLVENCY

The Board of Director has reviewed the current financial position of TAWIRI. On the basis of the review, the Directors are of the opinion that the Institute's financial standing with continued government, donors and stakeholders support, is sound enough to meet all maturing financial obligations.

## 2.7 EMPLOYEES WELFARE

TAWIRI has the following employees' welfare arrangements: -

**Training**

The Institute continued to provide training to its employees where necessary and if funds were available. Scholarships and self-sponsored opportunities were positively considered and permissions were granted for short and long-term training provided Institute's functions were not seriously affected.

**Medical Facilities**

Medical care continued to be provided to all staff members of the Institute. The Institute joined the National Health Insurance Fund (NHIF) in 2013 and workers started enjoying a wider spectrum of health services throughout the country.

**Financial Support**

Short-term loans, salary advances and other financial assistance were available to all employees depending on (i) assessment of the Management to the need and circumstances, (ii) availability of funds and (iii) ability to make repayment.

**Relationship between Management and Employees**

TAWIRI has a systematic procedure of communication with employees on a regular basis which is done through departments/sections meetings, management and staff meetings, as well as workers council meetings, circulars also social media networks.

**Persons with Disabilities**

It is the Institute's policy to give equal opportunities to persons with disabilities for vacancies they are able to fill. Employment with the organization is therefore non-discriminatory with one employee with disability

**Gender Equality**

It is the Institute's policy to give equal opportunities to persons of the female gender in both employment and training. Women are employed and sent for various training courses without discrimination. Out of current 127 employees, Female are 35 and Male 92.

## 2.8 CORPORATE GOVERNANCE

The Institute is committed to the highest standards of corporate governance. Its governance structure is flexible enough to adopt to changes in the internal and external environment and the Institute strives to regularly review its processes, rules and regulations and structure with a view to ensuring that its operations are carried out with due regard to economy, efficiency

and effectiveness. The Institute adheres to global standards and practices of good corporate governance.

## 2.9 ENVIRONMENT

The Institute has been taking measures to strengthen preparedness for protection of the environment and continues to observe environmental requirements in all projects undertaken to safeguarding both plants and animals.

## 2.10 HIV/AIDS POLICY

It is the policy of the Institute to equip all employees with the necessary skills in the fight against HIV/AIDS by organizing seminars on preventive measures and encouraging those suffering to seek medical advice and treatment.

## 2.11 RELATED PARTY TRANSACTIONS

Details of related party transactions during the year ended 30 June 2023 are set out in Note 25 to the financial statements.

## 2.12 FINANCIAL PERFORMANCE REVIEW

The planned operational activities and programs were fairly implemented during this financial year. The current grants, transfers and subsidies received during the year 2022/23 were TZS 1.55 billion which are higher by 22% compared to TZS 1.27 billion received in the financial year 2021/22. During the year 2022/23 the Institute recorded a surplus of TZS 44.17 million being 41% decrease compared to surplus of TZS 74.43 million realized in financial year 2021/22.

This was caused by decrease in revenues from exchange transactions and increase in wages, salaries and employees benefits due to staff promotion granted after directives issued by President of URT, new recruitment and transfers of staffs to implement the newly approved scheme of service.

## 2.13 FINANCIAL POSITION REVIEW

The Net Asset of the Institute increased from TZS 19.91 billion (2021/22) to TZS 19.95 billion (2022/23). The increase in Net Asset was due to increase of accumulated surplus from TZS.

## 2.14 STATUTORY AUDITORS

The Controller and Auditor General (CAG) is the statutory auditor of the Tanzania Wildlife Research Institute by virtue of article 143 of the Constitution of the United Republic of Tanzania of 1977 and as amplified in section. 10 of the Public Audit Act, Cap 418. However, in accordance with section 33(1) of the Act, M/s Kepler Consultant was authorized to carry out the audit of the Tanzania Wildlife Research Institute on behalf of the Controller and Auditor General for the year ended 30 June 2023.

.....
Dr. David N Manyanza
**Chairperson of the Board**

.....
Dr. Eblate E Mjingo
**Director General**

**Date**.....31-Jan-2024

## 3.0 STATEMENT OF THE BOARD OF DIRECTOR'S RESPONSIBILITY

These financial statements have been prepared by the Management of the Tanzania Wildlife Research Institute (TAWIRI) in accordance with requirement of the International Public Sector Accounting Standards (IPSAS). The Board is responsible for establishing and maintaining a system of effective internal control designed to give reasonable assurance that the transactions recorded in the accounts are within the statutory requirement and that they contain the receipts and use of resources by TAWIRI.

The Board of TAWIRI is responsible for keeping proper accounting records which at any time disclose with reasonable accuracy the financial position of the Institute and enabled them to ensure that the financial statements comply with the IPSAS. The Board is also responsible for safeguarding the assets and taking reasonable steps for the prevention and detection of fraud, error and other irregularities.

The Board confirms that suitable accounting policies have been used and applied consistently, and reasonable and prudent judgments and estimates have been made in the preparation of the financial statements for the year ended 30 June 2023. The Board also confirms that International Public Sector Accounting Standards (IPSAS) Accrual basis have been complied with and that the financial statements have been prepared on the going concern basis hence gives a true and fair view presentation of the Institute.

To the best of Board's knowledge, the internal control system has operated adequately throughout the reporting period and the accounting and underlying records provide a reasonable basis for the preparation of the financial statements for the year ended 30 June 2023. We accept responsibility for the integrity of the Financial Statements, the information they contain and their compliance with IPSAS Accrual basis.

**By order of the Board**

Chairperson of the Board

Director General

Date 31-Jan-2024

## 4.0 DECLARATION OF HEAD OF FINANCE AND ACCOUNTING UNIT

The National Board of Accountants and Auditors (NBAA) according to the power conferred under the Auditors and Accountants (Registration) Act No. 33 of 1972 and as amended by Act No 2 of 1995, require Financial Statements to be accompanied with a declaration issued by the Head of Finance and Accounting responsible for the preparation of Financial Statements of the entity concerned.

It is the duty of a Professional Accountant to assist the Board of Directors /Management to discharge the responsibility of preparing Financial Statements of an Entity showing true and fair view of the entity position and performance in accordance with applicable International Accounting Standards and statutory financial reporting requirements. Full legal responsibility for the preparation of Financial Statements rests with the Board of Directors as under Directors Responsibility statement on an earlier page.

**I, CPA Daniel W. Wirlanga,** being the Head of Finance and Accounting unit of the Tanzania Wildlife Research Institute (TAWIRI), hereby acknowledge my responsibility of ensuring that Financial Statements for the year ended 30 June 2023 have been prepared in compliance with applicable accounting standards and statutory requirements.

I thus confirm that the Financial Statements give a true and fair view position of Tanzania Wildlife Research Institute as on that date and that they have been prepared based on properly maintained records.

Signed by: .....

CPA DANIEL W. WIRLANGA

Position: CHIEF ACCOUNTANT

NBAA Membership No.: ACPA 2383

Date: 31 January 2024

## 5.0 FINANCIAL STATEMENTS

### STATEMENT OF FINANCIAL POSITION AS AT 30 JUNE 2023

| | Notes | 30 June 2023 TZS | 30 June 2022 TZS |
|---|---|---|---|
| **ASSETS** | | | |
| **Current assets** | | | |
| Cash and cash equivalents | 4 | 1,426,191,544 | 1,578,169,227 |
| Receivables | 5 | 104,112,283 | 310,568,001 |
| Prepayments | 6 | 35,990,972 | 445,565,065 |
| **Total Current assets** | | **1,566,294,799** | **2,334,302,293** |
| **Non-Current assets** | | | |
| Property, plant and equipment | 3 | 19,617,809,596 | 19,212,811,812 |
| **Total Non-Current assets** | | **19,617,809,596** | **19,212,811,812** |
| **TOTAL ASSETS** | | **21,184,104,395** | **21,547,114,105** |
| **LIABILITIES** | | | |
| **Current liabilities** | | | |
| Payables | 7 | 230,770,923 | 166,498,592 |
| Deferred Revenue Government Grant | 8 | 245,776,297 | 787,300,000 |
| Deferred Revenue Development Partner Grant | 9 | 752,999,565 | 682,927,191 |
| **TOTAL LIABILITIES** | | **1,229,546,785** | **1,636,725,783** |
| **NET ASSETS** | | **19,954,557,610** | **19,910,388,322** |
| **NET ASSETS/EQUITY** | | | |
| Capital Contributed by Taxpayers Fund | | 18,301,089,618 | 18,301,089,618 |
| Accumulated Surplus | | 1,653,467,992 | 1,609,298,704 |
| | | **19,954,557,610** | **19,910,388,322** |

The financial statements were authorised for use by the Board of Directors and signed on its behalf by

Dr. David N Manyanza
Chairperson of the Board

DATE 31:01:24

Dr. Eblate E Mjingo
Director General

DATE 31-Jan-2024

## STATEMENT OF FINANCIAL PERFORMANCE FOR THE YEAR ENDED 30 JUNE 2023

| | Notes | 30 June 2023 TZS | 30 June 2022 TZS |
|---|---|---|---|
| **REVENUE** | | | |
| **REVENUE FROM NON EXCHANGE OF TRANSACTIONS:** | | | |
| Subvention from Other Government Entities | 8 | 6,409,343,485 | 5,745,370,421 |
| Grants received from third parties | 9 | 1,481,038,479 | 1,832,974,411 |
| **REVENUE FROM EXCHANGE OF TRANSACTIONS:** | | | |
| Research Fees and Consultancy | 10 | 1,054,672,867 | 1,402,794,923 |
| Bee Product sales | 11 | 144,345,000 | 174,837,504 |
| Rental Income | 12 | 222,073,340 | 197,864,700 |
| Other revenue | 13 | - | 58,012,800 |
| **Total Revenue** | | **9,311,473,171** | **9,411,854,759** |
| **Expenses** | | | |
| Wages, salaries and employee benefits | 14 | 3,401,367,015 | 3,154,646,771 |
| Supplies, Services and consumables used | 15 | 5,342,524,221 | 5,658,860,565 |
| Depreciation of property, plant and equipment | 3 | 523,340,647 | 522,005,469 |
| Finance costs | 19 | 72,000 | 1,910,586 |
| **Total Expenses** | | **9,267,303,883** | **9,337,423,391** |
| **Surplus during the year** | | **44,169,288** | **74,431,368** |

The financial statements were authorised for use by the Board of Directors and signed on its behalf by

Dr. David N Manyanza
Chairperson of the Board

Dr. Eblate E Mjingo
Director General

DATE 31.01.24

## STATEMENT OF CHANGES IN NET ASSETS FOR THE YEAR ENDED 30 JUNE 2023

| | Taxpayers Fund | Accumulated Surplus | Total |
|---|---|---|---|
| | TZS | TZS | TZS |
| At 01 July 2022 | 18,301,089,618 | 1,609,298,704 | 19,910,388,322 |
| Surplus during the year | - | 44,169,288 | 44,169,288 |
| **At 30 June 2023** | **18,301,089,618** | **1,653,467,992** | **19,954,557,610** |
| | | | |
| At 01 July 2021 | 18,301,089,618 | 1,276,247,868 | 19,577,337,486 |
| Adjustments | - | 258,619,468 | 258,619,468 |
| Restated as at 01 July 2021 | 18,301,089,618 | 1,534,867,336 | 19,835,956,954 |
| Surplus during the year | - | 74,431,368 | 74,431,368 |
| **At 30 June 2022** | **18,301,089,618** | **1,609,298,704** | **19,910,388,322** |

The financial statements were authorised for use by the Board of Directors and signed on its behalf by

Dr. David N Manyanza
Chairperson of the Board

Dr. Eblate E Mjingo
Director General

DATE 31.01.24

## CASHFLOW STATEMENT FOR THE YEAR ENDED 30 JUNE 2023

| | Notes | 30 June 2023 TZS | 30 June 2022 TZS |
|---|---|---|---|
| **Cash flows from operating activities** | | | |
| **Receipts** | | | |
| Subvention from Other Government Entities | 8 | 5,867,819,782 | 6,532,670,421 |
| Grants received from third parties | 9 | 1,551,110,853 | 1,269,147,707 |
| Revenue from exchange transactions | 16 | 1,640,023,175 | 1,638,753,325 |
| **Total Receipts** | | **9,058,953,810** | **9,440,571,453** |
| **Payments** | | | |
| Wages, salaries and employee benefits | 17 | 3,395,246,901 | 3,223,965,836 |
| Supplies and consumables used | 18 | 4,887,274,161 | 6,048,627,794 |
| Finance costs | 19 | 72,000 | 1,910,586 |
| **Total Payments** | | **8,282,593,062** | **9,274,504,216** |
| **Adjustments for** | | | |
| **Net cash flows from operating activities** | 26 | **776,360,748** | **166,067,237** |
| **Cash flows from investing activities** | | | |
| Acquisition of property, plant, and equipment | 3 | (1,603,475,295) | (753,607,983) |
| Transfer of Work in Progress to Building | 3 | 405,799,038 | - |
| Cost of Building Demolished | 3 | 312,793,700 | - |
| Accumulated Depreciation of Building Demolished | 3 | (43,455,874) | - |
| **Net cash from investing activities** | | **(928,338,431)** | **(753,607,983)** |
| **Net increase in cash and cash equivalents** | | **(151,977,683)** | **(587,540,746)** |
| **Cash and cash equivalents at beginning of period** | | **1,578,169,227** | **2,165,709,973** |
| **Cash and cash equivalents at end of period** | 4 | **1,426,191,544** | **1,578,169,227** |

The financial statements were authorised for use by the Board of Director and signed on its behalf by

Dr. David N Manyanza
Chairperson of the Board

Dr. Eblate E Mjingo
Director General

DATE 31:01:24

## STATEMENT OF COMPARISON OF BUDGET AND ACTUAL AMOUNTS FOR THE YEAR ENDED 30 JUNE 2023

**(Budget Prepared on Cash Basis)**

| Descriptions | Original Budget {A} | Final Budget {B} | Actual on Comparable Basis {C} | Difference {C-B} | Percentage |
|---|---|---|---|---|---|
| | TZS | TZS | TZS | TZS | % |
| **Receipts** | | | | | |
| Current grants, transfers and subsidies received | 9,461,039,624 | 6,490,308,664 | 5,867,819,782 | (622,488,882) | (10)% |
| Revenue from exchange transactions | 2,000,000,000 | 1,975,000,000 | 1,640,023,175 | (334,976,826) | (17)% |
| Grants received | 2,000,000,000 | 2,000,000,000 | 1,551,110,853 | (448,889,147) | (22)% |
| **Total Receipts** | **13,461,039,624** | **10,465,308,664** | **9,058,953,810** | **(1,406,354,855)** | (13)% |
| **Payments** | | | | | |
| Wages, salaries and employee benefits | 2,885,316,000 | 2,275,092,664 | 3,395,246,901 | (1,120,154,237) | (49)% |
| Supplies, and consumables used | 6,515,126,000 | 6,515,126,000 | 4,887,274,161 | 1,627,851,839 | 25% |
| Finance Cost | 500,000 | 500,000 | 72,000 | 428,000 | 86% |
| **Total Payments** | **9,400,942,000** | **8,790,718,664** | **8,282,593,062** | **508,125,602** | 6% |
| **Net cash flow from/(used) in operating activities** | 4,060,097,624 | 1,674,590,000 | 776,360,748 | 898,229,252 | 54% |
| **Cash flow from investing activities** | | | | | |
| Acquisition of property and equipment | (3,508,921,300) | (3,508,921,300) | (1,603,475,295) | 1,905,446,005 | 54% |
| Transfer of WIP to Building | - | 405,799,038 | 405,799,038 | - | - |
| Cost of Building Demolished | - | 312,793,700 | 312,793,700 | - | - |
| Acc. Depreciation of Building Demolished | - | (43,455,874) | (43,455,874) | - | - |
| **Net cash flow from investing activities** | **(3,508,921,300)** | **(2,833,784,436)** | **(928,338,431)** | **1,905,446,005** | **(67)%** |
| **Net increase/(decrease) in cash and cash equivalents** | **551,176,324** | **(1,159,194,436)** | **(151,977,683)** | **1,007,216,753** | |
| **Cash and cash equivalents at beginning of period** | **1,159,533,075** | **2,222,692,341** | **1,578,169,227** | **(644,523,114)** | |
| **Cash and cash equivalents at end of period** | **1,710,709,399** | **1,063,497,905** | **1,426,191,544** | **326,693,638** | |

Explanation of material differences between Budget and Actual amounts for the year 2022/23 are in Note 31.

## NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2023

### 1.0 GENERAL INFORMATION

Tanzania Wildlife Research Institute (TAWIRI) was established by Act No. 4 of 1980, as amended by Act No. 10 of 1999 revised 2021 enacted by the Parliament of the United Republic of Tanzania. TAWIRI is a Public Corporation domiciled in Njiro, Arusha. The address of the registered office is P. O. Box 661, Arusha. Tanzania.

The overall managerial responsibility of TAWIRI is vested in a Board of Directors while the day to day operations are looked after by the Director General. TAWIRI is under the parental care of the Ministry of Natural Resources and Tourism.

### 2.0 PRINCIPAL ACCOUNTING POLICIES

The principal accounting policies applied in the preparation of these financial statements are set out below. These policies have been consistently applied year after year.

### 2.1 Basis of Preparation

The financial statements have been prepared under the historical cost convention. No adjustments have been made for inflationary factors affecting the financial statements. The preparation of financial statements in conformity with International Public Sector Accounting Standards (IPSASs) Accrual basis requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the Institute's accounting policies. The areas involving a higher degree of judgement or complexity or areas where assumptions and estimates are significant to the financial statements are separately disclosed in a note.

### 2.2 Compliance with International Public Sector Accounting Standards

The financial statements for the year ended 30 June 2023 and the comparative figures for the previous year have been prepared in accordance with International Public Sector Accounting Standards (IPSASs) Accrual basis. TAWIRI adopted IPSASs in the financial year ended 30 June 2015 with transition date being 1 July 2014.

### 2.3 Foreign Currency Translations

Functional and Presentation Currency

Items included in the financial statements are measured in Tanzanian shilling, which is TAWIRI's functional and presentation currency.

**Transactions and Balances**

Foreign currency transactions are translated into Tanzania Shilling, the functional currency using the exchange rates prevailing at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies

are recognized in the Statement of Comprehensive Income. Translation differences on non-monetary items, such as equities classified as available for-sale financial assets, are included in the fair value reserve in equity.

**2.4 Revenue Recognition**

Revenue comprises of fair value of government subvention, amortization of capital grants, consultancy fees/testing fees, rental income and miscellaneous income, net of Value Added Tax (VAT), rebates and discounts. Sale of services including consultancy fees, rental income and sample testing fees are recognized in the accounting period in which the services are rendered, by reference to completion of the specific transaction assessed on the basis of the actual service provided as a proportion of the total services to be provided. Government subvention received to finance re-current expenditure, are credited to the Statement of Comprehensive Income.

**2.5 Impairment of Assets**

Assets that have an indefinite useful life are not subject to amortization and are tested annually for impairment. Assets that are subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's fair value exceeds its recoverable amount. The recoverable amount is the higher of assets fair value less costs to sell and value in use.

**2.6 Capital Grants**

Capital grants received in form of property, plant and equipment or funds whose primary condition is that TAWIRI should purchase, construct or otherwise acquire long term assets, are retained as assets by debiting respective asset account and crediting Capital Grants account.

**2.7 Income Related Grants**

Funds from the Government, donors and stakeholders for meeting costs and expenses are credited to deferred income on cash basis of accounting and recognized as income for the amount used to acquire asset.

**2.8 Trade Receivables**

Trade receivables are carried at original invoice amount less provision for doubtful receivables based on a review of all outstanding amounts at the year end. Bad debts are written off when identified.

**2.9 Property, Plant and Equipment**

**2.9.1 Measurement**

Property, plant, and equipment are stated at cost less accumulated depreciation and any accumulated impairment losses. The cost of self-constructed assets includes the cost

of materials, direct labour, the initial estimate, where relevant, they are located, and an appropriate proportion of overheads. Certain items of property, plant and equipment that had been revalued to fair value on or prior to 1 July 2015, the date of transition to IPSAS's, are measured on the basis of deemed cost, being the revalued amount as at the date of revaluation. Property that is being constructed or developed for future use as investment property is classified as property, plant and equipment and stated at cost until construction or development is complete, at which time it is reclassified as investment property. Where parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items of property, plant and equipment.

### 2.9.2 Subsequent Costs

Subsequent costs (major renovation costs) are included in the asset's carrying amount or are recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Institute and the cost of the item can be measured reliably. All other repairs and maintenance are charged to the Statement of Comprehensive Income during the financial year in which they are incurred.

### 2.9.3 Depreciation

Land is not depreciated. Depreciation on buildings, motor vehicles furniture and equipment is calculated using a straight-line method to reduce the cost of each asset to its residual value over its estimated useful life at a given rate per annum as shown below:

| Description | Estimated Useful Life (Years) | Annual Depreciation Rate (%) |
|---|---|---|
| Buildings | 50 | 2.00 |
| Plant and Machinery | 15 | 6.67 |
| Marine vessel | 25 | 4.00 |
| Aircraft | 20 | 5.00 |
| Motor Vehicle | 5 | 20.00 |
| Furniture and Fixtures | 10 | 10.00 |
| Office Equipment | 4 | 25.00 |
| Laboratory Equipment | 10 | 10.00 |

Depreciation of an asset begins when it is available for use; that is, when it is in the location and condition necessary for it to be capable of operating in the manner intended by the Management. Depreciation of an asset ceases at the earlier of the date that the asset is classified as held for sale and the date that the asset is derecognized.

The asset's residual value and useful lives are reviewed, and adjusted if appropriate, at each reporting date. In practice, the residual values of assets are insignificant and therefore, immaterial in calculation of the depreciable amount.

An asset's carrying amount is written down immediately to its recoverable amount if it is greater than its estimated recoverable amount. The recoverable amount is the higher of the asset's fair value less costs to sell and value in use.

Gains and losses on disposals are determined by comparing proceeds with carrying amount. These are included in the Statement of Comprehensive Income.

### 2.10 Tools and other minor assets

Expenditure on tools and other minor assets such as capital stores are written off during the year of acquisition. However, they are recorded in memoranda registers and controlled through annual stocktaking.

### 2.11 Research and Development Costs

Research expenditure is recognized as an expense as incurred. Costs incurred on development projects (relating to the design and testing of new or improved products/services) are recognized as intangible assets when it is probable that the project will be a success, considering its commercial and technological feasibility, and costs can be measured reliably. Other development expenditures are recognized as an expense as incurred. Development costs previously recognized as an expense are not recognized as an asset in a subsequent period. Development costs that have a finite useful life and that have been capitalized are amortized from the commencement of the commercial production of the product on a straight-line basis over the period of its expected benefit, not exceeding five years.

### 2.12 Employees Benefits

**Retirement Benefit Obligation**

Employees of TAWIRI are members of Public Sector Social Security Fund (PSSSF) and the employees' and employer's contributions to the funds based on monthly basic salaries are as follows:

| Name of the Fund | Employee's contribution (%) | Employer's contribution (%) |
|---|---|---|
| Public Sector Social Security Fund (PSSSF) | 5 | 15 |

The employer's contribution amount is charged to the Statement of Comprehensive Income when due. During the year under audit nothing was charged because employer's contributions were remitted direct to the respective security funds by the Treasurer. TAWIRI has no legal or constructive obligations to pay further contributions if the Fund has no sufficient assets to pay all employees benefits relevant to employees' service in the current and prior periods.

**Other Long Term Employees Benefits**

Entitlements to annual leave are recognized when they accrue to employees. Provision is made for the estimated liability in respect of annual leave accrued on reporting date. Liability on long term employee's benefits, such as endowment scheme benefits, long service awards and gratuity, is provided in the financial statements based on past service cost on a straight-line basis over the average period until the benefit becomes payable.

**Termination Benefits**

Termination Benefits are payable when employment is terminated before the normal retirement date or whenever an employee accepts voluntary redundancy in exchange for these benefits. TAWIRI recognizes these termination benefits when it is demonstrably committed to either terminate the employment of current employees according to a detailed formal plan without possibility of withdrawal, or providing termination benefits as a result of an offer made to encourage voluntary redundancy. Benefits falling due more than 12 months after the reporting date are discounted to present value.

**2.13 Cash and Cash Equivalents**

For the purpose of the statement of cash flows, cash and cash equivalents comprise of balances less than three months' maturity from the date of acquisition, including cash and non-restricted balances with banks, treasury bills and other eligible bills, and short-term Government securities.

**2.14 Provisions**

Provisions are recognized when TAWIRI has a present legal or constructive obligation as a result of past events; it is more likely that an outflow of resources will be required to settle the obligation; and the amount has been reliably estimated.

**2.15 Trade and Other Payables**

Liabilities for trade and other amounts payable are carried at cost which is fair value of the consideration to be paid in future for goods and services received, whether or not billed to the Institute.

## 3.0 PROPERTY, PLANT AND EQUIPMENT

| Asset | Land | Buildings - Office | Equipment - Computers, servers and Photocopiers | Equipment - Scientific | Furniture and fittings - Office | Helicopters Plane and Aircraft | Motor vehicles, Vans and trucks | Plant and Machinery | Ships, Boat, Panton and Water craft | Work in Progress | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | TZS | TZS | TZS | TZS | TZS | TZS | TZS | TZS | TZS | TZS | TZS |
| Cost | | | | | | | | | | | |
| As at 01 July 2021 | 11,752,000,000 | 6,575,452,571 | 361,520,913 | 90,545,000 | 233,320,491 | 115,000,000 | 1,997,560,380 | 121,467,627 | 12,000,000 | - | 21,258,866,982 |
| Additions Monetary | | 189,413,163 | 92,115,955 | - | 66,279,827 | - | - | - | - | 405,799,038 | 753,607,983 |
| As at 30 June 2022 | 11,752,000,000 | 6,764,865,734 | 453,636,868 | 90,545,000 | 299,600,318 | 115,000,000 | 1,997,560,380 | 121,467,627 | 12,000,000 | 405,799,038 | 22,012,474,965 |
| Additions | - | 528,989,079 | 78,823,919 | 72,793,120 | 36,502,256 | 585,462,921 | 300,904,000 | - | - | - | 1,603,475,295 |
| Transfer to Building | | - | - | - | - | - | - | - | - | (405,799,038) | (405,799,038) |
| Disposal* | - | (312,793,700) | - | - | - | - | - | - | - | - | (312,793,700) |
| As at 30 June 2023 | 11,752,000,000 | 6,981,061,113 | 532,460,787 | 163,338,120 | 336,102,574 | 700,462,921 | 2,298,464,380 | 121,467,627 | 12,000,000 | - | 22,897,357,522 |
| | | | | | | | | | | | |
| Depreciation and Impairment: | | | | | | | | | | | |
| As at 01 July 2021 | - | 653,381,905 | 262,603,437 | 51,356,167 | 108,438,852 | 63,250,000 | 1,092,724,121 | 43,023,202 | 2,880,000 | - | 2,277,657,684 |
| Depreciation charge for the year | - | 135,297,167 | 59,803,732 | 17,852,500 | 25,163,898 | 5,750,000 | 269,556,888 | 8,101,284 | 480,000 | - | 522,005,469 |
| As at 30 June 2022 | - | 788,679,072 | 322,407,169 | 69,208,667 | 133,602,750 | 69,000,000 | 1,362,281,009 | 51,124,486 | 3,360,000 | - | 2,799,663,153 |
| Depreciation charge for the year | - | 139,391,221 | 66,855,941 | 12,303,850 | 31,307,464 | 5,750,000 | 259,150,281 | 8,101,890 | 480,000 | - | 523,340,647 |
| Disposal* | - | (43,455,874) | - | - | - | - | - | - | - | - | (43,455,874) |
| As at 30 June 2023 | - | 884,614,419 | 389,263,110 | 81,512,517 | 164,910,214 | 74,750,000 | 1,621,431,290 | 59,226,376 | 3,840,000 | - | 3,279,547,926 |
| Net book value | | | | | | | | | | | |
| As at 30 June 2023 | 11,752,000,000 | 6,096,446,694 | 143,197,677 | 81,825,603 | 171,192,360 | 625,712,921 | 677,033,090 | 62,241,251 | 8,160,000 | - | 19,617,809,596 |
| As at 30 June 2022 | 11,752,000,000 | 5,976,186,662 | 131,229,699 | 21,336,333 | 165,997,568 | 46,000,000 | 635,279,371 | 70,343,141 | 8,640,000 | 405,799,038 | 19,212,811,812 |

Disposal* - TAWIRI received letter of approval from Ministry of Finance and planning dated 24th June 2022 with reference number KA.54/233/01/78 for the demolition of three dilapidated buildings located at Plot no.213 Block 'A' Njiro Arusha which comprised of TAWIRI Administration building and two senior staff quarters with total costs of TZS 312,793,700 and accumulated depreciation of TZS 43,455,874 by the date demolition of the building was performed.

| | | 30 June 2023 | 30 June 2022 |
|---|---|---|---|
| | | TZS | TZS |
| 4 | **CASH AND CASH EQUIVALENT** | | |
| | **Cash with Government Bank** | | |
| | BOT TZS Bank Account | 39,710,702 | 56,473,750 |
| | BOT USD Bank Account | 1,352,350,853 | 1,008,218,465 |
| | **Cash with Non-Government Bank** | | |
| | NBC TZS Bank Account-HQ | 100,000 | 700,000 |
| | NMB TZS Bank Account - REGROW | - | 141,058,333 |
| | NBC USD Bank Account - HQ | 17,090,550 | 34,617 |
| | CRDB TZS Bank Account | 140,000 | - |
| | CRDB USD Bank Account | 9,189,919 | - |
| | NMB TZS Bank Account - Expenditure | 7,609,520 | 371,684,062 |
| | **TOTAL** | **1,426,191,544** | **1,578,169,227** |
| 5 | **RECEIVABLES** | | |
| | Rent receivables (Wake Forest Project) | 8,388,000 | 29,106,000 |
| | Rent receivables (Biocomplexity Project) | - | 8,316,001 |
| | Rent receivables (NTNU Project) | - | 16,632,000 |
| | Rent receivables (Carnivore Project) | - | 12,474,000 |
| | Rent receivables (Cheetah Project) | - | 8,316,000 |
| | Rent receivable (Biodiversity Project) | 28,309,500 | 30,492,000 |
| | Rent receivable (Bamprass Project) | 37,280,000 | 37,422,000 |
| | Rent receivable (Hyena Project) | - | 13,513,500 |
| | Rent receivables (Prime Regional Supplies) | - | 2,079,000 |
| | Rent receivables (Yale University) | 10,199,750 | 33,957,000 |
| | Rent receivables (United State Aviation) | - | 346,500 |
| | Rent receivables (Cocoon) | 5,592,000 | - |
| | Imprest Receivables | 14,343,033 | 117,914,000 |
| | **TOTAL** | **104,112,283** | **310,568,001** |
| 6 | **PREPAYMENTS** | | |
| | Prepaid Avigas (PUMA) | 12,430,236 | 40,291,355 |
| | Prepaid Fuel (GPSA) | 23,560,736 | 41,369,709 |
| | Prepaid Aircraft Lease (State Aviation) | - | 63,000,000 |
| | Prepaid Motorvehivles (GPSA) | - | 300,904,001 |
| | **TOTAL** | **35,990,972** | **445,565,065** |

The amount for the current year of TZS 35,990,972 represents advance payment for purchase of Avigas from PUMA Energy (T) Ltd for TZS 12,430,236 and purchase of fuel from Government Procurement Service Agency (GPSA) for TZS 23,560,736 and amount for the prior year of TZS 445,565,065 represents advance payment for purchase of Avigas from PUMA Energy (T) Ltd for TZS 40,291,55, purchase of fuel from Government Procurement Service Agency (GPSA) for TZS 41,369,709, Aircraft Lease from State Aviation for TZS 63,000,000 and purchase of Motor vehicles from Government Procurement Service Agency (GPSA) for TZS 300,904,001.

| | | 30 June 2023 | 30 June 2022 |
|---|---|---|---|
| | | TZS | TZS |
| 7 | **PAYABLES** | | |
| | Trade Payables | 72,448,470 | 31,912,955 |
| | Audit fees payable | 84,525,760 | 84,525,760 |
| | Payroll Payables | 48,210,491 | 42,090,377 |
| | Withholding tax payables | 5,140,452 | - |
| | House rent Advances | 20,445,750 | 7,969,500 |
| | **TOTAL** | **230,770,923** | **166,498,592** |
| 8 | **SUBVENTIONS FROM OTHER GOVERNMENT ENTITIES** | | |
| | At the beginning of the year | 787,300,000 | - |
| | Other Charges (OC) | 2,774,957,949 | 3,678,282,080 |
| | Salaries from Ministry (PE) | 2,357,257,913 | 2,212,352,000 |
| | Stake holders Contributions | 735,603,920 | 642,036,341 |
| | **Subvention received during the year** | **5,867,819,782** | **6,532,670,421** |
| | **Total** | **6,655,119,782** | **6,532,670,421** |
| | Less: Transfer to Capital Grant | - | - |
| | **Amount utilized during the year** | **6,409,343,485** | **5,745,370,421** |
| | **Balance at year end** | **245,776,297** | **787,300,000** |
| 9 | **GRANTS, TRANSFERS AND SUBSIDIES RECEIVED FROM PRIVATE ENTITIES** | | |
| | At the beginning of the year | 682,927,191 | 1,246,753,895 |
| | Donor Funded Projects | 1,551,110,853 | 1,269,147,707 |
| | **Grants, transfers and subsidies received** | **1,551,110,853** | **1,269,147,707** |
| | **Total** | **2,234,038,044** | **2,515,901,602** |
| | **Amount utilized during the year** | **(1,481,038,479)** | **(1,832,974,411)** |
| | **Deferred Revenue Income** | **752,999,565** | **682,927,191** |

The amounts of grants received during the year was purposely for the implementation of various wildlife research project activities and not otherwise for the period within one year to five years. The amount for the current year of TZS 1,551,110,853 comprised of TZS 372,266,605 represents capital expenditures and TZS 1,178,844,249 as revenues expenditures and amount for the prior year of TZS 1,269,147 comprised of TZS 753,607,983 represents capital expenditures and TZS 515,539,724 as revenues expenditures.

| | | 30 June 2023 | 30 June 2022 |
|---|---|---|---|
| | | TZS | TZS |
| 10 | **RESEARCH FEES AND CONSULTANCY** | | |
| | Consultancy fees | 196,790,886 | 351,870,431 |
| | Research fees | 857,881,981 | 570,798,409 |
| | Scientific Conference fees | - | 480,126,083 |
| | TOTAL | 1,054,672,867 | 1,402,794,923 |
| 11 | **BEE PRODUCT SALES** | | |
| | Bee Product income | 144,345,000 | 174,837,504 |
| | TOTAL | 144,345,000 | 174,837,504 |
| 12 | **RENTAL INCOME** | | |
| | Rest house | 7,293,590 | 11,659,200 |
| | Workshop rent | 4,800,000 | 3,600,000 |
| | House rent | 182,019,750 | 161,815,500 |
| | Fuel Station rent | 27,960,000 | 20,790,000 |
| | TOTAL | 222,073,340 | 197,864,700 |
| 13 | **OTHER INCOME** | | |
| | Miscellaneous Income | - | 58,012,800 |
| | TOTAL | - | 58,012,800 |
| 14 | **WAGES, SALARIES AND EMPLOYEE BENEFITS** | | |
| | Salaries and Wages | 2,400,154,414 | 2,235,137,000 |
| | Medical and Staff Welfare | 979,955,601 | 889,620,268 |
| | Transfer/Recruitment Expenses | 21,257,000 | 29,889,503 |
| | TOTAL | 3,401,367,015 | 3,154,646,771 |
| 15 | **SUPPLIES, SERVICES AND CONSUMABLE USED** | | |
| | Office Consumables (papers, pencils, pens and stationaries) | 138,960,459 | 49,852,967 |
| | Computer Supplies and Accessories | 2,624,500 | 16,852,360 |
| | Printing and Photocopy paper | 5,570,000 | 30,554,402 |
| | Food and Refreshment | 19,325,840 | 4,000,000 |
| | Statutory Contributions | - | 121,500 |
| | Outsourcing Costs (includes cleaning and security services) | 130,518,000 | 100,728,850 |
| | Cleaning Supplies | 1,448,396 | 1,230,000 |
| | Electricity | 23,000,000 | 22,080,000 |
| | Water Charges | 4,729,944 | 5,903,992 |
| | Diesel | 470,580,805 | 397,012,720 |
| | Jet A-1/Aviation kerosene | 41,369,709 | 2,554,074 |
| | Aviation gas/spirit | 80,581,183 | 90,154,515 |

| | | | |
|---|---|---|---|
| | Drugs and Medicines | - | 46,242,000 |
| | Consumable Medical Supplies | 1,760,000 | 1,045,000 |
| | Special Foods (diet food) | 1,200,000 | - |
| | Uniforms and Ceremonial Dresses | 11,738,000 | 27,359,844 |
| | Protective Clothing, footwear and gears | 1,400,000 | - |
| | Conference Facilities | 1,678,552 | 81,789,835 |
| | Accommodation | 2,400,000 | 983,544 |
| | Tuition Fees | - | 17,931,500 |
| | Remuneration of Instructors | 19,377,826 | - |
| | Research and Dissertation | 132,076,698 | 132,958,602 |
| | Upkeep Allowances | - | 87,474,820 |
| | Air Travel Tickets | 60,122,300 | 43,773,507 |
| | Per Diem - Domestic | 2,175,079,589 | 2,462,215,353 |
| | Per Diem - Foreign | - | 4,120,000 |
| | Census | 190,101,550 | 56,721,500 |
| | Internet and Email connections | 92,087,020 | 62,942,632 |
| | Posts and Telegraphs | 1,002,750 | 356,000 |
| | Courier Services | - | 110,000 |
| | Wire, Wireless, Telephone, Telex Services and Facsimile | 600,000 | - |
| | Telephone Charges (Land Lines) | - | 4,155,000 |
| | Subscription Fees | 34,888,416 | 5,067,750 |
| | News Services Fees | 300,000 | - |
| | Technical Service Fees | 18,869,630 | 56,382,851 |
| | Technical Materials | - | 97,672,951 |
| | Special Needs material and supplies | 208,836,605 | 195,670,916 |
| | Laboratory small non-durable equipment | 36,150,380 | 12,552,250 |
| | Food and Refreshments | 135,926,438 | 172,457,906 |
| | Entertainment | 12,017,000 | 37,800,388 |
| | Gifts and Prizes | 19,640,000 | 10,571,740 |
| | Veterinary Drugs and Medicine | 30,008,100 | 35,826,750 |
| | Advertising and publication | 14,038,710 | 12,719,041 |
| | Outsource Maintenance Contract Services | 155,643,061 | 124,678,270 |
| | Motor Vehicles and Water Craft | 147,099,348 | 135,422,756 |
| | Tyres and Batteries | 19,378,272 | 49,314,907 |
| | Spare Parts | - | 36,969,126 |
| | Mechanical, electrical, and electronic spare parts | - | 194,000 |
| | Computers, printers, scanners, and other computer related equipment | 629,900 | 23,697,368 |
| | Air conditioners | - | 3,385,348 |
| | Survey Aircraft | 220,102,920 | 464,935,064 |
| | Audit Fees | 84,525,760 | 84,525,760 |
| | Legal Fees | 3,166,010 | 726,760 |
| | Consultancy Fees | 19,445,125 | 204,468,082 |
| | Audit Supervision Expenses | 15,000,000 | 15,250,000 |
| | Registration Fees | 950,000 | 6,488,550 |
| | Honorariums (expert opinion) | 2,720,000 | 21,750,000 |
| | Sundry Expenses | 2,929,028 | 2,510,000 |
| | Insurance Expenses | 53,377,561 | 19,236,514 |
| | Burial Expenses | 900,000 | 5,361,000 |
| | Building Demolition Costs | 20,000,000 | - |
| | Loss on Disposal of Building Demolished | 269,337,826 | - |

| | | | |
|---|---|---|---|
| | Land Rent Expenses | 16,414,600 | - |
| | Training Aids | 7,200,000 | - |
| | Schools Laboratory Supplies | 14,682,600 | - |
| | Navigation Equipment (flight calibrations, signalling and beacons) | 30,113,810 | - |
| | Director's Fee | 53,900,000 | - |
| | Contribution to CF (15%) | 85,000,000 | 72,000,000 |
| | **TOTAL** | **5,342,524,221** | **5,658,860,565** |
| **16** | **REVENUE FROM EXCHANGE OF TRANSACTION ON CASHFLOW** | | |
| | Income Receivables at beginning of year | 310,568,001 | 134,394,569 |
| | House Rent Advances at beginning of year | (7,969,500) | (26,552,670) |
| | Revenue from Exchange Transactions | 1,421,091,207 | 1,833,509,927 |
| | | **1,723,689,708** | **1,941,351,826** |
| | Income Receivables at end of year | (104,112,283) | (310,568,001) |
| | House Rent Advances at end of year | 20,445,750 | 7,969,500 |
| | **TOTAL** | **1,640,023,175** | **1,638,753,325** |
| **17** | **WAGES, SALARIES AND EMPLOYMENT BENEFIT PAID** | | |
| | Payable Expense b/d | 42,090,377 | 111,409,442 |
| | **Net** | **42,090,377** | **111,409,442** |
| | Wages, salaries and employee benefits | 3,401,367,015 | 3,154,646,771 |
| | | **3,443,457,392** | **3,266,056,213** |
| | Payable Expense c/d | (48,210,491) | (42,090,377) |
| | **TOTAL** | **3,395,246,901** | **3,223,965,836** |
| **18** | **PAYMENT FOR SUPPLIES AND CONSUMABLES** | | |
| | Payable Expense b/d 20 | 116,438,715 | 88,472,930 |
| | Prepayment b/d | (445,565,065) | (27,832,051) |
| | Supplies, Services and Consumable used | 5,342,524,221 | 5,658,860,565 |
| | | **5,013,397,871** | **5,719,501,444** |
| | Payable Expense c/d 21 | (162,114,682) | (116,438,715) |
| | Prepayments c/d | 35,990,972 | 445,565,065 |
| | **TOTAL** | **4,887,274,161** | **6,048,627,794** |
| **19** | **FINANCE COSTS** | | |
| | Bank Charge | 72,000 | 1,910,586 |
| | **TOTAL** | **72,000** | **1,910,586** |

| | | 30 June 2023 | 30 June 2022 |
|---|---|---|---|
| | | TZS | TZS |
| **20** | **PAYABLE EXPENSES BROUGHT DOWN -Payment for Supplies and Consumables** | | |
| | Trade Payables | 31,912,955 | 28,472,930 |
| | Audit Fees Payables | 84,525,760 | 60,000,000 |
| | **TOTAL** | **116,438,715** | **88,472,930** |
| **21** | **PAYABLE EXPENSES CARRIED FORWARD -Payment for Supplies and Consumables** | | |

| | | | |
|---|---|---|---|
| | Trade Payables | 72,448,470 | 31,912,955 |
| | Withholding Tax Payables | 5,140,452 | - |
| | Audit Fees Payables | 84,525,760 | 84,525,760 |
| | TOTAL | **162,114,682** | **116,438,715** |

## 22 EMPLOYEES BENEFITS

The Institute's employees are members of the Public Sector Social Security Fund (PSSSF) and National Health Insurance Fund (NHIF). The Institute and employees both contribute to the scheme on a monthly basis.

During the year ended 30 June 2023 employer's contributions were remitted directly by the Treasury to the respective scheme.

## 23 ULTIMATE OWNER OF THE INSTITUTE

The Government of the United Republic of Tanzania is the owner of the Institute.

## 24 TAXATION

The Institute is exempted from corporation tax as per Second Schedule of the Income Tax Act, 2004.

## 25 RELATED PARTY TRANSACTIONS

During the year under review, TAWIRI incurred related party expenses amounting to **TZS 1,150,225,870** as follows

| | 30 June 2023<br>TZS | 30 June 2022<br>TZS |
|---|---|---|
| **Key Management Personnel** | | |
| Salaries | 706,548,000 | 489,600,000 |
| Allowances | 180,111,070 | 163,934,160 |
| Social security contribution | 156,691,800 | 141,309,600 |
| **Sub Total** | **1,043,350,870** | **794,843,760** |
| **Remuneration of Board of Directors** | | |
| Board fees | 59,300,000 | - |
| Board Allowances | 47,575,000 | - |
| **Sub Total** | **106,875,000** | **-** |
| **Total** | **1,150,225,870** | **794,843,760** |

Payments to member of board of directors and key management personnel are paid in accordance with the Government Standing Orders and the approved human resources management policy and incentive scheme of the Tanzania Wildlife Research Institute (TAWIRI).

## 26 CASHFLOW RECONCILIATION

**Reconciliation of Net Cashflow from operating activities to Surplus / (Deficit)**

| | Note | 30 June 2023 TZS | 30 June 2022 TZS |
|---|---|---|---|
| Surplus/(deficit) from ordinary activities | | 44,169,288 | 74,431,368 |
| **Adjustments for:** | | | |
| Depreciation | 3 | 523,340,647 | 522,005,469 |
| **Changes in working capital** | | | |
| Increase/Decrease in receivables from exchange transactions | 5 | 206,455,718 | (176,173,432) |
| Increase/Decrease in prepayment | 6 | 409,574,093 | (417,733,014) |
| Increase/Decrease in payables from exchange transactions | 7 | 64,272,331 | (59,936,450) |
| Increase/Decrease in payables from non-exchange transactions | 27 | (471,451,329) | 223,473,296 |
| **Net cash flows from operating activities** | | 776,360,748 | 166,067,237 |

## 27 INCREASE/DECREASE IN PAYABLE FROM NON-EXCHANGE TRANSACTIONS

| | | | |
|---|---|---|---|
| Deferred Revenue Government Grant | 8 | 245,776,297 | 787,300,000 |
| Deferred Revenue Development Partner Grant | 9 | 752,999,565 | 682,927,191 |
| TOTAL | | 998,775,862 | 1,470,227,191 |

## 28 CAPITAL COMMITMENTS AND CONTINGENCIES

There were no capital commitments as at 30 June 2023. Also, management are not aware of any material contingencies as at 30 June 2023.

## 29 PRIOR YEAR'S ADJUSTMENTS

There were no accounting errors in the previous year's financial statements affecting different accounts ledgers in the current reporting period. Also, the financial statements of 2021/22 have not been restated.

## 30 COMPARATIVE FIGURES

Previous year's figures have been regrouped wherever considered necessary in order to make them comparable with current year's figures.

## 31. EXPLANATIONS OF MATERIAL DIFFERENCES BETWEEN BUDGET AND ACTUAL AMOUNTS FOR THE YEAR 2021/22

**Receipts:**

- Current grant, transfers and subsidies received was lower by 10% due to subvention for other charges was not fully disbursed by the government to the institute during the financial year 2022/23.
- Revenue from exchange transaction was lower by 17% due to decrease in research and consultancy fees caused by less research projects which was admitted consequently no fund was secured by TAWIRI for implementation of various research

activities and less consultancy assignment was performed during the financial year 2022/23. Also, decrease in sales of honey and beeswax caused by stiff competition on bee products especially bee hives and honey.

- Grants received was lower by 22% due to the fact some of the Donor funded projects were not secured due to high competition in the proposal writing, selection and award of the grants for the implementation of various research project activities

**Payments:**

- Wages, salaries and employee benefits were higher by 49% due to staff promotion granted after directives issued by President of URT, new recruitment and transfers of staffs to implement the newly approved scheme of service.
- Supplies and consumables used were lower by 25% due to decrease of government subvention and grants from donor funds a result field work activities was not implemented as expected by researchers.
- Finance costs were lower by 86% arising from low charges as the most funds are transacted with BOT no transactions cost charged.
- Acquisition of Property and Equipment were lower by 54% due to pending construction of TAWIRI head quarter building at Njiro.

Cash at the end of period increased by TZS 326 million due to the fact that TAWIRI did not manage to implement fully various research project activities from donor fund since research is a long-term project. These activities will be implemented in the next financial period as the research is a continuous exercise.

**ANNEX I**

**COORDINATED AND SUPERVISED WILDLIFE RESEARCH PROJECT 2022/2023**

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
|---|---|---|---|---|---|
| | **RESEARCH PRIORITY THEME: HUMAN WILDLIFE INTERACTIONS (HWI)** | | | | |
| | **A): ON GOING RESEARCH PROJECTS** | | | | |
| 1. | Lion demography, human-carnivore conflicts and conservation education at Mkomazi National Park, Enduimet and its adjacent villages, Tanzania | Deo Tarimo and Nancy Felix | Tanzania | Hungarian University of Agriculture and life Sciences (MATE) | National Park: Mkomazi. Wildlife Management Area: Enduimet. Open areas: Villages in Same, Mwanga, Korogwe, Lushoto and Mkinga Districts. |
| 2 | Social, Ecological and Environmental Drivers of Human Elephant Conflicts in Tanzania. | Julius Keyyu, Eblate Ernest Mjingo, Emmanuel Masenga, Jerome Kimaro, Asanterabi Lowasa, Angela Mwakatobe, Pius Kavana, Steven Nindi, Deusdedit Bwenge, Cecilia Leweri and Richard Lyamuya | Tanzania | TAWIRI | Protected areas: All National Parks in Tanzania (except Gombe and Saanane), All Game reserves, All Wildlife Management, Ngorongoro Conservation Area (NCA). Open Areas: Arusha, Shinyanga, Kilimanjaro, Manyara, Tanga, Mara, Kagera, Simiyu, Geita, Kigoma, Morogoro, Iringa, Mbeya, Pwani, Lindi, Mtwara, Katavi, and Shinyanga Regions. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
|---|---|---|---|---|---|
| 3 | The Ecology of the Elephants of the Tarangire Ecosystem | Revocatus Meney, Habibu Munna, Joseph Nkwabi and Boniface Osujaki | Tanzania | TAWIRI | National Park(s): Tarangire and Lake Manyara.<br>Game Reserve(s): Mkungunero.<br>Forest Reserve(s): Lesimingori.<br>Wildlife Management Area(s): JUHIBU, Randilen and Makame-Ndedo.<br>Game Controlled Area(s): Lolkisale.<br>Open areas (District, Ward, and Village): Simanjiro, Kiteto, Babati, and Monduli Districts. |
| 4 | The influence of anthropogenic activities on cheetah hunting success and habitat use on the boundaries of the Serengeti National Park | Dennis Minja | Tanzania | University of Glasgow and the Institute of Zoology, London | National Park(s): Serengeti.<br>Game Reserve(s): Maswa.<br>Wildlife Management Area(s): Makao.<br>Other: Ngorongoro Conservation Area. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
|---|---|---|---|---|---|
| 5 | Improving capacity for managing human-wildlife conflict in the western Serengeti: Using technology to understand animal movements and illegal activity | Kristen Snyder, | United States of America. | Colorado State University, | National Park(s): Serengeti Game Reserve(s): Ikorongo, Grumeti, and Maswa. Wildlife Management Area(s): Ikona. Open areas (District, Ward, Village): Sasakwa concession, Makundusi grazing land, Issenye open |
| | | Noel Mbise and Ernest Mjingo | Tanzania | TAWIRI Grumeti Fund | |
| 6. | Balancing Pastoralist Livelihoods and Wildlife Management in Ngorongoro. | Ingela Jansson, Camilla Sandström | Sweden | Swedish University of Agriculture (SLU) | Ngorongoro Conservation Area (NCA) |
| | | Adam Pekor | United States of America | | |
| | | Ernest Eblate, | Tanzania | TAWIRI | |
| | | Emmanuel Lufilisha Charles, Roimen Lelya Olekisai, George P. Shango | | | |
| 7. | Evaluating the efficacy, impacts, and perceptions of electric fencing as a human-wildlife conflict management tool in the western Serengeti | Kristen Snyder, | United States of America | | National Park: Serengeti. Game Reserves: Ikorongo and Grumeti. Wildlife Management Area: Ikona |
| | | Noel Mbise, Michael Kimaro | Grumet Funds | | |
| | | Victor Kakengi, | TAWIRI | | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 8 | Assessment of drivers of bushmeat consumption and trade in western Serengeti | Angela Mwakatobe, Emmanuel Masenga, Asanterabi Lowassa, Godwell Meng'ataki, Masegeri Rurai, Abbukari Munna, Andimile Martin, Nelson ole Kwai and Robert Mosobeji | Tanzania | TAWIRI | Open areas (District, Ward, Village): Tarime, Serengeti and Bunda Districts in Mara Region, Bariadi, Italima, and Meatu Districts in Simiyu Region. |
| 9 | Informing large carnivore conservation through research into ecology and conflict in two key landscapes in southern Tanzania | Charlotte Searle<br>Ana Grau | United Kingdom<br>Spain | Max Planck Institute of Evolutionary Anthropology, | National Park(s): Nyerere and Ruaha. Game Reserve(s): Selous. Forest Reserve(s): Magombera |
| | | | | | |
| 10 | Predicting and mitigating human elephant conflict in the Ruaha Ecosystem | Sarah Maisonneuve | USA | Mountains and Plains Institute | National Park(s): Ruaha. Open areas (District, Ward, Village): Iringa, Mbarali and Chamwino Districts. |
| | **B) NEW RESEARCH PROJECTS** | | | | |
| 11 | Trialling the efficacy of solar-powered strobe lights, beehives and Metal Strips fencing elephant deterrents in Kilombero Valley, Tanzania | Grace Joseph Mchome | Tanzania | Sokoine University of Agriculture | Forest Reserve(s): Magombera Nature Reserve. Open areas: Kilombero District, Kanyenja and Katurukila Village. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 12 | To assess the impacts of COVID 19 pandemic on tourism-dependent communities in Monduli District | Cesilia Nkwabi | Tanzania | Sokoine University of Agriculture | National Park: Lake Manyara.<br>Open area: Mto wa Mbu Ward. |
| 13 | Variation in honeyguide-human cooperation across human cultural landscapes in Tanzania | Eliupendo Laltaika and Tumaini Oleleteyo | Tanzania | University of Cape Town | National Parks: Ruaha, Nyerere, Serengeti and Katavi.<br>Game Reserves: Rungwa, Loliondo, Maswa, inyonga, and Rukwa Luafi.<br>Forest Reserves: Mlele.<br>Wildlife Management Areas: Simanjiro, Loliondo and Lake Natron.<br>Game Controlled Area: Simanjiro.<br>Open areas (District, Ward, Village): Lake Eyasi, Tinaga, Simanjiro, Mlele, Katavi, Ngorongoro and Maswa.<br>Other: Ngorongoro Conservation Area. |
| | | Claire Spottiswoode and Jessica van der Wal | South Africa | | |
| 14 | Updating Poaching Density Maps to Improve Wildlife Conservation in the Serengeti Ecosystem | Alfan Rija | Tanzania | Sokoine University of Agriculture | National Park: Serengeti.<br>Game Reserve: Ikorongo and Maswa.<br>Wildlife Management Area: Ikona. |
| 15 | Assessment of the contribution of trophy | Salum Ramadhani | Tanzania | Sokoine | Burunge, Randilen, Enduimet |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | hunting and photographic tourism to wildlife conservation and livelihoods in community-based wildlife management areas, Northern Tanzania | Kulunge | | University of Agriculture | and Makame Wildlife Management Areas. |
| 16 | Implications of COVID-19 pandemic and tourism development on Biodiversity Conservation | Beatrice Kessy, Franco Mbise and Grace Kabitina | Tanzania | Tanzania National Parks (TANAPA). | National Parks: Serengeti, Tarangire, Lake Manyara, Arusha and Kilimanjaro. Others: Ngorongoro Conservation Areas. |
| | | Augustine Arukwe, Eivin Røskaft, Peter Sjolte Ranke | Norway | | |
| 17 | Factors influencing travel motivation, revisit intention and satisfaction of tourists: A Comparative analysis of domestic and foreign tourists visit in Ngorongoro Conservation Area and Kilimanjaro National Park | Stephen Kirama, Erick Valentin, Martine Kimaro, Cecilia Mjingo, Angela Samweli and Neema Molell | Tanzania | University of Dar es Salaam | National Park: Kilimanjaro. Other: Ngorongoro Conservation Area. Open Areas: Ngorongoro District; Moshi District Council. |
| 18 | Land use/cover changes and their implications on human-wildlife conflicts in Manyara Ngorongoro wildlife corridor | Anselm Peter Silayo and Hussein Sosovele | Tanzania | University of Dar es Salaam | National Park: Lake Manyara. Conservation area: Ngorongoro. Forest Reserve: Marang Forest Wildlife Management Area: Burunge. Open areas (District, Ward, Village): Eslalei/ Losirua, Selela, Upper Kitete and Lositete villages in Monduli and Karatu Districts. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | |
| 19 | Can performance payments deliver good carnivore conservation and conservation for good? A case study in Ruaha, Tanzania | Joseph Hamm: | United Kingdom | University of Leeds, UK | Open areas (District, Ward, Village): Idodi Ward, Iringa Rural District. |
| | | Mathew Bukhi Mabele | Tanzania | University of Dodoma | |
| | | | | | |
| 20 | The effectiveness of the measures applied by conservation agencies to regulate Illegal bush meat trade in Kilombero Game Controlled Area, Tanzania | Zakaria Musoma | Tanzania | Sokoine University of Agriculture | Kilombero Game Controlled Area |
| 21 | Effects of electric fencing on wildlife habitat utilisation and human-wildlife conflict in the western Serengeti | Walter Di Nicola | Italy | University of Groningen, Netherlands. | National Park(s): Serengeti. Game Reserve(s): Ikorongo. Open areas (District, Ward, Village): Villages bordering Ikorongo Game Reserve and Serengeti National Park in Serengeti District. |
| 22 | Self-reporting wire snaring by illegal hunters in Serengeti Ecosystem | James Vedastor Wakibara, Hamadi Dulle and Gabriel Mayengo | Tanzania | College of African Wildlife Management-Mweka (CAWM). | Serengeti National Park |
| 23 | Human elephant Coexistence in the Selous Niassa Nyerere Wildlife Corridor. | Philipo Jacob Mtweve, Felician Ezekiel, Peter Mkilindi and Eva Johnson | Tanzania | Sokoine University of Agriculture | National Park(s): Nyerere. Game Reserve(s): Selous. Wildlife Management Area(s): Mbarang'andu. |
| 24 | Patterns of large carnivore depredation on | Deogratias Gervas | Tanzania | Hungarian | Forest Reserve: Nyera- |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | livestock and community tolerance behavior around Selous-Nyerere ecosystem; a case study of Liwale District in Southern Tanzania. | Katwana | | University of Agriculture and Life Sciences (Mate) | Kipelele and Angai. Wildlife Management Area(s): Magingo. Open Areas: Liwale. |
| 25 | Influence of mobile communication exchange on human-lion conflicts in Northern Tanzania | Irene Samwel Urassa | Tanzania | Sokoine University of Agriculture | Wildlife Management Area(s): Randilen, Burunge, and Enduiment. Open areas (District, Ward, Village): Monduli District. Other: Manyara-Ranch. |
| 26 | Time Travelling to East Africa. Tourism in Kenya and Tanzania (1970- 2000) | Mathias Hack and. Dirk van Laak | German | German Academic Scholarship Foundation | Dar es Salaam |
| 27 | Factors influencing domestic tourists' visitation in national parks | Paschal Kepha Shitobelo | Tanzania | Saint Augustine University of Tanzania. | National Park: Serengeti. Others: Mwanza city. |
| 28 | Evaluating human-wildlife conflict management Schemes and their efficacy in promoting coexistence in Tanzania | Justine Robert Lukumay | Tanzania | Nelson Mandela African Institution of Science and Technology | National Parks: Tarangire and Ruaha. Game Reserve(s): Mkungunero. Wildlife Management Area(s): Randilen. Open Areas: Simanjiro District, Emboreet, Loiborsiret and Terrat Wards. Others: Ngorongoro Conservation Area (NCA). |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 29 | An assessment of population status, distribution and threats to large mammal species in and outside Mkomazi National Park, Tanzania'. | Jenipha Dominick Mboya | Tanzania | African Wildlife Foundation | National Park(s): Mkomazi. Open area(s): Rombo, Mwanga, Same, Korogwe, Lushoto and Mkinga Districts. |
| | | Amos Muthiuru | Kenya | | |
| 30 | Sustainable integrated management systems for large mammal conservation and community development: Identifying existing efforts and gaps for human-elephant coexistence in areas adjacent protected areas in northern Tanzania | Saeko Terada | Japan | Tamagawa University, Tokyo | Open areas (District): Karatu, Ngorongoro, Monduli, Shimanjiro, Kiteto, Mwanga and Same |
| | | Janemary Ntalwila, Chediel Mrisha, Emmanuel Masenga, Revocatus Meney and Max Jenes | Tanzania | | |
| 31 | Saving human and nonhuman nature: the impact of 'fortress conservation' on human-lion coexistence through the eyes of (local) stakeholders in the Tarangire-Manyara Ecosystem | Loes Baukje Francisca Huibers | Netherlands | Wageningen University | National Park(s): Tarangire and Lake Manyara. Game Reserve(s): Mkungunero. Forest Reserve(s): Salange and Isabe. Wildlife Management Area(s): Burunge, Randileni and Makam.e Game Controlled Area(s): Mto wa Mbu, Lolkisale and Simanjiro . Open area(s) (District, Ward, Village): Monduli, Babati, Simanjiro and Kondoa. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Other: Manyara Ranch. |
| 32 | Wildfire risk on social-ecological resilience due to human-environment interactions in Tanzania: a case of Kilimanjaro and Serengeti National Parks | Makunga John | Tanzania | Ardhi University, School of Engineering and Environmental Studies (SEES) | National Park(s): Kilimanjaro and Serengeti National Parks. Open Area(s): Rombo, Bunda, Serengeti, Bunda and Busega Districts. |
| 33 | The impacts of illegal anthropogenic ivory poaching and legal professional hunting on the African savanna elephant (*Loxodonta africana*) populations in the Ruaha-Rungwa and Selous-Nyerere-Mikumi ecosystems of Southern Tanzania (East Africa). | Bruce Roussos Nicolas Hans | Tanzania | Bangor University (Wales, United Kingdom) | National Parks: Ruaha, Nyerere and Mikumi. Game Reserves: Rungwa, Kizigo, Muhesi and Selous. |
| 34 | Tourists hunting benefits in Longido District, Tanzania | Damiano Fabiano Doday | Tanzania | Mweka College | Longido Game Controlled Area |
| 35 | Towards sustainable human-wildlife coexistence in Northern Tanzania (WildCoTanzania) | Michiel Paul Veldhuis:<br>Emily Frances Strange:<br>Yustina Kiwango. | Netherlands.<br>United Kingdom.<br>Tanzania | Leiden University, Netherlands<br><br>TANAPA | National Park(s): Serengeti. Game Reserve(s): Maswa, Ikorongo, Pololeti and Grumeti. Forest Reserve(s): Loliondo. Wildlife Management Area(s): Ikona. Open areas (District, Ward, Village) Villages from Bunda and Serengeti Districts which are adjacent Ikona WMA, Grumeti Game Reserve and |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Ikorongo Game Reserve. Villages (NCA and Lioliondo): Olbalal, Malambo, Arash, Maalon, Oloipiri, Soitsambu, and Ololosokwan |
| 36 | Livelihoods, environmental change and migration in Tanzania | Jonathan David Salerno | USA | Colorado State University | Ruaha National Park. Open areas: Iringa, Katavi and Lindi Regions. |
| 37 | Ways indigenous knowledge could be utilized in facilitating community-based management in wildlife management areas | Abubakar Salum Rajabu | Tanzania | Arms on Environment Limited based in Dar es Salaam | Wildlife Management Area(s): Makao. Open areas: Districts & Regions in the Serengeti Ecosystem. |
| 38 | Citizen Science for Collaborative Community Research: Indigenous Community Assessment of Problematic Plants (ICAPP) | Connor McCarty | United States of America | Colorado State University | Open areas (District, Ward, Village) District: Simanjiro; Ward: Terrat & Emboreet; Villages: Sukuro, Kitiengare, Loiborsoit. |
| | | Lazaro Mangewa, Isaya Rumas | Tanzania | Sokoine University of Agriculture | |
| | **RESEARCH PRIORITY THEME: BIODIVERSITY CONSERVATION (BC)** | | | | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | **A) ON GOING RESEARCH PROJECTS** | | | | |
| 39 | Conservation of the Eastern Arc Mountain endemic herpetofauna: Resolving cryptic species, uncovering ecological limits and long-term monitoring | John Valentine Lyakurwa, Simon Loader, Dr. Wilirk Ngalason, Pius Mollel Mwamgeni, Ardgard Essau, and Yusuph Wilangali | Tanzania | Department of Zoology and Wildlife Conservation, University of Dar es Salaam. | National Park: Udzungwa Mountains. Forest Reserve(s): Eastern Arc Mountains; Nguru (Mkingu and Kanga), Uluguru (Uluguru Nature Reserve), Ukaguru (Mamiwa Kisara North and |
| | | SimonLoader | United Kingdom | Department of Life Sciences, Natural History Museum, London, UK. | South Forest Reserve), Rubeho (Ukwiva and Mafwomero) and Udzungwa Mountain blocks (Uzungwa Scarp Nature Reserve). |
| 40 | Vegetation mapping and biodiversity assessment of forests of Tanzania | Andreas Julius Hemp and Claudia Susanne Margarete Hemp | German | University of Bayreuth | National Park(s): Kilimanjaro, Arusha NP, Mkomazi, Udzungwa, Tarangire, Manyara, and Saadani. Forest Areas: Eastern Arc Mountains, coastal forests, central Tanzania (Chenene, Wotta |
| 40 | Tanzanian Invertebrates, a virtual national reference collection (TINC) | Pauly Alain Robert, Nicolas J. Vereecken | Belgium | Associate Researcher, TAWIRI | National Park(s): Arusha, Kilimanjaro, Serengeti, Lake Manyara, Tarangire, Mkomazi, Saadani, Mikumi, |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Neema Kilimba | Tanzania | TAWIRI | Udzungwa, Ruaha, Kitulo, Katavi, Mahale Mountains, Gombe stream and Rubondo Island.<br>Game Reserves: Selous and Uwanda.<br>Forest Reserves: Amani, Chome, Kilombero, Kipo, Magamba, Minziro, Mkingu, Mount Hanang, Mount Rungwe, Nilo, Rondo, Uluguru and Uzungwa Scarp.<br>Others: Ngorongoro Conservation Area and Mafia Island. |
| 41 | Application of modern technology to wildlife survey techniques | Howard L. Frederick | Australia | TAWIRI | National Parks – All<br>Game Reserves – All.<br>Game Controlled Areas: All.<br>Other Areas: All.<br>Wildlife Management Areas: All.<br>Open Areas (District, Ward, Villages): Any areas adjacent to CIMS survey zones / protected areas. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 42 | Serengeti Biodiversity Programme | Grant C Hopcraft<br>Thomas Morrison<br>ARE Sinclair<br>Dan Haydon | Canada | University of Glasgow | National Park(s): Serengeti. Game Reserve(s): Grumeti, Ikorongo, and Maswa. Wildlife Management Area: Ikona, Loliondo and Makao. Other: Ngorongoro Conservation Area. |
| | | Colin Torney | United Kingdom. | | |
| | | Gareth Hempson | South Africa. | | |
| | | Simon Mduma; | Tanzania | | |
| | | Juan Morales | Argentina. | | |
| 43 | Changes from consumptive to non-consumptive use of wildlife in Msolwa area: Effects on wildlife population and tourism development in Nyerere National Park, Tanzania | Emmanuel Masenga, Mjingo Ernest | Tanzania | TAWIRI | Nyerere National Park |
| | | Emilian Kihwele, Abel Mtui | | TANAPA | |
| 44 | Eastern Arc Biodiversity Programme: Discovering, Documenting and Explaining the 'Smaller Majority' of the Udzungwa Mountains | Nikolaj Scharff | Denmark | Natural History Museum of Denmark, University of Copenhagen | National Park(s): Udzungwa Mountains. Forest Reserve(s): Uzungwa Scarp Nature Reserve. |
| 45 | Biodiversity Monitoring of major River Ecosystems using Environmental DNA (eDNA) in Tanzanian Protected Areas | Eblate Ernest Mjingo and Emmanuel Hosiana Masenga | Tanzania | TAWIRI | Open areas (District, Ward, Village): Morogoro, Pwani, Mara, Katavi and Tabora Regions. |
| | | Benjamin Barca; Italy. | Italy | | |
| | | Kat Bruce | United Kingdom | | |
| | | Brandon Kemp | South Africa | | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 46 | Biodiversity surveys for sustainable conservation of Usangu area in Ruaha-Rungwa Ecosystem, Tanzania | Emmanuel Masenga, Ernest Eblate and Halima Kiwango | Tanzania | TAWIRI | Ruaha National Park |
| 47 | "Long-term Biodiversity Monitoring in the Udzungwa Mountains". | Fransesco Rovero | Italy | University of Florence, Italy | National Park(s): Udzungwa Mountains. Forest Reserve(s): Uzungwa Scarp Nature Forest Reserve. |
| | | Arafat Seif Mtui, Steven Pius Shinyambala, Emilian Didus Njau and Ruben Langson Mwakisoma | Tanzania | | |
| | **B) NEW RESEARCH PROJECTS** | | | | |
| 48 | Biodiversity data collection and training conservationists in East and West Usambaras, Tanzania | Charles Meshack, Victor Mkongewa, Devolent Mtui, Henry Ndangalasi, Raymond Lembuseli, Pepya Nyabuma and Devolent Mtui | Tanzania | Tanzania Forest Conservation Group in Dar es Salaam collaborating with TAWIRI | Forest Reserve(s): East and West Usambara Forests (Tanga Region). |
| 49 | Short and Long-Term Comparison of Biodiversity Monitoring in the Mwanihana Forest of the Udzungwa Mountains National Park and the Uzungwa Scarp Nature Reserve | Galateia Goudeli | Greek | University of Copenhagen | National Park: Udzungwa Mountains. Forest Reserve: Uzungwa Scarp Nature Reserve. |
| 50 | Medium-term monitoring project of wildlife in protected areas supported by ADAP NGO projects in Central and Western Tanzania | Vincent Vyamana, Andrew Mariki, Matana Levi and Abdala | Tanzania | Open University of Tanzania | Forest Reserves: Mulele Hills and Rungwa. Wildlife Management Area: |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Liingilie | | | Ipole.<br>Open areas (District, Ward, Village): Rungwa North Open Area. |
| 51 | Habitat types on the composition and distribution of rodents in Wami-mbiki Game Reserve | Upendo Daudi Mollel | Tanzania | Sokoine University of Agriculture | Wami-mbiki Game Reserve |
| 52 | Coexisting with pangolins through corridor protection for a better Future – Building capacity to empower local communities to protect pangolins in Kwakuchinja, Udzungwa-Selous, and Amani-Nilo corridors, Tanzania | Michael Honorati Kimaro, Fenrick Filbert Msigwa, Hillary Thomas Mrosso, Elisante Azaeli Kimambo, Simon Joshua Chidodo, Nyemo Amos Chilagane, Rose Peter Kicheleri, Charles Peter Mgeni, Rajabu Joseph Kangile, George Bunyata Bulenga, and | Tanzania | Tanzania Research and Conservation Organization-Morogoro Tanzania | National Parks: Lake Manyara, Tarangire, Mkomazi, Nyerere and Udzungwa.<br>Game Reserve(s): Selous.<br>Forest Reserve(s): Magombera.<br>Nature Reserve(s): Amani and Nilo.<br>Game Controlled Area(s): Game Reserves connecting Kwakuchinja, Udzungwa-Nyerere and Amani-Nilo corridors.<br>Village areas; Villages surrounding Kwakuchinja, Udzungwa-Nyerere, and Amani-Nilo corridors, |
| | | Camille Warbingtorn, and Courtney Hughes | United States of America | | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Victor Alexander Kakengi | Tanzania | TAWIRI | Manyara National Park, Tarangire National Park, Eastern Arc Mountains, Mkomazi National Park, Amani Nature Reserve, Nilo Nature Reserve, Selous Game Reserve, Udzungwa National Park, and Magombera Forest Reserve. |
| 53 | Assessment of factors affecting dung beetle species composition and distribution in Nyerere National Park, Tanzania | Evaristo A. Bruda | Tanzania | Sokoine University of Agriculture | Nyerere National Park |
| 54 | The influence of vegetation cover and habitat characteristics on butterfly diversity in Msolwa, Nyerere National Park | Dinah Lyaka | Tanzania | Sokoine University of Agriculture | Nyerere National Park |
| 55 | Protecting the habitat of the Amani Flatwing damselfly in the East Usambara Mountain | Victor John Mkongewa | Tanzania | Amani Friends of Nature | Amani Nature Forest Reserve |
| 56 | Vultures population surveys and monitoring in Makao Wildlife Management Area | Alpha Euzebio Mfilinge, Emmanuel Fidelis Mgimwa, and Edwin Kamugisha | Tanzania | Nature Tanzania | Makao Wildlife Management Area |
| 57 | Grey Crowned Cranes Monitoring in Karagwe and Kyerwa Districts, North-Western Tanzania | Emmanuel Fidelis Mgimwa, Edwin Kamugisha and Leonidas Momburi | Tanzania | Nature Tanzania | National Park(s): Ibanda-Kyerwa, Rumanyika Karagwe and Burigi Chato National Parks.<br>Open areas (District, Ward, Village): Kagera wetlands. |
| 58 | Assessment of the distribution and abundance | Emmanuel Fidelis | Tanzania | Nature | Kongwa and Mpwapwa |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | of migratory bird species and the status of illegal killing of birds in central Tanzania | Mgimwa, Edwin Kamugisha, Neema Mwaja and Laurencia Zacharia | | Tanzania | Districts in Dodoma Region |
| 59 | Bird Ringing and Biodiversity Monitoring in Derema Forest Corridor (DFC), Tanga | Emmanuel Fidelis Mgimwa, Edwin Kamugisha, and Michael Gackson Nilongo | Tanzania | Nature Tanzania | Forest Reserve(s): Amani-Nilo Forest Corridor. Open areas (District, Ward, Village): IBC-Msasa, Antakae, Kwezitu, Kambai, Kwemdimu and Zigi villages. |
| 60 | Diversity and distribution of insects especially butterflies and moths in ecosystem of Tanzania | Mtenzi Huruma Mtemela | Tanzania | Pasiansi Wildlife Institute-Mwanza | National: Udzungwa, Saadani and Ruaha Game Reserves: Selous and Mpanga-Kipengele. Forest Reserves: All Forest Reserves Open areas: All open areas |
| 61 | The Status of Biodiversity Conservation across Socio-ecological landscapes in Northern Tanzania | Bernard Kissui, Henry K. Njovu and John Mwamhanga | Tanzania | School for Field Studies-Centre for Wildlife Management Studies | National Parks: Tarangire, Lake Manyara, Serengeti and Arusha. Wildlife Management Areas: Burunge, Randilen and Makame. Game Controlled Areas: Mto wa mbu, Yaeda chini valley, Lake Natron, Simanjiro west/east and Kitwa. Open areas (District, Ward, |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Village): Monduli district, Karatu District, Babati District, Mbulu District, Manyara ranch, West Kilimanjaro, Yaeda Valley, Larja corridor, Lositete and Mbulu mbulu. Other: Ngorongoro Conservation Area. |
| 62 | nAPSAL – non-Apis Pollinators for Sustainable Agriculture and Livelihoods | Kathrin Krausa | German | Aga Khan University, Principal Campus, Arusha | Open areas (District, Ward, Village): Arusha, Manyara and Kilimanjaro Regions. |
| 63 | Postfire effects on ground beetles composition on the slopes of mount Kilimanjaro | Lazaro Ibrahim Mbilinyi, Alex Kisingo and Gabriel Mayengo | Tanzania | College of African Wildlife Management, Mweka | Kilimanjaro National Park |
| 64 | *Rungwecebus kipunji* Monitoring and awareness raising in the Livingstone Mountains Ecosystem | Philipo Jacob Mtweve, Felician Ezekiel, Musa Marko and Catherine Elias | Tanzania | Sokoine University of Agriculture | National Park(s): Kitulo. Game Reserve(s): Mpanga kipengele. Forest Reserve(s): Rungwe Nature Reserve, Mdandu, Nyumbanitu, Ndundulu, Milo and Madihani. |
| 65 | Zero Charcoal | Jerome Gadi Kimaro, Steven Nindi, Angela Mwakatobe and John | Tanzania | TAWIRI | Open Area (s) (District, Ward, Village): Ngorongoro, Manyoni, Kigoma Rural and |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Bukombe | | | Mufindi |
| 66 | Using Bioacoustics Technology to Monitor Indicators of Biodiversity and Climate Change in the Gombe National Park and the | Lilian Pintea, Kristopher Harmon, Bill Wallaue | USA | Jane Goodall Institute | National Park: Gombe. Open areas (District, Ward, Village): Kigoma District, |
| 67 | Greater Gombe Ecosystem, Tanzania | Emmanuel Mtiti, Director Jane Goodall Institute | Tanzania | | Village Forest Reserves in the Greater Gombe Ecosystem. |
| | Assessing dung beetle diversity, their impacts on removal and redistribution of herbivore dung, and consequences for survival of gastrointestinal nematode eggs | Mecklina Michael Mbundi | Tanzania | University of Glasgow | National Park(s): Serengeti. Wildlife Management Area(s): Ikona. Open areas (District, Ward, Village): Mugumu District. Other: Ngorongoro Conservation Area. |
| 68 | Fine-Scale habitat associations of medium-to large forest mammals in Minziro Nature Forest Reserve, Tanzania using camera Trapping | Thobias Oddo Tomeka, Rodrigue Batumike, Emanuel Martin and Alex W. Kisingo | Tanzania | College of African Wildlife Management, Mweka | Forest Reserve(s): Minziro Nature Forest Reserve. Open areas (District, Ward, Village): Minziro, Kigazi, Karagala, Kakindo, Byantemba, Mutukula, Igayaza |
| 69 | Population status, harvesting, and conservation practices of East African Green Heart (*Warburgia ugandensis*) in Northern Tanzania | Letan Kurenia Mollel | Tanzania | Nelson Mandela African Institution of Science and Technology (NM-AIST) | National Park(s): Kilimanjaro. Forest Reserve(s): Mt. Monduli, Mt Ketumbeine, Mt. Gelai and Meru Mountain. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 70 | Impacts of vegetation change on bird's diversity in Kilimanjaro National Park | Maryo Clement Lyuvale | Tanzania | Sokoine University of Agriculture | Kilimanjaro National Park |
| 71 | Multimodal monitoring of a key biodiversity area in Southern Tanzania | Jonathan Growcott | British | University of Exeter in England. | National Park(s): Nyerere. Game Reserve(s): Selous. |
| 72 | Influence of forest restorations on rodent diversity and prevelance of rodent borne diseases | Abdul Fadhili Mkelemi | Tanzania | SUA | Bunduki Forest Reserve |
| 73 | Surveillance of giraffe skin disease using the convolution neural network: a case study of Ruaha National Park | Jestina Katundukila, Fred Demetrius Chibwana, Anitha Philbert Byabato, Aviti Thadei Mushi, Mussa Daniel Budeba, Ally Tahir Bitebo. | Tanzania | University of Dar es Salaam | Ruaha National Park |
| 74 | Lowland and Highland birds of the eastern arc and its associated foothill forest and Migration between lowland and highland forest and species complexity | Louis Hansen and Flemming Pagh Jensen | Denmark | Copenhagen University in Denmark | Forest reserve(s): Eastern Arc Mountains and Lowland Forests. |
| | | Jasson John and Chacha Werema | Tanzania | University of Dar es Salaam | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 75 | Indigenous knowledge, utilization and biological resources of medicinal plants in North western Tanzania | Julius Keyyu, Bukombe John, | Tanzania | TAWIRI, | Local Government Authorities: Kagera, Geita, Shinyanga, Kigoma, Tabora, Kigoma, Katavi and Rukwa regions |
| | | Joseph Otieno | Tanzania | Institute of Traditional Medicine (ITM) and Institute of | |
| | | Seonghyun CHO, Kyoungsu CHOI | South Korea | Biological Resources (NIBR) of the Republic of Korea | |
| 76 | The Birds of Southern Tanzania: A Pictorial Guide Book | Julius D. Keyyu, Ally K. Nkwabi, Deusdedith B. Fidelis | Tanzania | TAWIRI and | National parks: Ruaha NP, Nyerere NP, Udzungwa NP, and Kitulo NP Game Reserves: Rungwa GR, Kilombero GR, Mpanga Kipengele GR Forest Reserves: Poroto Ridge & Rungwe Nature Forest Reserve |
| | | Jassom John | Tanzania | University of Dar es Salaam | |
| | | Chang Yong CHOI, Jin Han KIM, Seyoung PARK, Gunmo Kim | South Korea | Institute of Biological Resources (NIBR) of the Republic of Korea. | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 77 | Using critical natural and biodiversity features to promote effective conservation and livelihoods development in Tanzania | Florence Godfrey, Linus Munishi, Francis Moyo and Emanuel Mboya | Tanzania | Nelson Mandela African Institute of Science and Technology (NM-AIST) | National Park(s): Mkomazi, Kilimanjaro, Arusha, Tarangire, Lake Manyara and Serengeti and Saadani. Game Reserve(s): Grumeti. Forest Reserves: Amani, Chome, Magamba, Nilo, Hanang, Ufione, Nou, Bereko and Haraa Wildlife Management Area(s): Enduiment, Randilen and Burunge. Game Controlled Area(s): Longido, Kitwai, Loksale, Mto wa Mbu, Natron, Loliondo, Handeni. Open areas: Districts: Arusha Municipal, Arusha Rural, Ngorongoro, Meru, Karatu, Monduli, Longido, Babati, Babati town, Hanang, Kiteto, Mbulu and Simanjiro, Moshi district, Moshi municipal, Hai district, Siha district, Rombo district, Mwanga district and Same district, Handeni district, Handeni Town, Kilindi district, Korogwe district, |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Korogwe town, Lushoto district, Muheza district, Mkinga district, Pangani district, Tanga city and Bambuli district. Other: Ngorongoro Conservation Area. |
| | **A): ON GOING RESEARCH PROJECTS** | | | | |
| 78 | Evaluating Land use, Land Cover Change and Climate Change in Loliondo-Natron Region in Eastern Serengeti Ecosystem. | Fred Victor Ledidi | Tanzania | Istitute of Rural Development Planning - DODOMA | National Park(s): Serengeti. Game Reserve(s): Pololeti, Grumeti and Ikorongo. Forest Reserve(s): Loliondo I, Enguserosambu Community Forest and Sariani Community Forest. Wildlife Management Area(s): Ikona and Makao. Open areas (District, Ward, Village): Ngorongoro, Karatu, Monduli, Arusha, Longido. Other: Ngorongoro Conservation Area. |
| 79 | Future climate change impacts on the supply of water-related NCP along climate and land-use gradients | Codalli Fabia | Italy | Justus Liebig University of Giessen | National Park: Kilimanjaro. Open areas: All districts, wards, and villages at the southern slopes of Kilimanjaro (Moshi Municipal, Moshi |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | District, Hai District). |
| 80 | The role of nature for human-being in the Kilimanjaro Socio-Ecological System (Kili-SES) Kilimanjaro | Remmele Sabine | German | University of Bayreuth, Department of Plant Systematics, Universitätsstr. 30, 95440 Bayreuth | Kilimanjaro National Park |
| | **B): NEW RESEARCH PROJECTS** | | | | |
| 81 | Kilimanjaro Telescope Project | Noorali Jiwaji, Emmanuel Kigadye, Said Ally and Seba Ackim | Tanzania | Open University of Tanzania | Saddle Area of Kilimanjaro National Park and at Kibo Huts |
| | | Sheperd Doleman | USA | | |
| 82 | Spatial Analysis of Climate Change Vulnerability for Tanzanian Biodiversity Project | Toni Morelli and Cybil Nicole "Nikki" Cavalieri | USA | USGS Northeast Climate Adaptation Science Center | National Park(s): All NPs. Game Reserve(s): All GRs. Forest Reserve(s): All FRs. Wildlife Management Area(s): All WMAs. Game Controlled Area(s): All GCAs. Open areas (District, Ward, Village): All open areas. |
| | | Exper Pius | Tanzania | | |
| 83 | Use of recycled plastic poles for increasing the lifespan of chain-linked livestock boma | Jerome Kimaro, Wilfred Marealle and Angela Mwakatobe | Tanzania | TAWIRI | Open areas (District, Ward, Village): Ngorongoro, Karatu, Monduli and Longido Districts |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | **RESEARCH PRIORITY THEME – WATER RESOURCES AND WETLAND CONSERVATION (WRWC);** | | | | |
| | **B): NEW RESEARCH PROJECTS** | | | | |
| 84 | Assessment of river health status of the Kihansi River Catchment, Tanzania | Ahmad Adam Nyagongo | Tanzania | Sokoine University of Agriculture | Open areas (Village): Uhafiwa, Masisiwe, Bomalang'ombe and Mbawi villages in Kilolo District, Iringa Region. |
| 85 | The role of nature for human well-being in the Kilimanjaro Social-Ecological System (Kili-SES)<br>**Sub-title:** 'A citizen science approach to enhance hydro-climatic monitoring on Mt. Kilimanjaro'. | Suzanne Robin Jacobs | Netherlands | Justus Liebig University Giessen, Germany | National Park(s): Kilimanjaro. Open areas (District, Ward, Village): All districts, wards, and villages at the southern slopes of Kilimanjaro. |
| 86 | Impact of man-made water sources on animal behavior and adjacent vegetation in Mkomazi National Park, Tanzania, Research Priority High | Mark Keegan | United States of America | Oregon State University, College of Forestry, Department of Forest Ecosystems & Society (USA) | Mkomazi National Park (MNP). |
| | | Jerome Kimaro | Tanzania | TAWIRI | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | **RESEARCH PRIORITY THEME – WILDLIFE DISEASES (WD)** | | | | |
| | **A): ON GOING RESEARCH PROJECTS** | | | | |
| 87 | Ecosystem Health Research in Tanzania | Sarah Cleaveland | British/USA | University of Glasgow | National Park: Serengeti. Game Reserves: Ikorongo, Grumeti, and Maswa. Wildlife Management Areas: Makao and Rubada. Game Controlled Area: Loliondo. Open areas: Simanjiro and Monduli Districts. Other: Ngorongoro Conservation Area. |
| 88 | Chimpanzee eco-health at Gombe National Park". | Elizabeth Lonsdorf, Thomas Gillespie, and Jessica Deere | USA | Emory University | Gombe National Park |
| 89 | The epidemiological surveillance and risk factors associated with Crimean-Congo haemorrhagic fever in animals in northern Tanzania | Ray Kayaga | Tanzania | The Nelson Mandela African Institution of Science and Technology (NM-AIST), | National Park: Serengeti. Others: Ngorongoro Conservation Area. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
|---|---|---|---|---|---|
| 90 | Giraffe Conservation in Tanzania – Supporting Tanzania's National Giraffe Conservation Strategy and Action Plan | Bienvenu Muneza | Rwanda | | National Park(s): Serengeti, Tarangire, Mikumi, Lake Manyara, Ruaha, Julius Nyerere, Mkomazi, Arusha, |
| | | Julius Keyyu | Tanzania | TAWIRI | Katavi, Saadani, Burigi-Chato, Ibanda, Rumanyika Karagwe. Game Reserve(s): Selous, Grumeti, Ikorongo, Tarime, Ikona, Maswa, Lolkisale, Swaga Swaga, Kizigo, Rungwa, Muhesi, Rukwa, Lukwati, Ugalla, Moyowosi, Kigosi, Biharamulo. Wildlife Management Area(s): Burunge, Enduimet, Lake Natron, Ipole, MBOMIPA, Ikona, Kimbanda, Randileni, Pawaga – Idodi. Others: Ngorongoro Conservation Area. |
| 91 | Savanna dynamics: linkages between predator-prey-fire parasite interactions and vegetation dynamics in the Serengeti ecosystem | Arjun Brandreth Potter, Vanessa Ezenwa and Todd Michael Anderson | United State of America | Wake Forest University | National Park(s): Serengeti. Game Reserve(s): Ikorongo, Grumeti, and Maswa. Wildlife Management Area(s): Ikona. Other: Ngorongoro Conservation Area. |
| | | Ricardo Holdo | Argentina | | |
| | | Jason Donaldson | South Africa | | |
| 92 | Ecosystem Health Research in Tanzania | Felix Lankester | United Kingdom | Washington | National Park(s): Serengeti. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
|---|---|---|---|---|---|
| | Project | | | State University | Game Controlled Area(s): Maswa.<br>Open areas (District, Ward, Village): Serengeti, Tarime, Maswa, Bunda, Bariadi, Ngorongoro, Magu, Busega, Simanjiro and Arusha. |
| 93 | Improving the Delivery of Mass Dog Vaccinations to Support the Elimination of Dog-Mediated Rabies in Tanzania | Anna Czupryna | America | University of Glasgow and Ifakara Health Institute | National Park(s): Serengeti and Arusha.<br>Game Reserve(s): Ikorongo and Grumeti.<br>Wildlife Management Area(s): Ikona.<br>Game Controlled Area(s): Ikorongo and Grumeti.<br>Open Areas (District, Ward, Village): Mara Region, Serengeti, Rorya, Butiama, Bunda, Tarime, Musoma, Arusha, Meru, Ngorongoro, NCAA, Shinyanga, Mwanza, Manyara, Simiyu, Pemba island, Morogoro, Karatu, Kilimanjaro, Zanzibar, Dodoma, Mtwara Region, Lindi Region, Coastal-Pwani Region, Dar es Salaam Region. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Other: Ngorongoro Conservation Area. |
| 94 | Movement Ecology and Neurobiology of Navigation: Insights from Island Experiments with Bats | Nachum Ulanovsky and Yossi Yovel | Israel | Weizmann Institute of Science | Small Island in the Indian Ocean (Latham Island). |
| 95 | Ecosystem health research in Tanzania". Sub-title "Molecular epidemiology of brucellosis and other zoonoses in northern Tanzania. | Joanna Elizabeth Bowen Halliday | United Kingdom | University of Glasgow | National Park(s): Serengeti. Other(s): Ngorongoro Conservation Area. Open areas (District, Ward, Village): Arusha, Manyara, Mara, Simiyu, Kilimanjaro, Tanga, Coast, Morogoro and Dar es Salaam. |
| | **B) NEW RESEARCH PROJECTS** | | | | |
| 96 | Rodents' distribution and their associated ectoparasites in and around Kimboza Forest Reserve. | Adventina Nyanjobe Anthony | Tanzania | Sokoine University of Agriculture | Kimboza Forest Reserve |
| 97 | Zoonotic Disease Exposures in the Gombe-Masito-Ugalla Ecosystem of Western Tanzania | Dismas Mwacha, Deus Mjungu, Shadrack Kamenya, Simon Chacha, Iddi Lipende, Ritha Mlingi and Mololo Noah | Tanzania | Sokoine University of Agriculture | Open areas (District, Ward, Village): Kigoma and Uvinza Districts, Kigoma Region. |
| | | Thomas Gillespie, | United Kingdom | | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Jessica Deere, Jesca Lebba | | | |
| 98 | Prevalence, Characterization, Community Awareness and Risk Factors of Rift Valley Fever Virus in Ngorongoro District, Tanzania | Amina Issa Ramadhani | Tanzania | Sokoine University of Agriculture | Unprotected areas in the Ngorongoro District (in community areas. |
| 99 | Zoonotic Diseases Risk Analysis Along the Game Meat Trade Value Chain in Northern Tanzania | Daniel Mdetele and Qudra Kagembe | Tanzania | TRAFFIC International East Africa | Arusha, Kilimanjaro and Manyara. |
| 100 | Crimean-Congo Hemorrhagic Fever: Reducing an Emerging Health Threat in Tanzania' | Melinda Rostal | Switzerland | EcoHealth Alliance | National Park: Serengeti. Open areas (District, Ward, Village): Arusha Region, Including Arusha Urban, |
| | | Johana Teigen | USA | | Arusha Rural, Monduli, Longido, Karatu, and Ngorongoro Districts. |
| | | AbdulHamid Lukambagire Settenda | Tanzania | | |
| | | Rebecca Bodenham, Nichar Gregory | United Kingdom | | |
| | | | | | |
| 101 | Assessment of the prevalence and diversity of endoparasites (Helminths) of Cane Rats (*Thryonomys swinderianus*) | Abdulrahman Hamisi Songwe, Alfan Rija and Sayuni Mariki | Tanzania | Sokoine University of Agriculture (SUA) | Forest Reserve (s): Uluguru and Udzungwa. |
| 102 | Epidemiological study of zoonotic bacteria in human and animals Interfaces in Southern | Angelamercy Baltazary, Fred | Tanzania | University of Dar es Salaam. | Open areas (District, Ward, Village): Newala and Masasi |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | Lowlands | Demetrius Chibwana, Anitha Philbert Byabato, Victor Makene, Jestina Venance Katandukila and Respicius Damian Shumbusho | | | Districts. |
| 103 | A Multi-sectoral survey to explore animal hosts or reservoirs associated with outbreak of Marburg Virus Disease in Kagera Region, North western Tanzania | Salum Ally Manyatta, Julius Keyyu, Pius Horumpende, Andrew Chota, Athuman Lipindu and Justine Assenga | Tanzania | Prime Minister's Office | Open Area (s) (District, Ward, Village): Bukoba District Council, Bukoba Municipal council, Muleba and Kyerwa. |
| 104 | LeoThreat. Assessment of the threat of metal exposure to lions (*Panthera leo*) in Tanzania. | Sánchez Virosta | Spain | Norwegian University of Science and Technology (NTNU) | National Park (s): Serengeti and Kigosi. Game Reserve(s): Moyowosi. |
| | | Stanslaus Mwampeta | Tanzania | | |
| | | Ernest Eblate Mjingo, and Justin Shamanche | Tanzania | TAWIRI | |
| 105 | Influence of woody plant encroachment on the prevalence of gastrointestinal parasites in pasture | Houssein Samwel Kimaro and Hussein Adam | Tanzania | College of African Wildlife Management, Mweka | Serengeti National Park |
| 106 | Investigation of the role of small mammals in the transmission of Leptospirosis; a zoonotic disease in Lindi and Mtwara regions, Tanzania | Ulime Amon, Leticia J. Musese, Monica T. Shilereyo, Alex J. Mujuni, Florence G. | Tanzania | University of Dar es Salaam | Open areas (District, Ward, Village): Lindi (Liwale and Ruagwa districts), Mtwara (Tandahimba district and |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Tarimo and Kija Nghabi | | | Mtwara rural districts). |
| 107 | Leveraging pathogen genomics for an improved domestic pig health and production by mapping African swine fever virus transmission dynamics at the wildlife-livestock interface in Tanzania | Jean Nepomuscene Hakizimana | Rwanda | Sokoine University of Agriculture | National Park(s): Serengeti. Game Reserve(s): Maswa. Open area(s): Meatu, Bariadi and Serengeti Districts. |
| | | Gerald Misinzo, Hezron Nonga | Tanzania | | |
| | | and Julius Keyyu | Tanzania | TAWIRI | |
| 108 | Understanding local perspectives and ecological factors influencing the distribution of pangolins in North-West Tanzania | Michael Kimaro | Tanzania | Tanzania Research and Conservation Organization | National Parks: Burigi-Chato, Rumanyika-Karagwe, and Ibanda-Kyerwa. Village areas: Villages surrounding Burigi-Chato, Rumanyika-Karagwe, and Ibanda-Kyerwa. |
| 109 | Assessing zoonotic malaria and in vivo cultivation of Treponema pallidum from fee-ranging non-human primates across national parks in Tanzania | Idrissa Shomari Chuma, Julius D. Keyyu and Rudovick R. Kazwala, Issa Lyimo, Felician Clement Meza and Kefasi Mugitu | Tanzania | Tanzania National Parks (TANAPA). | National Parks: Lake Manyara, Tarangire, Serengeti, Ruaha, Udzungwa, Gombe, Mahale, Katavi, Nyerere, Saadani and Mkomazi. Other: Ngorongoro Conservation Area. |
| 110 | Population-Stabilizing Portfolio Effects of Fine-Scale Environmental Variations in Natural Resource Availability to Malaria Vector Mosquitoes: Characterization and Implications for Control Strategies ''. | Deogratius Kavishe, Sebastian Ngasoma, Gerry Klein, Felister Mombo, Rogath Msoffe, and Moureen Daffa Tanzania | Tanzania | Ifakara Health Institute | ILUMA Community Wildlife Management Area |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Lily Duggan, Katrina Walsh, Gerry Killeen | Ireland | | |
| 111 | Environmental controls on parasite infection dynamics in a multihost community at the wildlife-livestock interface' | Houssein Samwel Kimaro | Tanzania | College of African Wildlife Management | National Park(s): Serengeti. Game Reserve(s): Ikorongo-Grumeti and Maswa. Open Areas (District, Ward, Village): Loliondo, Ngorongoro, Mugumu and Robanda. |
| | **RESEARCH PRIORITY THEME – - BEEKEEPING, BEE ECOLOGY, BEE PRODUCTS, AND POLLINATION SERVICES (BKBEBP)** | | | | |
| 112 | Beekeeping in Tanzania: Enhancing hive occupancy and production of honeybee products for improved livelihoods in selected beekeeping potential areas | Emmanuel Mmassy, Angela Mwakatobe, Nicephor Lesio, Richard Allen, Stanslaus Lukiko, Thomas Sawe, Loveness Munisi, Issa Mpinga, Wilfred Marealle, Victor Kakengi, Essau Kusimula, Ntiniwa Kipemba, Kezia Oola and Seleman Moshi | Tanzania | TAWIRI | National Parks: Ugalla River and Kigosi. Forest Reserves: Tapika (Rufiji District), Igombe (Tabora Region). Forest plantations/catchment: West Kilimanjaro - Hai District. Open areas (District, Ward, Village): coastal area, Kongowe-Kibaha-Mafia Island. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | **B): NEW RESEARCH PROJECTS** | | | | |
| 113 | Influence of Land Use Type on Honeybee Colony Performance and Productivity | Alphoncina Mponzi, Wilfred Marealle Sued Jafar and Alpha Richard | Tanzania | TAWIRI | Open area(s) (District, Ward, Village): Kilimanjaro, Tabora and Arusha |
| | **RESEARCH PRIORITY THEME – WILDLIFE ECOLOGY AND ECOLOGICAL INTERACTIONS (WE&EI);** | | | | |
| | **A): ON GOING RESEARCH PROJECTS** | | | | |
| 114 | Behavioral, Ecological and Conservation Studies of Chimpanzees and Other Larger Mammals in the Greater Mahale Area'. | Michio Nakamura | Japan | Kyoto University | National Park(s): Mahale. Open areas (District, Ward, Village): Kigoma District. |
| 115 | Impact of Masai giraffe (*Giraffa camelopardalis tipelskirchi)* nursery groups on development of social associations and calf survivorship" | Miho Saito | Japanese | Kyoto University | Katavi National Park and Sitalike Village |
| 116 | Understanding vulture movement and population monitoring in Tanzania | Corinne Kendall | USA | North Carolina Zoo, USA (and Wildlife Conservation | National Parks: Ruaha, Katavi, Ugalla, Saadani, Nyerere, Lake Manyara, Tarangire and Mikumi. |
| | | Claire Bracebridge | UK | | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Msafiri Mgumba, Edward Kohi and Stanley Mbilinyi | Tanzania | Society in Tanzania) | Game Reserves: Rungwa, Muhesi, Kizigo, Lukwati-Piti, Rukwa-Lwafi, Ugalla, Selous, Mkungunero, Inyonga and Wami Mbiki. Wildlife Management Areas: MBOMIPA, Waga, UMEMARUWA, Mpimbwe, Ipole, Ikona, Makame, Burunge and Makao. Game Controlled Areas: Lunda-Mkwambi, Rungwa River and Mlele GCAs. Open Areas: Rungwa South & Mzombe, Piti, and Tongwe East. |
| 117 | Does nepotism make spotted hyena populations vulnerable to environmental change? | Eve Davidian | French | Ngorongoro Hyena Project | Ngorongoro Conservation Area |
| 118 | Ungulate Ecology, Health, and Conservation in Northern Tanzania Including: Giraffe Population Genetics and Demography in Northern Tanzania | Derek Edward Lee, Monica Bond, Doug Cavener: | United States of America | Wild Nature Institute & Penn State University | National Parks: Tarangire, Serengeti, Arusha, Lake Manyara, Ruaha and Nyerere. Game Controlled Areas: Lolkisale and Mto wa mbu. Wildlife Management Areas: Burunge and Randilen. Others: Ngorongoro Conservation Area, Manyara |
| | | James Madeli and George Lohay | Tanzania | | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Ranch. |
| 119 | Breeding Success and Habitat Characteristics of the Gyps africanus in Western Serengeti, Northern Tanzania | Vainess Solomon Laizer | Tanzania | SUA and Grumeti Fund | National Park(s): Serengeti. Game reserve(s): Ikorongo and Grumeti. Wildlife Management Area(s): Ikona. |
| 120 | Long-term ecological study of African *lion Panthera leo* in Serengeti National Park Tanzania: Understanding population biology and behaviour of Top – Order Predator in an African Savannah ecosystem | Emmanuel Masenga and Bernard Kissui | Tanzania | TAWIRI | National Park(s): Serengeti. Game Reserves(s): Grumeti and Ikorongo. |
| 121 | The status and ecology of African wild dogs (*Lycaon pictus)* in the Ruaha-Katavi landscape | Montan Kalyahe | Tanzania | Wildlife Conservation Society (WCS). | National Park(s): Ruaha and Katavi. Game Reserve(s): Rungwa, Kizigo, Muhesi, Lukwati-Piti and Rukwa- Lwafi. Forest Reserve(s): |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Tim Davenport and Aaron Nicholas | United Kingdom | | Kipembawe, and Itulu Hills Nature Forest Reserve. Wildlife Management Areas: MBOMIPA, Waga, Umemaruwa and Mpimbwe. Game Controlled Area(s): Lunda – Mkwambi, Inyonga, and Wambere. Open areas (District, Ward, Village): Rungwa North, Rungwa South, Rungwa-Mzombe and Piti East. Open Areas: all villages adjacent to above mentioned protected areas. |
| 122 | "Ecology and Conservation of the Elephant Metapopulation of South-central Tanzania" | Frank Lihwa, Solomon Sembosi, Loyce Majige, | Tanzania | University of Stirling (UK) & Southern Tanzania | National Park(s): Ruaha and Udzungwa. Game Reserve(s): Rungwa, |
| | | Josephine Smith | Nertherlands | | |
| | | | | Elephant PRogram | |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | Victor Kakengi and Edward Kohi | | TAWIRI | Kizigo, Muhesi. Forest Reserve(s): Magombera, Nyangoro, Mangalisa, Image, Kitapilimwa. Wildlife Management Area(s): MBOMIPA. Game Controlled Area(s): Lunda-Nkwambi. Other: Iringa Region (Iringa Rural District, Kilolo District), Morogoro Region (Kilombero District, Kilosa District), Singida Region (Itigi District), Dodoma Region (Mpwapwa District). |
| | | | | | |
| 123 | Behaviour, physiology and evolution of sex roles in coucals. | Wolfgang Goymann | German | Max Planck Institute for Biological Intelligence | Open areas (District, Ward, Village): Mbeya Region, Kyela and Mbarali Districts. |
| 124 | Spotted Hyenas in the Serengeti Ecosystem: Causes and Consequences of the Commuting System in the Serengeti | Heribert Hofer and Sonja Metzger | German | Leibniz Institute | National Park (s): Serengeti. Other: Ngorongoro Conservation Area. |
| | | Marion East | United Kingdom | | |
| | | Oliver Höner | Swizerlands | | |
| 125 | Application of GPS technology in understanding seasonal movement, drivers to | Emmanuel Masenga,Ernest | Tanzania | TAWIRI | Game Reserve(s): Maswa. Wildlife Management Area(s): |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | human-elephant conflicts and suggesting mitigations along Mwiba, Makao Open Area and Maswa Game Reserve boundaries | Mjingo and Revocatus Mneney | | | Makao. Open areas (District, Ward, Village): Meatu, Itilima, Bariadi and Busega. |
| 126 | Improving telemetry technology application in monitoring of Black Rhinocerous and African elephant in Ngorongoro Conservation Area, Tanzania | Emmanuel Masenga, Ernest Mjingo, Donatus Gadiye and Revocatus Meney | Tanzania | TAWIRI | Game Reserve: Maswa. Open areas (District, Ward, Village): Ngorongoro, Meatu, Karatu. Other: Ngorongoro Conservation Area. |
| 127 | Range use shift by the yellow Baboons in Mikumi National Park, Tanzania | Samwel Mtoka | Tanzania | TAWIRI | Mikumi National Park |
| 128 | Ecology, Behaviour and Life-Histories of Olive Baboons in Gombe National Park | David Anthony Collins | United Kingdom | Jane Goodall Institute | Gombe National Park |
| 129 | The role of soil and vegetation diversity in supplying of regulating nature contribution to people (NCP) in Mountainous Ecosystem | Dickson Gerald Mauki | Tanzania | Senckenberg Biodiversity and Climate Research Center | Kilimanjaro National Park |
| 130 | Pyrophilic behavior of sympatric chimpanzees and baboons in the Issa Valley, Tanzania | Nora Bennamoun | French | UNIVERSITY COLLEGE LONDON | Tongwe West Forest Reserve |
| 131 | Behavioral, Ecological and Conservation Studies of Chimpanzees and Other Larger Mammals in the Greater Mahale Area | Michio Nakamura | Japan | Kyoto University | National Park(s): Mahale. Open areas (District, Ward, Village): Kigoma District. |
| 132 | Western Tanzanian Primate Ecology and Conservation into the Anthropocene | Alex Piel | United Kingdom | University College London | Tongwe West Forest Reserve; Greater Mahale Ecosystem. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 133 | Serengeti Wild Dog Conservation Project | Emmanuel Masenga and Ernest Mjingo | Tanzania | TAWIRI | National Park(s): Serengeti. Game Reserve(s): Maswa. Wildlife Management Area(s): Makao. Game Controlled Area(s): Pololeti. Other: Ngorongoro Conservation Area. |
| 134 | "Social Organization, Ecology, Genetics and Disease in Jackals". | Patricia D Moehlman | USA | University of Dar es Salaam | National Park (s): Serengeti National Park. Other Areas: Ngorongoro Conservation Area. |
| | | Steven Temu | Tanzania | | |
| 135 | An Ecological and Behavioral Study of Red-tailed Monkeys (Cercopithecus ascanius), Blue Monkeys (C. mitis), and Hybrids (C. ascanius x C. mitis) at Gombe National Park, Tanzania | Kate M. Detwiler | USA | Florida Atlantic University | Gombe National Park |
| | **B) NEW RESEARCH PROJECTS** | | | | |
| 136 | Distribution of herbaceous species in response to changing fire dynamics around a protected Tropical Savanna | Louis Marcel Hunninck | Belgium | Stockholm University | National Park: Serengeti. Game Reserves: Maswa, Grumeti, Ikorongo. Wildlife Management Area: Ikona. |
| | | Stuart Smith | United Kingdom | | |
| | | Anna Treydte | Germany | | |
| | | John Bukombe: | Tanzania | TAWIRI | |
| 137 | "Human-honeyguide relationship in mutualism "coldspot" in southern Tanzania". | Amana Othman Kilawi | Tanzania | University of Cape Town | National Parks: Ruaha, Nyerere, Serengeti and Katavi. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Game Reserves: Rungwa, Maswa and Pololeti. Forest Reserve: Mlele. Wildlife Management Areas: Simanjiro and Lake Natron. Game Controlled Area: Simanjiro. Open areas (District, Ward, Village: Mlele, Tinaga, Lake Eyasi, Maswa and Ngorongoro. Other: Ngorongoro Conservation Area. |
| 138 | Perceived predation risk in three species of sympatric primates in the Issa valley, Tanzania | David Meszaros | United States of America | University of California San Diego | Tongwe West Forest Reserve |
| 139 | Which role of local communities for the sustainability of Eco-tourism? a case study from Tanzania | Chiara Caterina Razzano | Italy | Università degli Studio di milano-Bicocca, Italy | National Parks: Arusha, Tarangire and Lake Manyara. Conservation Area: Ngorongoro. Wildlife Management Area(s): Burunge and others that will be identified during preliminary survey. Game Controlled Area(s): Identification of the suitable areas will be done after preliminary surveys. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Open areas (District, Ward, Village); Arusha DC, Babati DC, Longido DC, Karatu and other districts and villages surrounding the selected National Parks. |
| 140 | Tree hyrax (*Dendrohyrax spp.)* field study in Tanzania: taxonomy, distribution, and ecology of tree hyraxes | Hanna Annikki Rosti and Henry Sebastian Pihlström | Finland | University of Helsinki | National Parks: Mt Kilimanjaro and Udzungwa Mountains. Forest Reserves: Usambara, Pare, Uluguru, Ngezi (Pemba Island) and Jozani Forest (Zanzibar). |
| 141 | Response and Resilience Following Multiple Extreme Events in Pastoral Systems with Contrasting Land Use Regimes | James Terrance McCabe, Amy Quandt, Paul Willard Leslie | USA | University of Colorado | Wildlife Management Areas. Enduimet, Burunge and Randilen. Open areas: Arusha and Manyara Regions. |
| | | Cuthbert Nahonyo | Tanzania | University of Dar es Salaam | |
| 142 | Social Context and Developmental Process of Cultural Behavior among the Chimpanzees of Mahale: In the Case of Pant-Grunt and Leaf-Clipping Behavior | Nishie Hitonaru | Japan | Graduate School of Asian and African Area Studies, Kyoto University | National Park: Mahale Mountains. Open areas (District, Ward, Village): Boundary area of Mahale Mountains National Park. |
| 143 | Pelage Color and Pattern, Body Size and Vocalizations of Redtailed Monkeys (*Cercopithecus ascanius*), Blue Monkeys (C. mitis), and Hybrids (*C. ascanius x C. mitis*) at | Kathryn Coates | USA | Florida Atlantic University | Gombe National Park |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | Gombe National Park, Tanzania | | | | |
| 144 | Land cover change in Ngorongoro Crater in relation to the black rhinoceros habitat | Gwamaka Jwan Mwangwala | Tanzania | College of African Wildlife Management. | Ngorongoro Conservation Area |
| 145 | Water Stress and Behavioral Strategies to Lactation in Wild Chimpanzees (Pan troglodytes) | Rachel Nelson | USA | The George Washington University | Gombe National Park |
| | | Deus Mjungu | Tanzania | | |
| 146 | Eastern chimpanzee (*Pan troglodytes schweinfurthii*) Habitat Connectivity and Population Status in the Greater Mahale Ecosystem of western Tanzania | Devon Thurston, James Parsons | United States of America | Greater Mahale Ecosystem Research and Conservation | Forest Reserve(s): Tongwe East and West. Open Areas (District, Ward, Village): Uvinza, Tanganyika and Mpanda Districts. |
| | | Maijo Simula Peres | Tanzania | TAWIRI | |
| 147 | The influence of seasonal plant food availability on the ranging patterns of eastern chimpanzees (*Pan troglodytes schweinfurthii*) in the Issa Valley, western Tanzania | Rebecca Peattie McCann | United Kingdom | University College London | Tongwe East Forest Reserve |
| 148 | Mapping the distribution of invasive with sentinel 2 imagery in Ngorongoro Conservation Area, Tanzania | Delvina Ayubu Meshili | Tanzania | Northeast Forestry University (China). | Ngorongoro Conservation Area (NCA). |
| 149 | Population status and threats of the endangered African wild dog in the Selous-Nyerere landscape, southern Tanzania | Singira Ngoishiye Parsais | Tanzania | Nelson Mandela African Institution of Science and Technology | National Parks: Nyerere. Game Reserve(s): Selous. Wildlife Management Area(s): Juhiwangumwa, Mungata and Magingo. Open Areas: Kilwa North |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | and Kilwa South O. Others: Region: Lindi, Pwani, Morogoro, and Ruvuma. |
| 150 | Assessment of the effects of elephants on vegetation in the northern part of Serengeti National Park, Tanzania | Fred Wilson Kivuyo | Tanzania | TANAPA | Serengeti National Park |
| 151 | The influence of groundwater tables on invasive species growth in eastern Africa rangelands | Laura Andrea Soliz Miranda | Bolivian | Nelson Mandela African Institute of Science and Technology | Ngorongoro Conservation Area. |
| 152 | Elephant demography study: Assessment of age and sex structures of elephants in western Serengeti. | Juma Joseph Minya | Tanzania | University of Glasgow. | National Park: Serengeti. Game Reserves: Ikorongo, Grumeti and Maswa. Wildlife Management Area: Ikona. |
| 153 | Interactions between wildlife, invasive species and food security in Western Serengeti | Elena Nera | Italy | Leiden University, UK | Game Reserve(s): Ikorongo and Grumeti. Wildlife Management Area(s): Ikona. Open areas (District, Ward, Village): Villages from Bunda and Serengeti Districts which are adjacent Ikona WMA, Grumeti Game Reserve and Ikorongo Game Reserve. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 154 | Impacts of Invasive Alien Plants in Western of Great Serengeti Ecosystem | Exavery Aidan Kigosi | Tanzania | Leiden University, UK | Game Reserve(s): Ikorongo and Grumeti. Wildlife Management Area(s): Ikona. Open areas (District, Ward, Village): Villages from Bunda and Serengeti Districts which are adjacent Ikona WMA, Grumeti Game Reserve and Ikorongo Game Reserve. |
| 155 | Understanding wild meat consumption in Tanzania | Paulo Wilfred, Cuthbert Nahonyo, Venance Mutayoba, Emmanuel Martin and Flora Magige | Tanzania | Open University of Tanzania | National Park: Ruaha. Game Reserve: Ugalla and Rungwa. Wildlife Management Areas: Ipole WMA and Uyumbu. Game Controlled Areas: Ugunda and Itulu. |
| 156 | Molecular epidemiology and genetic diversity of Lyssaviruses in Bat species in Tanzania | Emmanuel Kulwa Bunuma | Zambia | The University of Zambia | National Park(s): Serengeti. Open areas (District): Bats colonies in Morogoro Region. Other: Amboni Caves Conservation Area in Tanga Region. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 157 | Northern Tanzania Raptors Project: an in-depth study of the secretary bird in the Serengeti ecosystem, Tarangire and Arusha National Parks | Federico Roman, Elena Ramella Levis and Gianni Pavan and | Italy | University of Pavia; CIBRA: Interdisciplinary Centre for Bioacoustics and | National Park(s): Serengeti, Tarangire and Arusha. Others: Ngorongoro Conservation Area. |
| | | | | Environmental Research | |
| | | Emmanuel Mmassy | Tanzania | TAWIRI | |
| 158 | Effectiveness of Sanje Mangabey (*Cercocerbus sanjei)* as seed disperser on the plant population of ficus sur and parinari excelsa | Frank Salum Bedui | Tanzania | Sokoine University of Agriculture (SUA). | Udzungwa Mountain National Park |
| 159 | Assessment of management effectiveness of protected areas in Tanzania: A case study of Mikumi and Saadani National Parks | Canishaz Raphael Bamanyisa | Tanzania | Sokoine University of Agriculture | Mikumi and Saadani National Parks |
| 160 | 'Pangolin behavioural investigation and factors influencing their distribution in Kwakuchinja, Nyerere Selous-Udzungwa, and Amani-Nilo corridors, Tanzania | Camille Warbington | United States of America | Tanzania Research and Conservation Organization (TRCO), local NGO | National Park(s): Tarangire, Lake Manyara, Mkomazi, Nyerere, and Udzungwa. Game Reserve(s): Selous. Forest Reserve(s): Magombera. Nature Reserve(s): Amani and Nilo. Game Controlled Area(s): All |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Game Controlled Areas attached with the Kwakuchinja, Udzungwa-Selous, and Amani-Nilo corridors. Open areas (District, Ward, Village): Villages surrounding Kwakuchinja, Udzungwa-Selous, and Amani-Nilo corridors, Manyara National Park, Tarangire National Park, Eastern Arc Mountains, Mkomazi National Park, Amani Nature Reserve, Nilo Nature Reserve, Selous Game Reserve, Udzungwa National Park, and Magombera Forest Reserve. |
| 161 | Using mophometrics and genetic characterization to infer genetic diversity of pancake tortoise in Tanzania | Bakari Mtili, Nassoro Mohamed, Rudolf Mremi and Gabriel Mayengo | Tanzania | College of African Wildlife Management | National Park: Tarangire. Open areas: Babati, Kondoa and Chemba. |
| 161 | Understanding the population demographics and genetic diversity of sitatunga *Tragelaphus spekii* in Tanzania | Bakari Mtili, Emmanuel Lyimo and Emmanuel Martin | Tanzania | College of African Wildlife Management | Rubondo Island and Kigosi National Parks |
| 163 | Movements and Fate of Male Lions at Maturity: Influence of Social Factors and Prey Composition | Christopher Comer and Jerrold Belant | USA | Safari Club International Foundation in | Moyowosi Game Reserve |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | USA. | |
| | | Eblate Mjingo, Alex Lobora | Tanzania | TAWIRI | |
| | | Stanslaus Mwampeta | Tanzania | NTNU | |
| 164 | Seasonal Fluctuations in Activity Budget in the wild, east African chimpanzees from the Issa valley Tanzania | Lian Willemijn Bakker | Netherlands | University of applied sciences van Hall Larenstein | Tongwe West Forest Reserve |
| 165 | The Impact of Burned Landscapes on the Presence of Mammalian Species in a Miombo Woodland Mosaic, Western Tanzania | Romane Leten | Belgium | Maastricht University, the Netherlands | Tongwe West Forest Reserve |
| 166 | Towards a sustainable future for wildlife and people in the Greater Serengeti-Mara Ecosystem | Han Olff | Netherlands | Groningen Institute for Evolutionary Life Sciences | National Park(s): Serengeti, Game Reserve(s): Grumeti, Ikorongo, and Kijereshi. Forest Reserve(s): Loliondo I and II. Wildlife Management Area(s): Ikona, and Makao. Game Controlled Area(s): Speke Gulf. Open areas (District, Ward, Village): Different villages in the following districts: |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Ngorongoro, Meatu, Itilima, Bariadi, Busega, Bunda, Serengeti, and Tarime. Others: NCA. |
| 167 | Resource partitioning between different wildlife species and livestock in relation to land management | Lisa Budidarm | Netherlands | Leiden University | National Park(s): Serengeti. Forest reserve(s): Loliondo I and Loliodo II FR. Open areas (District, Ward, Village) Villages in NCA and Loliondo: Olbalal, Malambo, Arash, Maalon, Oloipiri, Soitsambu, and Ololosokwan. |
| 168 | The influence of seasonality, age, and rank on patrol behaviour in East African chimpanzees (*Pan troglodytes*) in the Issa Valley, Tanzania | Drontmann Nicolien Elisabeth Fleur | Netherlands | University of applied sciences van Hall Larenstein | Tongwe West Forest Reserve |
| 169 | Elephant Landscape Connectivity in northern Tanzania | Anna Estes | United States of America | Carleton College, Nelson Mandela African Institution of Science and Technology and the Rare Species Conservatory Foundation | National Park(s): Serengeti; Lake Manyara, Tarangire, and Arusha. Game Reserve(s): Maswa, Ikorongo, Grumeti and Swagaswaga. Forest Reserve(s): Loliondo, Gelai, Kitumbeini, Essimingor, Monduli, Longido, and Nou. Wildlife Management Area(s): Ikona, Burunge, Makame, and Enduimet. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Open areas (District, Ward, Village) Karatu, Mbulu, Babati, Monduli, Arumeru, Hai, Simanjiro, Kiteto, and Kondoa.Additional: Lake Natron, Mto wa Mbu, Lokisale, and Simanjiro. Other: Ngorongoro Conservation Area. |
| 170 | he Range and Interaction of the *Connochaetes taurinus* in the increasing human pressure in Tanzania". | Emmanuel Hosiana Masenga, Eblate Ernest Mjingo, Edward Kohi | Tanzania | TAWIRI | National Park(s): Serengeti, Tarangire, Mikumi, Saadani, and Nyerere. |
| | | Benjamin Chow-Battersby | Singapore | | Game Reserve(s): Selous, Maswa, and Kijereshi. Wildlife Management Area(s): Liwale. Game Controlled Area(s): Natron. |
| 171 | A survey to establish baseline data on the socio-economic and ecological indicators in the Tarangire ecosystem | Alex Kisingo, Prof. Kokel L. Melubo, Rudolf Filemon Mremi, Abraham Eustace and Peter Mkilindi | Tanzania | College of African Wildlife Management, Mweka and Tanzania Wildlife Authority. | Wildlife Management Area(s): Randlen. Open areas (District, Ward, Village): Simanjiro, Babati, Monduli, and Longido Districts. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 172 | Unveiling the Mirror: Exploring Self-Directed Behaviour and Social Dynamics in Wild Chimpanzees through Mirror-Mediated Interactions | Liam Taylor | United Kingdom | Cambridge University | Tongwe West Forest Reserve |
| 173 | Behavioral, Ecological and Conservation Studies of Chimpanzees and Other Larger Mammals in the Greater Mahale Area<br><br>Sub-tittle: 'Hunting and Meat-Eating Behaviour of Chimpanzees in the Mahale Mountains National Park'. | Kazuhiko Hosaka | Japan | Kamakura Women's University | Mahale Mountains National Park |
| 174 | Spatial Analysis of Botanical Diversity and Primate Feeding Sources in the Issa Valley | Wiske Bovee | Netherlands | Can Hall Larenstein University | Tongwe West Forest Reserve |
| 175 | Assessment of Population Ecology of Puku (*Kobus Vardonii*) in Rukwa Game Reserve, Tanzania' | Fred Stephen Tweve | Tanzania | Sokoine University of Agriculture | Lake Rukwa Game Reserve |
| 176 | Identification of human wild dog conflict hotspots to prioritize mitigation efforts in Simanjiro plains' | Houghton Herbert Menoi | Tanzania | Sokoine University of Agriculture | Simanjiro Plains |
| 177 | Continent-wide genomics of hybridisation and speciation | Alexander Kirschel | Cyprus | University of Cyprus | National Park(s): Ruaha, Kitulo, Udzungwa and Saadani.<br>Game Reserve(s): Ibanda, Rumanyka Orugundu, Kimisi, Burigi, Biharamulo, Kigosi, Moyowosi, Northern Kahama, Maswa, Grumeti, Ugalla |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | River, Rungwa and Kipengere Mpanga. Forest Reserve(s): Minziro, Kagera, Ruande, Sima, Buhundi, Mamani, Sisu, Ruamagaze, Mwienzi, Ngongwa-Busangi, Ibindo, Kurwirwi, Kyanayah, Katitu, Igombe River, Uyui Kigwa Ruruga, Uruma, Goweko, Nyahua Mbuga, Mpembabazi, Ugunda, Ngongwa, Kipembawe, Lupa North, Kalangali, Kyela, Bulongwa, Kipengere, Mpanga village, Bamba ridge and Image. |
| 178 | Assessment of Feeding Ecology and Habitat Utilization of Caracal in the Northern Part of Serengeti Ecosystem, Tanzania | Ellen Ponsian Kasaka, Emmanuel H. Masenga, Revocatus Meney, Emmanuel Usangila, Grayson Mwakalebe | Tanzania | TAWIRI | National Park(s): Serengeti. Game Reserve: Maswa. Other Area: Ngorongoro Conservation Area. |
| 179 | Understanding the diet of the pancake Tortoise *Malacochersus tornieri* | Zac Mcmenemy | United Kingdom | College of African Wildlife Management and Manchester Metropolitan University | National Park(s): Tarangire. Open Areas: Vilima Vitatu, Chemba (Kondoa). |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 180 | Quantifying the ecological impacts of Acacia reficiens invasion in Enduimet Wildlife Management Area | Michael Sixtus Mosha, Vedasto Ndibalema and Godfrey Soka | Tanzania | Sokoine University of Agriculture (SUA) | Enduimet Wildlife Management Area |
| 181 | Beta Diversity Analysis and Drivers of Variations in Stream Macroinvertebrates Altitudinal Assemblages on Mount Kilimanjaro, Tanzania | Izack Zakayo Igenge, Augustino Jacob, Gabriel Mayengo and Cyrus Rumisha | Tanzania | College of African Wildlife Management, Mweka | Kilimanjaro National Park |
| 182 | Invasion Paradox: Breeding behaviour, population genetics, movement ecology and socio-ecological impacts of Indian House Crows (*Corvus splendens)* in Tanzania | Ignas Mng'anya Safari | Tanzania | University of Dodoma | Open areas (District, Ward, Village): Dar es Salaam, Tanga, Coast Region, Morogoro, Dodoma, Kilimanjaro, Arusha, Manyara, Singida and Tabora Shinyanga and Mwanza regions. |
| 183 | Factors affecting Birds Abundance and Diversity in Mgeta Riverine Ecosystem: A conservation perspective | Glory Bakari | Tanzania | Sokoine University of Agriculture (SUA) | Open areas (District, Ward, Village): Mgeta village, Mvomero District, Morogoro region |
| 184 | Ecological drivers of bipedalism and arboreality in savanna-dwelling chimpanzees | Rhianna Charlotte Drummond-Clarke | United Kingdom | Max Planck Institute of Evolutionary Anthropology | Tongwe East Forest Reserve |
| 185 | Spatial-Temporal Assessment of Puku *Kobus Vardonii* Population at Kilombero Game Reserve, Tanzania | Maureen Daffa | Tanzania | Sokoine University of Agriculture | Kilombero Game Reserve |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 186 | Assessment of population ecology of Gerenuk around Lake Natron, Tanzania | Beevans Biseko | Tanzania | Sokoine University of Agriculture (SUA) | Lake Natron Game Controlled Area |
| 187 | Spatial Ecology and Landscape Genetics of Lion (*Panthera leo*) and African wild dog (*Lycaon pictus*) in the anthropogenic impacted protected areas in Southern Tanzania | Leonard John Haule | Tanzania | Nelson Mandela African Institute of Science and Technology (NM-AIST) | National Park(s): Nyerere. Game Reserve(s): Selous. Wildlife Management Area(s): Mbomipa, Juhiwangumwa, Mungata, and Magingo. Open areas (District, Ward, Village): Kilwa South, Kilwa North. |
| 188 | Status survey of African wild dog (*Lycaon pictus*) in the Ruaha-Katavi landscape, Tanzania | Msafiri Paul Mgumba | Tanzania | Wildlife Conservation Society (WCS). | National Park(s): Katavi, Ugalla River. Game Reserve(s): Rungwa, Kizigo, Muhezi, LukwatiPiti, Rukwa, Lwafi, Inyonga, Uwanda, Wembere and Mpanga Kipengere. Forest Reserve(s): Mlele and Itulu Hills. Wildlife Management Area (s): Ipole, Waga, MBOMIPA, Mpimbwe. Game Controlled Area(s): (Rungwa River, Mlele and Lunda Mkwambi). Joint Village Land Forest |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Reserve(s): Mdabulo, Kululu East and West Open Area(s): Rungwa North, Rungwa South, Rungwa-Mzombe and Piti East, and all villages adjacent to above mentioned protected areas. |
| 189 | Exploring the influence of environmental stressors and movement pattern on chemical immobilization of selected wild carnivores and herbivores across the Serengeti ecosystem | Richard Joachim Samson, Modesta Makungu | Tanzania | | Serengeti National Park |
| | | Julius Keyyu | Tanzaia | TAWIRI | |
| | | Katja Koeppel | South Africa | University of Pretoria South Africa | |
| 190 | Adaptation to savannah habitats in the chimpanzees of Issa Valley, Tanzania | Harrison Ostridge | United Kingdom | University College London | Tongwe west Forest Reserve |
| 191 | Assessment of insect pollinators community across the land use types in Uzungwa Scarp Nature Forest Reserve | Ida Aloyce Mrema | Tanzania | The Nelson Mandela African Institution of Science and Technology (NM-AIST) | Forest Reserve: Uzungwa scarp nature forest reserve (USNFR) Open areas (Village): Chita, Kidete, Ikule, Makutano, Itongoa, Lufulu, Ching'anda and Udagaji.". |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 192 | Communication and Coordination: Pre-travel behaviour in East African chimpanzees (*Pan troglodytes schweinfurthii*) in the Issa Valley, Tanzania". | Julia Giasson Whelan | United States of America | GEMRC | Study site: Tongwe West Forest Reserve (Currently known as Luganzo-Tongwe Game Reserve). |
| 193 | Mycophagy among Chimpanzees at the Issa Valley". | Theresa Alvera Schulze | German. | GEMRC | Study site: Tongwe West Forest Reserve (Currently known as Luganzo-Tongwe Game Reserve). |
| 194 | Plant and Bioacoustic Phenology in Issa Valley (Tanzania)". | Francisco Rivas, Ruth Bowers-Sword, and Nikhil Makkar | Francisco Rivas: Chile. Ruth Bowers-Sword: United States of America. Nikhil Makkar: India. | GEMRC | Study site: Issa Valley, Tongwe West Forest Reserve (Currently known as Luganzo-Tongwe Game Reserve). |
| 195 | The Investigation of Genetic Diversity and Relationships in African pygmy Chameleons (*Rhampholeon*) of the Rubeho Mountains, Tanzania | Amoni Ulime Jacob | Tanzania | University of Dar es Salaam | Forest Reserve(s): UKWIVA, MANG'ALISA, and ILOLE in the Rubeho Mountains |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| 196 | Building ecological models for Australopithecus afarensis using comparative faunal community structure data from the Issa Valley | Maire Aghna Malone | United States of America | Arizona States University | Study area(s): Tongwe West Forest Reserve (Current known as Luganzo-Tongwe Game Reserve). |
| 197 | Mbhekeni Sifiso Lukhele, Matteo Sebastianelli, Alexander Kirshel and Chacha Werema "Continent-wide genomics of hybridisation and speciation | Mbhekeni Sifiso Lukhele | Eswatini | University of Cyprus | Study sites:<br>National Parks: Ruaha, Kitulo, Udzungwa, Burigi-Chato,Saadani,Kigosi and Ibanda-Rumanyika.<br>Game Reserves: Moyowosi, |
| | | Matteo Sebastianelli | Italy | | |
| | | Alexander Kirshel | Britain. | | |
| | | Chacha Werema | Tanzania. | University Of Dar es Salaam | Northern Kahama, Maswa, Grumeti, Ugalla River, Rungwa, and Mpanga Kipengere<br>Forest Reserves: Minziro, Ruande, Sima, Buhundi FR, Mamani, Sisu, Ruamagaze, Mwienzi, Ngongwa-Busangi, Ibindo, Kurwirwi, Kyanayah, Katitulgombe River, Uyui Kigwa Ruruga, Uruma, Goweko, Nyahua Mbuga, Mpembabazi, Ugunda, Ngongwa, Kipembawe, Lupa North, Kalangali, Kyela, |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | | | | | Bulongwa, Kipengere Mpanga village FR, Bamba ridge, Image, East Usambara Mts. |
| 198 | Ecology and Interaction of Elephant in the Greater Kilimanjaro Landscape | Lameck Mkuburo, Athumani Mathayo | Tanzania | Tanzanian Elephant Foundation | National Parks: Arusha, Kilimanjaro and Mkomazi. Wildlife Management Area: Enduimet. |
| | | Edward Kohi | | TAWIRI | Game Controlled Area(s): Longido and Lake Natron. Open areas: Longido, Arumeru, Meru, Siha, Rombo, Mwanga, Same, Lushoto, and Mkinga Districts. |

| | PROJECT TITLE | RESEARCH SCIENTISTS | NATIONALITY | INSTITUTE OF AFFILIATION | RESEARCH LOCATION |
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| | **RESEARCH PRIORITY THEME – NATURAL RESOURCES GOVERNANCE AND INFRASTRUCTURE DEVELOPMENT (NRG&ID)** | | | | |
| | **A): ON GOING RESEARCH PROJECTS** | | | | |
| 199 | Review of wildlife statutory instruments governing conservation' | Asanterabi Lowassa, Cecilia Leweri, John Bukombe, Stephen Nindi, Janemary Ntalwila, Denis Ikanda, Hillary Mushi, Hamza Kija, and Egedius Mweyunge | Tanzania | TAWIRI | Tanzania |
| 200 | How to promote the coexistence of wildlife and people in African savanna ecosystem | Yuhong Li | China | University of Groningen | National Park(s): Serengeti. Other: Ngorongoro Conservation Area |
| 201 | A History of Wildlife Buffer Zones' Governance in Tanzania: A Case of the South-Western Serengeti, ca. 1920s to 2010s. | James Benedict Kuboja | Tanzania | University of Dar es Salaam, College of Humanities. | National Park: Serengeti. Game Reserves: Maswa. Wildlife Management Area: Makao. |




**Contacts**

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