SAADANI LION PROJECT: Research Highlights (September 2025 – March 2026)

Project Title: The ecology and status of lion: Research study on lion, habitat, co-predators, and prey in Saadani – Wamimbiki ecosystem, Tanzania

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WITH GRATITUDE TO OUR SUPPORTERS AND FUNDERS

Collaborators: TAWIRI, TANAPA, Kisampa Conservancy, Honeyguide Foundation

Funders: Safina Lion Conservation, Kisampa Conservancy

During the reporting period from September 2025 - March 2026, the Saadani Lion Project conducted extensive field research and community engagement activities aimed at improving the understanding of lion ecology and strengthening coexistence between wildlife and local communities surrounding Saadani National Park.

Saadani National Park represents a unique ecosystem in East Africa as it is the only national park in Tanzania bordering the Indian Ocean, combining coastal forests, savanna grasslands, riverine habitats, and mangrove ecosystems. This ecological diversity supports a variety of wildlife species and provides important habitat for large carnivores including African Lion, Leopard, and Spotted Hyena.

1. Lion population monitoring

To assess lion distribution and population status within the park, the research team conducted search-encounter surveys over approximately 100 days, covering a total distance of 2,868 km along established survey routes.

These surveys involved systematically searching for:

- Direct lion sightings
- Spoor (tracks and signs)
- Vocalizations
- Carcasses and other feeding evidence

Both daytime and nighttime monitoring were conducted. During night surveys, a spotlight was used from a slow-moving vehicle to detect reflective eye shine of carnivores and prey species.

In addition to search-encounter surveys, five call-in stations were conducted using a playback protocol broadcasting prey distress calls at approximately 95 dB. Call-in surveys are a widely used method for detecting lions and other large carnivores, as they often respond to prey distress calls during nighttime hours (Ogutu & Dublin, 1998).

Across the survey period, the research team recorded 16 lion group sightings, resulting in 92 detection events. From these events, 43 photographs were suitable for individual identification using whisker spot patterns.

2. **Individual lion identification and population estimation**

Individual lions were identified using the whisker spot identification technique, a widely used non-invasive method in carnivore research. Each lion possesses a unique arrangement of whisker spots on the muzzle, which can be used as a reliable identifier for long-term monitoring (Pennycuick & Rudnai, 1970).

Using this approach, the research team has currently confirmed 12 individually identifiable lions that were detected repeatedly during the survey period.

Based on observational data, spoor records, and pride sightings, the estimated lion population in Saadani National Park is approximately 38 individuals, distributed among four observed prides.

This estimate should be considered preliminary, as further monitoring and photographic identification are required to confirm additional individuals and better understand pride structure, dispersal patterns, and territory sizes.

The relatively small population size highlights the importance of long-term monitoring and targeted conservation actions to ensure the viability of the Saadani lion population.

Globally, lion populations have experienced dramatic declines over the past century, with current estimates suggesting that African lion populations have declined by approximately 43% over the past 21 years due to habitat loss, prey depletion, and human–wildlife conflict (Bauer et al., 2015).

3. **Camera trap monitoring in inaccessible areas**

To complement field surveys and monitor wildlife in difficult terrain, the project deployed 10 camera traps in areas characterized by dense vegetation and limited accessibility.

Camera trap stations were placed at approximately 1 km intervals to maximize spatial coverage and improve detection probability.

Camera traps recorded several large carnivore species including:

Spotted Hyena

Leopard

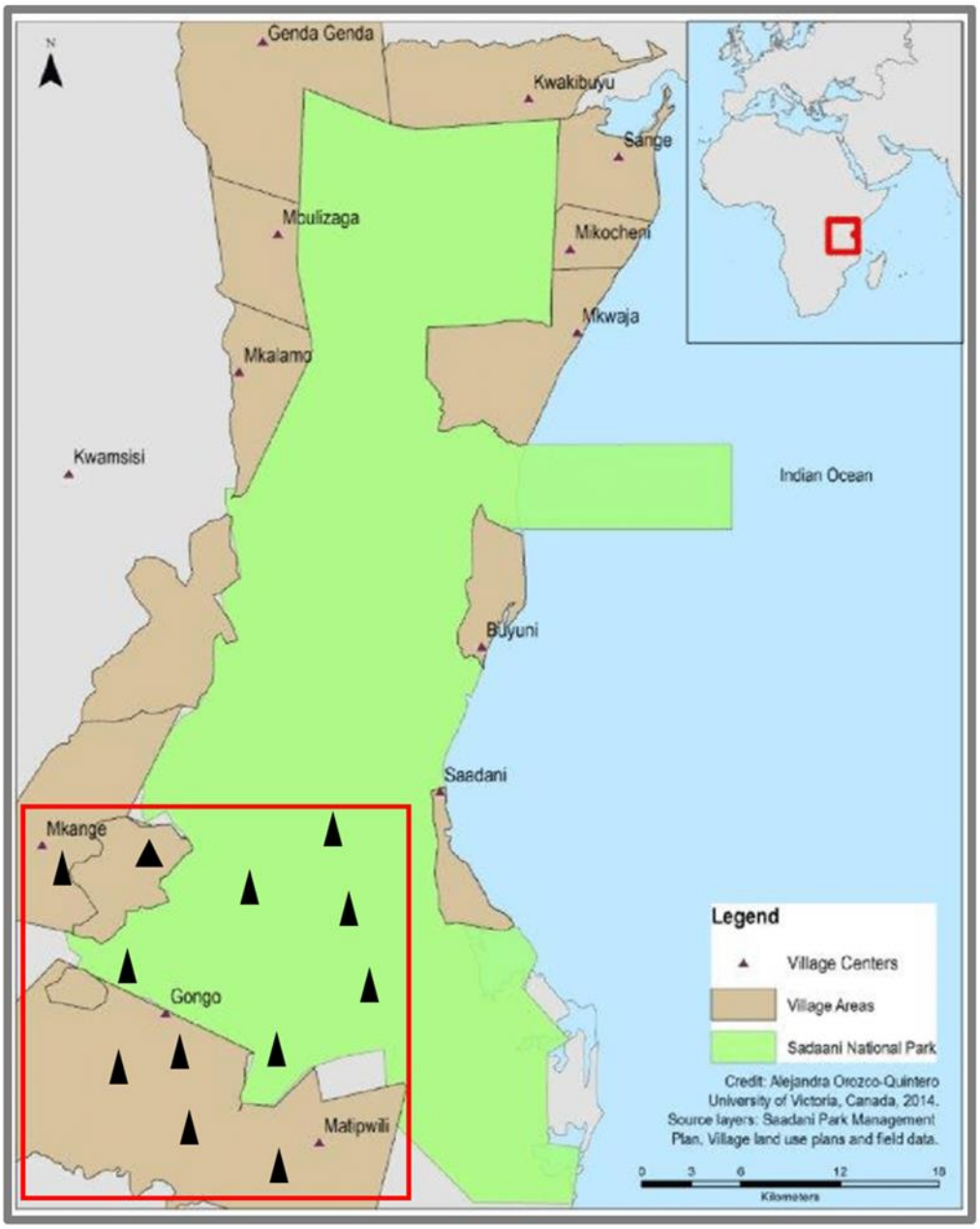
However, no lions were detected by the camera traps during this monitoring period.

This observation suggests that lions in Saadani may prefer more open habitats rather than dense vegetation areas. Lions are generally ambush predators that rely on a balance between cover and visibility when hunting prey, and habitat structure strongly influences their movement patterns and prey selection (Hopcraft et al., 2005).

Further camera trap monitoring will help determine:

- Spatial use of the park by lions
- Carnivore distribution patterns
- Potential wildlife corridors
- Overlap between wildlife and human activities

Camera trap deployment for monitoring lions and other carnivores in Southern Saadani NP



This activity is ongoing. The map above illustrates the areas where camera traps are currently being deployed in the southern part of Saadani National Park, near the villages of Mkange, Gongo, and Matipwili. We are prioritizing the installation of camera traps in remote and less accessible areas to improve our ability to detect and monitor the presence of lions and other carnivores.

4. **Distribution of key herbivore species**

During the lion monitoring surveys, researchers also recorded sightings of six key herbivore species that form an important component of the lion prey base:

- African buffalo
- Giraffe
- Plains zebra
- Wildebeest
- Elephant
- Waterbuck
- Reedbuck

Preliminary spatial analysis suggests that these herbivore species are unevenly distributed across the landscape, which may influence lion distribution and hunting behavior.

Understanding prey distribution is essential because lion population density is strongly linked to prey biomass and prey availability within the ecosystem (Hayward et al., 2007).

5. **Notable ecological observations**

Preliminary observations suggest that lions in Saadani may frequently prey on relatively large herbivores, including Giraffe, which is somewhat unusual compared with many other lion populations.



Lions typically prefer medium-sized ungulates such as wildebeest and zebra; however, prey selection can vary depending on prey availability and environmental conditions (Hayward & Kerley, 2005).

Further investigation will be required to determine whether this pattern represents a true ecological adaptation or simply reflects opportunistic feeding behavior within the local ecosystem.

6. **Community perceptions and Human–Wildlife Coexistence**

A household survey was conducted in 16 villages surrounding Saadani National Park, with a total of 360 households interviewed.

The survey aimed to assess:

Community perceptions of wildlife

Attitudes toward conservation

Experiences with human–wildlife conflict

Results showed that approximately 75% of respondents expressed positive attitudes toward the national park and its conservation initiatives.

This positive perception is largely attributed to the strong relationship between park authorities and surrounding communities.

The Tanzania National Parks Authority actively supports local communities through several initiatives including:

- Construction and renovation of primary schools
- Support for local health dispensaries
- Environmental education programs
- Organized visits that allow community members to experience wildlife and understand conservation efforts

Such initiatives help strengthen community support for conservation, which is widely recognized as a critical factor in the success of protected areas (Western et al., 2009).

7. **Maasai community perspectives on lions**

The Maasai pastoralist communities living around Saadani National Park play a key role in livestock grazing systems and human–wildlife interactions.

Interviews with Maasai respondents indicated that conflict with lions is relatively limited, largely due to strong collaboration between local communities and park authorities.

Community members reported that when lions are seen near villages or grazing areas, they immediately notify park rangers. Rangers then respond by visiting the area and driving lions away from livestock areas back toward the park.



This rapid communication system has significantly helped reduce:

- Livestock losses
- Retaliatory killing of lions
- Negative attitudes toward predators

Effective cooperation between park authorities and local communities is widely recognized as one of the most effective approaches to mitigating human–lion conflict (Dickman et al., 2014).

8. **Conflict with Spotted Hyenas**

Although lions are generally tolerated by communities, respondents identified spotted hyena as the most problematic carnivore species in the area. Hyenas frequently attack small livestock, particularly goats and sheep, especially at night.

These attacks often occur when livestock are kept in weak or poorly constructed bomas made from shrubs and bushes, which provide limited protection from predators.

Improving livestock enclosures using stronger materials such as chain-link fencing or reinforced wooden structures has been shown to significantly reduce livestock depredation in pastoral communities (Lichtenfeld et al., 2015).

9. **Future project activities will include:**

- Expansion of camera trap monitoring
- Training workshops with park rangers and researchers
- Radio collaring to monitor lion movements
- Snare removal operations to reduce threats to lions

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Appendix A: Camera trap images




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2026-03-18 03:28:46 25℃ 77℉


2026-03-15 07:26:12 24℃ 75℉


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