



Hawaan Forest Conservation Trust

Monthly site inspection report:

Summary:

09.09.2024

1. Work at the Hawaan forest over August has comprised a prescribed burning of grassland Blocks 4 and 5, cleaning and maintenance of the eastern (WESSA) portion of the forest, and the installation of new forest signage.
2. August saw only 10 mm of rainfall, and the forest remains quite dry. However, with signs of spring approaching, many White Stinkwoods have begun to bud and produce new leaves.
3. Snares were checked on the western portion of the reserve, but no snares were collected during August. No poaching intrusions were noted on the cameras during August.
4. Trails within the WESSA forest have been maintained during August, including raking of leaves.
5. Although the vegetation in the forest remains mostly inactive, bird activity has increased in August, with sightings and calling of Gorgeous Bush Shrike and Olive-breasted Bush Shrike.
6. We have started developing a fauna photographic portfolio from the camera trap images that have been collected. This month, we profile some of the avifauna captured by the camera traps.

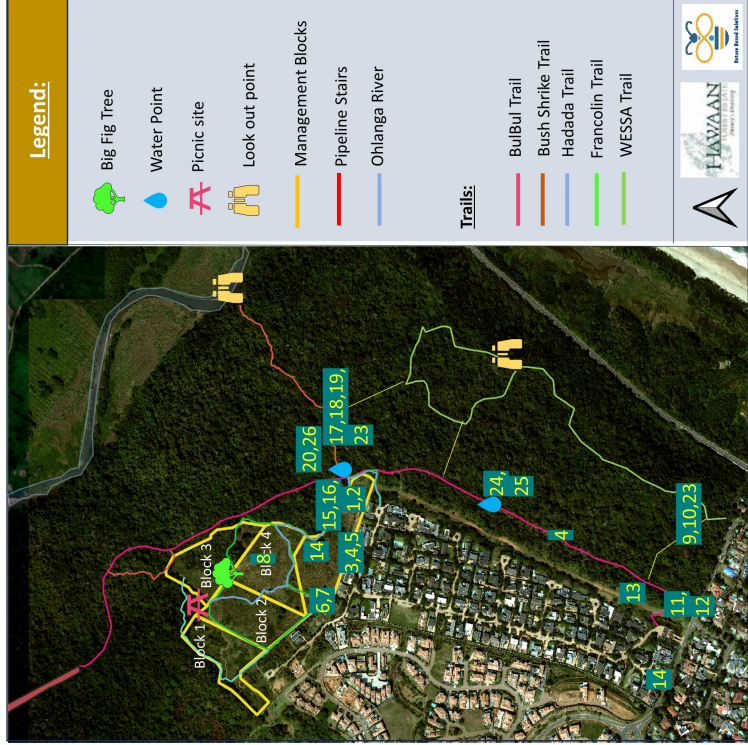


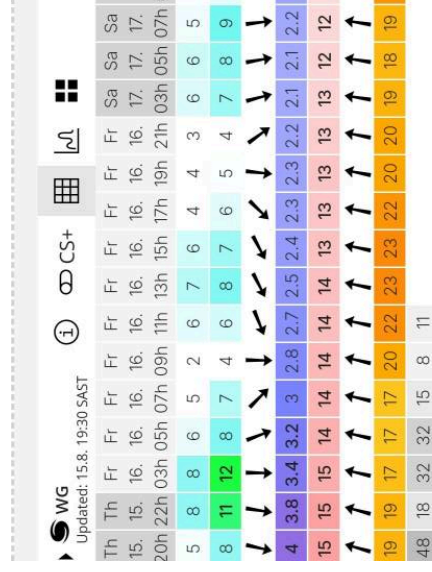
Figure 1. Numbers on the map refer to items below.



The corners and tracers in Block 5 have were well prepared before the burn allowing a safe and functional fire.



A pair of young Night jar chicks were found in Block 5, consequently on the day we adapted to footprint of the fire.



The FDI for the day of the burn was low; wind conditions 7km per hour; temperature 23 degrees and humidity at 55%. Fire danger index yellow.



The corner of Block 5 burnt patchwork manner, leaving a few small bush-clumps which would have functioned as refuges for insects and other animals.



The western portion of Block 5 burnt cleanly at around mid day by then the temperature was 26 degrees.



Prior to the fire in Block 4, stacked brush was ready for combustion.

(7)



The aftermath of the corner of Block 4, showing the effects of the fire which cleaned up much of the vegetative trash from clearing.

(8)



The fire ended at 15:30 and mopping up of smouldering vegetation continues until around 4:30pm.

(9)



Majority of the forest trails on the south-eastern area of the reserve have now been cleaned and raked.

(10)



The Signage project has also been completed. The new signs fit snugly fit into the forest environment.

(11)



Some light pruning is needed around the new signage and on the pathways to improve the forest user experience.

(12)



The entrance NR sign has now been moved from the verge to the Forest Gate but needs a service.



(13)

On the bufferzone to the forest reserve *Ficus polita* which was planted in the early 2000's are fruiting.



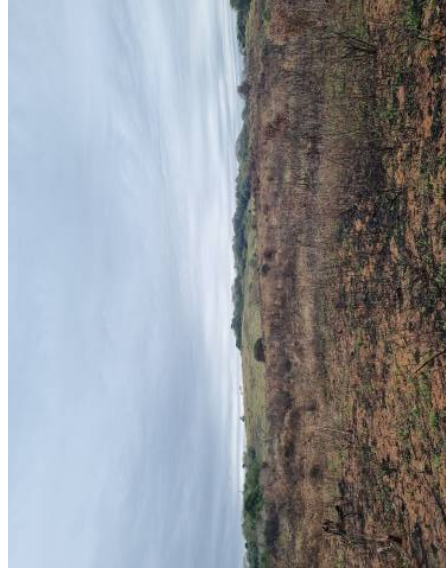
(14)

While at the entrance to the Estate - African Dog Rose. – *Xylotheca kraussiana*, have started to the flower.



(15)

A two week post burn inspection showed grasses have started to regrow Block 5.



(16)

A fair amount of charred woody material remains on Block 4 & 5. These areas will be looked at again in November, and assessed for coppice regrowth and then follow-up herbicide application.



(17)

The forest itself, despite a bit of rain in August, is incredibly dry and remains in a state of rest. However, trees which have started to bud are *Celtis africana*.



(18)

The browsing exclusion plot will now be taken down and the materials which remains in good conduction will be re purposed into two smaller exclusion areas.



(19)



(20)

(21) Lighted Matches - *Agelanthus kraussianus*- is an (22) parasitic mistletoe was observed flowering in the forest in late August



(23) The resident flock of Crested Guinea fowls were (24) observed near the Carnegie Bench during August.



(25) Another,faily infreqency water-point visiter are (26) the resident Black Sparrow Hawk, who visits usually a few times per month.

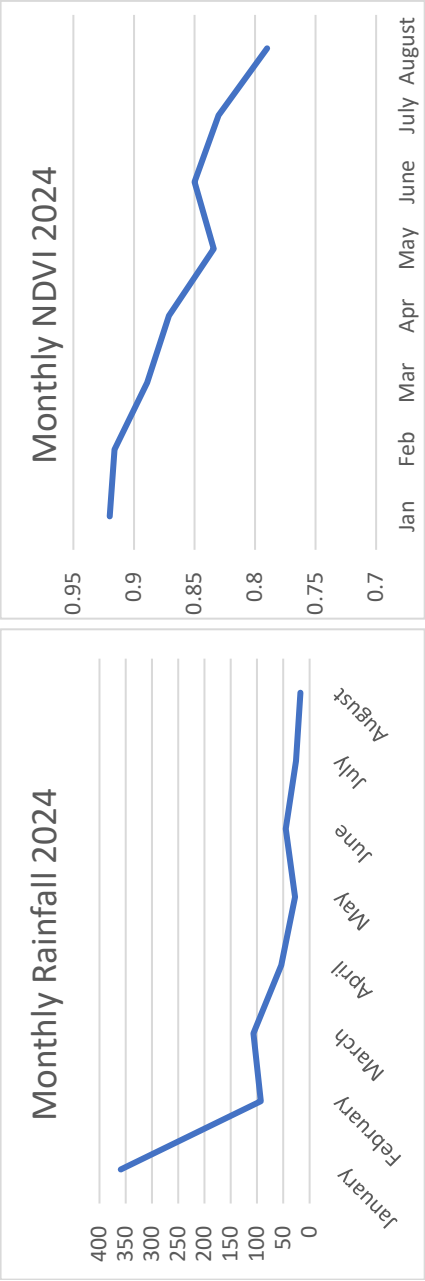


There have been a number of young antelope visiting the water points over winter, here is young bushbuck male who visits everyday at the Pipeline water-point.

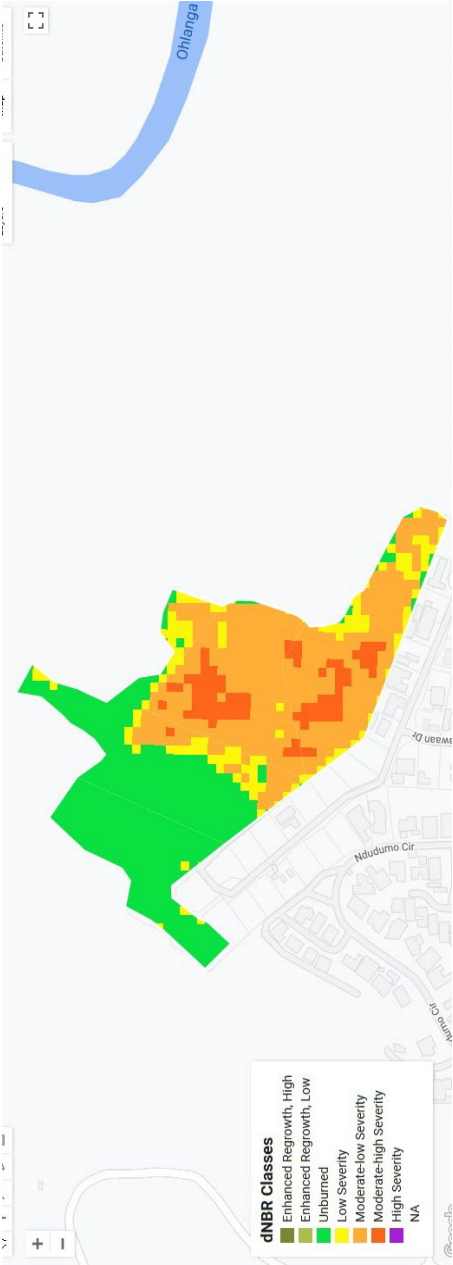


Banded mongoos, visit almost weekly during this dry time of year.

Climatic data (August 2024)



Prescribed burning scar 2024



Avifauna of the Hawaan Forest

HAWAAN FOREST CONSERVATION TRUST

TAMBOURINE DOVE
Turdus turanensis (Habs)

HAWAAN FOREST CONSERVATION TRUST

BLACK SPARROW HAWK
Accipiter melanoleucus (sMangeli mangani)

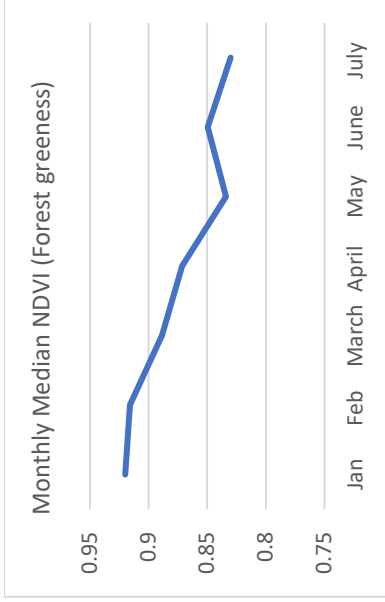
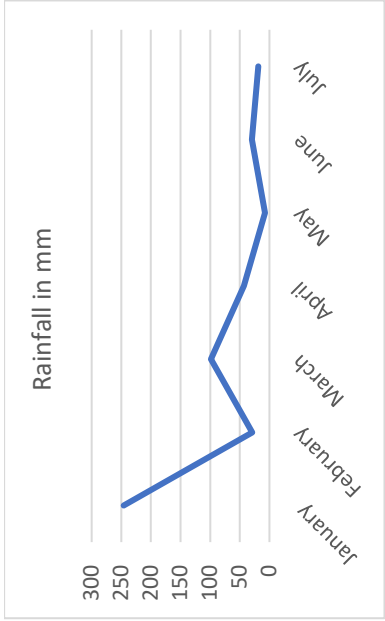
Operations: Tasks 2024

[illegible]

	3.7	Keep Tilley Huts neat and tidy sweep daily, clean windows every 10 days check maintenance and rusting on a monthly basis and report to HCT members.	Weekly	x	x	x	x	x	x	x	x	x	x	-	-	-	-
	3.8	Check that trail cameras weekly to ensure they are not stolen.	Daily	x	x	x	x	x	x	x	x	x	x	-	-	-	-
	3.9	Cleaning of shower on a daily basis after use.	na	-	-	x	x	x	-	-	-	-	-	-	-	-	-
	3.10	Check and order cleaning consumables for shower and toilet	na	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Woody plant management	4.1	On-going daily work is clearing invasive introduced plants such as Pepper Trees, Trifid etc..in both the forest and grassland systems.	Weekly	x	x	x	x	x	x	x	x	x	x	-	-	-	-
		Checking for regrowth of IAPs monthly and set out new work areas each month.	Monthly	x	x	x	x	x	-	-	-	-	-	-	-	-	-
	4.2	Removal of selected indigenous woody encroachment species such Silver Oak in the grassland section	Monthly	-	x	-	x	x	-	-	-	-	-	-	-	-	-
	4.3	Monitoring herbicide stores on a monthly basis	Monthly	x	x	-	x	x	-	-	-	-	-	-	-	-	-
Fire management	5.1	Ensure tracers belts and pathways in the grassland open before prescribed burn	Yearly	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5.2	Service fire-fighting equipment once before the annual burn is completed and then oil up so that ne-t season the equipment has not seized up with rust. <i>Fire fighting =equipment one drip torch, 3 rubber beaters with handles, two Knapsack sprayers.</i>	Yearly	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consumables	6.1	Order uniforms and personal protective gear for the 2 staff.	Yearly	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Item	Herbicide name	Active ingredient	Type	Litres in stock	Date used	Species applied	Location
1.	Gladiator, pre-mix	Picloram	Selective	15L (pre-mix)	16/4/22	Creeping inch	Forest mgmt zone
2.	Round-up	Glyphosate	Non-selective	3L	-	-	-
3.	Gladiator, premix	Picloram	Selective	Used 15L	15/11/22	Brazilian pepper	Eastern grassland
4.	Plenum 160	Picloram	Selective	20L – concentrate. Mixed 2L	25/02/23	Brazilian pepper – Yellow bells.	Eastern grassland

Item	Herbicide name	Active ingredient	Type	Litres in stock	Date used	Species applied	Location
5.	Plenum	Picloram	Selective	18L	13/4	Pepper, Yellowbe	West grassland
6.	Plenum	Picloram	Selective	5L	05/9	Ilis Pepper,	West grassland
7.	Plenum	Picloram	Selective	5L	05/03,24	Searsia	East-grassland
8.	Plenum	Picloram	Selective	3L	05/08,24	Searsia, Dodda, Euclea	East-grassland



Antelope of the Hawa'an Forest

HAWAAN FOREST
CONSERVATION TRUST

RED DUiker
(FEMALE)
Cephalophorus nanus
(ISKIIPUA)

HAWAAN FOREST
CONSERVATION TRUST

RED FOREST DUiker
(MALE)
Cephalophorus nanus
(ISKIIPUA)

HAWAAN FOREST
CONSERVATION TRUST

BUSH BUCK
(FEMALE)
Tragelaphus sylvaticus
(I'IAKAI-LE-MAUUMU)

HAWAAN FOREST
CONSERVATION TRUST

BUSH BUCK
(MALE)
Tragelaphus sylvaticus
(I'IAKAI-LE-MAUUMU)

HAWAAN FOREST
CONSERVATION TRUST

BLUe DUiker
(FEMALE & PAWN)
Philantopus monticola
(ISKIIPUA)

HAWAAN FOREST
CONSERVATION TRUST

BLUe DUiker
(MALE)
Philantopus monticola
(ISKIIPUA)

NDVI (Forest Greenness)



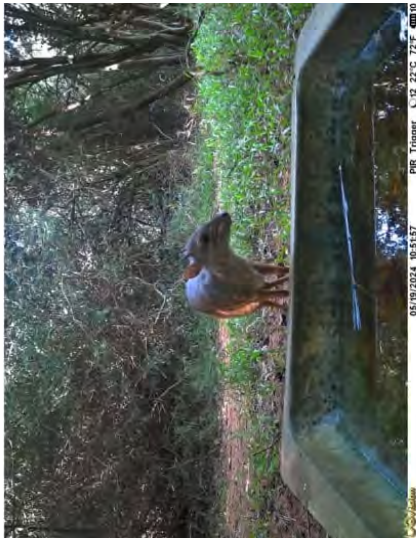
Normalised differentiated vegetation index, on a scale from 0-1, is a satellite derived metric used to monitor vegetation health and primary productivity. This can be tracked on a monthly bases through the growing season, where it can be noted that mean NDVI at the Hawaan peaked in Mid-February at 0.58 and dropped to 0.45 during late May,



Female Bushbuck



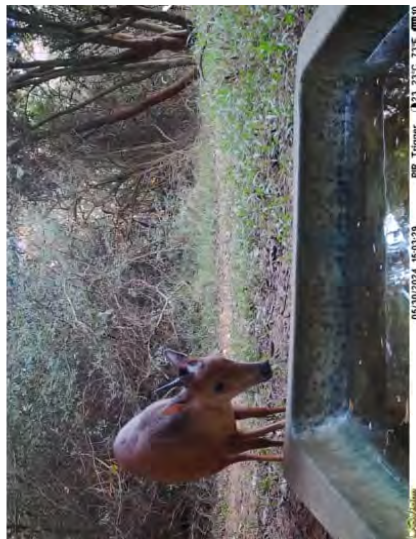
Male Bushbuck



Blue Duiker - Male



Lemon Dove



Red Duiker - Male



Banded Mongoose



Vervet Monkey

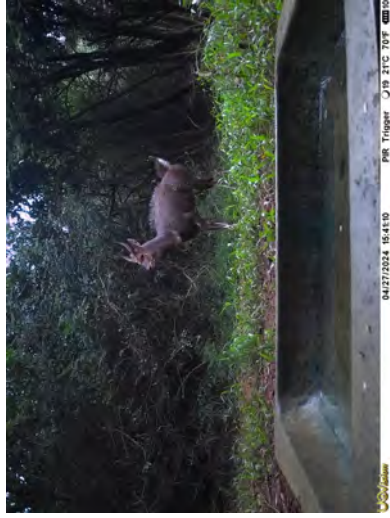
Camera Trap imagery from April 2024



Vervet monkeys have been enjoying the fresh water provided HCT at the Bushshrike water point



As have many of the Red Duiker



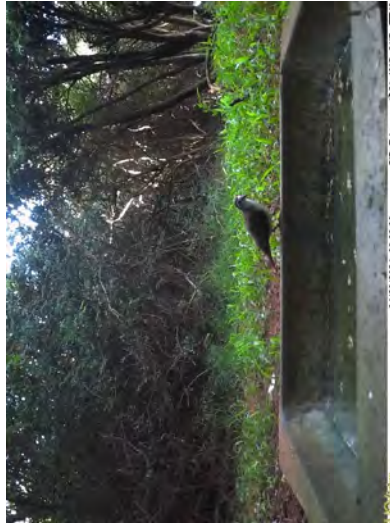
The large male bush-buck



and the beautiful female bush-buck, all look in fine condition.



Two beautiful forest doves, the rarer forest, Lemon Dove..



and the more common, more of associated with woodlands, Tambourine Dove, were captured on the camera during April

Observations from the camera traps in February showed the usual allotment of animals using the water provided by the HCT staff to bath and drink. We are working towards formalising the logging of this data on a consist basis so that it can be used a baseline information for the forest and to track change.



Spotted Genet



Tamourine Done



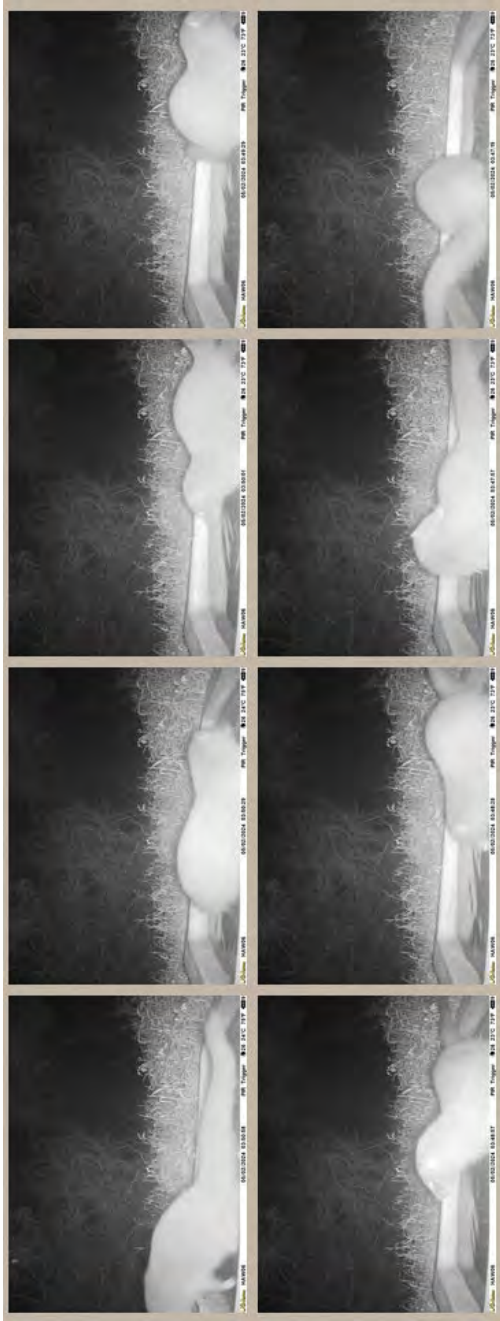
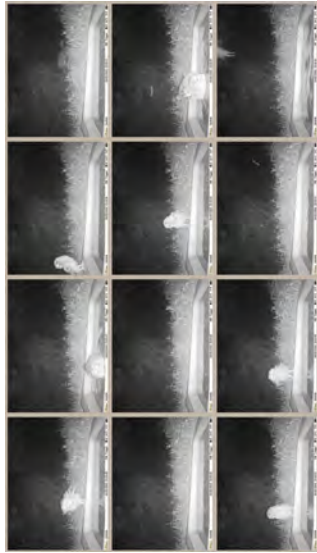
ed Duiker



Blue Duiker



Spotted Eagle Owl



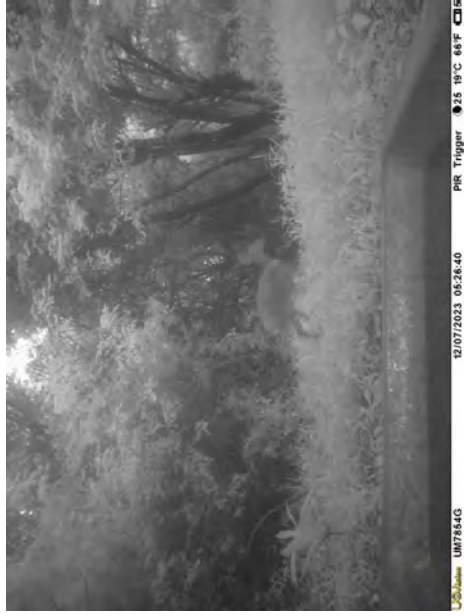
Water Mongoose



Camera Trap highlights from November 2023. Hawaan Forest.



Large Spotted Genet



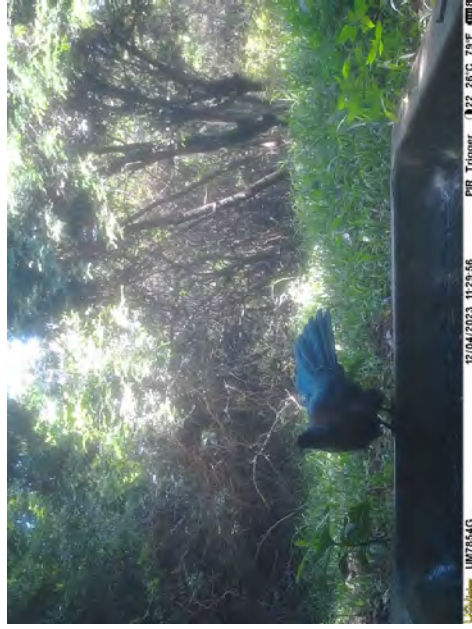
Female Bushbuck



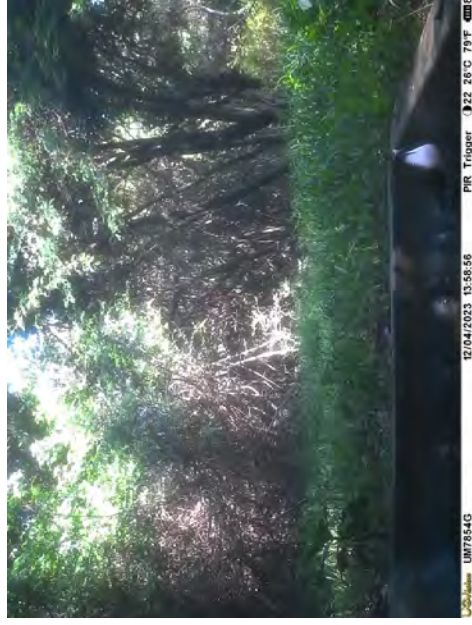
Red Capped Robin Chat



Pair of Red Duikers



Purple crested turaco

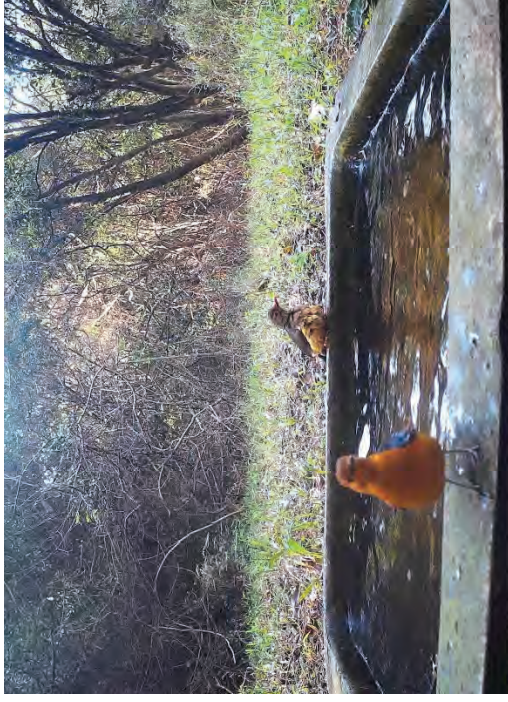


Tambourine dove

The forest fauna have been out in full force during August and the action has clearly revolved around the water point at the entrance to the Bush Shrike trail. One again some beautiful forest images have been captured.



A lemon dove and male blue duiker



A Red capped robin chat with a Olive thrush



Juvenile crowned eagle



A family of bushbuck

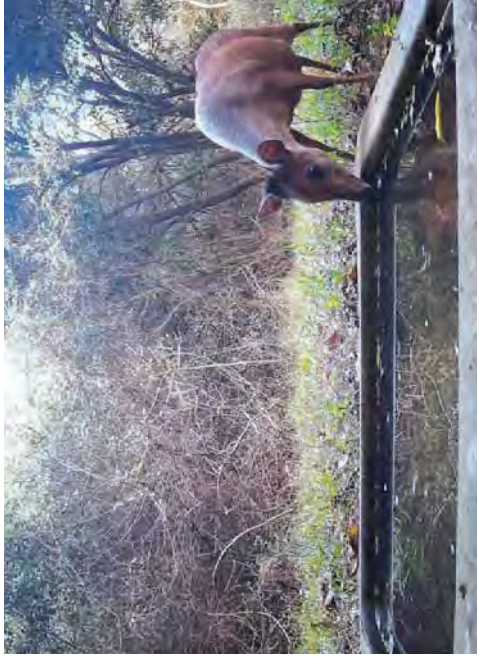


Large spotted Genet



Dwarf mongoose

Some beautiful camera trap images were taken at the forest water point during July, 2022.



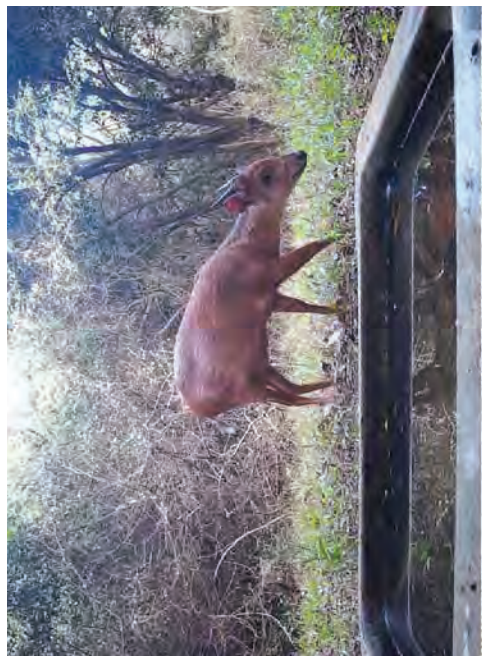
Red Duiker, female.



Bushbuck females.



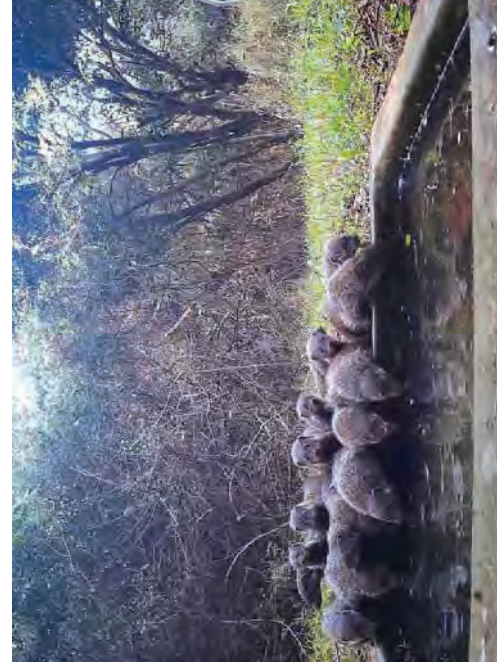
Crested guinea fowl.



Red Duiker, male

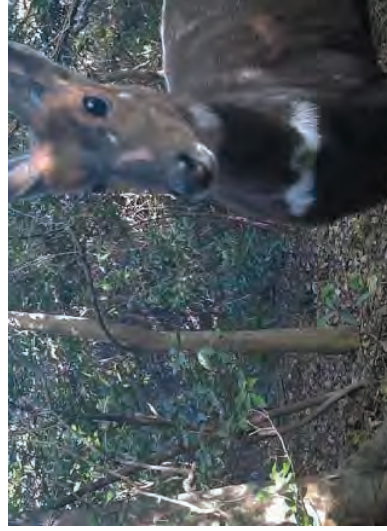


Vervet Monkey, Banded Mongoose, and Guinea fowl.



Banded Mongoose.

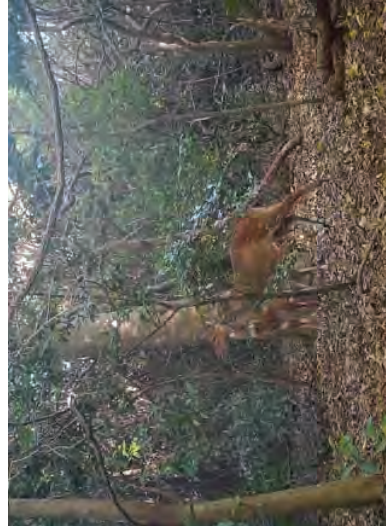
Some beautiful camera trap images were taken within the dry forest interior during June.



Bush buck female)



Bush buck (male)



Bush buck (female)



Red duiker (female)



Bush buck (female)



Blue duiker (pair)

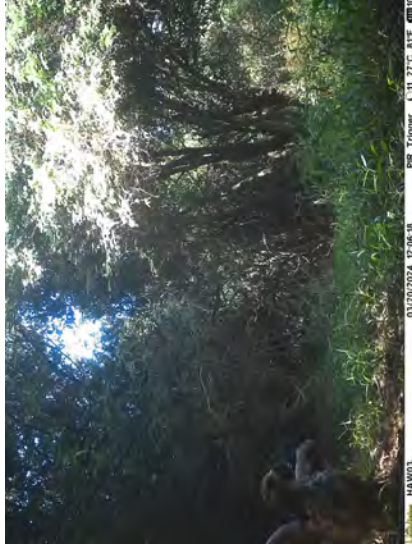
Camera Trap imagery from March 2024



The have been some great mixed foraging parties captured on the camera's during March. Here, Crested Guinea fowls and Red Duiker.



On the Bush-Shrike trail, Crested Guinea fowl and Bush Buck.



The recent hot weather has prompted a diverse array animals captured at the water-hole on the Bush-shrike trail. Such as the Crowned eagle drinking at the water-hole.



A family of Purple Crested Turaco's.



A nice large Bushbuck passing by the water-hole on the Bush Shrike trail.

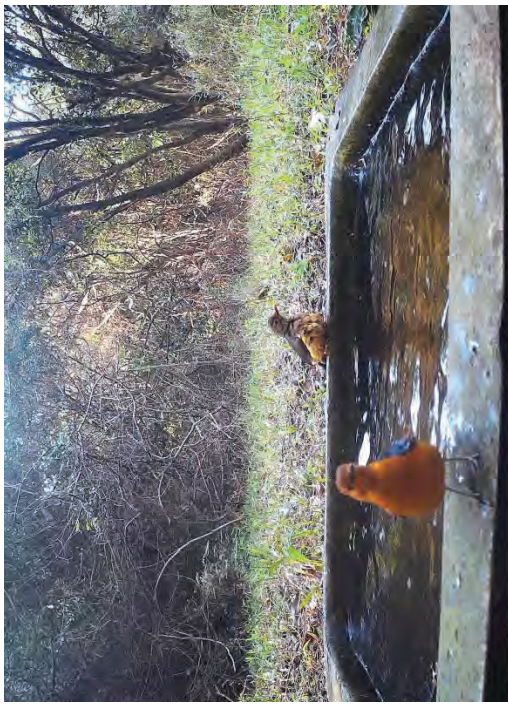


A small, blue Duiker close up at the water-hole.

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A lemon dove and male blue duiker



A Red capped robin chat with a Olive thrush



Juvenile crowned eagle



A family of bushbuck

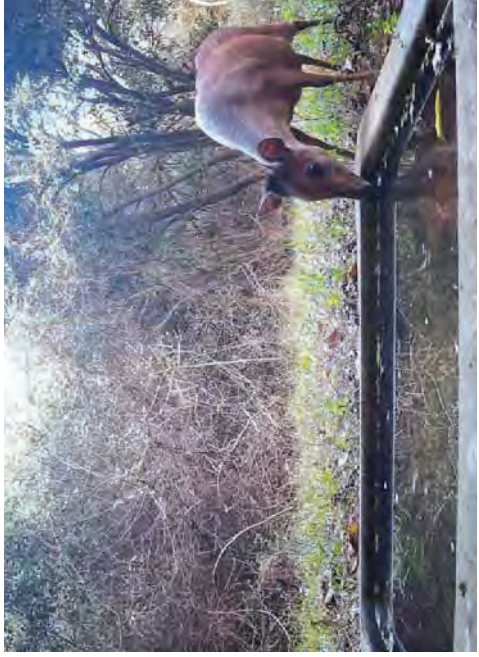


Large spotted Genet



Dwarf mongoose

Some beautiful camera trap images were taken at the forest water point during July, 2022.



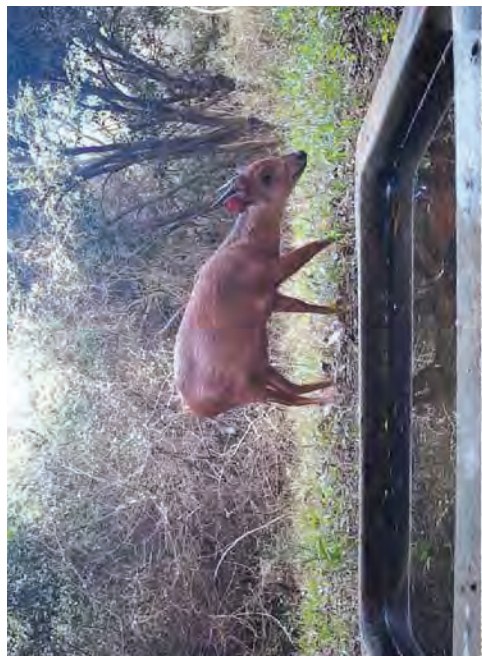
Red Duiker, female.



Bushbuck females.



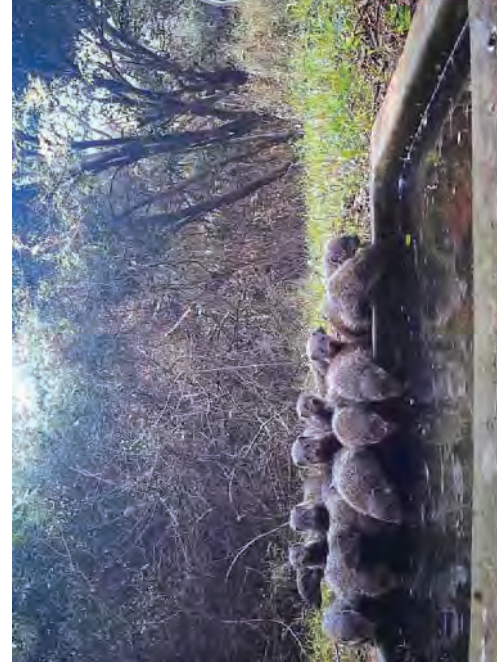
Crested guinea fowl.



Red Duiker, male

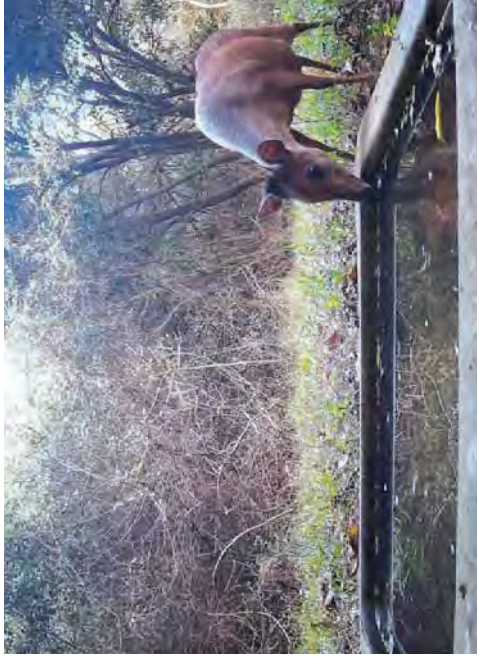


Vervet Monkey, Banded Mongoose, and Guinea fowl.



Banded Mongoose.

Some beautiful camera trap images were taken at the forest water point during July, 2022.



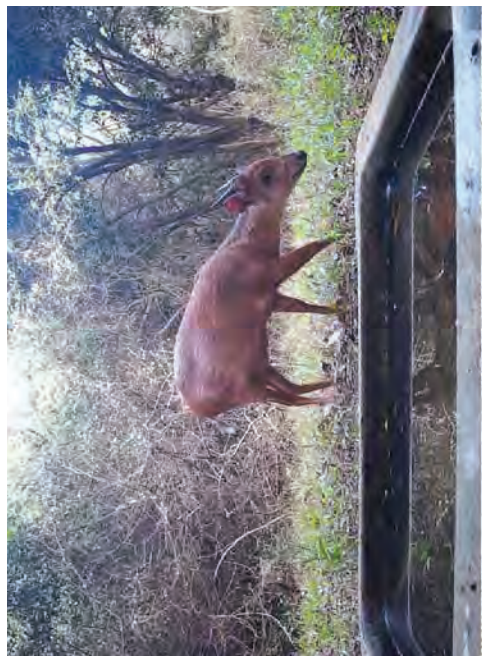
Red Duiker, female.



Bushbuck females.



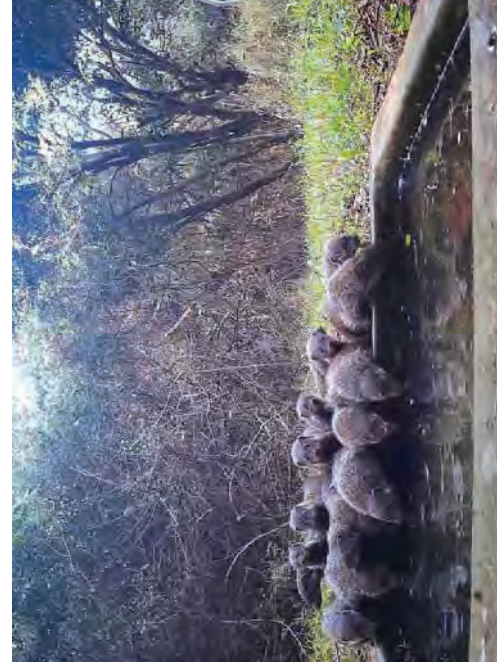
Crested guinea fowl.



Red Duiker, male



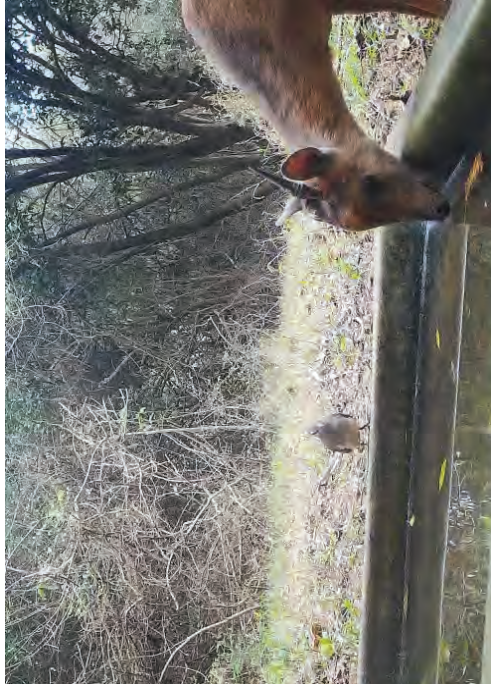
Vervet Monkey, Banded Mongoose, and Guinea fowl.



Banded Mongoose.

September 2022

The Red Duiker are the most beautiful forest antelope we have at the Hawaan Forest. Larger, and less common than their smaller cousins the Blue Duiker, they may reach up to 12 kg. They are coloured a deep chestnut red which contrasts pleasingly with the luminescent greens of the forest foliage in summer and similarly with the dry-scrub brown of the deciduous winter phase of the forest. These camera trap images, taken this month in September, showcase this most graceful forest antelope amongst the soft greens and browns of the forest before the on-set of spring.



Camera trap images February 2022

During Jan/Feb the HCT have worked closely with the HRA and Marshall security. The camera trap maintenance and daily checking is being conducted by Marshall security, though the HCT still have camera located in locations that will capture beautiful and interesting wildlife images. One highlight from February was a Bushbuck male captured at dawn on the interface between the estate and the grassland.



Bushbuck male at dawn.



Crested-guinea fowl in the forest at night!



Blue duiker in the forest



Lemon dove in the forest leaf litter



The pair of resident water-mongoose



A pair of Olive-thrush's

Camera trap observation Jan 2022. Due to the heat in January the most notable camera trap observations for Jan 2021 focused on the water trough at Bushshrike trail. An exciting observation was a juvenile crowned eagle having a drink and cooling off in the water.



Crested Guinea fowl



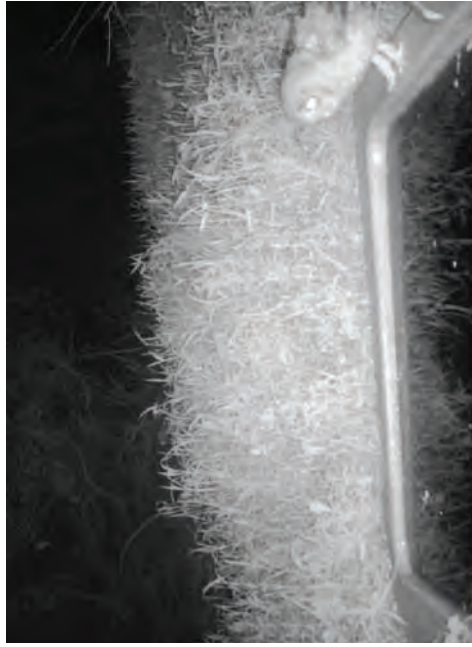
Purple crested turaco



Crowned eagle (Juvenile)



Female bushbuck



Wood owl



Tambourine dove

Six of the seven camera have been in operation during November-December. The Seventh camera is due to be installed within the next week. Camera batteries appear to last between 3-4 four weeks, while each camera used between 500 mb and 1 gig of data. The data budget for each camera should be in the order of R 50-75 per month. Importantly no non-resident 'humans' have been noted on the cameras. AS will continue to monitor the camera in December but the way forward in January will be garner support from the HOA security to help with monitoring. Some interesting new species were observed over the Nov/Dec period, for example: on Camera V, a Steppe Eagle. Other observations in the images are : i) = Large spotted Genet ; ii) & vii) Female mongoose i) Water mongoose i) Male bushbuck.



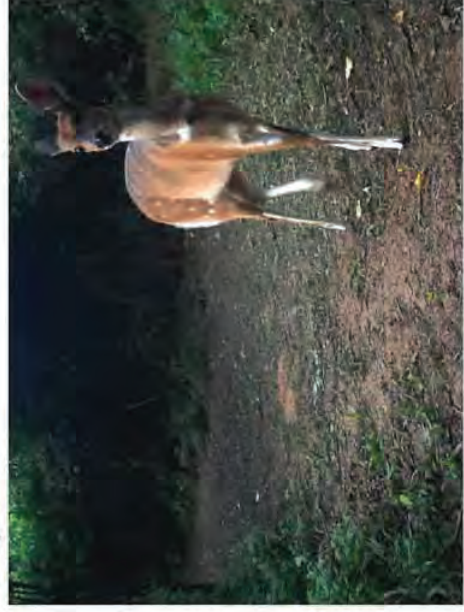
⌂ v)



⌂ i)



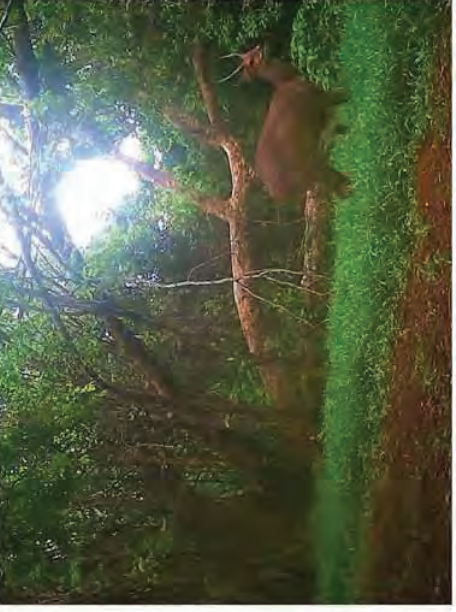
⌂ iii)



⌂ vii)



⌂ i)



⌂ i)

Camera trap images October-November 2021. New species observations in November were Water Mongoose. Other sightings include: Bushbuck family activity, Blue Duiker pairs and Crested Guine fowl.



Camera trap images March 2022

During March the HCT have again worked closely with the HRA and Marshall security. Highlights from March 2022 include: Many different forest fauna utilising the water point at the BushShrike junction, including: Blue Duiker; Black Sparrow Hawk; Purple Turaco; and a Wood Owl. The camera on the Bush-Shrike trail also picked up some beautiful images of foraging Banded Mongoose and Crested Guinea fowl.



Blue Duiker



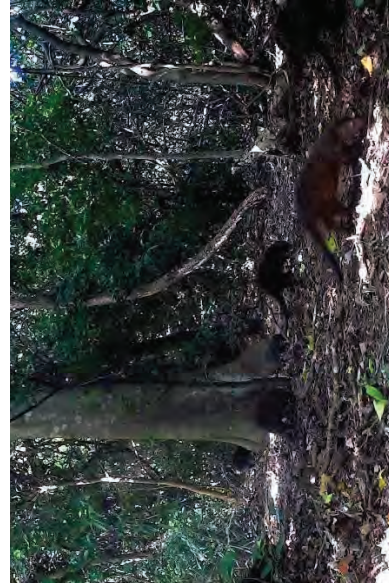
Black Sparrow-Hawk



Purple Turaco



Wood Owl



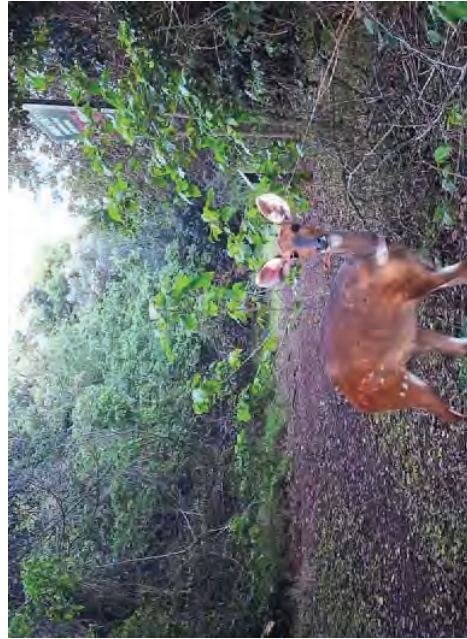
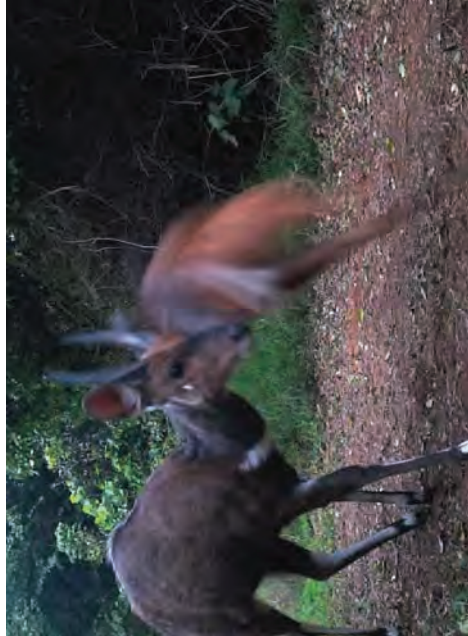
Banded Mongoose



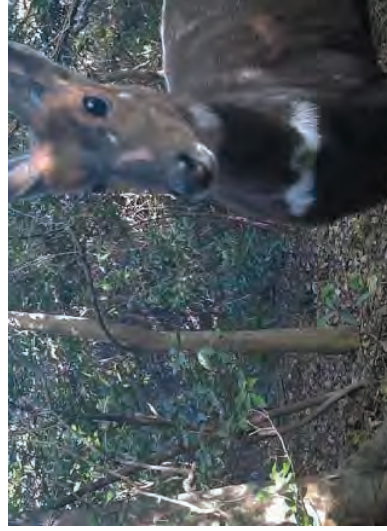
Crested Guinea fowl

Camera trap images September /October 2021

Given that we are still working out how best to deploy the camera traps in the nature reserve, some of the images received so far have been beautiful. Species noted below are as follows: Crested guinea fowl, spotted Genet, and female, male and juvenile bushbuck. Other forest antelope noted have been both red and blue duiker. Four cameras have now been deployed. Their locations have been sited in Fig. 1.



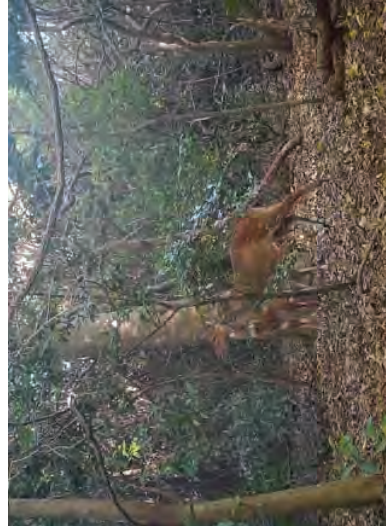
Some beautiful camera trap images were taken within the dry forest interior during June.



Bush buck female)



Bush buck (male)



Bush buck (female)



Red duiker (female)



Bush buck (female)



Blue duiker (pair)

Sewer break: During the rainfall and flooding in mid-April the municipal sewer pipeline on the boundary of the HFT property ruptured. The damage is therefore not in the HFT property but will effect the species in forest. The event resulted in a high pressure flow of sewerage which eroded sections of the pipeline infrastructure while causing a plume of waste into the forest. Fortunately, it appears that the runoff did not undercut the pipeline too badly and good work from the city ensured that the issue was resolved timorously. What remains, is for the city to repair the ailing infrastructure and to co-ordinate a clean-up of the litter/plastics which was discharged into the forest.



Fig. 2b. Some areas of the pipeline have been undercut and will need to be repaired.



Fig2d. Some of the surrounding vegetation at the source point has collapsed but damage does not seem to be extensive. However, a full inspection has not been conducted.



Fig 1a. The flow of the effluent took a north-easterly direction.



Fig 2c. The manholes on the pipeline remain open for the time being.



Fig. 2e. The sewage plume continues in a north-east direction down the forest slope. Litter from this plume should be cleaned-up.

Some beautiful images and interesting sighting on the camera traps were observed during May. Firstly, a lovely bushbuck male on the Bushshrike trail camera. While many birds (tambourine dove, dark backed weaver, natal-robin, kurrichane thrush, wood owl, purple-headed turaco, thick-billed weaver and ashy fly catchers) and forest mammals (red and blue duikers, bushbuck, water mongoose, vervet monkey) have also utilised the water point.



Male bushbuck



Tambourine dove



Blue duiker (female)



Dark backed forest weaver



Purple-headed turaco



Vervet monkey

The most interesting camera trap images for October 2022 were of Bush buck males rutting, Red duiker and parties of Crested guinea fowl. Unfortunately we are yet to pick up Bushpig in the forest.



Bushbuck rutting



Bushbuck rutting



Crested Guinea fowl



Crested Guinea fowl



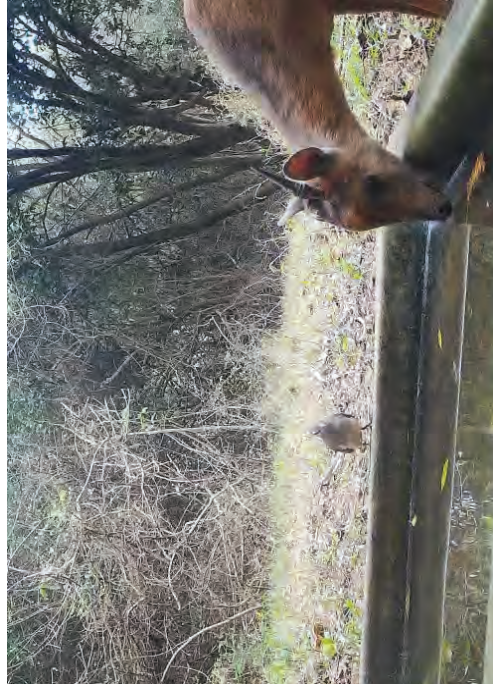
Red duiker



Red duiker

September 2022

The Red Duiker are the most beautiful forest antelope we have at the Hawaan Forest. Larger, and less common than their smaller cousins the Blue Duiker, they may reach up to 12 kg. They are coloured a deep chestnut red which contrasts pleasingly with the luminescent greens of the forest foliage in summer and similarly with the dry-scrub brown of the deciduous winter phase of the forest. These camera trap images, taken this month in September, showcase this most graceful forest antelope amongst the soft greens and browns of the forest before the on-set of spring.



Camera trap images February 2022

During Jan/Feb the HCT have worked closely with the HRA and Marshall security. The camera trap maintenance and daily checking is being conducted by Marshall security, though the HCT still have camera located in locations that will capture beautiful and interesting wildlife images. One highlight from February was a Bushbuck male captured at dawn on the interface between the estate and the grassland.



Bushbuck male at dawn.



Crested-guinea fowl in the forest at night!



Blue duiker in the forest



Lemon dove in the forest leaf litter



The pair of resident water-mongoose



A pair of Olive-thrush's

Camera trap observation Jan 2022. Due to the heat in January the most notable camera trap observations for Jan 2021 focused on the water trough at Bushshrike trail. An exciting observation was a juvenile crowned eagle having a drink and cooling off in the water.



Crested Guinea fowl



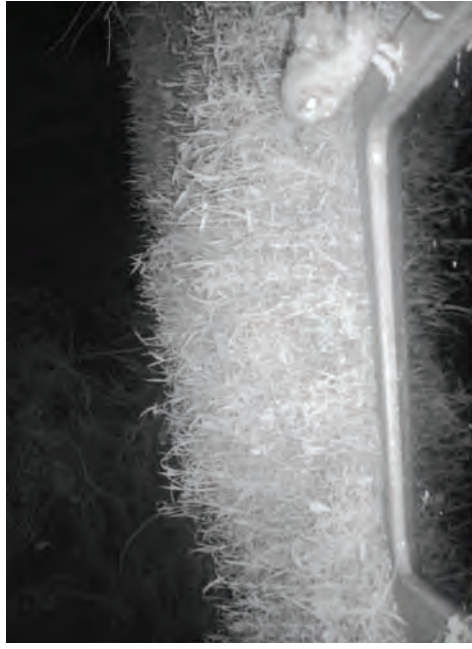
Purple crested turaco



Crowned eagle (Juvenile)



Female bushbuck



Wood owl



Tambourine dove

Six of the seven camera have been in operation during November-December. The Seventh camera is due to be installed within the next week. Camera batteries appear to last between 3-4 four weeks, while each camera used between 500 mb and 1 gig of data. The data budget for each camera should be in the order of R 50-75 per month. Importantly no non-resident 'humans' have been noted on the cameras. AS will continue to monitor the camera in December but the way forward in January will be garner support from the HOA security to help with monitoring. Some interesting new species were observed over the Nov/Dec period, for example: on Camera V, a Steppe Eagle. Other observations in the images are : i) = Large spotted Genet ; ii) & vii) Female mongoose i) Water mongoose i) Male bushbuck.



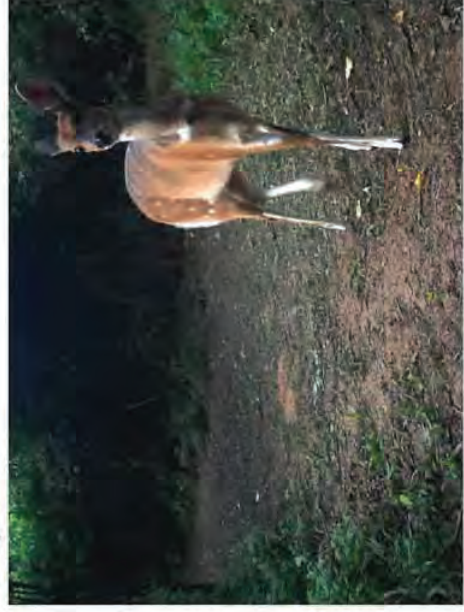
⌂ v)



⌂ i)



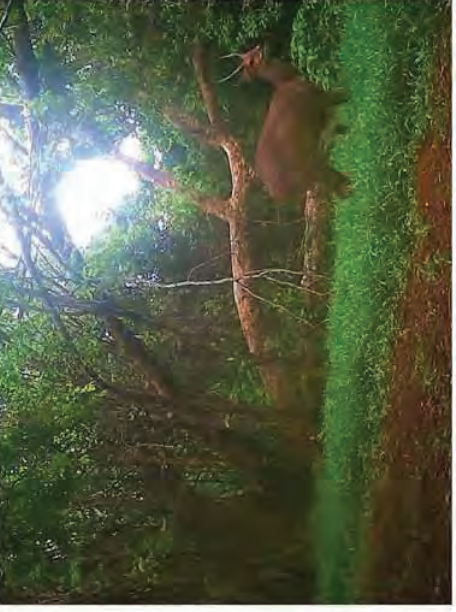
⌂ iii)



⌂ vii)



⌂ i)



⌂ i)

Camera trap images October-November 2021. New species observations in November were Water Mongoose. Other sightings include: Bushbuck family activity, Blue Duiker pairs and Crested Guine fowl.



Camera trap images March 2022

During March the HCT have again worked closely with the HRA and Marshall security. Highlights from March 2022 include: Many different forest fauna utilising the water point at the BushShrike junction, including: Blue Duiker; Black Sparrow Hawk; Purple Turaco; and a Wood Owl. The camera on the Bush-Shrike trail also picked up some beautiful images of foraging Banded Mongoose and Crested Guinea fowl.



Blue Duiker



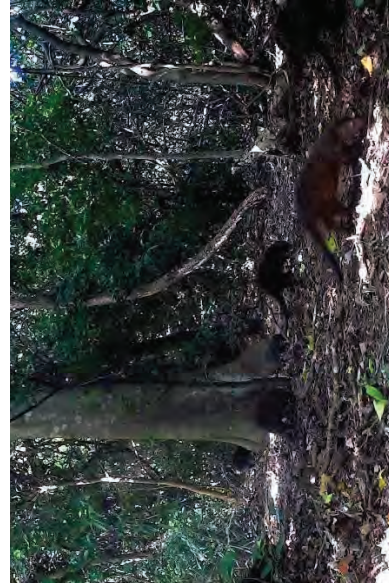
Black Sparrow-Hawk



Purple Turaco



Wood Owl



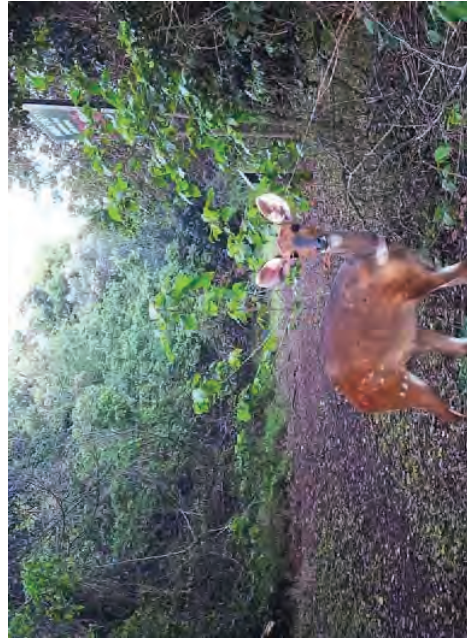
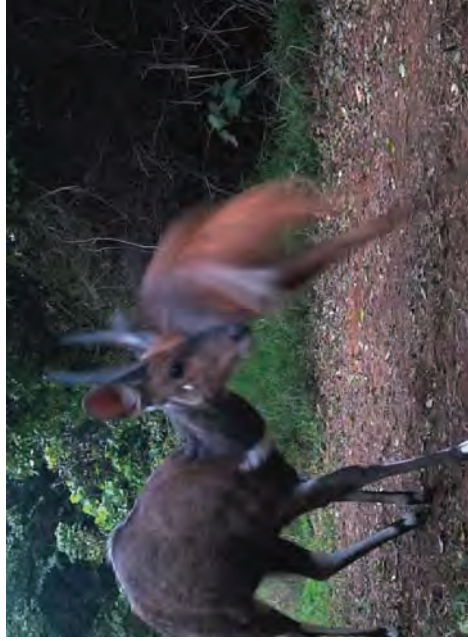
Banded Mongoose



Crested Guinea fowl

Camera trap images September /October 2021

Given that we are still working out how best to deploy the camera traps in the nature reserve, some of the images received so far have been beautiful. Species noted below are as follows: Crested guinea fowl, spotted Genet, and female, male and juvenile bushbuck. Other forest antelope noted have been both red and blue duiker. Four cameras have now been deployed. Their locations have been sited in Fig. 1.



Embankment slip: The extensive rain in mid-April and flooding of the Umhlanga river has triggered a slip of a steep section of the northern forest embankment (Fig. 1a,b). This section of forest appears to have been compromised for some time as exposed sections of vegetation (sandy areas in Fig 1c) are visible in the orthophoto which was taken in 2018-2019. The vegetation cover on this slope prior to the slip was largely composed of pioneer vegetation such as *Chromolaena odorata* and *Brachyleana discolor*. It is not immediately clear what management or rehabilitation actions can be conducted to secure such as steep slope. Its likely that the dune slope will find a natural gradient. Aside from engineering options, one approach could be to plant or reseed this bank with fast growing and deep rooting indigenous trees such as *Albizia adianthifolia*. These will take 10 years to become established but if so they will offer resilience to this area for next decadal-scale rainfall event.



Fig. 1a. A perspective of the slip, looking north towards the bend in the Umhlanga river.



Fig. 1b. A perspective of the slip, looking south across the Umhlanga river towards the forest embankment.



Fig. 1c. An aerial perspective of the area taken in 2018/2019 shows a previous slip which would have likely occurred due to a similar rainfall or disturbance event. The erosion site is located on the outer-apex of the river bend so this may be part of ongoing catchment-scale processes.

The Polyphagous Shot Hole Borer (PSHB) is an ambrosia beetle native to Southeast Asia. In 2017 this pest was detected on London Plane trees in the KwaZulu-Natal National Botanical Gardens, Pietermaritzburg. Its presence has since been confirmed in multiple locations in eight provinces in South Africa. The beetle has a symbiotic relationship with the fungus *Fusarium euwallaceae*, which serves as a food source for the adults and their larvae. In susceptible trees the fungus causes a disease called Fusarium dieback, which can lead to dying branches and tree death. The beetles attack a wide range of exotic and indigenous trees in urban, agricultural and natural landscapes.



Above: An adult female is 1.8-2.6mm long. Males are smaller and cannot fly.

PSHB is not able to complete its life cycle on all the tree species it attacks. Trees in which the beetle is able to breed and multiply are referred to as ‘**reproductive host trees**’. Important reproductive hosts include species of oaks, maples, willows and coral trees, avocado and castor bean. ‘**Non-reproductive host trees**’ are attacked by the beetle, but the beetles do not establish galleries (tunnels) or breed. The fungus may, or may not cause disease. Trees are generally not expected to die. An updated list of confirmed hosts in South Africa can be viewed at www.fabinet.up.ac.za/pshb/

The movement of infested wood is an important means of spread of the beetle. Therefore, appropriate disposal of infested trees (by chipping/composting, solarization or burning) will be key to reducing the spread of this damaging pest. Surveys to monitor the spread of the beetle in South Africa are continuing. The public can assist by looking out for symptoms. Suspected instances can be reported to ps hb@fabi.up.ac.za

Left: Chinese maple tree killed by PSHB and its fungus



Reproductive galleries in pecan



PSHB galleries in coral tree



Shot gun-like symptoms on London Plane

Compiled by Z.W. de Beer & T. Paap (Version 2021-03-04) www.fabinet.up.ac.za/ps hb

*Some confusion existed about the Latin name of the PSHB [the species that is invasive in South Africa, California and Israel]. It has been referred to as *Euwallacea nr. fornicatus* and *Euwallacea whitfordi*odendrus, but as of 2019 the correct name to be used for this species is *Euwallacea fornicatus*.



B
DEVELOPMENT PLANNING
ENVIRONMENT & MANAGEMENT UNIT
Created by: Lucky mubhe
Tid Number : 001 311 7910
Email address: cmubhe@ethen.gov.za
Path: C:\eas\lucky\26-01-2009\Richard

Legend

- Study Area
- Parcels

Scale: 1:1000
Date Created: 30-07-2009

**HAWAN ESTATE GRASSLAND
(ALIEN PLANT CONTROL)**

