HAWAAN
FOREST ESTATE
Nature's Doorstep

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Nature Based Solutions

Hawaan Forest Conservation Trust

Monthly site inspection report:

Summary: 31.07.2023

i.The July site visit to the Hawaan Forest was conducted on the 28.07.2023. In addition to their regular activities HCT staff have finialised preparation of tracer belts for the up coming prescribed burn. The local fire-chief Mr. Paul Jude, visited the grassland in July to inspect tracer-belts prior to burn.
ii. The forest has just about reached the peak dry-phase within its annual cycle. The means that the leaves have dropped (leaf abscission) across many of the deciduous (e.g. White Stinkwood), and semi-decidious (e.g. Buffalo Thorn) trees in the forest. Shedding leaves helps trees to conserve energy and water during dry or cold months of the year. The HCT staff have consequently focused to ensure that leaves have been cleared along forest trail leading to the observation point at the Ohlanga River.
iii. No Snares were found during the Snare patrol along the western portion of the forest boundary.
iv. Sufficient Flat Crown (*Albizia adianthifolia)* seeds have now been collected and are ready for distribution in spring to the exposed embankment areas on the river edge.
v. A toolbox talk was held with HCT staff around Snake Bite awareness. We discussed the protocols and actions needed should a forest user (staff or guest) be bitten by a venomous snake.

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

(1)

The forest management zone, shed and storage area was checked and house keeping was in good order.

(2)

Forest trails were neat and well maintained during the visit. Water points were clean and had been serviced during July.

(3)

Another small population of *Solanum seaforthianum* was noted on the pipeline trail and will be attended to by HCT staff. If, forest users see this plant - please send a whatsapp pin and we'll get to removing it.

(4)

Some of the Silver Oak around the Solitry Bee colony will be pruned back this winter to keep the tree canopy open in this area.

(5)

The forest is now in its least productive phase in terms of net primary production. Meaning that many of the deciduous and semi-decidious trees, eg. *Celtis africana*, *Croton sylvaticus*, *Ziziphus mucronata* trees have droped their leaves. In turn the HCT staff monitor and maintain the leaf litter on the forest trails so that forest user's can easily find their way to along the bushshrike trail.

(6)

For example, this keep an eye out for naked White Stinkwoods during forest visits. We would expect these tree start buding from mid September onwards...

(7)

HCT staff have put some work into maintaining the exclusion plot area by tightening up the fence and straightening polls.

(8)

An ongoing task for HCT staff is to ensure weekly maintenance of the observation deck. During this time we used to the opportunity to discuss Snake bite awareness and emergency protocals related snake bite. Be it for the staff or other forest users. A key factor if bitten by a snake is to be able to identify the snake because this informs the type of anti-venom used. We have also updated the Snake Bite first aid protocol with the HOA.

(9)

The Outlook over the lagoon shows that the water has not beached the river mouth. this month. Lesser swamp warbler was heard calling on from the reedbeds in the river many times.

(10)

The thorns of the Hluhluwe creeper become prominent once the leaves of forest trees have dropped thier during the dry phase of the year. These armed thorns offer valuable insight into past evolutionary processes and the type of protection needed by creepers from mega-herbivores, such as elephants, which once roamed this landscape.

(11)

The water point at the Bushshike trail was clean and serviced.

(12)

The vegetation on the pipeline does not yet need to be cut back though a few grasses have seeded themselves in cracks in concrete over winter. Thankfully, the leak which occurred in early July has been temporarily rectified. However, there is still a risk of further leaks and undermining of this infrastructure.

(13)

Tracerbelts around western side of the forest have been opened up and mowed by HCT staff.

(14)

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(15)

Mowing has been conducted around grassland signage and the wild flower planting on the western edge of the forest.

(16)

Before the prescribed burn, HCT staff will open another 1 m around the picnic benches.

(17)

The last of the tracer belts was installed on the middle section of the grassland. Leading up to the estate bufferzone. No new mowing is required along the grassland properties because this has already been cut for testing the security camera.

(18)

HCT have began collecting Flat Crown (*Albizia adianthifolia)* seed from the forest for use in slope slip rehab area. We intended to sow these seeds in late September.

Operations: Tasks 2023															
Category	Item	Task	**Schedule**	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Trails	1.1	Clearing away vegetation that is growing over, repairing washaways	Weekly	x	x	x	-	–	_	–	-	-	-	-	-
	1.2	Repairing washaways	Weekly	-	-	-	-	-	-	--					-
	1.3	Resetting concrete sleeper treads on steeper parts of the trails	Weekly	-	-	-	-	-	-	-	-	-	-	-	
	1.4	Cut the trails using a brush cutter once every two weeks in summer and check for overgrowth in winter	Weekly	x	x	x	x	x	x	x	-	-	-	-	-
	1.5	Trails should be maintained because they function as fire breaks or tracer breaks for fire-fighting when annual burn is done each year in July/August.	Weekly	x	x	-x	-x	-x	x	x	-	-	-	-	-
	1.6	Check trails for over-hanging branches and other vegetation.	Weekly	x	x	x	x	x	x	x	-	-	-	-	-
	1.7	Clearing litter on the trails and in the forest twice a week as not much pedestrian traffic if usage increases then checking daily will have to be done.	Weekly	x	x	x	x	x	x	x	-	-	-	-	-
	1.8	Check fuel and oil for machines and report.	Monthly	x	x	x	x	x	x	x					
	1.9	Snare management – check hot spot sites for re-applied snares on a weekly basis	Monthly	x	x	x	x	x	x	x	-	-	-	-	-
Water points	2.1	Check if waterpoints are soiled by animals	Weekly	x	x	x	x	x	x	x	-	-	-	-	-
	2.2	Fill waterpoints along the trails	Weekly	x	x	x	x	x	x	x	-	-	-	-	-
Infrastructure	3.1	Observe and report to Management where signage needs to be cleaned or replaced due to vandalism or fading	Monthly	x	x	x	x	x	x	-	-	-	-	-	-
	3.2	Check signs and clean signs and benches weekly	Weekly	x	x	x	x	x	x	x -	-	-	-	-	-
	3.3	Check exclusion plot for fallen trees or branches damaging the wire.	Monthly	-	x	x	x	-	-	x					
	3.4	Keep tools and equipment clean and serviced daily for hand tools.	Weekly	x	x	x	x	-	-	x	-	-	-	-	-
	3.5	Clean and service machine tools after each session of use. Chainsaw, Brushcutter.	Weekly	x	x	x	x	-	-	-	-	-	-	-	-
	3.6	Service of machinery at Berries	Yearly	-	-	-	-	-	-	-	-	-	-	-	-

	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	-	-	-	-	-	-
	3.8	Check that trail cameras daily to ensure they are not stolen.	Daily	x	x	x	x	x	x	x	-	-	-	-	-	-
	3.9	Cleaning of toilet and shower on a daily basis after use.	na	-	-	-	-	-	-	-	-	-	-	-	-	-
	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, Triffid etc..in both the forest and grassland systems.	Weekly	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	x	x	x	-	-	-	-	-
	4.2	Removal of selected indigenous woody encroachment species such Silver Oak in the grassland section	Monthly	-	x	-	-	-	-	-	-	-	-	-	-	-
	4.3	Monitoring herbicide stores on a monthly	Monthly	x	x	x	x	x	x	x	x		-	-	-	-
Fire management	5.1	Ensure tracers belts and pathways in the grassland open before prescribed burn	Yearly	-	-	-	-	-	-	-	x	-	-	-	-	-
	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. *Fire fighting =equipment one drip torch, 3 rubber beaters with handles, two Knapsack sprayers.*	Yearly	-	-	-	-	-	-	-	x	-	-	-	-	-
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

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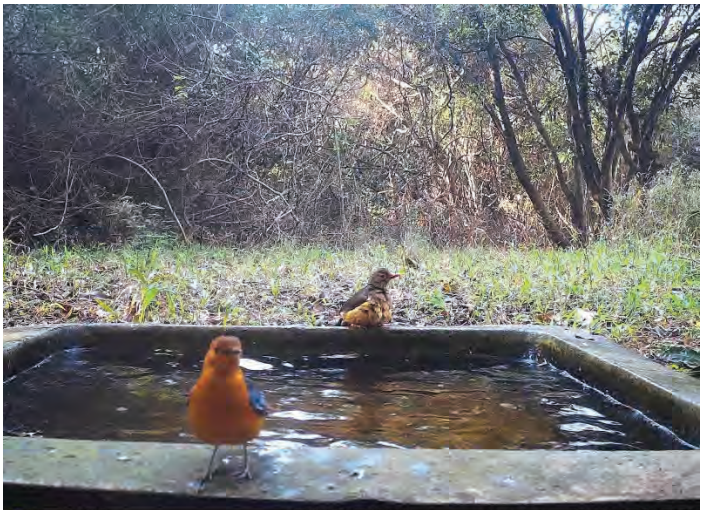
5.	Plenum	Picloram	Selective	18L	13/4	Pepper, Yellowbells	West grassland
6.							
7.							
8.							

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

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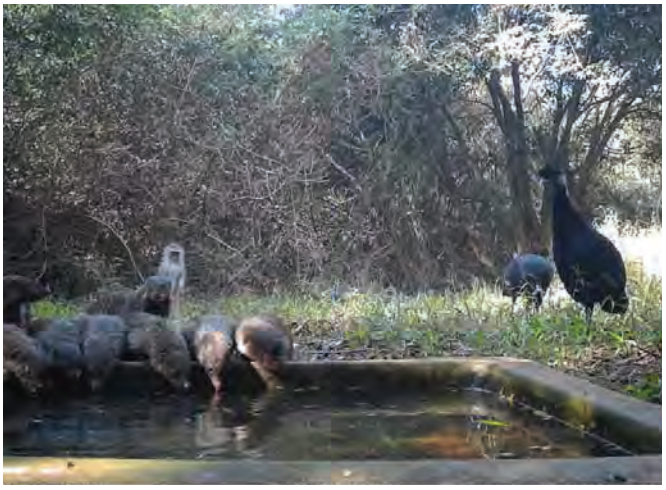
Red Duiker, female.

Bushbuck females.

Crested guinea fowel.

Red Duiker, male



Vervet Monkey, Banded Mongoose, and Guinea fowel.

Banded Mongoose.

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Bush buck female)

Bush buck (male)

Bush buck (female)

Red duiker (female)

Bush buck (female)

Blue duiker (pair)

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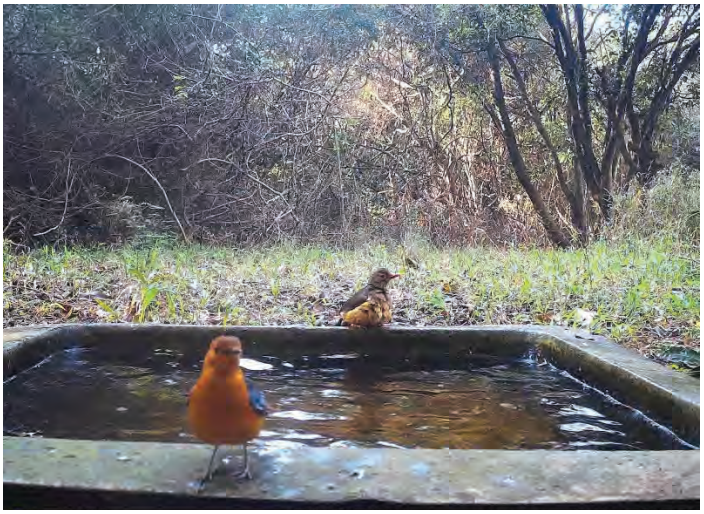

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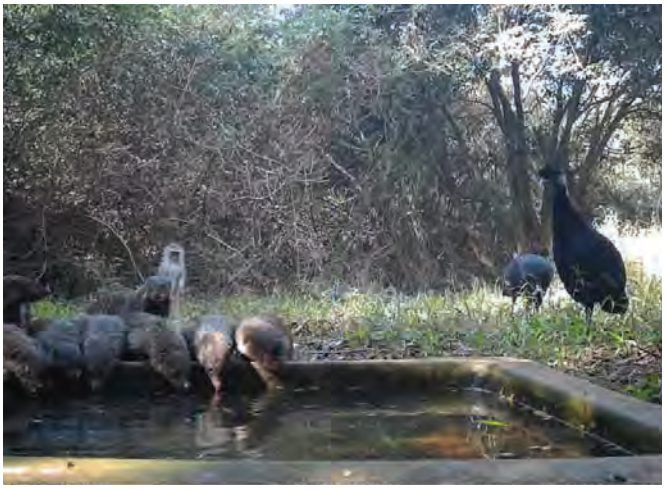

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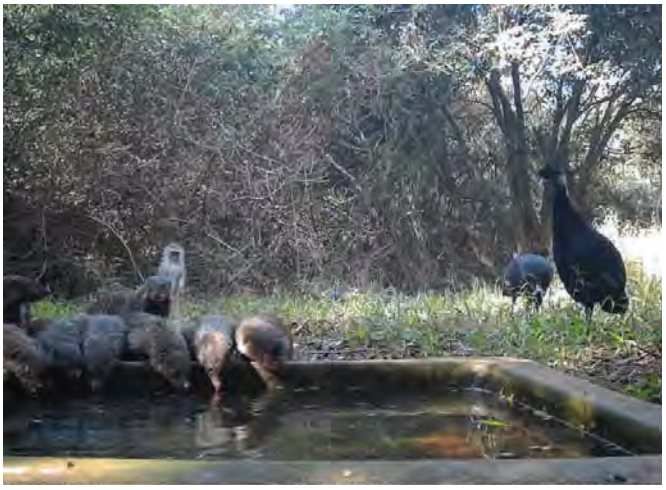

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September 2022

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Camera trap images February 2022

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Bushbuck male at dawn.

Crested-guineafowl 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

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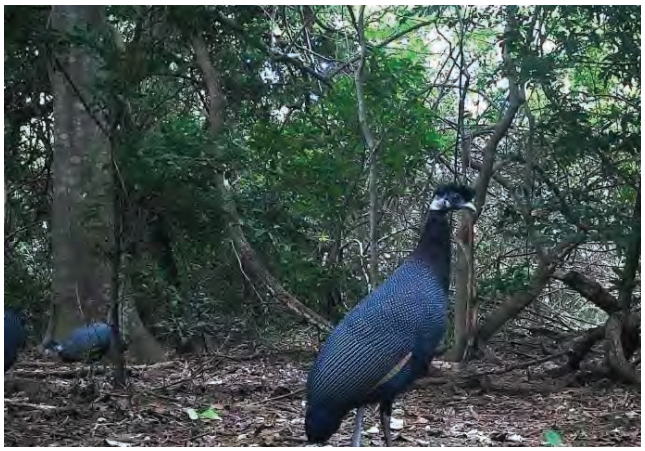
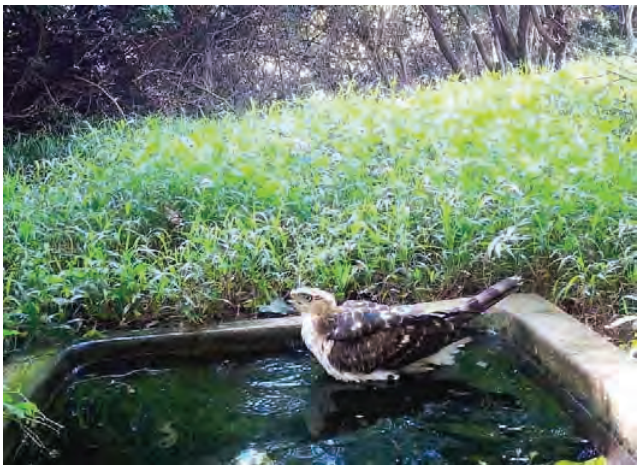


Crested Guinea fowl

Purple crested turaco



Crowned eagle (Juvenile)

Female bushbuck

Wood owl

Tambourine dove

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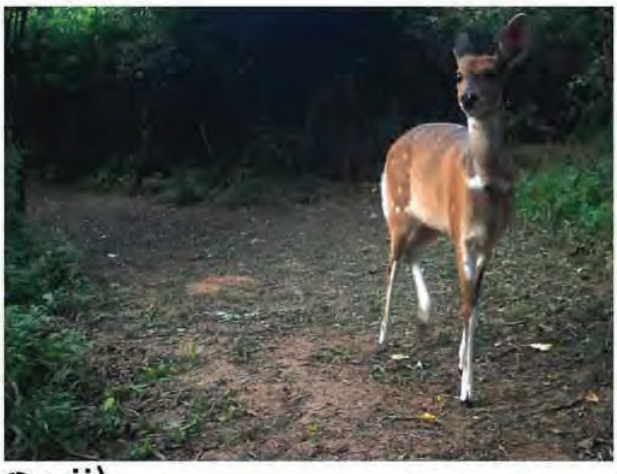

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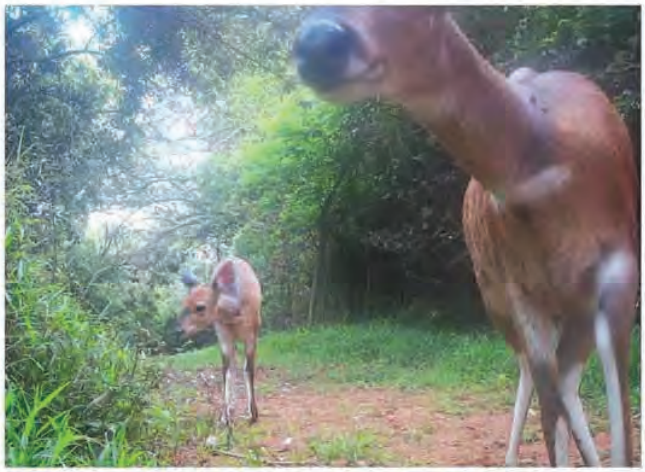

Camera trap images March 2022

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Blue Duiker

Black Sparrow-Hawk

Purple Turaco

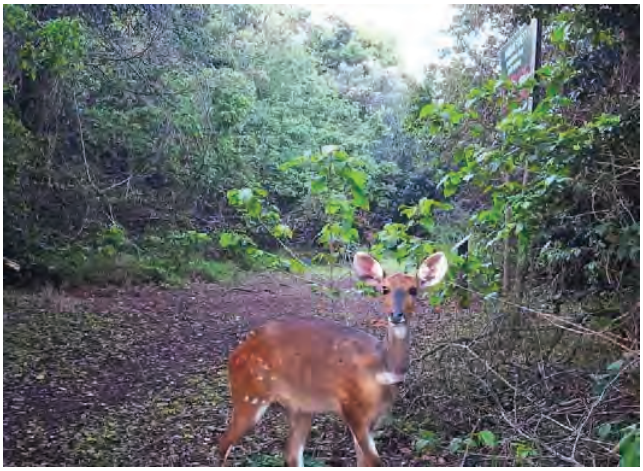
Wood Owl

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.



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

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

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

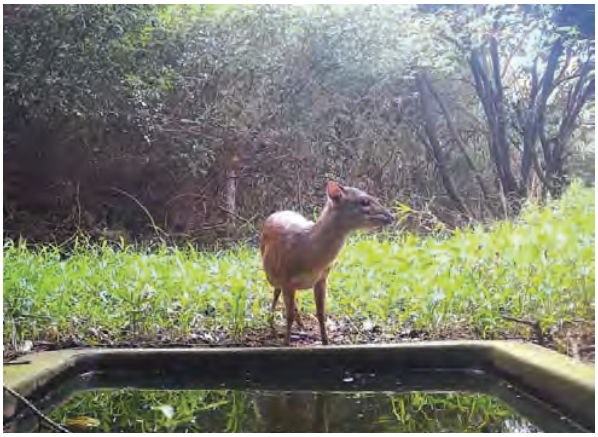
Fig2d. Some of the surrounding vegetation at the source point has collapsed but damage does not seem to be extensive. However, a full inspection has not been conducted.

Fig. 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 fowel

Crested Guinea fowel

Red duiker

Red duiker

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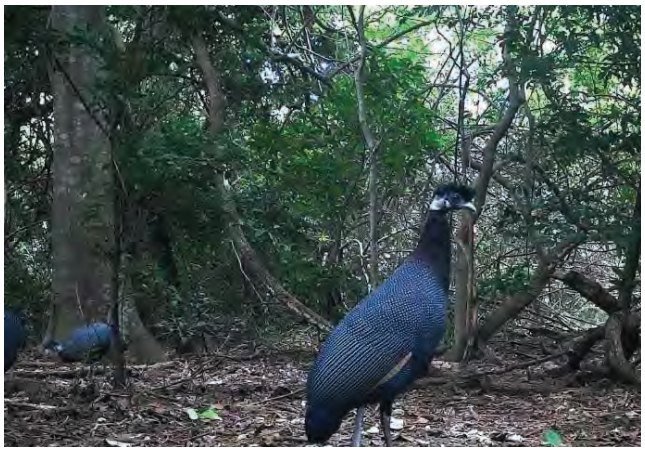

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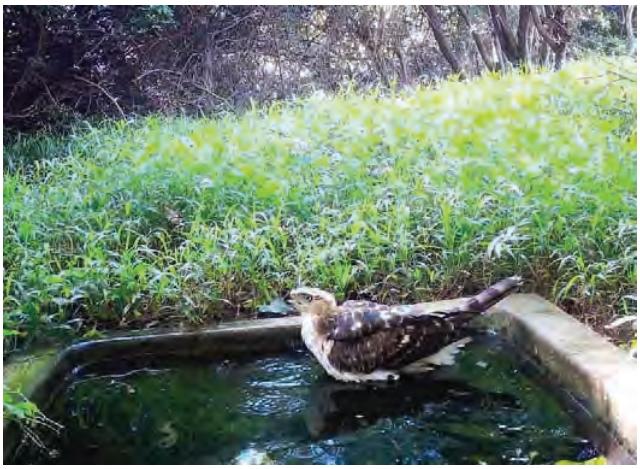

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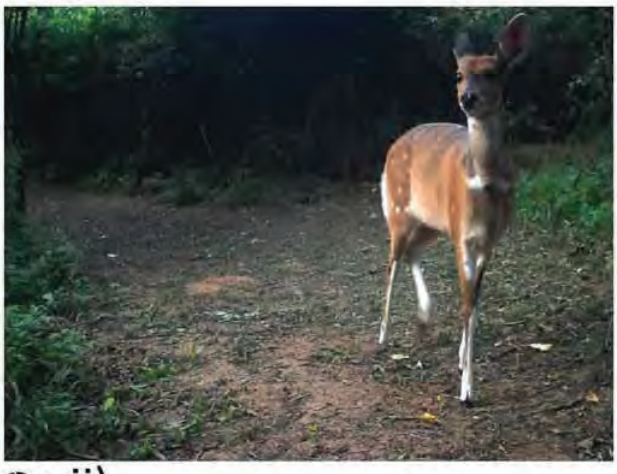

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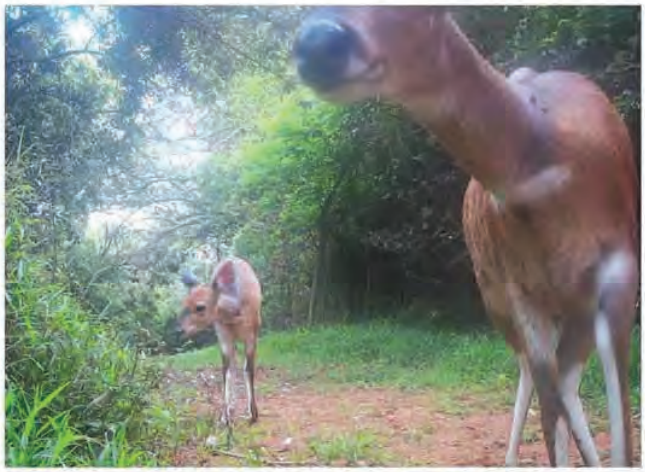

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Black Sparrow-Hawk

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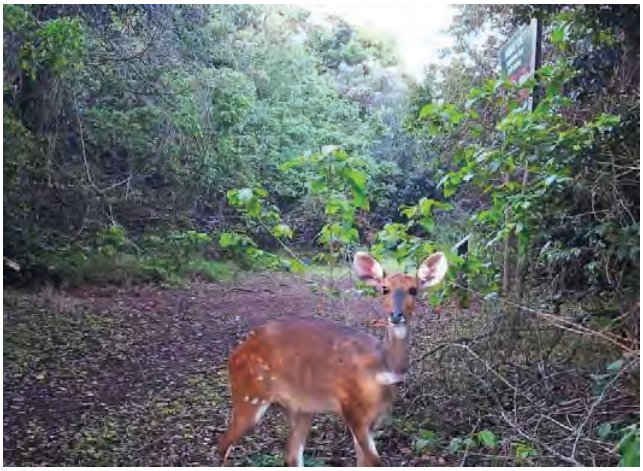

Embankment slip: The extensive rain in mid-April and flooding of the Umhlanga river has triggered a slip of a steep section of the northern forest embankment (Fig. 1a,b). This section of forest appears to have been compromised for some time as exposed sections vegetation (sandy areas in Fig 1c) are visible 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 conduced 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 (*Euwallacea fornicatus**) and Fusarium dieback (*Fusarium euwallaceae*)

The Polyphagous Shot Hole Borer (PHSB) 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 pshb@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/pshb

*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 whitfordiodendrus*, but as of 2019 the correct name to be used for this species is *Euwallacea fornicatus.*


HAWAAN ESTATE GRASSLAND
(ALIEN PLANT CONTROL)
Scale : 1: 2000
Date Created :30-07-2009
Block1
Area=1.7ha
Block2
Area=2.0ha
Block3
Area=1.99ha
Block4
Area=2.2ha
Block5
Area=2.4ha
HERRWOOD DR
HAWAAN DR
PYTHON PL
Legend
Parcels
Study Area
DEVELOPMENT PLANNING
,ENVIRONMENT & MANAGEMENT UNIT
BIODIVERSITY BRANCH
Created by: Lucky mncube
Tel Number : 031 311 7940
Email address:mncubel@durban.gov.za
Path:C:\esri\luckyas@26-01-2009\Richard
ETHEKWINI MUNICIPALITY