



Hawaan Forest Conservation Trust Monthly site inspection report:

Summary:

28.04.2022

- i. The monthly site visit to the Hawaan Forest by A. Starke was conducted on the 26.04.2022.
- ii. Items checked during the visit are detailed below. Fauna and security monitoring was by trail cameras but the rain before Easter disrupted some services. New sim cards need to be purchased for two of the cameras. Consequently, not too many wildlife images were taken. We will get the system back up running in May.
- iii. A snare patrol on the western boundary of the forest was conducted by Hawaan Forest staff on the 27th and 28th of April. Only one snare was located during a combined 4 hrs searching by the two staff.
- iv. As April is a short working month no extra activities were conducted.
- v. Response from the city regarding local approval for moving the Tilley Shed is that decision is pending while the assigned staff member is on leave.
- vi. During the flooding in mid-April, one of the manholes opened up on the municipal sewer pipeline. This resulted in raw effluent spilling into the forest and some erosion on the pipeline section. Good initiative by HCT staff (S.Msomi), the HRA and the city ensured a temporary repair was done quickly. However, the area will need rehabilitation and maintenance going forward.
- vii. An additional consequence of the floods in April was that the Umhlanga river appears to have undercut and disturbed section of the dune. This erosion has resulted in a slip of the northern section of the dune slope.
- viii. An audit of the spraying and PPE equipment, and stock take of herbicide was conducted during the visit in April. It was found that the 1.5 L sprayer has poor pressure so this will be taken to Grovida in May for a service. Other outstanding items are rubber gloves and to replace ventilation masks.



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

(1)



An audit of the herbicide store was conducted during the site visit. i) The herbicide sprayer needs to be serviced. Herbicide in stock are 20 L Terbadore and 5 L Springbok. We will need a plastic trunk to store the herbicide and sprayers separately from other items the main store. Outstanding PPE for the staff are rubber gloves. AS to print out a material data sheet and display in the store.

(2)



A small cupboard unit was sourced by AS for the store. This will now function cupboard for food and tea items. The herbicide and fuel will now be stored in the second unit separate from the main store.

(3)



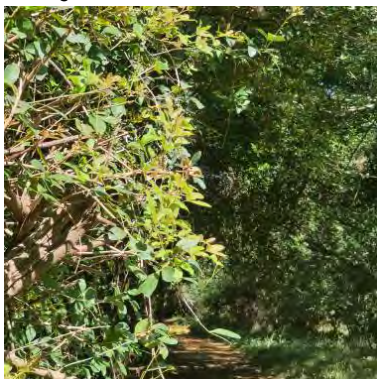
These plumbing items have now been moved to fenceline and are no longer lying around the management zone area.

(4)



Solanum seaforthianum https://en.wikipedia.org/wiki/Solanum_seaforthianum), an invasive creeper, has been hand-pulled along the forest pathway.

(5)



Many *Betonogaster* sp. wasps were observed in sunny spots along the forest pathway. See item 16 for more detail and a species link.

(6)



The camera traps and water points were checked. The rain hampered camera functioning during mid-April so they need to be serviced and new sim cards purchased. Better communication between Marshall and HCT are needed so that these issues can be sorted out quickly.

(7)



Inkberry, *Cestrum laevigatum* (<https://invasives.org.za/fact-sheet/inkberry/>) was noted in the exclusion plot and will be removed this month.

(8)



Cape Teak, *Strychnos decussata*, seedlings were noted to have germinated in the forest understory. These are slow-recruiting and low light specialist species (termed fine grain) which have the long-term potential to become canopy trees in the forest. <http://pza.sanbi.org/strychnos-decussata>.

(9)



Aneilema dregeanum can be noted flowering within the forest understory. This is useful indigenous shade tolerant ground cover plant that grows easily from cuttings.

(10)



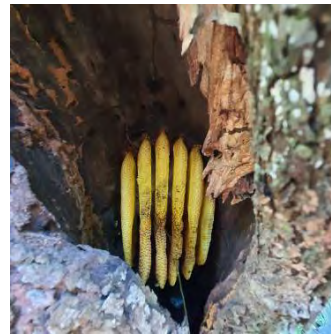
These unidentified short-horned forest grasshopper sp. were noted to have hatched on the pipeline forest path. Their eggs are laid in the ground. They have hatched (egg casings in white) can be noted at the exit of their underground burrow. The young juveniles have clustered together on the left side of the image.

(11)



Dicliptera heterostegia (https://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=154170) which is flowering within the browsing exclusion plot.

(12)



Some honey bees have abandoned their hive since the rain in mid-April. No honey or brood was observed. But its is beautiful to see the structure of their cones.

(13)



The forest pathways have been mowed this month in April.

(14)



Allophylus natalensis, is flowering beautifully around the forest edges.

(15)



Grassland pathways have been mowed and looked neat during the site visit.

(16)



These needle-wasted wasps from the *Betonogaster* genus were noted in abundance during the site visit. They are eusocial wasps meaning that they live in multi-generational colonies. Their busy activity in the forest at this time of year may have had something to do with how the females exhibit a dominance hierarchy. This hierarchy is used to divide the work needed by the colony. https://en.wikipedia.org/wiki/Belonogaster_petiolata.

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 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.

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 appearsers 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.

Operations: Tasks 2022															
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	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								
	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								
	1.6	Check trails for over-hanging branches and other vegetation.	Weekly	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								
	1.8	Check fuel and oil for machines and report.	Monthly	x	x	x	x								
	1.9	Snare management – check hot spot sites for re-applied snares on a weekly basis	Monthly	x	--	-	x								
Water points	2.1	Check if waterpoints are soiled by animals	Weekly	x	x	x	x								
	2.2	Fill waterpoints along the trails	Weekly	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	-								
	3.2	Check signs and clean signs and benches weekly	Weekly	x	x	x	x								
	3.3	Check exclusion plot for fallen trees or branches damaging the wire.	Monthly	x	-	-	x								
	3.4	Keep tools and equipment clean and serviced daily for hand tools.	Weekly	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	-	-	x	-								

	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								
	3.8	Check that trail cameras daily to ensure they are not stolen.	Daily	-	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								
		Checking for regrowth of IAPs monthly and set out new work areas each month.	Monthly	x	x	x	x								
	4.2	Removal of selected indigenous woody encroachment species such Silver Oak in the grassland section	Monthly	x	x	x	x								
	4.3	Monitoring herbicide stores on a monthly	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 next 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	-	x	x	x								

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.



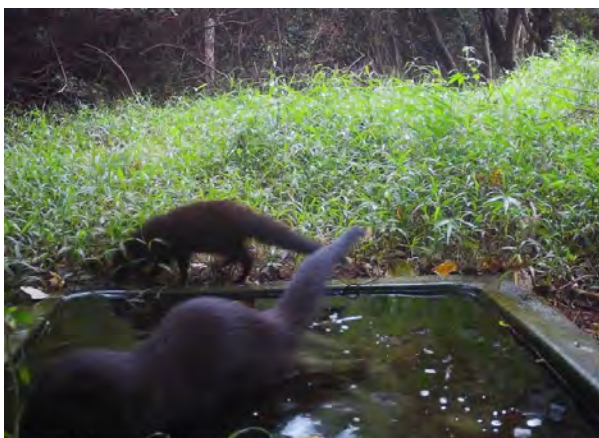
Crested-guinea fowl in the forest at night!



Blue duiker in the forest



Lemon dove in the forest leaf litter



The pair of resident water-mongoose



A pair of Olive-thrush's

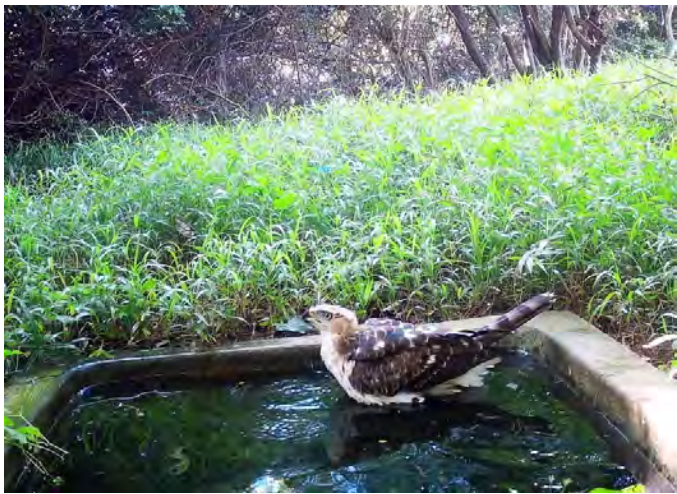
Camera trap observation Jan 2022. Due to the heat in January the most notable camera trap observations for Jan 2021 focused on the water trough at Bushshrike trail. An exciting observation was a juvenile crowned eagle having a drink and cooling off in the water.



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 1gig 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 bushbuck; i) Water mongoose i) Male bushbuck.



v)



i)



iii)



vii)

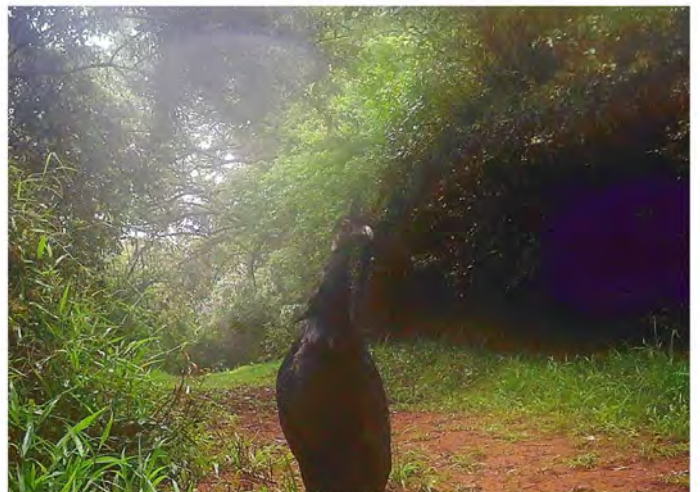
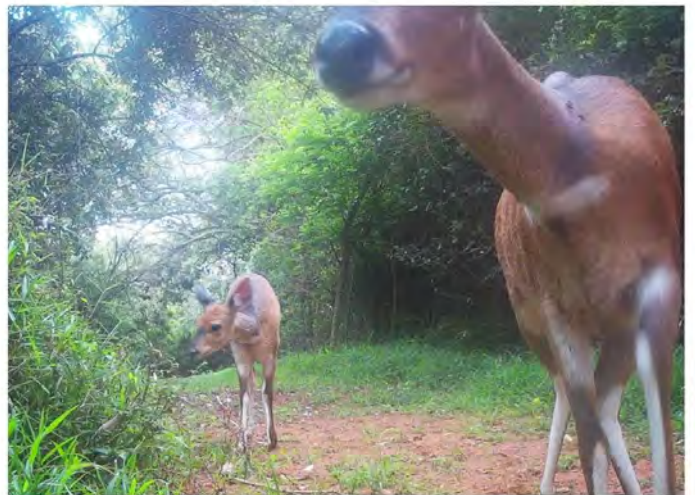


i)



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



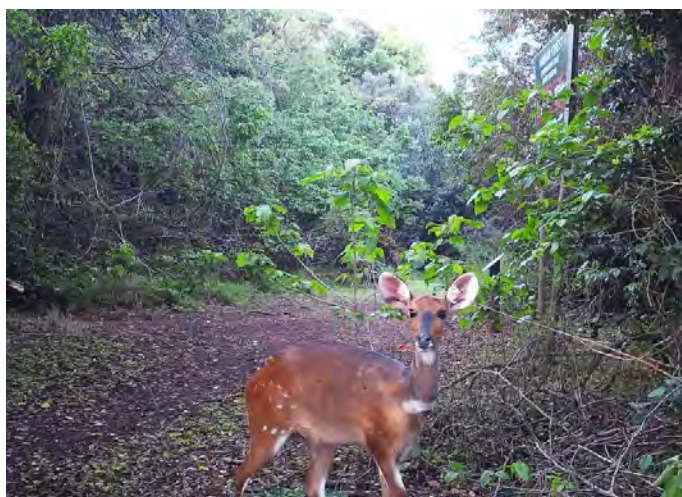
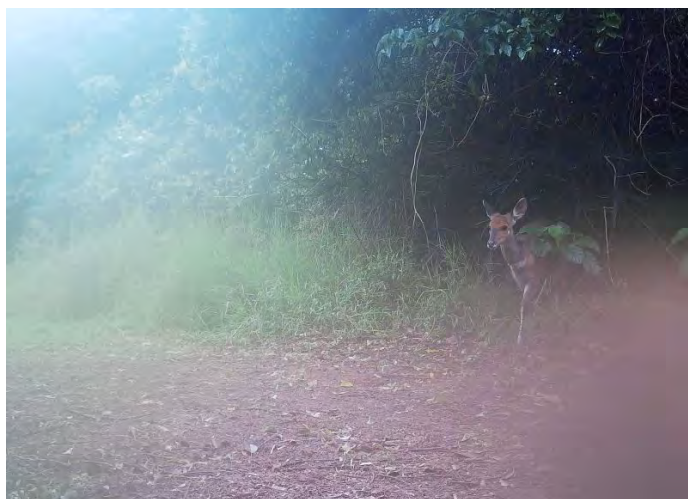
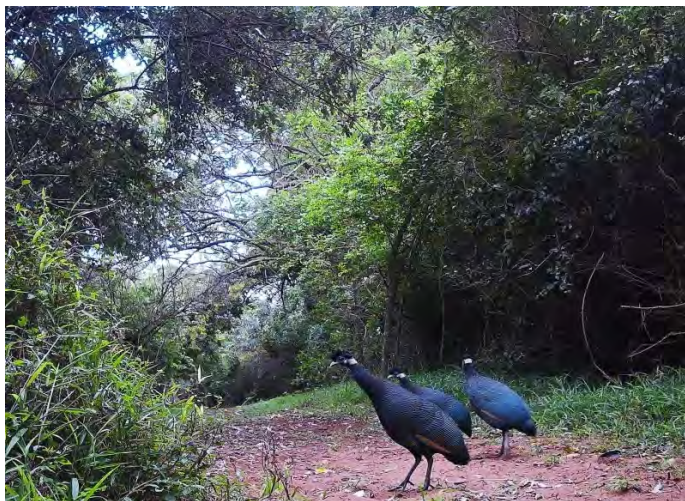
Banded Mongoose



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.



The Polyphagous Shot Hole Borer (*Euwallacea fornicatus**) and Fusarium dieback (*Fusarium euwallaceae*)

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 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