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JANUARY – MARCH 2013
JACOBUS JOHANNES RETIEF
TABLE BAY NATURE RESERVE
QUARTERLY REPORT FOR THE MILNERTON AREA
CITY OF CAPE TOWN: BIODIVERSITY MANAGEMENT
All photographs by author, unless otherwise stated.



Figure 1. Aerial view of Table Bay Nature Reserve (photo by Bruce Sutherland).



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Figure 2. Sections of the Table Bay Nature Reserve.

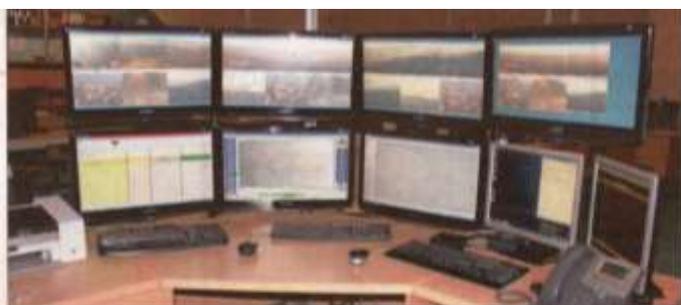
1.1 This quarterly report summarises the activities of the Biodiversity Management Branch in the Milnerton Area, specifically in and around the Table Bay Nature Reserve (TBNR) for the period from 1 January to 31 March 2013. This report is written in such a way that stakeholders and role-players may refer to it for information purposes, but does not contain all the official internal reporting information.

1.2 Main headlines in the local media this quarter focussed on **uncontrolled wildfires** and the use of **ecological controlled burning**, the doubtful future of the iconic **Wooden Bridge**, the **fish die-off** in the Milnerton Lagoon, and the **blasting of the Seli-1 wreck** along Blouberg Beach.

1.2.1 Uncontrolled wildfires cost the City large amounts of resources. This quarter several wildfires took place in and around Table Bay Nature Reserve. The annual fire season sees the City's Fire and Emergency Services, Nature Conservation organisations, Volunteer Wildfires Services, Working on Fire, as well as private landowners working hard together to protect lives and property.

Wildfires demand the coordination of many people as well as large amounts of resources. The City of Cape Town is investing much to promote fire safety and effective response to wildfires. Below figures 3-5 are articles in the local press about the management of fires in the City.

Starting a fire can be a criminal offence and can cost a convicted arsonist a fine or jail time.



■ Inside the monitoring station at the fire and rescue service command and control centre in Goodwood.



■ These flames were part of a controlled burn but new cameras will make it easier to spot fires.

Keeping an eye on city's fires

The City is using an early-warning camera system to spot fires before they get out of control.

VENNISSA SCHOLTZ

Where there's smoke, there's fire. But, big brother – the City of Cape Town – will keep an eye out for runaway fires this summer with the installation of a state-of-the-art camera system.

The nine cameras were installed last year to detect fires within the geographical area where they are located and have already alerted authorities to several fires before they could cause too much damage.

This early warning system allows for a quicker response to fires of all types said Richard Bosman, the City's executive director for safety and security.

One of the cameras is located on the communication mast on Tygerberg Hills while another is on a high site on the grounds of the Cape Town International Airport.

The camera system is designed to detect and plot the location of fire and smoke within a radius of five kilometres from the camera's location.

The information is then transmitted to the fire and rescue services command and control centre in Goodwood, where the location is plotted on a map and the necessary vehicles dispatched to the incident.

Another advantage of the system is that the cameras are capable of focusing in on fires and help deter-

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mine if additional vehicles are required.

These vehicles can then be dispatched before the first vehicle arrives at the incident.

He said the system is the resurrection of one that was in operation a few years ago.

It saves the City money as fires are detected earlier

"It was initially a joint project between the City and an insurance firm in 2007 and funding was donated by both entities. The project was then put on hold and was revived in 2011 when further funding of R2.9 million was donated by Wegro. The system is currently still sponsored and will be taken over by the City at the end of next year."

Mr Bosman said new staff were trained to monitor the cameras which "detect smoke signatures, but do concentrate on a specific radius around each camera".

As soon as a camera detects

smoke or a fire an alarm is immediately raised because the cameras are monitored manually and automatically said Mr Bosman.

"The operator alerts the fire dispatchers of the incident immediately. The call times are determined by when the call was telephonically reported to the fire control centre. The cameras are now assisting to spot fires earlier in some cases, or when exact locations of incidents are required," explained Mr Bosman.

He said the cameras have detected many fires.

"The cameras are used to verify notifications of incidents that the centre receives from the public and can detect reported fires with inadequate addresses."

Mr Bosman said it's difficult to quantify the cost of fire-fighting but the cameras "do save the owners of properties affected by fire a substantial amount".

"It also saves the City money as fires are detected earlier, thus limiting damage thanks to quicker response times."

Other cameras have been installed at the military base in Khayelisha, Paapegaalberg in Stellenbosch and the harbour.

Three specialised off-road water and foam tankers have been added to the fire and rescue fleet to help assist firefighters to quickly access fires in informal settlements, thereby limiting the extent of the damage. These vehicles also have the advantage of using less water than conventional fire engines.

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STAY FIREPROOF THIS SUMMER

Fire and rescue services have urged residents to be especially cautious during warmer months when Cape Town is at a high risk for runaway vegetation fires.

High temperatures and gale-force south-easterly winds fan the rapid spread of fires.

The City has deployed 120 contract firefighters at various fire stations from November to March to bolster brigades in summer.

Vegetation fires in mountainous areas are particularly dangerous because of inaccessibility and limited water supply. City fire and rescue teams deal with more than 8 000 vegetation fires every year – mostly in summer.

Fire is an constant threat in informal settlements and spreads quickly between cramped wooden shacks.

Over the past year the services responded to over 500 malicious or hoax calls which drain resources and prevent staff and vehicles being used where they are needed. Fire hydrant vandalism is another headache for firefighters.

Tips to help prevent fires. No fires are allowed on the mountain fringe, except in demarcated areas. Do not toss cigaretttes from your vehicle. They are pollutants and cause vegetation fires.

Don't obstruct fire hydrants. Ensure your braai fire is com-

pletely extinguished before leaving areas where fires are allowed.

Keep matches and lighters out of reach of children.

Do not overload your electrical circuits and service components regularly. Switch off all electrical appliances at the wall at night or when leaving your home. When cooking, do not leave the pot on the stove unless you are watching it.

Electrical connections must be professionally installed and earthed. Keep a well-maintained fire extinguisher in your home and know how to use it. Keep a garden hose rolled up and ready in case of fire.

Have more than one exit from your house. Have an escape plan and make sure the whole family knows the plan.

Call fire services first on 107 before making any attempt to fight a fire yourself. If your clothing catches fire, stop where you are, drop to the floor and roll to smother the flames. Handle paraffin with extreme care. It is poisonous and can burn your skin eyes if inhaled. Always have a bucket of sand nearby when using a paraffin appliance. Water will not extinguish a paraffin fire and can make matters worse by spreading the flames.

Do not smoke in bed or go to sleep with candles still burning.

To report a fire call 107 from a landline and 021 480 7700 from a cellphone.

Figure 3. Article in the local press about the management of fires in Cape Town.



Zoarvlei feels the burn

A fire broke out in the Zoarvlei wetland near Paarden Eiland on Saturday January 5. The blaze destroyed personal belongings of 20 people living between the reeds.

The City of Cape Town's fire and rescue services took two hours to extinguish the fire. The City's Disaster Risk Management assisted the victims with food, blankets, baby packs, clothes and building material. Trauma counselling was also provided.

They have called on residents to be cautious when working with open flames and to extinguish gas burners, candles, lamps and paraffin stoves to prevent fires. Milner-ton photographer Colin Brown, who took pictures of the fire, said the reeds were very dry after being sprayed with a chemical to kill them.



■ Onlookers witness the reeds in Zoarvlei burning.

Mr Brown said he had often spotted homeless people cooking on open fires in the reeds.

"This is so dangerous in this area due to the constant strong south-easter," he said.

Figure 4. Article in the local press about the management of fires in Cape Town.

New Year fires destroy all in their path

Hundreds of people were left homeless after a fire swept through the Du Noon informal settlement on New Year's Day, while about 20 homeless people lost their belongings during a reed fire at Zoarvlei earlier this year.

The fire broke out in the Thembeni informal settlement in Du Noon and was reported to authorities at 01:12.

The fire destroyed 15 formal houses and another 220 shacks in the area. As a result of the fire 800 people were left displaced. The blaze also damaged the overhead electricity supply.

Technicians were called in to repair the power supply.

The gusting wind conditions that fuelled the spread of the flames made it difficult for firefighters to bring the fire under control.

The city's disaster response teams assisted the fire victims with the supply of food parcels, blankets, baby packs, clothing and building material, including emergency trauma counselling.

The South African Social Security Agency (SASSA) has also assisted the city with the



A fire in the reeds of the Zoarvlei wetlands in Rugby consumed the possession of 20 squatters.

PHOTO: DAVE COLINS

provision of social relief.

The city has made arrangements with the Department of Home Affairs to provide the

fire victims with temporary IDs.

The cause of these fires has not been established, however it is alleged that it was

caused by negligence by persons under the influence of alcohol.

Donations are welcome. The public who want to contribute to the disaster relief operations can contact the city's Disaster Risk Management Centre on 080 911 HELP (4357).

Reeds fire

On Saturday 5 January 19:27 a large area of reeds caught alight in the Zoarvlei wetlands in Rugby.

Members of fire and rescue services brought the fire under control within two hours. The personal belongings of 20 people living among the reeds were destroyed.

These people were also assisted by the disaster response teams with supplies and trauma counselling.

The city encourages residents to be fire safe when working with open flames. When going to bed, residents should isolate electrical devices and extinguish gas burners, candles, lamps and paraffin stoves.

For more information on how to prevent fires visit www.capetown.gov.za/tisaster.

Figure 5. Article in the local press about the management of fires in Cape Town.

1.2.2 Controlled ecological burns are increasingly being used in the City as proactive and pre-emptive measures, instead of always just reacting to wildfires.

Most wildfires are caused by some sort of human action, or the lack of preventive action. Controlled burning is therefore a form of necessary preventive reaction.

Many uncontrolled fires result from actions such as the illegal burning of copper cables to extract the metal, illegal overnighting and cooking of food on open fires, using grinders on metal fences that throws sparks into the veld, and throwing burning cigarettes out of car windows.

Cigarettes are often underestimated by smoking drivers or passengers. A smouldering cigarette can heat up to an intense heat if it travels through the air at high speeds, such as being thrown out of a car.

Sometimes braai fires in private properties adjacent to nature reserves can be the cause of fires when the wind blows sparks into the veld. The wilful actions of arsonists with criminal intent are sometimes also a factor.

- Controlled burns this quarter:

The reserve staff planned to undertake controlled burning at Wave's Edge Wetland and Zoarvlei Wetland, which are two management blocks of the reserve (see Figure 6). These controlled burns were conducted successfully and will be described in more detail in a later section of this report.

1.2.3 The Milnerton Lagoon was often in the news this quarter... (see Figure 7 below).



Figure 6. One of the articles about controlled burning.

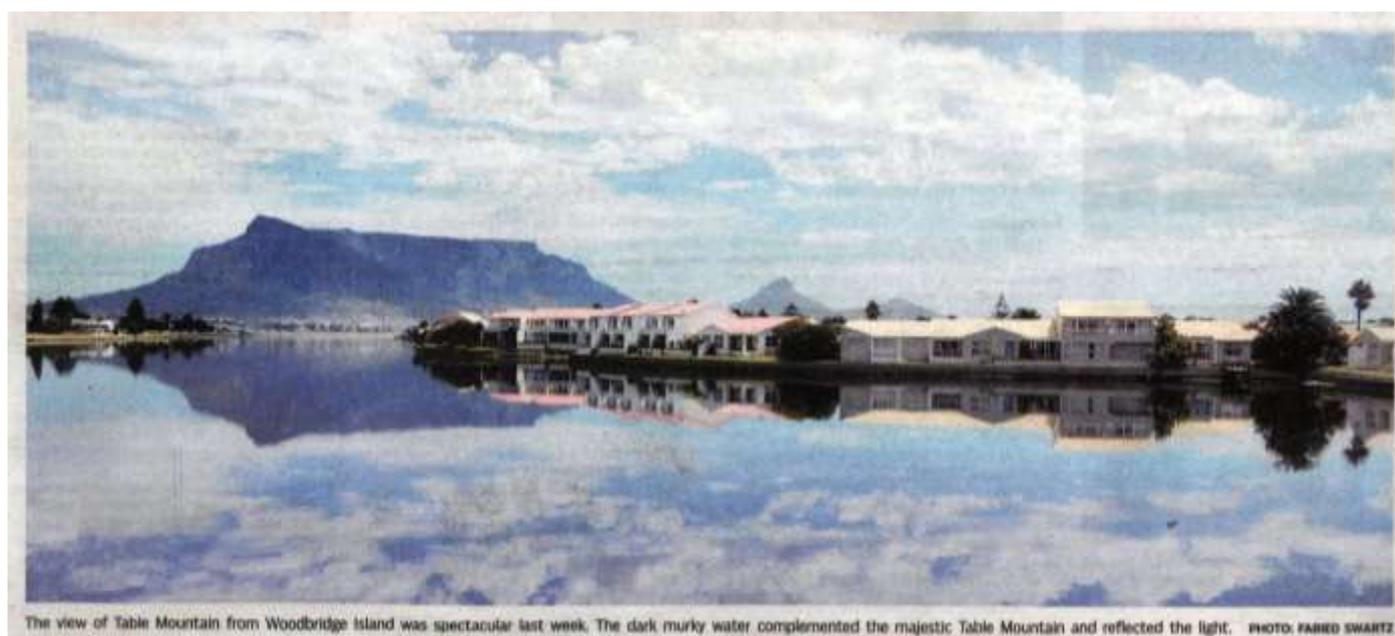
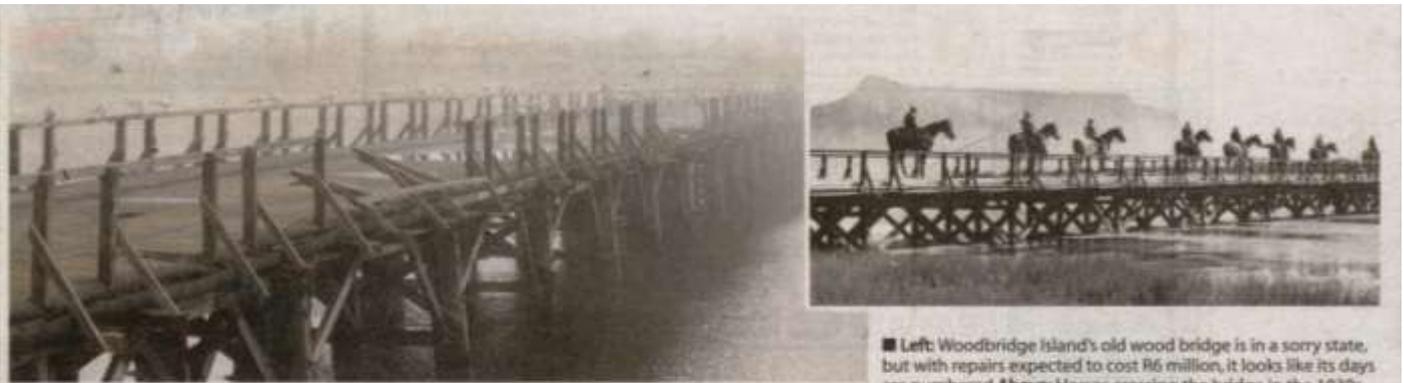


Figure 7. Photograph of the Milnerton Lagoon in the local press.

1.2.4 The Wooden Bridge (a heritage feature in the Milnerton Lagoon Section) has been in the press regarding its maintenance and the costs required to repair it. The bridge is a significant cultural attribute in the nature reserve, and it would be valuable to retain and restore it. But if the City cannot prioritise funding for its repairs, it would be wise to demolish the structure as it presently poses a threat to pedestrians and users of the lagoon, including canoers who paddle underneath it. It has to be determined whether it is economically sustainable to maintain a wooden bridge in a wet environment.



■ Left: Woodbridge Island's old wood bridge is in a sorry state, but with repairs expected to cost R6 million, it looks like its days are numbered. Above: Horses crossing the bridge in the 1930s.

Iconic bridge left to rot

Milnerton's wood bridge, a national monument that dates back to the early part of the 20th century, is showing its age, but holding on to this piece of heritage comes with a R6 million toll.

FAATIMAH HENDRICKS

Woodbridge Island residents are upset that the old wood bridge has been left to deteriorate, especially since it was declared a national monument in 1978.

The City of Cape Town said it would cost about R6 million to repair the bridge, which has been closed for at least 20 years.

The Fortress Company of Royal Engineers built it in about 1901, during the Anglo-Boer War, for military access to the island. Later, it became a landmark.

Warning signs and fencing now keep people off the bridge.

Garreth Bloor, mayoral committee member for economic,

environmental and spatial planning, said there was no budget to repair the bridge, but officials were trying to find funding.

"The City has undertaken appropriate studies to guide the repair of the bridge, but the City will need funding to do so."

Sections of the wooden railing and the tarred surface are broken, making it unsafe for public use.

Mr Bloor said a structural assessment by Bergutan Consulting Engineers in September 2011 found while the bridge was in a very poor condition, it could still be preserved if repairs were carried out soon.

Continued on page 5



■ This picture was taken in 1994. The new bridge can be seen in the distance.



■ The Wooden Bridge's surface is deteriorating.

PICTURE: COLIN BROWN

'It will be like getting rid of Table Mountain'

From page 1

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"An estimated 70% of the substructure of the bridge needs substantial repair and replacement. The superstructure also requires substantial repair and replacement," said Mr Bloor.

Mark Schacht, manager of the Milnerton Golf Club, used the Wooden Bridge, until the new bridge was built in the 1980s.

"I must have used that bridge for at least 10 years," he said.

Back then, the only structures on Woodbridge Island were a holiday house, the lifesaving club and the golf club.

Heavy vehicles were not allowed over the bridge, and golf club's suppliers had

to wheel their products over. Only cars and small bakkies were permitted to drive over the bridge. It was the only way to reach the island.

Mr Schacht said only one car could cross the bridge at a time as there was no space for two cars to drive next to each other. That sometimes caused heavy traffic on Otto du Plessis Drive. There were no robots to regulate the traffic.

"As soon as one car came across, you had to wait for that car to go across the bridge. If you came at the wrong time you could sit there for 10 to 15 minutes."

Mr Schacht can't understand why it deteriorated so rapidly – heavy vehicles

never used it.

Even though it was now not necessary for people to use the old bridge, because of the new one, residents who spoke to Tabletalk said it should be restored because it was a national monument.

"There's no need to use the bridge because there's enough pedestrian walking space on the side of the new bridge," said Mr Schacht. "It would be a shame to see that bridge not restored because it is a landmark."

He said the City should find a way to have it repaired.

"If that bridge were to disappear it will almost be like getting rid of Table Mountain."

Woodbridge Island resident Richard

Rundle said the state of the bridge was "absolutely shocking". "It is a disgrace that it hasn't been looked after because it was proclaimed as a national monument," he said.

Ruth Ward-Cox a Woodbridge Island resident and body corporate member, said the City should prioritise the repair of the bridge.

"I think it is important for the people of Milnerton that it is fixed up."

Figure 8. Articles in the local media about the Wooden Bridge at the Milnerton Lagoon Section.

1.2.5 A fish die-off occurred at the Milnerton Lagoon from 15-19/03/2012. The nature reserve staff met on site with officials from various departments in the City, as well as the National Department of Environmental Affairs, to evaluate the situation on Friday 15/03/2013. Various fish and water samples were immediately taken for analysis to various laboratories. Disaster and Risk Management Department made an initial media statement.

The Solid Waste department was called in to undertake a clean-up and disposal of the dead fish. The nature reserve staff assisted with this operation. On 19/03/2013 an inter-service meeting was called to review laboratory results as well as the progress with the clean-up operation. A media release was prepared and distributed to the media. The clean-up was completed by 20/03/2013.

The direct cause of the fish die-off seemed to be oxygen starvation of the fish due to various factors that caused the depletion of oxygen from the water. Some of the factors may include water pollution, nutrients released from the sediments, high temperatures, and now wind. There does not appear to be one single causal factor that is to blame, but concern over the water quality in the lagoon remains.

Despite speculation in the media, there was no direct link to blasting of the Seli-1 wreck, or to oil contamination, and the fish die-off. See below Figures 9-10.



■ The City says five tons of dead fish have been removed from the Diep River.



■ An oil-spill response team from the Department of Environmental Affairs was quick to arrive on the scene.

What killed these fish?

After five tons of mullet washed up dead at Milnerton Lagoon, the City quickly suggested hot weather as a cause, but officials were overheard discussing sewage and industrial contamination.

FAATIMAH HENDRICKS

Thousands of fish in the Diep River at Woodbridge Island died overnight last week, and, while residents wait answers, it could take weeks to find out what the cause was.

Dead and bloated mullet could be seen on the river bank and floating in the water on Friday morning, March 15.

There was no sign of life in the river, not even flamingos or other birds hovering around as they usually do. An orange plastic boom was placed across the river, which is usually used to contain water contaminants.

The City of Cape Town's Solid Waste Management department has spent a few days cleaning up

the five tons of dead fish.

Woodbridge Island resident Glen Huysamer said the previous evening "everything was perfect". However, when he woke up the next morning he noticed all the fish were floating belly up.

He said it was the first time in the 10 years he had been living there that all the fish in the river had died overnight.

"There's nothing visible that we can see, like an oil slick," said Mr Huysamer. He said while walking his dog around the island, he could see fish moving down the river, but they, too, were dying.

"So, whatever it is, it is running down and killing the river."

Continued on page 3

CITY SAYS NO: MILITARY MAN SAYS YES

Seli 1 dead fish link?

NADINE MOODIE

Tons of fish have washed up on the shores of Milnerton's beach and lagoon, and nobody knows what the exact cause of the wash-up is.

Last week Milnerton residents were shocked when they found dead fish on the shoreline of Milnerton lagoon and beach.

Just before the fish appeared the wreck of the Seli 1, the Turkish cargo carrying ship that was stranded in the waters since September 2009 was weakened by the South African Navy, by means of a series of explosions.

Explosives were used to sufficiently weaken the structure to allow the wave action to destruct the vessel during the coming winter. Shortly after the first explosions the more than 15 tons of dead fish appeared along the shoreline.

No link

The city's mayoral committee member for economic, environmental and spatial planning, Garreth Bloor says that the fish deaths and the explosion of Seli 1 are not linked.

But a former policeman who served South Africa in the Border War tends to differ.

The former Lt Col Ulrich Gehring says that the fish deaths and the explosion are definitely linked.

"I've seen fish come out of the water like this many times when a hand-grenade or dynamite was thrown into the water during my time on the border - there's definitely a connection. I've seen fish being affected that are up to 50 metres away from the explosion."

University of Cape Town's head of marine research institute, Dr Coleen Moloney says that dynamite fishing is a technique that is often used to catch fish.

"It is unclear that the explosives caused

the fish deaths. It is definitely something that needs to be looked into and investigated."

Bloor believes that the fish washed-up because of the high nutrient levels and high water temperatures that led to low oxygen levels in the water.

"This could've resulted from the slow-release of nutrients from the sediment base, which could've reduced the oxygen to the fish. The warm summer temperatures could've also added to the deaths, by removing oxygen from the water."

▶ To page 2

Figure 9. Various articles in the local media about the fish die-off.

A fishy explanation

Alex Lepnik,
Table View

Your front page story "What killed these fish?" (Tabletalk, March 20) was nothing new to me: it reminded me of the big fish die-off, I think it was seven years ago, with more than 80 tons of dead fish in the vlei.

Tabletalk printed several of my letters, with recommendations of how to avoid this happening again.

But as we can see, it has happened again and, as before, it affected the indigenous fish. Nothing has been changed: the Diep River is still overgrown with alien plants that suck the last oxygen out of the water, the water itself still cannot flow and therefore creates mud islands that are toxic, pollution runs in from everywhere, typha reeds grow out of control, litter everywhere.

I am sure this time it will be business as usual, astronomically paid council staff that should deal with the matter not leaving their

offices, emails saying "not my responsibility" shifted around to another overpaid city department.

In the end, all the money is spent internally for admin and salaries and the poor fish that want to enjoy life, as we do too, are the victims.

How nice wouldn't it be if I could go fishing with my son just around the corner instead of driving 100km, as the City is not able or willing to keep our water clean, and instead is happy with excuses and no solutions. I am sure there was hot weather, the City's explanation, for thousands of years without the fish dying.

Julia Wood, manager: Biodiversity management branch, responds: Milnerton Lagoon, an important estuarine habitat on the West Coast, is part of Table Bay Nature Reserve, one of the 16 City-owned and managed nature reserves. Milnerton Lagoon forms part of the Diep River, which is both a rural and urban catchment and continually receives contaminants from various sources such as agricultural

run-off, stormwater run-off and treated effluent. The City and its partners, via the Rietvlei Management Working Group Committee, are working towards reducing the high nutrient levels in the system, and various infrastructure investments plans are underway to achieve this.

It is not always easy to solve the high nutrient load in a highly altered system which has been subject to decades of high nutrients washing into the system. Furthermore, it is worth noting that the system does not function as it would have naturally done due to the influence of urban and agricultural development. Without the effect of this development, the system would have been far more dynamic, with large parts of the vlei drying out during summer.

The Seli 1 explosions killed those fish

With reference to a report of the dead fish between Lagoon Beach and Milnerton lighthouse – I am 99 % sure that this is because of the underwater explosions to the Seli 1.

I think that there were explosions on or before 15 March, when the dead fish washed out.

I know for a fact, that such an explosion kills most of the smaller fish in the vicinity of any explosion beneath the water surface, as I had first hand experience of this.

LT COL ULLI GEHRING
Table View

Fish deaths not linked to Seli 1, says City official

From page 1

Mr Huysamer said he had noticed a strange ammonia smell while he was walking around the island.

"The issue now is how long is it going to take to find out what it is?"

Mr Huysamer alerted Law Enforcement and Disaster Risk Management, Nature Conservation and the Department of Environmental Affairs' oil spill response team were the first people at the river, followed by Law Enforcement and members of the City's health and biodiversity departments.

The City issued a press release saying it suspected the fish died because of a lack

of oxygen in the water caused by very hot weather. However, while officials were investigating they were heard discussing the possible causes of the water contamination. A possible sewage leak was discussed, as well as contamination from the nearby industrial area.

Morné Theron from the City's environmental resource management department said it was not at all linked to the reduction of the Seli 1.



Had the Seli 1 been the cause there would have been dead fish on the beachfront.

"This is not a tidal movement. It is coming from upstream," said Mr Theron. "Solid Waste Management has been instructed to clear the fish."

Koos Retief, the Milnerton area manager for the City's biodiversity department, collected about five litres of water for testing at the laboratory in Athlone.

"Visual observation shows that the water looks quite dark, but what contributed to it, I can't say," said Mr Retief.

The Department of Environmental Affairs took samples of the fish for testing. Mr Retief said only once all testing had been conducted, would they know what contaminated the water and caused the fish to die. However, it could take days or even weeks before the results of the tests were known.

How long is it going to take to find out what it is?

Something fishy

Milnerton residents made a grim discovery when tons of dead fish were found in the Diep River at Woodbridge Island. They had no idea what the cause was, but many suspected some form of contamination. The City seems to be trying to keep a lid on the situation.

While the testing may take several weeks, the City was quick to release a statement over the weekend to say that high temperatures may have depleted the oxygen in the water. This, however, made little sense as Cape Town had seen a wave of hot days before without thousands of fish dying. Also, City officials who were at the river on the morning the dead fish were discovered, weren't talking about the weather. They were discussing a contamination of some sort.

There is also the question of the boom placed across the river – if, according to the officials, the fish died from a lack of oxygen due to heat, why bother placing a boom? The booms are used to make sure contaminants, like petroleum products, are captured and kept from spreading.

We won't get a clear picture of what caused the fish deaths until the tests are done. Let's hope the results are a lot less fishy than the City's initial attempt at an explanation.



Fish come ashore: About five tons of fish ("harders") washed out on the shoreline between the Lagoon Beach river mouth and the Milnerton Lighthouse on Friday 15 March. City officials this week said that the oil spillage was not the reason for thousands of dead Mullet that washed up along the Milnerton Lagoon since Friday. It is believed that the high temperatures last week removed oxygen from the ocean and resulted in the fish coming on to the shore.

PHOTO: RICHARD SCOTT

Figure 10. Various articles in the local media about the fish die-off.

1.2.6 The wreck of the Seli 1 was imploded in the week 11-15/03/2013 by the SA Navy in conjunction with the City of Cape Town, SAMSA and the DEA. A series of explosive charges were blasted between 12:00 and 13:00 to implode the wreck, and this was audible in the Table View and Blouberg areas. The North Region's Conservation Compliance officers and some staff of the nature reserve assisted with controlling access on the dunes adjacent to the wreck. The access control is intended to protect the fragile dunes from excessive trampling.

An oil pollution control measure, in the form of a floating rubber boom, was put in place by the DEA at the Milnerton Lagoon, between the concrete and wooden bridges. This measure was to prevent that any oil that may escape from the wreck entered into the estuary beyond the floating boom. Expectations of potential contamination into the estuary was slim as the wreck lies north of the estuary mouth. Most contaminants would travel North along the beach with the prevailing current, not South towards the estuary mouth. North Region staff were nonetheless on standby to assist with cleanup of any oil pollution on the beach after the implosion work. Below Figures 11-12 is an article in the local press that notified residents of the planned work.

So long Seli 1, thanks for all the oil

This week will see the funeral of the Seli 1. A wreck reduction process in respect of the cargo vessel stranded along the Table View coast, is set to commence during this week.

The South African Navy, who have recently carried out an investigation and survey of the wreck, have been enlisted by the Department of Transport to undertake the operation subject to favourable weather conditions.

Assistance in the form of resources and manpower will be provided by the City of Cape Town, the South African Maritime Safety Authority (Samsa) and the Department of Environmental Affairs.

The wreck reduction, planned and undertaken through a multi-agency task team, is intended to strategically weaken the wreck structure and, with the help of the ocean forces, collapse it onto the seabed.

Remedial and protective measures are being put in place by the joint task team to manage and mitigate the release of any oils or pollutants, and the impact of this on the coastline and marine life.

All risks with regards to oil pollution and the sensitive marine environment have been considered. Standby teams to respond to any oil pollution or oiling of seabirds will be in place, and the Southern African Foundation for the Conservation of Coastal Birds (Sancob) and the Animal Demography Unit at the University of Cape Town have been engaged as part of the process.

The complete collapsing of the wreck in this manner and the release of remaining pollutants under controlled conditions will likely remove all remaining negative impacts of the Seli 1 on the coastline. Subsequent to the operation, however, an assessment will be undertaken to determine if any further work is required.

On 7 September 2009 the Seli 1 experienced engine problems and sought refuge in Table Bay. A snapped anchor chain compounded with reduced engine power and stormy weather conditions culminated in



A wreck reduction process this week will aim to weaken the last two remaining pieces of wreckage of the Seli 1, which will allow it to sink to the oceanbed. PHOTO: LEON STEENKAMP

the vessel grounding off the Table View beach shortly before midnight.

Since the stranding, the vessel has posed several risks as evident from the oil slicks experienced, the contamination of marine life and the pollution of the shoreline. The presence of the vessel has also resulted in the altering of the Table Bay coastline by means of accretion and erosion. The vessel also poses a risk to recreational beach users, especially kite surfers.

The Joint Task Team is pleased that the South African Navy will commence the wreck reduction process before the coming winter.

"It is extremely significant that this process will be commencing before the winter period, which in all likelihood would result in further breakup of the vessel, increased oil spills and oil contamination. In addition, the sea conditions during winter are such that the operation would not be viable," said

JP Smith, mayoral committee member for safety and security.

As of Monday the public are required to adhere to the following safety measures:

- ▶ The entire beach and dune area opposite the wreck will be closed to the public and demarcated parking areas will also be off-limits;

- ▶ Recreational activities are not permitted;

- ▶ An area of approximately 1 000 m surrounding the wreck will be off-limits to all vessels and water users during the operation.

Active policing of the off-limits area will be in force by various law enforcement agencies; and

- ▶ The airspace surrounding the wreck is prohibited and no aircraft are allowed to operate.

Updates on the wreck reduction will be issued.

Figure 11. Article in the local press about the Seli-1 wreck being blasted.

Sneaky surfers slip past navy and law enforcement

FAATIMAH HENDRICKS

While law enforcement agencies and the South African Navy patrolled the area around the Seli 1 during efforts to reduce the wreckage, two kite surfers slipped into the prohibited waters to ride some waves.

Photographer Johan Cray captured two kite surfers in the water near the Seli 1 wreckage while it was being blown up just before 6pm on Tuesday March 19.

Mr Cray took several pictures within seconds of each other, which showed the kite surfers nearing the wreckage as it was exploding. He said from his observation the navy were "very vigilant" in patrolling the area prior to the kite surfers riding into the exclusion zone.

The City of Cape Town's mayoral committee member for safety and security, Alderman JP Smith, said a radius of 1 000m around the wreck was off-limits during the reduction operation.

The parking area, beach and dunes opposite the wreck were also closed to the public.

"Recreational activities were not permitted while the reduction efforts were under way. The airspace surrounding the wreck was prohibited and no aircraft were allowed to operate with the exception of the surveillance aircraft



PICTURE: JOHAN CRAY

■ Kite surfers seen near the wreck while the reduction efforts are taking place.

assisting with the operation," said Mr Smith. He said law enforcement was present at the beach and in the water on jet skis.

"The City cannot be held responsible if people choose to put themselves at risk despite the clear presence of the law enforcement jet skis and patrols, beach announcements and media coverage relating to safety," said Mr Smith.

Meanwhile, the initial reduction

efforts of the Seli 1 wreckage have been completed. While the wreck is still visible, the structures have been weakened to enable ocean forces to collapse it onto the seabed.

According to a statement released by the City, the task team reported that the minimal quantities of oil released from the wreck were "promptly contained and dealt with", and marine life was largely unaffected by the operation,



■ Trevor Smith of Table View took these pictures of the Seli 1's mid section being blown up on Wednesday March 20. Picture 3 shows the point of detonation. The front section of the ship was blown up the day before.



■ The South African Navy's Operational Diving Team resumed the wreck reduction efforts of the Seli 1 along the coastline of Table View, this week.

PICTURE: COON BROWN

Task team continues work on Seli 1 wreck

FAATIMAH HENDRICKS

The South African Navy's Operational Diving Team resumed the wreck reduction efforts of the Seli 1 along the coastline of Table View on Monday March 18.

A task team comprising the South African Navy, the City of Cape Town, the South African Maritime Safety Authority and the Department of Environmental Affairs spent the week of March 11 weakening two big chunks of rusty metal of what was once the Turkish bulk carrier. The aim is to have it removed from the surface of the water and allow the rest to sink to the seabed.

The Seli 1 sought refuge in Table Bay in September 2009 after experiencing engine problems. In addition, a snapped anchor chain and stormy weather resulted in the vessel running aground at Blosberg beach.

The City's Disaster Risk Management said navy divers started blow-cutting the wreck on Wednesday March 15. The wreck would be reduced in phases.

An area of about one kilometre around the wreck was cordoned off to all other vessels and recreational users.

The wreck is being reduced to stop it from eroding the coastline as well as to eliminate navigational hazards, threats to beachgoers' safety and the possibility of recurring oil spills.

The City said emergency teams and environmental organ-

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isations were on standby in case of an emergency or an oil spill.

The wreck would remain visible until it was dismantled by the ocean forces.

The operation was run as a SA Navy training exercise, so the City did not need to pay the navy for its services.

The blasting of the wreck drew hundreds of people to Blosberg beach. Workers also spent their lunchtime at the beach to witness the operation.

Table View resident Gobus Oosthuizen said the Seli 1 was an eyesore.

"It's been coming a long time, but it just takes forever to blow up," he said.

However, another Table View resident Dane Mabius felt differently. He has had an interest in the Seli 1 since the beginning and regularly takes pictures of it.

"I think it's a pity they are removing it because it created a bit of interest around here. I'm sure there's a lot of sea life that developed. It's going to have some negative impact on the sea life."

Venessa Strauss, conservation director at The Southern African Foundation for the Conservation of Coastal Birds (Sancob) said annual oil spills from the wreck harmed marine and seabird life. Last year, about 300 oiled penguins and gannets were discov-

ered, including 30 chicks. During the reduction operation, Earthwatch volunteers were monitoring the effects on seabirds from Robben Island.

Ms Strauss said before the operation started, Sancob had advised the City and the Department of Environmental Affairs how to reduce the impact on seabirds.

"From our side, it was important that they put precautionary measures in place and have response teams on site in case any oil should be released by the vessel."

She said if oil was released during the operation, it would be done in a controlled manner. She said she was glad that something was finally being done about the wreckage.

"Even though there might be some damage, we still think it is in the interest of sea life that the wreck reduction happens. Staying there for years could have had a worse impact than now as it is being reduced."

The task team would try to force its way through the hull of the wreck in attempt to release the remaining oil in the containment area.

The divers would try to peel the hull away, using an inflatable raft to get to the blast points and continue their efforts by employing precision blow-cutting equipment to further weaken the structure of the wreck.

The public was not allowed access to the wreck under any circumstances as the structure had been significantly weakened.



A team from the SA Navy in conjunction with several City of Cape Town departments are in the process of weakening the structure of the Seli 1 wreck.

PHOTO: BRUCE SUTHERLAND

Precision bombing for Seli 1

Efforts to further weaken the wreck of the Seli 1 along Table View beach will resume this week.

The South African Navy's Operational Diving team will seek to force their way through the hull of the wreck in a bid to release the remaining oil that is in the containment area.

The divers will attempt to peel the hull away, using an inflatable raft to get to the blast points and continue their efforts by employing precision blow-cutting equipment to further weaken the structure of the wreck.

"At this stage, the limited oil spills that have occurred have been cleared up and no marine life has been affected," said Wilfred Solomons-Johannes of the City of Cape Town's Disaster Risk Management Centre.

City authorities and the Department of Environmental Affairs have instituted contingency measures to deal with any oil pollution incidents along the coastline and offshore.

The prohibition to the general public remains in place and law enforcement agencies will remain on scene, cordoning off the area.

Members of the public are not allowed to access the wreck under any circumstances as the structure has been significantly weakened by means of the wreck reduction operations that started last week.

Signs of slight oil spillage were visible on the beach over the weekend.

Reader Louise McDuling took some photos of the oil on the beach on Saturday afternoon.

"When I reached my car, the police had already cordoned off the beach," she said.

The seabird rehabilitation centre in Table View, Sancob has been monitoring the situation closely since the operation started.

Figure 12. Articles about the Seli-1 wreck being blasted.

2 HIGHLIGHTS AND CHALLENGES

2.1 Portion 2 of Remainder of Cape Farm 235 Vissershok (about 11,7 hectares adjoining the Diep River Section) was reserved for conservation purposes under the management of the Environmental Resource Management Department's (ERMD) Biodiversity Management Branch (BMB).

The land lies to the North-East of the railway line that forms the boundary of the Diep River Section. It is indicated as the red portion in the below Figures 13-14.

This acquisition is the result of a memorandum from Bongani Mnisi to the Director of Property Management, who is delegated to reserve property for municipal purposes.

This portion was requested for the protection of high quality *Critically Endangered Cape Flats Sand Fynbos* on site. It is also required for the protection of threatened plant and animals species, river floodplain functioning, and for biodiversity connectivity purposes.

It is envisaged that the land will probably be managed as part of the Table Bay Nature Reserve, either as part of the present Diep River Section, or as a new Section (possibly Vissershok Section). The below figures illustrate the extent of the land in relation to the reserve. This portion has already been included in the planning for invasive vegetation clearing work.



Figure 13. Portion 2 of Remainder of Cape Farm 235 Vissershok in relation to Diep River Section.



Figure 14. Portion 2 of Remainder of Cape Farm 235 Vissershok in relation to TBNR boundary.

2.2 Challenges that are experienced at the nature reserve include the lack of visitor control staff at the main entrance gate to the Rietvlei Section. Presently the nature reserve utilises assistant conservation staff and students to man the gate. The reserve also operates on an aging vehicle fleet that needs replacement. Plans are underway to purchase replacement vehicles and to motivate to obtain visitor control staff.

3 BIODIVERSITY MANAGEMENT

3.1 Biodiversity Database

The Table Bay Nature Reserve records species presence and absence in four different data collection boundaries. The below Table 1 is a compilation of this data to represent the present records for the nature reserve as a whole. Not all species occur in all the management sections. Nature reserve staff are undertaking active searching to confirm the presence of certain birds and amphibians that have not been recorded for a long time. See below Figures 15-17 of some of the sightings.

Table 1. Species richness of the Table Bay Nature Reserve.

CLASS	PRESENT	NOT SEEN	PRESUMED LOST	TOTAL
Amphibians	6	3	2	11
Insects	15	0	0	15
Mammals	28	0	1	29
Fish	14	0	0	14
Reptiles	22	11	1	34
Birds	178	70	17	265
Plants	255	108	119	482
TOTALS	518	192	140	850



Figure 15. One of two abandoned domestic rabbits rescued from nature reserve (photo: Karen Merret)



Figure 16. Marsh terrapin laying eggs at Stilt Avenue (photo: Andy Birkinshaw).



Baby grysbok seen in wetland

A baby grysbok the size of a small cat was born at a wetland reserve in Century City.

The baby, which is estimated to be just a few weeks old was spotted and photographed by a regular visitor to Intaka Island, Pat Elk.

The island is part of a grysbok project being undertaken by the Cape Town City Council that enables smaller nature reserves to house this animal in a more sustainable way.

In June 2010 two grysbok were re-introduced to Intaka following a lengthy ap-

The baby grysbok walking through the bushes at Intaka Island.

proval process and with the full support of Cape Nature, the City of Cape Town's Nature Conservation Department and the Blouvlief/Intaka Island Environmental Advisory Committee.

Century City's environmental manager Alan Liebenberg says that grysbok are solitary and nocturnal animals that spend most of the day under bushes and are more active between dusk and dawn.

"Last year we found two sets of spoors close to each other, which is unusual. We hoped that there would be an offspring and our wish was granted."

► For further details contact Alan Liebenberg on 021 552 6889.

Figure 17. Article about grysbok from the Table Bay Nature Reserve surviving at Intaka Island, Century City.

4 NATURE CONSERVATION

4.1 Flora Management

4.1.1 Invasive vegetation clearing in the nature reserve comprises the following work:

- **Diep River Section (eastern boundary):** Port Jackson Removal
- **Wave's Edge Wetland:** *Typha capensis* (bulrush) reed cutting
- **Rietvlei Bird Hide Block:** Port Jackson clearing and kikuyu grass
- **Rietvlei Table View Boundary:** Port Jackson clearing
- **Zoarvlei Wetland Section:** Water hyacinth and bulrush cutting
- **Milnerton Ridge Section:** Water hyacinth and emergent reeds removal

Detailed reports of hectares cleared, person days and resources spent on these operations are sent separately to the Invasive Species Unit, based at Westlake.

4.1.2 The Working for Wetlands Programme

is resuming work on invasive species management at the **Diep River Section**. This work is prioritised by the Working for Wetland Project Planning Committee due to the Section's requirement as a functioning floodplain. Invasive species deplete water resources in rivers and floodplains and are there undesirable.

Work load assessments and field verifications were carried out to prepare for contracts. Contracts were generated and it is expected that clearing contractors will start working in this Section during the next quarter. The main focus of the contractors would be Port Jackson and Blue Gum trees.

See Figure 18 across.



Figure 18. Working for Wetland project implementers on site.

4.2 Fauna Management

4.2.1 Monitoring of Wildlife: Game counts and sightings

4.2.1 A coordinated bird census was conducted at TBNR on 18/01/2013. The census was conducted by the nature reserve staff and members of the Cape Bird Club. The census covers 11 water area sections, which includes Potsdam Waste Water Treatment Works (WWTW) as well as a terrestrial (bush) bird survey. All *ad hoc* animal sightings are also recorded.

The waterbirds numbered a total of 2,986 birds from 39 species, including Great crested grebe 7, Dabchick 1, White pelican 136, Whitebreasted cormorant 110, Reed cormorant 30, African darter 17, Grey heron 16, Purple heron 4, Little egret 16, Yellowbilled egret 7, Cattle egret 4, Blackcrowned night heron 5, Sacred ibis 37, Glossy ibis 1, Hadedda ibis 11, African spoonbill 4, Greater flamingo 185, Lesser flamingo 60, Egyptian goose 461, Yellowbilled duck 169, Cape teal 19, Redbilled teal 5, Cape shoveller 2, Spurwinged goose 273, Purple swamphen 1, Common moorhen 9, Redknobbed coot 704, Blacksmith lapwing 64, Pied avocet 72, Blackwinged stilt 1, Water thicknee 3, Kelp gull 92, Hartlaub's gull 427, Caspian tern 1, Swift tern 1, Sandwich tern 11, Pied kingfisher 5, Cape wagtail 10, and Mallard 5.

Additional terrestrial species included Cape spurfowl, European swallow, Yellow-billed kite, Fiscal shrike, Redwing starling, Whiterumped swift, White-throated swallow, African black swift, Levillant's cisticola, Brownthroated martin, and Orangethroated longclaw.

See Figures 19-21 and Table 2 below for further details and images.

Table 2. Results from bird census of 18/01/2013.

Bird \ TBNR site	Total	Diep River	North Vlei	South Vlei	Central Pan	Dolphin Beach	Millerton Channel	Lagoon North	Lagoon South	Zoarvlei North	Zoarvlei South	Potsdam WWTW
TOTALS	2986	138	287	341	1145	206	1	479	194	3	29	163
Great crested grebe	7		5	1	1							
Dabchick	1										1	
White pelican	136			6	130							
Whitebreasted cormorant	110		1	72		1		33				3
Reed cormorant	30	1						20	1		3	5
African darter	17		7					6				4
Grey heron	16	1	2			1		11				1
Purple heron	4		1	2		1						
Little egret	16		1		2			13				
Yellowbilled egret	7			1						1		5
Cattle egret	4		2		2							
Blackcrowned night heron	5	4									1	
Sacred ibis	37		10		1	1		3				22
Glossy ibis	1				1							
Hadeda ibis	11							2				9
African spoonbill	4				2			2				
Greater flamingo	185				179			4				2
Lesser flamingo	60				60							
Egyptian goose	461	7	124	160	150			12				8
Yellowbilled duck	169	84			1	17		22		2		43
Cape teal	19										7	12
Redbilled teal	5			2								3
Cape shoveller	2					2						
Spurwinged goose	273		2	71	200							
Purple swamphen	1										1	
Common moorhen	9	3				2	1	1			2	
Redknobbed coot	704	33	118	26	325	177		11			9	5
Blacksmith lapwing	64	4						23			2	35
Pied avocet	72				70			2				
Blackwinged stilt	1				1							
Water thicknee	3											3
Kelp gull	92		2		20			2	68			
Hartlaub's gull	427		4			4		304	113		1	1
Caspian tern	1		1									
Swift tern	1								1			
Sandwich tern	11								11			
Pied kingfisher	5	1						3			1	
Cape wagtail	10		7								1	2
Mallard	5							5				

Important observations during the bird census indicate that the central pan had the highest number of birds, followed by the Milnerton Lagoon, South Vlei, and North Vlei. This fact was recorded in the media with various articles and photographs highlighting the prolific birdlife in the Milnerton Lagoon (see Figures 19-21).

Other observations include the fact that despite ducks, geese, coots, moorhens, and gulls being the highest in number, the pelicans and flamingoes are considered as the most visible bird species when gathered in large numbers.

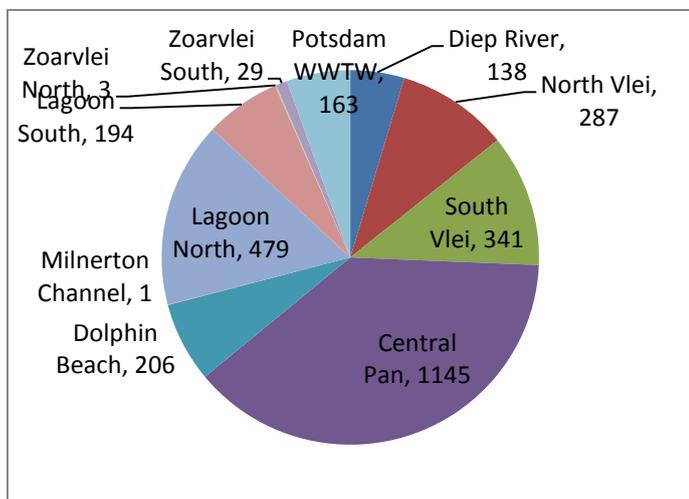


Figure 19. Pie chart of numbers of birds in various sections of TBNR and Potsdam WWTW during bird census of 18/01/2013.

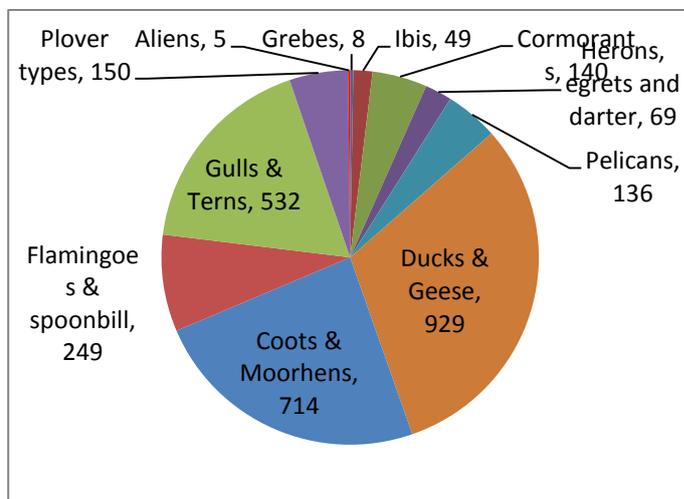
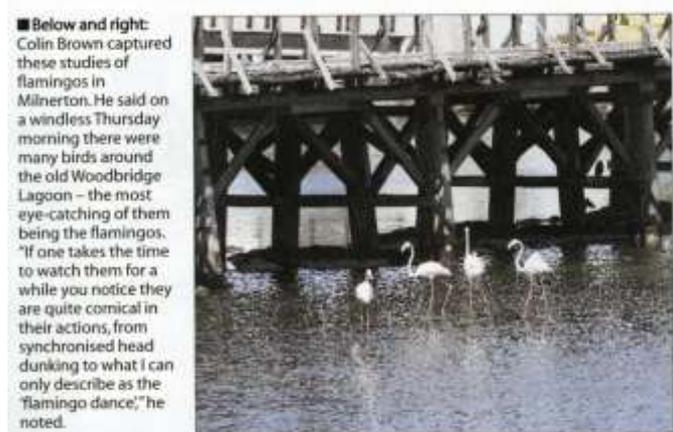


Figure 20. Pie chart of bird groups during bird census of 18/01/2013.



Photographer Colin Brown has been busy keeping tabs on flamingos at Milnerton’s Woodbridge Island and the Black River. The latter has seen an especially noticeable resurgence in the Greater Flamingo population due to recent clean-up initiatives.

See page 8

Figure 21. Articles in the local press about the prolific birdlife in the Milnerton Lagoon.

4.3 Erosion Management

4.3.1 The central pan dust problem is a high priority for Management of the nature reserve. During the dry windy summer season, the central pans often dry out and expose fine silt on the surface that can be blown off by the wind into large dust clouds. This causes intense nuisance to the public.

For several years a Dust Management Plan has been in place which requires the Roads & Stormwater Department to assist the Biodiversity Management Branch in pumping water from the North Vlei permanent lake onto the seasonal central pans to wet the dust. The impacts of pumping water around in the nature reserve have not been quantified.

The Diep Estuary Management Plan also recommended that the Milnerton By-pass Canal, which was excavated as part of the Roads & Stormwater Department's annual maintenance, should be left unmaintained in order to allow the vegetation to slowly close the canal. This was decided since survey measurements in 2010 indicated a one meter gradient in the canal and that part of the canal was below the level of the pans. This allowed surface water to quickly drain off the pans down the canal.

The canal has not been excavated for several years, and vegetation has slowly returned, causing the canal to close. During this 2012/2013 summer season it was noted that the water on the seasonal pans have not drained off, but rather remained throughout the summer. The retention of the water on the pan has basically prevented severe dust storms and removed the need for pumping of water.

It is envisaged that the Milnerton By-pass Canal should be left to completely close over time, and that no dust would be expected in the future.

5 WATER MANAGEMENT

5.1 Water quality

Water quality was monitored over three occasions at 15 monitoring points in the Table Bay Nature Reserve. The monitoring dates were 29/01, 26/02, and 26/03/2013.

5.2 Rainfall measurements

Rainfall at the Rietvlei main entrance totalled an above-average 30mm. See Table 3 and Figures 22-24 below for interpretation of data.

Table 3. Rainfall records from the Rietvlei main entrance gate.

	Ave	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
January	10.531		16.0	57.9	3.5	8.0	16.0	1.0	1.5	4.0	4.00	1.00	10.00	5.00	9.00
February	6.8		2.0	10.0	6.0	0.9	4.0	7.0	19.5	6.0	9.00	5.00	0.00	0.00	19.00
March	7.4462		0.0	10.1	32.2	7.0	14.5	4.0	15.0	4.0	0.00	1.00	7.00	0.00	2.00
April	31.838	5.0	18.9	29.9	10.9	79.5	69.5	27.2	45.5	10.0	32.50	9.00	20.00	56.00	
May	50.646	26.1	48.7	38.6	22.2	2.3	54.1	104.0	42.5	44.0	94.00	84.00	34.00	64.00	
June	64.473	51.6	36.4	62.8	13.1	66.8	83.3	25.5	127.7	67.0	83.00	71.00	93.00	57.00	
July	67.581	46.1	175.7	69.5	27.3	65.8	38.0	64.2	96.0	116.0	57.00	38.00	13.00	72.00	
August	63.842	24.3	108.7	66.9	81.1	45.5	74.0	45.0	86.0	68.5	79.00	30.00	54.00	67.00	
September	31.758	49.3	61.5	19.5	53.8	17.8	30.0	12.0	34.0	4.0	47.00	12.00	33.00	39.00	
October	24.904	5.3	31.2	33.7	25.3	119.0	9.8	20.5	22.0	2.0	29.00	0.00	10.00	16.00	
November	20.046	8.8	22.5	13.2	2.8	3.0	9.8	31.0	30.0	46.0	62.50	12.00	8.00	11.00	
December	10.431	2.5	10.5	20.1	15.5	6.5	0.0	4.5	22.0	19.0	7.00	10.00	18.00	0.00	
TOTAL		219.0	532.1	432.2	293.7	421.9	402.9	345.9	541.7	390.5	504.0	273.0	300.0	387.0	30.0

NB: Open Spaces = No DATA (RED) indicates insufficient DATA

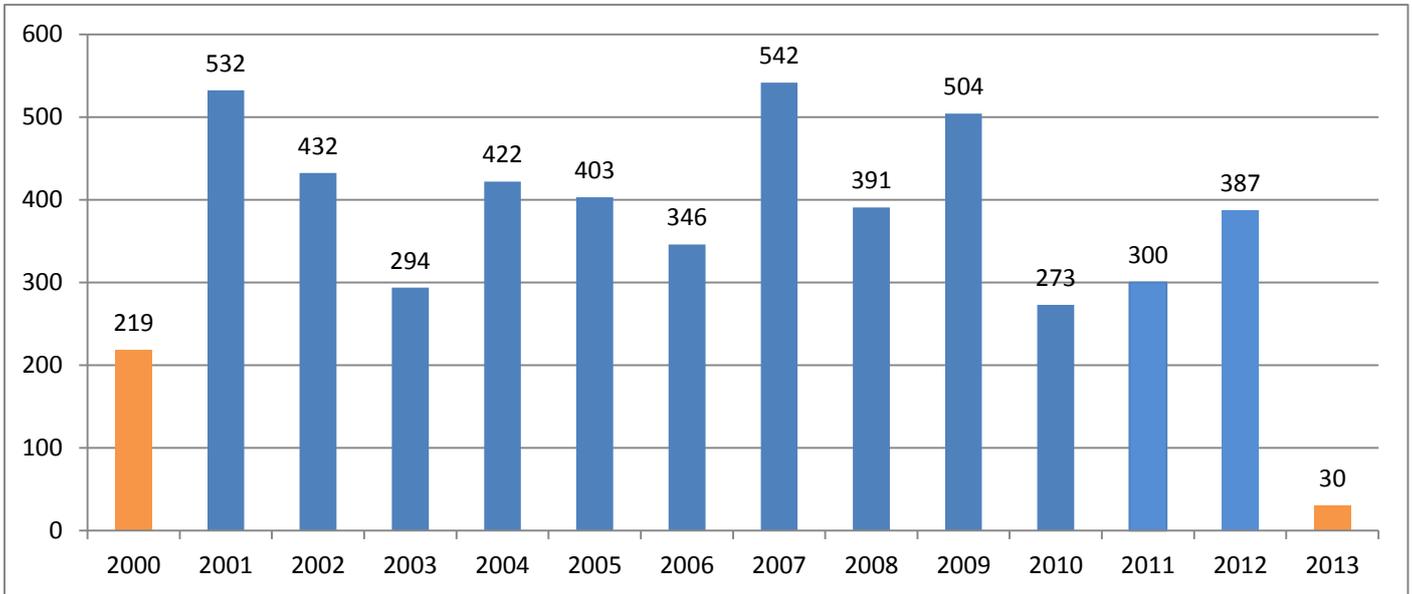


Figure 22. Total rainfall recorded at Rietvlei per year.

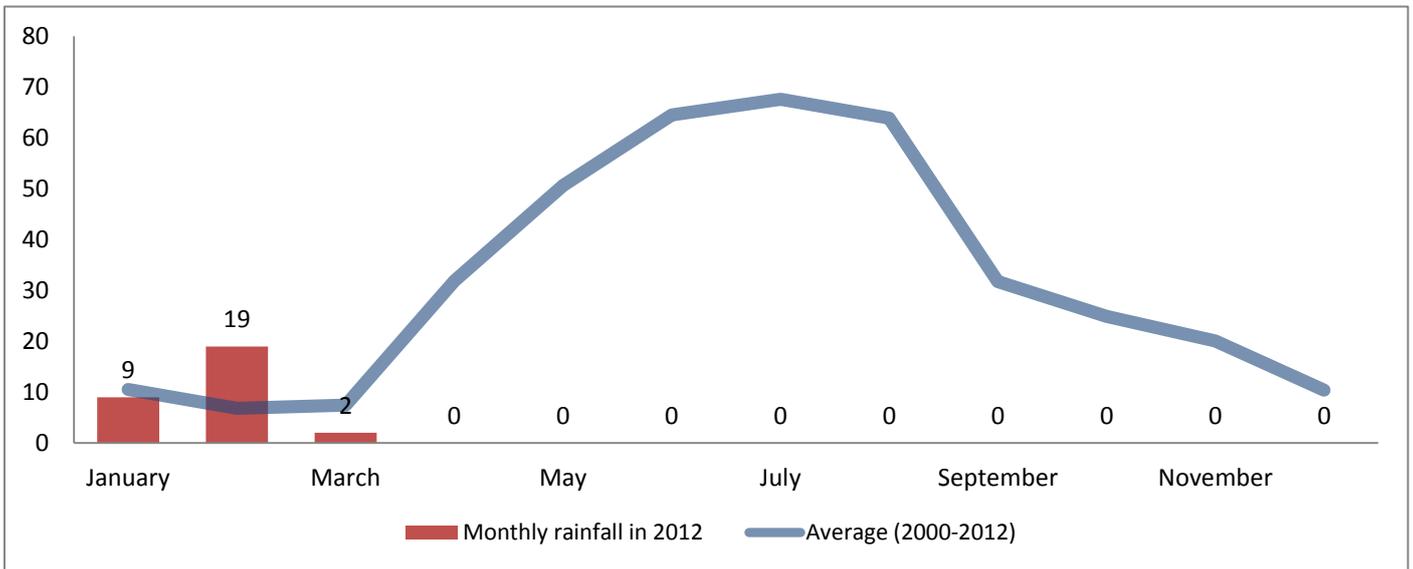


Figure 23. Monthly rainfall at Rietvlei during 2013.

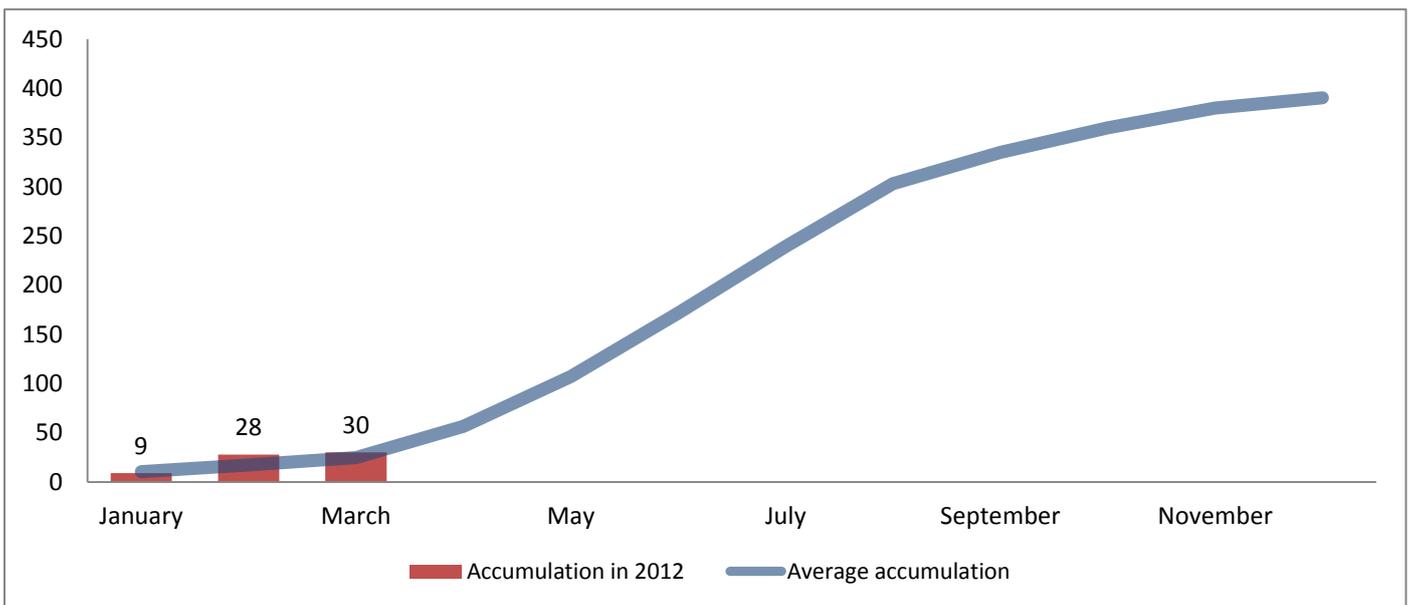


Figure 24. Accumulation of rainfall at Rietvlei during 2013.

6.1 Wildfires do not always result in damage to human lives or property, but this possibly is a constant threat. Fire fighters and nature conservators are exposed to dangerous working conditions to protect the people and property of the City.

Fires can be especially dangerous where there is a close interface between natural areas and the built environment. Residents can help by being fire-wise and assisting Fire and Emergency Services with safe passage through traffic and built-up areas.

There is a critical need to proactively manage fires under controlled conditions in order to reduce the number and intensity of wildfires. Below are reports of fires in and around the nature reserve.

6.1.1 Wildfires occurred in the Zoarvlei Section (Southern Block) on 5/01 and 1/03/2013. The Fire Department brought these fires under control. The TBNR team was not called out to assist. Residents and neighbours are advised to contact the reserve office at 021 444 0315 about fires in progress.

The vegetation that was burnt is Cape Lowland Freshwater Wetland. News article reported that people are “living” in the reeds. It is **not allowed for people to overnight on Council property without permission**, and therefore residents and neighbours are advised to contact SAPS, Law Enforcement or Reserve Management to assist with relocating displaced people. See Figure 25.



Figure 25. Extract from fire map (Zoarvlei Section, Southern Block).

6.1.2 A wildfire occurred at the Blaauwberg Nature Reserve on 15/01/2013. The Table Bay team assisted the Blaauwberg team, as well as the Fire Department and various other reserve teams to bring the fire under control.

A back-burn was utilised to extinguish a portion of the fire. Figure 26 opposite indicates the back-burn that was conducted from a graded path that was utilised as a fire-break.

It is suspected that this fire was started by a cigarette thrown from a vehicle travelling on the R27. It is illegal and highly irresponsible to throw any burning item from a moving vehicle. The loss of life and property can have serious implications for a person found guilty of such an action.



Figure 26. A back burn executed in Blaauwberg Nature Reserve.

6.1.3 A wildfire occurred at the Diep River Section of the Table Bay Nature Reserve on 28/01/2013. The Table Bay team assisted the Fire Department to bring the fire under control.

Figure 27 opposite indicates the floodplain habitat that burnt during the fire.

A management decision was taken in consultation with the Fire Department to allow the fire to sweep through the floodplain habitat, which consists mainly of reed beds and grass fields. This decision was required to reduce the flammable fuel load in the river bed and thereby reduce the likelihood of follow-up wildfires. The fire was finally extinguished in the terrestrial habitat, but considerable overtime was spent in controlling this fire over a three day period.

It is suspected that the fire was started by displaced people making fires for cooking food or burning plastic off scrap metal pieces. Residents should note that ***it is illegal to make fires on Council property without permission or in an area that is not a designated fire area.*** The vegetation that was burnt is Cape Lowland Freshwater Wetland.



Figure 27. Fire in the Diep River Section.

6.1.4 A wildfire occurred in the Rietvlei Section (Milnerton Ridge Block) from 04-06/02/2013. Considerable overtime was spent in controlling this fire over a two day period. An Injury on Duty was sustained during the operation. It is suspected that the fire was started deliberately by an unknown person.

The vegetation that was burnt is partly Cape Flats Sand Fynbos and Cape Lowland Freshwater Wetland. The TBNR team and EPWP workers cleared the burnt area of dumped material that was hidden in the vegetation for many years. This included building rubble and other forms of litter.

6.1.5 A controlled burn was conducted at the Wave's Edge Wetland of the Rietvlei Section on 5/03/2013. This burn was conducted primarily to reduce dry and dead reeds from the wetland area where a team had been cutting the reeds. Intensive planning was required to make this burn a success. The opening of the habitat helped workers access the almost impenetrable reed beds. The burn was successful, allowing for follow-up, litter clearing, reed cutting as well as herbicide spraying of new regrowth.

The opening of the habitat has made bird populations much more visible, and many bird watchers have been seen photographing birds in this area. The continuation of the cutting of the reed beds is subject to the availability of funding.



Figure 28. Extract from fire map (Diep River Section).



Figure 29. Extract from fire map (Rietvlei Section, Milnerton Ridge).



Figure 30. Controlled burn of reedbeds at Wave's Edge Wetland.

6.1.6 A controlled ecological burn was conducted at Tygerberg Nature Reserve on 07/03/2013. The Table Bay team assisted the Biodiversity Management Branch and the Fire Department to conduct this burn safely.



Figure 31. Ecological burning at Tygerberg Nature Reserve.

6.1.7 A wildfire occurred at the Table View boundary of the Rietvlei Section on 11/03/2013. The Table Bay team and the Fire Department extinguished this fire the same day. A suspected arson possibly started the fire.



Figure 32. Burnt area at Table View boundary of Rietvlei Section.

6.1.8 A controlled burn was conducted at Zoarvlei in two phases on 12 and 25/03/2013. The burn was intended to remove dead reeds that were treated with herbicide. Intensive planning went into the process to ensure a safe and successful burn. Several illegal structures had to be removed and about 14 people relocated out of the burn area before any burning could take place. There are huge pressures on the area from displaced people that build and occupy illegal structures. After the burn several truck-loads of litter and rubble were removed from the site over the period of about a week.



Figure 33. Bongani Mnisi, Koos Retief, and Jacques Kuyler conducted controlled burning at Zoarvlei (photo by D. Droste).



Figure 34. Site of the burnt area at Zoarvlei.

6.1.9 Fire mapping: All fires in the Table Bay Nature Reserve were mapped, either with a GPS or by digitizing from aerial photographs. The mapping of fires and vegetation age is important to prioritise future controlled burning as well as focus areas for wildfire responses. The up to date fire map will be made available at the next quarter and will be evaluated by managers.

7.1 Scrap metal fires are made by scrap collectors who burn off the plastic, rubber, or wood that is often attached to certain metal scraps or cables, in order to trade the remaining valuable metals. These fires are illegal and often result in wildfires in nature reserve. The three offenders below were apprehended on site and given instructions to extinguish their fire. They were educated about the fact that they have committed an offence in a nature reserve. They were also interrogated by Conservation Compliance officers and a Law Enforcement officer. They received written warning and were photographed in order to be recognised if they repeated the offence. Repeat offenders will be charged and a zero tolerance stance on illegal fires could become the norm.



Figure 35. Area manager, Koos Retief, instructing an illegal fire to be extinguished (photo C. Singo).



Figure 36. Area manager educating apprehended people about the law and dangers of fire (photo C. Singo).

7.2 Vandalism: The Mayor released a media statement about the harmful effects of vandalism on Council property and service delivery (see Figure 37 below). The Table Bay Nature Reserve also suffers from graffiti and vandalism of signs, fences and other infrastructure. **We urge the public to report signs of vandalism of nature reserve infrastructure to the reserve management team.**

Mayor: We all lose out through vandalism

Vandalism not only hampers the City of Cape Town's ability to carry out and improve service delivery, it also comes at great cost. In the past financial year alone, vandalism flattened the city's pockets by almost R130 million.

In her weekly newsletter, Cape Town mayor Patricia de Lille, says that the city's government and the people they serve are in some ways fighting a battle against increasing financial targets, limited resources and a changing environment.

"But there is another direct battle we are fighting, a front that is particularly painful and that is the battle against vandalism," she states.

"I am not sure that every citizen appreciates the scale of this particular challenge. Some people might associate vandalism with undesired graffiti, or perhaps a defaced sign."

Vandalism includes those things but it also includes the destruction of robots; the destruction or theft of electricity cables and installations, water pipes and installations; and the blockage of sewers. In addition to this city-wide problem, there are the multiplier effects of disruptions to networks, De Lille explained.

"For example, broken street lights might interrupt the safety grid of an area; a compromised water pipe effects different communities downstream; and a blocked storm-water drain can cause serious damage to the surrounding built environment.

"All of these network disruptions have consequences for the people of this city, be they problems in getting to work through water-clogged streets or a feeling of vulnerability and a lack of safety in the dark."

In the financial year to date, the city has spent:

- ▶ just over R115 million on vandalism related to sewers;
- ▶ just under R7 million on vandalism related to water and sanitation;
- ▶ just under R6 million on vandalism relating to electricity.

Budgeting for these amounts is challenging. "Given the scale of our challenges at local government, this particular battle is an especially bitter one for the simple reality that it prevents us from doing our job and making delivery progress for the whole city."

To report vandalism, please call:

- ▶ Copper theft: 0800 222 771
- ▶ Vandalism is malicious damage to property – a common law crime: call the nearest SAPS station or metro police via 021 596 1999
- ▶ For graffiti also call 021 596 1999
- ▶ The general call centre that the public can use to report faults: 0660 103 089; option 3 for water-related faults or email watertoc@capetown.gov.za or SMS 31373; option 3 for electricity-related faults or email fault-reportingcentre@capetown.gov.za or SMS 31228.

Figure 37. Media release from the Mayor about vandalism of City property.

7.3 Displaced people are impacting on the nature reserve at several locations, including the Zoarvlei Section. The Table Bay team and Conservation Compliance Officer work with the Displaced Peoples' Unit and the Anti-Land Invasion Unit to keep the nature reserve free of illegal occupants. In the part of the Zoarvlei Section that was burnt this quarter, there were at least ten illegal structures with about 14 people illegally occupying land. Very often, people return to other parts of the nature reserve immediately after their illegal structures are removed. The media have published various articles on the matter, some sympathetic and others not (see Figures 38-39 below) **We urge the public to report illegal occupation in the nature reserve to the reserve management team.**

NUMBERS INCREASE: RESIDENTS THREATENED

Vagrants turn violent

LEON STEENKAMP

As the number of vagrants in Table View increases it seems their harassing of residents is also becoming more threatening.

One such area that is plagued by vagrants is a public open space in Central Park, Parklands.

A resident of a neighbouring block of flats is now scared to walk outside alone after she decided to voice her displeasure about the vagrants that sleep in this park overnight.

"I started chasing them away after a neighbour of mine was robbed by a group of vagrants," says the woman who asked to not be identified.

Threats to poison some residents' dogs have also caused her to back off.

"I have heard that members of the 26 and 28 prison gangs are also among these vagrants," she adds.

Threats

A local security guard has also brought the wrath of the vagrants upon himself after trying to show them the road.

"Whenever they come to sleep here I would chase them away so they now know my face. They started threatening me, it was in Afrikaans and I didn't understand it, but one of the guys told me: 'They say they are going to stab you'," says Jacques Ntenga, who has been a guard at one of the residential complexes for the past two months.

"Recently when my girlfriend came to visit me, they threatened her with a screwdriver and I told her not come here again," says

Ntenga who is originally from the Democratic Republic of Congo.

Lt Elizabeth Munro, spokesperson for the Table View police says the problem with the vagrants is an ongoing one.

"We together with Complex Patrols have regular patrols in this area in Parklands."

She says although the majority of the vagrants are people focused on scavenging through rubbish bins for goods to sell to recycling companies, there are some criminal elements.

Criminals

"We have found stolen goods in the possession of some of these vagrants and there are criminals among them who pose as beggars," she said.

She added that they believe that the use

of gang graffiti on some walls was a way of deterring people from chasing them away.

"We think they might be using this to try and intimidate the work of the Table View Neighbourhood Watch as well," she says.

Shelter

A local business owner Anthony Kettle confirms it is a difficult situation.

"They are found in the whole of Parklands, wherever there is shelter from the wind and rain.

"We find them sleeping in our doorway and they leave a lot of rubbish behind," says Kettle who runs a martial arts gym in Village Walk.

He too has been threatened on one occasion.

▶ To page 2.

Figure 38. Article in the local press about displaced people in the area.

The below media article refers to occupants in a structure at the Bayside Soccer Club in the Zoarvlei Section. The article does not however state that their occupation is illegal, and that they have a detrimental impact on the environment.

This property, which is managed as part of Sport and Recreation infrastructure, creates a severe hazard to the environment. Illegal occupation of City structures should not be tolerated

Brooklyn woman appeals for youth support

CLEMENT DEANE

It's been a tough few months for Brooklyn's Raileen van Schalkwyk, whose hope of helping youth on the street has hit a few snags.

After Tabsetalk's coverage of her work with a group of youth ("We are failing our children," November 28), some have fallen by the wayside while help she hoped to receive from the police has all but vanished.

Now she needs financial assistance for struggling youths such as Dirmia Lukas, 26, who would like to study management at the College of Cape Town. However, she may need to resort to night school if the funds are not available.

Ms Lukas said while she was prepared to put the work in to complete matric through night school, a qualification from a tertiary institution would probably mean a quicker exit from a life of poverty. Her story is similar to countless others about the importance of a good education. Affording it, though, is the tough part.

"The problem is always money. We have received some help, in the form of shoes, clothing and stationery. They are small things and they do help. I am grateful for what I have received because I could not have done this on my own," said



PICTURE: CLEMENT DEANE

■ The derelict building Dirmia Lukas stays in on Zoarvlei. She hopes to study management and build a better life for herself and her two children.

Ms Van Schalkwyk. However, she has admitted there was still a long way to go.

Ms Lukas completed Grade 8, but dropped out of high school when she was 15. Her mother burnt her school books, apparently out of spite because she didn't like Ms Lukas' boyfriend at the time.

Without an education, it was difficult finding work and she now lives in a derelict structure on Zoarvlei with her boyfriend and two children. She accepted Ms Van Schalkwyk's offer and registered at an institution but she needs financial help if she hopes to continue.

"I want to study management,

but there's no money for that. I do have the option of going to night school and I feel confident I can do either. I want a brighter future for my children," said Ms Lukas.

Ms Van Schalkwyk said she has had two others who were willing to go through development programmes – such as those offered by the Chrysalis Youth Academy in Tokai – and one interested in a chef course. In fact, Ms Van Schalkwyk is looking to establish her own organisation dedicated to helping troubled or struggling youth in Brooklyn.

If you would like to help, contact Ms Van Schalkwyk on 021 510 1690.

Figure 39. Article in the local press about illegal occupants at Zoarvlei Section.

7.4 Illegal harvesting of wildlife is still taking place in parts of the nature reserve, including the Diep River Section. Above Figure 40 is an article about one case where Table Bay staff and CapeNature officials helped the SAPS to identify and catalogue this batch of 39 tortoises as evidence in a case against a person. The tortoises were released from SAPS to the nature reserve staff. **We urge the public to notify the SAPS or CapeNature if they are aware of people harvesting or keeping animals without the necessary permits.**

TYGERBURGER | TABLE VIEW
Woensdag, 6 Maart 2013

Tortoises a new one for the cops

LEON STEENKAMP

Poached wildlife was one surprise local police were not bargaining on when they raided an informal dwelling in Doornbach recently.

Looking for a robbery suspect, members of the Table View police came across a batch of 31 Cape angulate tortoises while searching the shack on Tuesday 19 February.

After booking the tortoises in as evidence at the Table View police station, the reptiles were released into the care of Koos Retief, manager of the Table Bay Nature Reserve.

"We phoned Carl Brown from the Western Cape Nature Conservation Board who is responsible for the regulation of the Nature Conservation Ordinance. He said we should press charges against the person in whose possession the tortoises were found," Retief said.

The ordinance specifies three levels of protection for wild animals – endangered, protected and indigenous unprotected wild animals.

Angulate tortoises (*Chersina angulata*) are listed as protected. In terms of Section 44(1)(e) of the Ordinance no person may be in possession of a protected wild animal without a permit authorising them to do so. Also, Section 42(1)(a) prohibits any person from being in possession of a protected wild animal which they have hunted on the property of which they are not the owner, without the written permission of the landowner in accordance with Section 36 of the Ordinance.

"On conviction of this offence the maximum penalty one could receive is a R10 000 fine or two years' imprisonment with a further fine equal to three times the commercial value of the tortoises," said Brown, bio-



The 31 Cape angulate tortoises that police found in a shack in Doornbach recently.

PHOTO: ANDREW BRACE

diversity compliance officer of the Biodiversity Crime Unit of the Western Cape Nature Conservation Board.

After questioning the suspect he confessed to taking the tortoises from the Diep River section of the Table Bay Nature Reserve.

"We believe they were poached from the field around the railway line in the area of the Potsdam Road," Retief said.

Retief says they believe the tortoise were poached to be either used for multi purposes or to be exported to Asia for the pet market.

Currently the tortoise are being kept in a temporary enclosure at the Table Bay Nature Reserve head office at Rietvlei until they can be released back into the wild.

"They have a patch of grass and enough shade to be comfortable," Retief said with a smile.

Figure 40. Article in the local press about confiscated tortoises that were harvested from the Diep River Section.

8 PEOPLE AND CONSERVATION

8.1 Stakeholder Engagement (external meetings)

TBNR staff attended no less than 13 external stakeholder meetings during this quarter. See Table 4 below for details.

Table 4. External stakeholder meetings relating to the TBNR.

AREA	DATE	MEETING	PURPOSE
TBNR	16/01/2013	Diep River church groups	Discussion & Feedback
	17/01/2013	Milnerton Riding Club	
	24/01/2013	Cape Peninsula University of Technology (CPUT)	
	29/01/2013	SANCCOB	
	30/01/2013	Councillor Makaleni from Du Noon	
	1/02/2013	Zoarvlei Management Advisory Committee	
	4/02/2013	EPWP programmes implementation	
	6/02/2013	Diep River Working for Wetlands site meeting	
	14/02/2013	Milnerton Local Areas Spatial Development Framework (LASDF)	
	15/02/2013	Responsible Tourism workshop	
	27/02/2013	SANCCOB	
	19/03/2013	Coordinated inter-service meeting on the Milnerton lagoon fish die-off	
	27/03/2013	Cape Peninsula University of Technology (CPUT)	

8.2 Stakeholder Engagement (internal meetings)

TBNR staff attended no less than 12 internal stakeholder meetings during this quarter. See Table 5 below for details.

Table 5. Internal stakeholder meetings relating to the TBNR.

AREA	DATE	MEETING	PURPOSE
TBNR	2/01/2013	Signing students contracts	Discussion & Feedback
	4/01/2013	Planning signage for TBNR	
	9/01/2013		
	14/01/2013	Baseline audiometric testing for all TBNR staff	
	15/01/2013	Students Council driver's assessments	
	21/01/2013	Invasive Alien Species reporting meeting	
	31/01/2013	Blaauwberg Nature Reserve fire debrief	
	11/02/2013	Adult Education & Training (AET) meeting	
	11/02/2013	Workplace Skills Development Programme (WSDP) meeting	
	14/02/2013	Biodiversity Database training	
	18/02/2013	Planning signage for TBNR	
	19/02/2013	Reserve volunteer programme	
20/02/2013	Important Bird Area (IBA) review		

8.3 North District Meetings: Management and Health & Safety

Table Bay staff attended three Regional Meetings during this quarter (See Table 6 below).

Table 6. Records of regional meetings relating to the TBNR.

DATE	VENUE	MEETING
1/02/2013	Blaauwberg Nature Reserve	Regional Health & Safety meeting
		Regional Management Meeting
1/03/2013	Table Bay Nature Reserve	Regional Management Meeting

8.4 Environmental Resource Management / Branch Meetings / Fun Days

Table Bay staff attended three Regional Meetings during this quarter (See Table 7 below).

Table 7. Branch meetings relating to the TBNR.

DATE	VENUE	THEME
31/01/2013	Christo Pienaar Centre	Branch Recruitment & Selection processes
22/02/2013	Mike Woods Centre	Students' Research Proposals
28/02/2013	Lourensford Wine Estate	Branch Meeting

8.5 Benefits, use of facilities, and media headlines

8.5.1 The Rietvlei Boma was used for no less than 24 events this quarter, providing at least 676 person days of benefit to people (see below Table 8 for details).

Table 8. Rietvlei boma usage.

DATE	GROUP	ACTIVITY	PERSON DAYS
2013/01/16	Diep River - Church groups	Meeting	8
2013/01/21	Greenest Metro competition	Evaluation meeting	11
2013/01/22	EPWP new intake	Meeting	6
2013/01/24	WIL student mentors	Mentor workshop	15
2013/01/28	WIL students	Students' Induction	25
2013/01/29	WIL students	Students' Induction	27
2013/01/30	WIL students	Students' Induction	35
2013/01/31	WIL students	Students' Induction	30
2013/02/01	WIL students	Students' Induction	28
2013/02/07	SANParks	Regional Meeting	35
2013/02/08	SANParks	Regional Meeting	35
2013/02/11	EPWP working group	Health and Safety meeting	47
2013/02/11	Local Area Economic Development Unit	Meeting "way we work"	25
2013/02/14	Bionet Alliance Committee meeting	Meeting	10
2013/02/15	Public members, MyCiti	Responsible Tourism Event	60
2013/02/18	EPWP working group	Health and Safety meeting	53
2013/03/01	North Region staff	Regional Meeting	14
2013/03/08	Department Revenue: Support Services	Revenue Management Team Workshop	25
2013/03/11	EPWP working group	Health and Safety meeting	42
2013/03/14	SAPS Forensic Science Laboratory W/Cape	Management Meeting	20

2013/03/15	SAPS Forensic Science Laboratory W/Cape	Management Meeting	20
2013/03/18	EPWP working group	Health and Safety meeting	42
2013/03/20	SAPS Forensic Science Laboratory W/Cape	Meeting	23
2013/03/25	EPWP working group	Health and Safety meeting	40
TOTAL			676

8.5.2 The Rietvlei Education Centre was used for no less than 3 events this quarter, providing at least 54 person days of benefit to people (see below Table 9 for details).

Table 9. Rietvlei Education Centre usage.

DATE	GROUP	ACTIVITY	PERSON DAYS
2013/02/07	Rietvlei Management Working Group	Meeting	9
2013/03/14	Natanya Dreyer	Training session for new EE interns	10
2013/03/14	Friends of Rietvlei	Evening talk – Doug Harebottle, Local Birding	35
TOTAL			54

8.5.3 Environmental Education was of at no less than 10 events this quarter, providing at least 426 person days of benefit to people (see below Table 10 for details).

Table 10. Environmental Education this quarter.

DATE	GROUP(S)	LEARNERS	TEACHER +ADULTS	PD'S	PROGRAMME
2013/01/18	Cape Bird Club	0	0+12	12	Bird Club outing
2013/02/02	1 st Blaauwberg Scouts	8	0+1	9	Community Service – Beach clean-up Diep River mouth
2013/02/06	Downeville Primary	75	4+0	79	Wetland Discovery Race
2013/02/15	Responsible Tourism Event	0	0+58	58	TBNR & BBNR Reserve tour
2013/02/16	Kenridge Primary	18	4 + 4	26	Garden Birds by A. le Roux
2013/02/18	Shree Bharat Sharda Mandir School, Gauteng	41	3+0	44	Joined SANCCOB programme (wetland race & miniSASS)
2013/02/26	Seamount Primary	44	2+0	46	Wetlands ecology
2013/03/19	Parklands College	62	4+0	66	Joint SANCCOB programme Wetland biodiversity (fish dissection & plants)
2013/03/21	Riverside Primary, Robertson	45	2+0	47	Biodiversity
2013/03/27	Riverside College	36	3+0	39	Wetland ecology
TOTALS		329	97	426	TOTALS

9 HUMAN RESOURCE MANAGEMENT

9.1 Staff Establishment

Staff at TBNR consisted of 11 permanent staff and no less than 72 contract (non-permanent) staff (see Table 11 below). Apart from two students and one intern, most of the non-permanent staff were EPWP contract workers that work on projects ranging from invasive vegetation clearing, reed bed cutting, firebreak maintenance, as well as the construction of boardwalks.

Table 11. Table Bay staff complement.

TBNR	POSITION	PURPOSE	PERMANENT	CONTRACT
Internal	Area Manager	Functional / Operational Management	1	
	Assistant Cons Off	Gate control / Visitor Mngt / Law Enforcement	2	
	Assistant Cons Off	Conservation Compliance – Diep River	1	
	People & Cons Off	Environmental Education Officer	1	
	Foreman	Supervision of Junior Staff	1	
	Small Plant Operator	Chainsaw / Brush-cutter / weed eaters / mowers	1	
	Senior Workers	Labour / Field Ranging	4	
	Intern	Education Programme Management		1
	Student	Nature Conservation Learning		2
External	Workers	EPWP Labour		69
TOTALS			11	72

9.1.1 Two Nature Conservation students were appointed to work at the Table Bay Nature Reserve. Simonne Afonso was appointed from CPUT and Landi Louw was appointed from UNISA.

9.1.2 Annual baseline-audiometric testing of all Table Bay staff was conducted this quarter.

9.2 Staff Training

9.2.1 An induction course was hosted at the Rietvlei boma for all new students on City of Cape Town nature reserve. This course was presented by various instructors over a week period. Part of the course focussed on basic fire fighting.

9.2.2 An Adult Education & Training meeting was held with Table Bay field rangers to determine which staff are willing to undergo such training to improve their qualifications.

9.2.3 A Workplace Skills Development Plan meeting was held with all Table Bay staff to submit their work-based training requirements for the next year period.

9.2.4 Biodiversity Database training was offered to all new staff at the Table Bay.

10 TOURISM AND VISITORS

10.1 Entrance and revenue: A total of **R43 435** was collected at the Rietvlei main gate during this quarter (see Table 12 below for details).

Table 12. Revenue collected at the Rietvlei main entrance this quarter.

DESCRIPTION	TARIFF	JAN	FEB	MAR	QTY	INCOME
Pensioners	R 6.00	28	28	24	80	R 480
Adults	R 12.00	473	261	313	1047	R 12 564
Children; 3-17 yrs	R 6.00	156	75	62	293	R 1 758
Scholars - student card	R 6.00	3		1	4	R 24
Children <3yrs & free	R 0.00	4	5	2	11	R 0
Scholars - school groups	R 5.00		64	97	161	R 805
Friends groups with proof of membership	R 0.00	42	28	27	97	R 0
Season Ticket – adult	R 115.00		1		1	R 115
Season Ticket – snr citizen	R 59.00		1	1	2	R 118
Season Ticket – family	R 175.00	1			1	R 175
Vehicles	R 17.00	252	137	149	538	R 9 146
Powerboats	R 44.00	57	24	24	105	R 4 620
Powerboat annual ticket	R 390.00		1		1	R 390
Sailboats/dinghy/windsurfer – adults	R 19.00			2	2	R 38
Fishing - Senior Citizen	R 13.00	13	5	6	24	R 312
Fishermen – Adult	R 38.00	138	52	95	285	R 10 830
Fishermen – Children (3-17yrs)	R 13.00	28	6	11	45	R 585
Fauna Management call out fee (per hour)	R 115.00		1		1	R 115
Hire of trap (per week)	R 220.00		2		2	R 440
Commercial activity 1-9 people per day	R 110.00	1			1	R 110
Commercial activity 10-20 people per day	R 270.00	2	1		3	R 810
TOTAL FOR YEAR		1198	692	814	2704	R 43 435

11 INFRASTRUCTURE MAINTENANCE

Various fencing, gates and signage was installed and maintained during this quarter.

12 FINANCIAL MANAGEMENT

12.1 A boardwalk was constructed by an EPWP team at the Bird Hide Block between the entrance road and the two bird hides. This work is not complete as there are certain snags that require attention and completion. The boardwalk will be discussed in the next quarterly report.