# **Overstrand Baboon Management Annual Report:** July 2021 to June 2022



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# Annual Baboon Management Report



- This Annual Report is compiled for the Overstrand Municipality by Human Wildlife Solutions (HWS). HWS is the appointed service provider to manage eight baboon troops; four troops centred around Hermanus in the Overstrand East, and four troops centred around Betty's Bay and Pringle Bay in the Overstrand West.
- HWS took on the management of these troops in July 2020, and the current contract expires at the end of June 2023. Management of two troops, namely the Voëlklip Troop and the Pringle Bay Troop, first commenced under a separate trial contract in October 2019.
- Management of the extra six troops was on an incremental basis, starting with the Vogelgat, Hamilton Russell and Onrus Troops in August 2020. This was followed by the Betty's Bay Troop in April 2021, and the Silversands and Hangklip Troops in June 2021.
- This Annual Report covers the period of 1 July 2021 until 30 June 2022. It provides a synopsis of trends in baboon management over the last 12 months. Reference is also made to data gathered in previous years to highlight relevant trends.

# Baboon Troops' Ranging Areas

#### Western Overstrand

- This region encompasses the areas of Pringle Bay, Betty's Bay, Hangklip, and Kleinmond. Managed troops include the Betty's Bay, Pringle Bay, Hangklip, and Silversands Troops (Figure 2). The Rooiels Troop is managed only in cases of injured baboons requiring assistance.
- The ranging areas of the Hangklip and Silversands Troops overlap extensively in the Hangklip Ecocorridor.
- The Pringle Bay Troop range extends from Skilpadsvlei to the upper Rooiels River valley. However, for the last three months of this management year, the majority of the troop spent well over 50% of the month in or around Pringle Bay Town.
- The Betty's Bay Troop ranged over the narrow coastal strip of Betty's Bay, extending inland into the Kogelberg Mountains through the Harold Porter Gardens. Additionally, the troop spent most of spring 2021 in the mountains to the north of Kleinmond as part of an apparent annual migration pattern.

#### **Eastern Overstrand**

- The region encompasses Hawston in the West, to Eastern Hermanus and surrounds. Managed troops include the Onrus, Hamilton-Russell, Voëlklip, and Vogelgat Troops (Figure 1).
- The ranging areas of the Voëlklip and Vogelgat Troops are relatively well known, whilst those for Hamilton-Russell and Onrus Troops are largely estimates. The ranging area of the Onrus Troop home range is based on GPS coordinates collected during the 2020/21 Management year.
- During 2021/2022 the Voëlklip Troop expanded its ranging area into the Hamilton-Russell Vineyards and Bouchard Finlayson Winery located in the Hemel–en–Aarde Valley.
- The ranging area of the Vogelgat Troop is based on the previous year's GPS data due to the lack of a collar on a current member of the troop.







**Figure 1:** Map showing the ranging areas of the managed troops in the Eastern Overstrand Region. The ranges of both the Vogelgat and Onrus Troops are based on GPS data gathered during previous management years. The range of the Hamilton-Russell Troop is estimated based on observations of the troop and other troop ranging areas.





**Figure 2:** Map showing the ranging areas of the troops in the Western Overstrand Region. The Rooiels Troop is not managed, except for injury related interventions. The Pringle Bay Troop has an extensive range, including the Buffelstal Nature reserve, Rooiels River, and Pringle Bay Village. The Betty's Bay Troop has an elongated range stretching along the coast. The eastern portion of its range, around Kleinmond, was utilized during spring.





**Figure 3:** Ranging area for the Voëlklip Troop for the period July 2021 to June 2022. The troop foraged further inland than in previous years, with the range being expanded into the Hemel – en – Aarde Valley as well at the mountains north of Fernkloof Nature Reserve.





**Figure 4:** Ranging area of the Pringle Bay Troop for the period July 2021 to June 2022. The majority of the GPS point data is located within the Buffelstahl Nature Reserve and Rooiels River catchment. However, during the later part of the year the troop spent increasingly more time within the urban area.





Hangklip Troop Pringle Bay Troop



Figure 5: Foraging range for the Hangklip Troop for the period July 2021 to June 2022. The majority of the Hangklip Troop range is within the Hangklip Eco Corridor (WWF-SA). The area of most intense use is the valley between Blesberg and Hangklip Peak. © Copyright Reserved

- Managed populations were counted in June 2022 (Table 3), with other counts being made on an *ad hoc* basis when
  opportunities presented themselves earlier during the management year.
- The Voëlklip Troop grew by **10** animals over the past year **(Table 3)**. This growth was likely due to an increased availability of human derived foodstuffs (HDF's) because during the current year the troop spent an increased amount of time on farms to the north west of Hermanus **(Figure 3)**.
- Over the past year there were **19** deaths and **17** births (**Table 3**). There was a significant increase in the number of Human Induced Deaths (HIDs) during the past year (**Table 1 & 4**).
- There was one management related death during the year; BBM1 was humanely euthanised on 18/09/2021.
- Note: Recorded births and deaths will not necessarily add up to the recorded population totals year on year, because many births and deaths may go unnoticed. The primary aim of the project is to keep baboons out of town, and as wild and unhabituated as possible. Therefore, baboon rangers spend as little time as possible with the troops while managing them.

	HIDs 2020/21	HIDs 2021/22		Total	Average	Smallest	Largest	Number of
	Dog (1)	Car Accident (5)		Population	Troop Size	Troop	Troop	Troops
Causes Car Accident (1)	Shot ( <b>2</b> ) Electrocution ( <b>1</b> ) Dog ( <b>1</b> )		228	28	Pringle Bay ( <i>n</i> = 14)	Silversands (n = 43)	8	
Table 1. Comparison of HIDs between 2020/21 &2021/22 Management Years.				Table 2. Sum Management	•	aged troop pop	oulations durin	g the 2021/22

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## **Troop Sizes of Managed Troops**

Тгоор	October 2019	June 2020	June 2021	June 2022	Total observed Births (1 July 2021 to 31 June 2022)	Total observed Deaths (1 July 2021 to 31 June 2022)	Total observed Migrations (1 July 2021 to 31 June 2022)
Voëlklip	29	29	27	37	6	0	-1
Vogelgat	N/A	22*	29	27	2	5	0
Onrus	N/A	N/A	25*	24*	0	1	0
Hamilton Russel	N/A	N/A	21*	25	0	1	0
Pringle Bay	16	16	17	14	2	7	+2
Betty's Bay	N/A	19	20	23	7	3	0
Hangklip	N/A	N/A	30	38	0	1	-1
Silversands	N/A	N/A	43	41*	0	1	-1
Total	45	64	212	229	17	19	-1



**Table 3**: Population data for the managed troops in the Overstrand in June 2022. Emigration /Immigration figures show animal movements between troops. \* Troop sizes were estimated, because they were not seen enough to get accurate counts. Note: Troop numbers are counted once a year in June. Troop numbers are not updated during the year by just counting births and deaths, because these may occur without being observed by field rangers.

## Causes of Deaths in Managed Troops

- There was a significant increase in the number of Human Induced Deaths (HID) observed during the 2021/22 Management year, increasing from 2 to 9 (Table 5). Causes of HIDs are summarised in Table 4.
- Notably, the monthly Human Induced Mortality rate increased from an average of 0.4 deaths per month to 1 death per month after the instatement of the PBM Moratorium.
   Vogelgat
   Betty's Bay
   Bringle Bay
   Silversands
   Hangklin
- The Majority of the Natural Deaths occurred within the Pringle Bay Troop (4), with 2 infanticides and 2 deaths from old age occurring during the management year.

Vogelgat	Betty's Bay	Pringle Bay	Silversands	Hangklip
Troop	Troop	Troop	Troop	Troop
Car ( <b>3</b> )	Shot ( <b>1</b> ) Car ( <b>1</b> )	Shot ( <b>1</b> ) Car ( <b>1</b> )	Dog ( <b>1</b> )	

Table 4: Summary of Human Induced Deaths (HIDs) per troop.

Deaths	2019/20 (October-June)	2020/2021 (July – June)	2021/2022 (July-June)	Total (since October 2019)
Management	3	0	1	4
Human Induced (HID)	1	2	9	12
Direct*	1	2	8	11
Indirect**	0	0	1	1
Natural	2	7	7	15
Unknown	0	0	2	2
Total Deaths	6	9	19	34



**Table 5**: Table showing the causes of baboon deaths since October 2019. \*Deaths caused directly by humans, such as motor vehicle accidents, shooting, poisoning and dogs \*\*Deaths caused indirectly by humans such as electrocutions.

### Time Out of Town Statistics

- Time out of Town (TOT) is the measure used to determine the efficacy of the baboon management strategy
  of keeping baboons outside the urban areas of the Overstrand. When baboons are in town, they have
  access to Human Derived Foods (HDF's). HDF's therefore provide baboons with a high energy reward for
  being in town, so baboons quickly learn the value of being in town, particularly if they are no longer scared
  of humans (i.e. have been habituated).
- The impact and disruption to humans is much greater when a whole troop enters an urban area. Therefore, two statistics were recorded. TOT for troops is measured when >= 50% of the troop is in town and TOT for individuals when < 50% of a troop is in town. TOT for individuals is counted as the total time (counted in minutes) any baboon is in town during daylight hours (sunrise to sunset). The TOT calculation is based on the average amount of daylight hours for each month of the year.</li>
- The average TOT for the eight managed troops in the Overstrand was **97.66**% for the year. The TOT for individuals was an average of **92.9**% (Figure 6).
- Seven out of eight troops were kept out of the urban area > 90% of the time during the year (Figure 6). The Pringle Bay Troop recorded an average time out of town of 88.9% during the 2021/22 management year.
- Individuals from the Betty's Bay and Pringle Bay Troops spent an average of 82.9% and 70.5% out of town respectively. For the remaining six troops the average troop TOT was 99.9%, while the TOT for individuals was 94.3%. These statistics reflect the markedly different levels of habituation of the Betty's Bay and Pringle Bay Troops versus the other six troops.



#### Average % Time Spent out of Town per Troop





**Figure 6:** Managed baboon troops (green) and individuals (yellow) average percentage time out of town (TOT) for the 2021/22 management year (July – June). The Municipal requirement is that the average troop TOT is >= 90%. The only troop to drop below the 90% Out of Time requirement was the Pringle Bay Troop.



#### Average % Time Spent Out of Town per Month



Figure 7: All managed baboon troops (green bars) and individuals (yellow bars) average monthly percentage time out of town (TOT) for the 2021/22 management year (July – June). The Municipal requirement is that the average troop TOT is >=90%.

### **Baboon Troop Incursions**





**Figure 8:** Chart depicting a summary of incursions recorded during the 2021/22 management period. **3256** Incursions were recorded; **801** were assertive whilst **2479** were non-assertive. The Bettys Bay and Pringle Bay Troop were responsible for **84%** of total incursions and **97%** of all assertive incursions. **Note:** 0% indicates that the number of incursions of this category was < 1% of all incursions.

## **Incursion Behaviour**

In the Betty's Bay Troop there was a sharp decrease in the frequency of assertive	Non-Assertive	Assertive
behaviours after the euthanasia of BBM1. This was because he did these	In Urban Area	Unoccupied
behaviours the most and others followed his example (Figure 9).	Raiding Bins	House Raids
After the beginning of the moratorium there was an increase in the total number of	Accidental	Occupied
incursions, with the number of non-assertive incursions increasing sharply. This	Damage	House Raids
trend was especially pronounced in the highly habituated Betty's Bay and Pringle	Altercations	Threatening or
Bay Troops because their normal flight distance was already very low (Figure 9).	with Pets	Stealing
The increase in non-assertive incursions is most obvious in the Betty's Bay Troop,		Breaking &
whilst in the Pringle Bay Troop the increase was more gradual (Figure 9 & 11).		Entering
		Nocturnal
The Vogelgat and Voëlklip Troops were responsible for relatively few incursions,		Incursions
with the number of incursions decreasing after November 2021. This trend applied	Table C. Summary	

 
 Table 6: Summary of Assertive and
 **Non-Assertive incursions** 

	Betty's B	ay Troop			Pringle	Bay Troop	
Before Moratorium After Moratorium			Before Moratorium After Moratorium				
Avg. Non- Assertive per month	Avg. Assertive incursions per month	Avg. Non- Assertive per month	Avg. Assertive incursions per month	Avg. Non- Assertive per month	Avg. Assertive incursions per month	Avg. Non- Assertive per month	Avg. Assertive incursions per month
79.6	37.4	118.6	29.4	49.4	31.2	62	33



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to both assertive and non-assertive incursions (Figure 8).

 Table 7: Summary of incursions before and after moratorium for Pringle Bay and Betty's Bay Troop.

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**Figure 9:** Frequency of assertive and non-assertive incursions per troop per month for the four primary raiding troops in the Overstrand. Data labels above bars indicate the total number of incursions recorded per troop per month. **Note:** Line 1 indicates the euthanasia of BBM1. Line 2 indicates the instatement of the Paintball Marker Moratorium





**Figure 10:** Number of incursions recorded for the Betty's Bay Troop during the 2021/22 management year. Label at the top of each bar indicate the total number of incursions recorded. Checked Columns indicate period in which the troop was primarily in Kleinmond. Dashed vertical lines indicate notable events. Since the euthanasia of BBM1, the proportion of assertive incursions dropped from 44.9% to 20% of all incursions.

## Incursions by Individuals in the Pringle Bay & Betty's Bay Troops

#### **Pringle Bay**

- During the autumn of 2021 there were very few incursions recorded by the Pringle bay Troop because it was resident in the Buffelstahl catchment area. In winter 2021 PBM2 regularly went to Pringle Bay, often recruiting other troop members to join him. PBM2 consistently recorded the highest number of incursions of any troop member, followed by HKM1.
- HKM1 was first recorded in Pringle Bay in October 2021. He has since acted as a powerful attractant to members of the Pringle Bay Troop to return to town. Once in town, he actively prevented them from trying to leave.
- After the start of the PBM moratorium, both HKM1 and PBM2 spent increasingly more time in the urban area, leading to an increasing number of incursions. This was followed by a subsequent increase in the number of incursions recorded for females and juveniles as the troop spent increasingly more time in town (**Figure 11**).

#### Betty's Bay

- The Betty's Bay Troop recorded a very high number of incursions prior to the euthanasia of BBM1 in September 2021. After this there was a significant drop in assertive incursions recorded in the Betty's Bay Troop (**Figures 10 & 12**).
- The number of all incursions made by all troop members decreased during the two months spent in Kleinmond (Figure 10). The different topography around Kleinmond allowed management strategies to be deployed more effectively.
- After the instatement of the PBM moratorium, there was a sharp increase in the number of non-assertive incursions (running into town) by all troop members. This increase was related to the highly habituated status of all troop members and their short (<1m) flight distance from rangers which were no longer carrying active deterrents (PBMs). BBM4 was now responsible for significantly more incursions than any other troop member, followed by BBM2.



#### Incursions by Individuals of Pringle Bay Troop





**Figure 11:** Chart showing the number or incursions recorded per month for members of the Pringle Bay Troop during 2021/22. Note that three months from the previous management year (2020/21) have been included to highlight the dramatic increase in incursions seen during the current management year (2021/22). Black dashed Line indicates the start of the Paintball Marker Moratorium. Red dashed line indicates when the whole troop was residing in town.





**Figure 12:** Chart showing the number of incursions recorded per month for members of the Betty's Bay Troop during the 2021/22 management year. Red dashed line indicates euthanasia of BBM1. Black dashed line indicates start of Paintball Marker Moratorium. Royal blue dashed line indicates death of BBM3.

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## Hotline Call Summary

- As part of the baboon management programme, HWS provides a hotline service to the Overstrand Municipal area for residents to log sightings or incidents with baboons. HWS was able to respond to calls by sending rangers to the affected areas. All hotline calls were integrated into the HWS data set of baboon troop behaviour.
- Calls mostly came from the urban areas which baboons regularly visited, such as Hermanus Heights, Voëlklip, Pringle Bay and Betty's Bay (Figure 13). Almost half of all calls were made from Betty's Bay, with the majority coming from Jock's Bay (n = 362). This area is directly adjacent to the most commonly used sleep sites of the Betty's Bay Troop and subsequently experienced the greatest level of baboon related activity.
- A total of **1,550** hotline calls were received during the 2021/2022 management year, with a monthly average of **129** calls.
- The majority of hotline calls reported incursions within managed areas. Other calls consisted mainly of enquires regarding baboons, complaints, or were reports of incidents outside of managed areas.

Vogelgat Troop	Voëlklip Troop	Hamilton- Russel Troop	Onrus Troop	Betty's Bay Troop	Pringle Bay Troop	Silversands Troop	Hangklip Troop	Other Troops	•	Complaints
108	363	20	8	736	209	19	1	22	59	5



**Table 8:** Number of hotline calls received per troop during 2021/22 management year.

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Figure 13: Total number of hotline calls received per area during 2021/22 management year.

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## **Vogelgat Virtual Fence**



**Figure 14:** Number of hotline calls received (blue), Number of troop incursions (red), number of individual incursions (yellow), and number of Virtual Fence activations (green) for the Vogelgat Troop during since January 2020. **Note:** Red dashed vertical line indicates the loss of a collar in the Vogelgat Troop (VGM2 found deceased 23/08/2021). Copyright Reserved

# Vogelgat Troop Virtual Fence Summary

- Pre-management Period: During the initial Trial Period of the Overstrand's Strategic Baboon Management Plan (SBMP) from October 2019 to June 2020, only the Voëlklip and Pringle Bay Troops were managed. During this period the Voëlklip Troop was progressively steered north out of town and the Vogelgat Troop started moving increasingly deeper west into the urban area (Figure 1). HWS rangers were generally fully occupied managing the Voëlklip Troop and therefore were seldom available to help steer the Vogelgat Troop out of town. Although the Vogelgat Troop was not managed during this period, all hotline calls from residents were recorded.
- First Management Year: Management of the Vogelgat Troop with the HWS Virtual Fence began in August 2020. A female, VGF1, was radio collared on 26 August 2020, and thereafter management with the Virtual Fence began in earnest. Six months later, after delivering 3324 GPS points, the battery on the radio collar went flat. It immediately became much more difficult to anticipate the movements of the troop and block its path with the portable Virtual Fence. A month later the alpha male, VGM2, of the troop was collared, but in the meantime he and some other individuals had relearned the benefits of raiding the urban area. Although many individual incursions into the urban area were made, the whole troop never broke past the Virtual Fence.
- Second Management Year: Five months after being collared, VGM2 was killed on the R43 in a motor vehicle accident. Interestingly, incursions into the urban area as well as those onto establishments along the R43 almost immediately stopped and for the next seven months the Virtual Fence only needed to be activated three times. These data illustrate the negative influence one baboon can have on the behaviour of the rest of the troop (as also witnessed with BBM1 in the Betty's Bay Troop). In April 2022 a new alpha male started making incursions into the urban area, and then on 31 May the Vogelgat Troop made its first incursion back into Voëlklip after 20 months of not doing so. This troop incursion highlighted the need for the Vogelgat Troop to be recollared.



### **Management Recommendations**

- Provide education and increased awareness of baboons to the public, especially during the holiday seasons. The same applies to outside contractors working in the areas used by baboons.
- Every Troop should be equipped with at least one GPS collar. GPS collars dramatically enhance management response by enhancing field staff's ability to locate animals in the morning. Furthermore, data gathered from these collars provide invaluable information regarding seasonal movement patterns, as well as documenting progress by showing the change in space used by baboons over time.
- Attractants in urban areas should be actively managed:
  - Waste and recycling collection should be prioritized to take place in the early mornings in suburbs affected by baboons, especially in Voëlklip, Pringle Bay and Betty's Bay. Waste removal should start on the urban edge closest to their mountain refuge and then move down through the suburbs.
  - All bins used in baboon-affected areas should be baboon-proof and locked and refuse bags should not be left lying on the sidewalk. Betty's Bay is a high priority area.
  - Fruit should be harvested early, and open vegetable gardens should be baboon-proofed.
  - Residents should not feed or provide water points for wildlife, including birds.
- Residents should not hinder HWS in their efforts to guide baboons out of town.
- Residents should not actively feed the baboons, stand too close to baboons or interact with them in any way that could increase their habituation to people. By contrast, baboons need to be 'rewilded' and become totally independent from humans.



Better access for HWS to areas used by baboons will allow for better management of troops.

# Challenges







- Provisioning of food, whether to birds, baboons or other wildlife was a common obstacle in the Western Overstrand. The availability of provisioned food contributed significantly to the presence of Silversands individual males in the urban area. Provisioning also contributed significantly to members of the Pringle Bay and Betty's Bay Troops visiting the urban areas. Baboons have excellent spatial memory and will return frequently to locations known to provision food.
- Restrictions on relocating dispersing males, or other damage causing individuals, severely hampered management efforts and led to the major regression of the Pringle Bay Troop. The presence of the dispersing males HKM1, PMB2 and UNM2 in Pringle Bay acted as powerful attractants to females and eventually resulted in the whole troop returning to town. Allowing raiding males to settle in urban areas undermines efforts to keep other baboons out of town. Selective management of individuals can be highly successful because it prevents undesirable or damaging behaviours from being learned by other troop members.
- Another major challenge this year was the restriction on the full use of Paintball Markers (PBM) as management tools. PBMs are essential tools because they increase a baboon's flight distance from humans significantly. This is particularly which important when dealing with highly habituated baboons, such as those in the Betty's Bay and Pringle Bay Troops. These habituated animals (including females and juveniles) have a greatly reduced flight distances (often < 1m). Without the deterrent of a PBM, baboons are able to pass in close proximity to rangers without fear of being targeted, thereby severely impacting management goals.</li>

#### Successes

- The HWS Virtual Fence has been used most successfully to manage the Vogelgat, Hangklip and Onrus Troops. The Vogelgat Troop did not access the urban area for a period of 20 months. This trend unfortunately ended in May 2022 due to the lack of a GPS Collar on a member of the troop. Without a GPS collar it was impossible to predict the movements of the troop over the mountains and timeously place the HWS Virtual Fence ahead of the troop on its route towards town.
- Making use of the HWS Virtual Fence, the Hangklip Troop has not been into Pringle Bay since HKM3 was radio collared on 12 August 2021.
- The Onrus Troop has been kept out of the urban area making infrequent uses of the HWS Virtual Fence. It was last used in March 2021. Over the past year there have only been eight hotline calls relating to this troop. This troop is not radio collared.
- The Hamilton Russell Troop has not challenged the urban edge at all over the past year.
- Voëlklip Troop has shown a significant improvement since the last management period. Time out of Town increased for both the Troop (99.32% to 99.52%) and Individuals (93.35% to 96.08%), whilst the number of incursions decreased by 53% (523 in 2020/21 vs 256 in 2021/22). Importantly, assertive incursions decreased by 74% (70 in 2020/21 vs 18 in 2021/22).
- Management of the Betty's Bay Troop has improved dramatically since the euthanasia of BBM1. The occurrence of breaking and entering houses has stopped entirely. This is despite the fact that BBM1 was not the only individual physically breaking into houses. **10** of the **71** recorded break-ins were attributed to three other baboons. The average frequency of assertive raids in this troop has also dropped from **59** to **18** per month.





# Summary of Trends in Baboon Management

July 2021- June 2022







- **Population**: During the past management year, the overall population of the managed troops increased from **212** to **228**, with the majority of growth occurring in the Hangklip and Voëlklip Troops. A notable exception was a reduction in group size in the Pringle Bay Troop, which suffered a significant decrease (**17** to **14**).
- Time out of Town: All Troops were, on average, kept out of town for > 90% of the month, with the exception of the Pringle Bay Troop (88.9%). Individuals were kept out of town > 90% of the month for all troops except for the Betty's Bay (82.9%) and Pringle Bay Troops (70.5%). The average time out of town for the less habituated troops (Voëlklip, Vogelgat, Hamilton-Russell, Onrus, Hangklip, Silversands) was 99.9%, whilst the individual time out of town was 94.3%.
- Incursions: A total of 3256 incursions were recorded during the 2021/22 year. Of these, 801 were Assertive, and 2479 were Non-Assertive. The Betty's Bay and Pringle Bay Troops were responsible for 84% (2734 incursions) of all incursions including 97% (780 incursions) of all Assertive incursions. These high rates of incursions are directly attributed to the high levels of habituation of these two troops.
- Hotline: A total of **1550** hotline calls were received during the 2021/22 management year, with a monthly average of **129**. The majority of hotline calls were received from Jock's Bay, Sunny Seas, Pringle Bay, Hermanus Heights, and Voëlklip.