

Comments on

THE PROPOSED RESTORATION AND MAINTENANCE OF THE BLUE STONE QUARRY WALL, ROBBERN ISLAND

Revised Maintenance Management Plan May 2021

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Preamble

I was one of the founders of the Earthwatch South African Penguins project on Robben Island which started in 2001 and has run every year since. I have led several teams every year and as a result have got to know the island and its birds very well.

I have read with great care the Revised Maintenance Management Plan for the Blue Stone Quarry. I have a number of general and specific comments.

First, I do not agree that this is a maintenance plan. The main quarry wall has completely collapsed so that the work proposed here should properly be termed reconstruction rather than maintenance; one cannot maintain a structure that no longer exists – you have first to re-build it.

Secondly, I have to ask why this work is necessary; the great hardships suffered by the political prisoners to build the quarry in the first place most certainly deserve being kept alive so people today and into the future can understand all they went through building and re-building the quarry walls in a somewhat futile attempt to defeat nature. But surely this does not require the complete restoration of the walls to the state when they were first finished and then the ongoing regular maintenance and repairs every time another storm knocks parts of the wall down. There must be alternative ways to keep the stories alive. For example, restoration of a part of the wall to its original condition while leaving most of it as it is, could provide a narrative of the ongoing effort the prisoners had to keep the quarry walls intact and the quarry workable. If a video were made of the partial restoration along the northern part of the wall, that together with testimony from the EPP's who worked in the quarry along with appropriate signage might tell a more powerful story than simply seeing the quarry back in its original state. Or a replica section of the quarry wall could be constructed at a site near the prison and could be incorporated into the main Island tour thus making sure that the story of the Blue Stone Quarry is told to all visitors.

Thirdly, in my opinion if the work proposed here does go ahead, there are no mitigations that can fully alleviate the risks to the penguins and other seabirds that use the quarry. It is not a case of preventing harm to these endangered species, but instead finding the least bad of a range of bad solutions. Whatever happens an endangered species (currently on the cusp of becoming critically endangered) will be harmed and future numbers reduced beyond what they would be if the work did not go ahead. That harm could well turn out to be the tipping point in the penguins' struggle against extinction.

Turning now to the specifics of the proposed work and the proposed mitigations I would like to raise issues on the scale of the impact of the work on the penguins and other sea birds. At the quarry site itself the most significant impact will be the presence of people deterring the penguins using the quarry as a route to commute between their nests and the sea.

Penguins avoid people as far as they are able and will delay crossing a road or moving in the open as long as they can see a person in the area. There are no hard and fast rules but as a guide, if a penguin sees a person within 50 – 100 metres they will be very hesitant about moving. If somebody

is within 20 metres they will run off for cover and stay away until that person has moved off. If a penguin is at sea and wanting to come ashore and it can see a person on the beach area where it wants to land it will stay out at sea until the beach is empty.

African penguins need to go to sea to catch prey to feed their young. They typically make one foraging trip per day leaving in the mornings and returning in the late afternoon / evening. Any disruption to these trips will lead to the chicks getting less food and hence developing more slowly and fledging in poorer condition thus reducing their overall survival probability. For a species that is already in rapid and serious decline any avoidable reduction in survival should be avoided. If this work is to go ahead then the authorities permitting it must explain why the works are so important that the very real risks to the penguins are justified.

To minimise disruption to these penguin commuting trips two mitigations have been proposed. First to ensure that traffic to and from the quarry travels along a particular route (Cornelia Road) so that the approach to the quarry is as far distant from the main road crossing point for the penguin route to the quarry; and secondly not to permit any work between 9am and 5pm (the times when most penguins are not arriving at or departing from the quarry). Neither of these is ideal and both will leave a significant number of birds affected. I will look in more detail at both separately below.

Much of the argument in the proposal is based on the observation in the Avifaunal report that the penguins have changed the route they take through the quarry and now tend to avoid the route across the scree in the middle of the collapsed wall, instead taking a route over the southern revetment wall. It is true that many penguins now elect to take a more southerly route to cross the quarry. The birds come ashore under the main collapsed wall and walk south and west across the flat rocks until they reach an area beneath the south revetment wall where there is a relatively easy path to the top of that wall which they cross and then climb down the inner wall to the quarry floor. They then cross the floor of the quarry (most on foot but around 20% swimming across the water in the bottom of the quarry) before climbing out of the quarry up to the road which they cross at one of two major crossing points. This is illustrated in figure 1.



Figure 1 Map showing the routes used by penguins to get to and from the sea at the Blue Stone Quarry.

In addition to these birds around 10% of the penguins returning from the sea in the evening cross the scree slope near the middle of the the now collapsed wall rather than crossing the south revetment wall. In the mornings penguins going to sea tend to favour the South route with fewer than 5% taking the more direct route over the scree.

I observed the penguins for several evenings and mornings in early June to find the actual times when birds were actively crossing through the quarry, and the routes they took. I also put up camera traps to try to count the total number of birds using this route. The results of that survey show that the route is indeed a very important one as noted in the Avifaunal report with up to 20% of the penguins nesting on the island taking this route to or from the sea. The survey also revealed that the times of movements are greatly affected by the weather (the penguins appear not to want to go out to sea until the fog has cleared in the mornings) and confirmed that in winter a 9 to 5 working day would impact considerably more than 10% of the penguins using the route.

General comments on the mitigations proposed

Limiting working hours

The proposed mitigation to reduce the impact of people working in the quarry is to limit the hours of work to 9am to 5pm. While it is true that penguins are moving much less during these hours, the selection of times is based on data I provided on the hours of movement from a transponder reader situated from time to time at a place where penguins cross the road on their way to and from the quarry. There are two important caveats to the use of this data. First, the times given are the times at which the birds cross the road and NOT the times when they are in the quarry and most likely to be disturbed by people. In the morning birds, after crossing the road take typically 20 to 40 minutes to cross over the revetment wall or the scree; and in the evenings birds take typically 40 to 50 minutes from reaching the bottom of the revetment wall outside the quarry before they have climbed over the wall, walked or swum across the quarry, climbed back out of the quarry and crossed the road on their way back to their nests. More important though, is the fact that these times are very much dependent on weather and the times of sunset and sunrise. If one is to take as a rough guide that working hours should be set such that no more than 10% of the birds should be impacted (which in my view is still rather high) then work should not start any earlier than 90 (preferably 120) minutes after sunrise and should cease no later than 120 minutes before sunset. But there should be a further caveat, that on foggy mornings work should not begin until 60 minutes after the fog has cleared. This is because the penguins tend only to go to sea at that time. Using these guidelines should allow for longer working days in the summer months to offset the loss of working hours on the winter.

The route to the quarry

The second mitigation proposed to reduce the impact on the penguins' movements is to specify the route to be followed by any traffic associated with the project. The avifaunal assessment is that the least impact will occur if traffic comes in from the north following a route along Cornelia Road to the Quarry. The argument made is that there has been a movement of penguins away from the forested area along Cornelia Road and towards the South end of the Island. So that few penguins are now crossing Cornelia Road –it is argued by coming in from the north and thus not crossing the pathways at the quarry, less overall disturbance will occur. However, there are still plenty of penguins that come ashore along the east coast of the island between the harbour and the Sea Challenger wreck. On June 2nd when I left the quarry shortly after sunset (at 17:52) there were 16 penguins still in the process of crossing the quarry. As I drove back along Cornelia Road I saw 18 penguins waiting to cross Cornelia Road. This suggests that the number of penguins coming ashore on the North East coast of the island and crossing Cornelia Road to reach their nests is similar to the number that come ashore at the quarry. Hence I remain unconvinced that the disturbance that will be caused by having vehicles drive along the northern section of Cornelia Road (a route that is hardly used at all (only security vehicles and researchers have any reason to drive along this stretch) is significantly lower than that which would be caused by having the same traffic cross the penguin pathway at the quarry. In short, either option will adversely affect penguins travelling between their nests and the ocean.

In my opinion there is no clear case as to which route to the quarry is likely to be of least harm. If the project is approved then I suggest a meeting with all the avifaunal and other ecological experts should be held to evaluate the two routes as an aid to making a decision. But I further recommend that the situation is constantly monitored and if any detrimental effects are seen (e.g. sudden reduction in numbers of birds using certain pathways in the mornings or evenings, birds injured near

the roadside, or abandonments of nests within a few metres of the roadside where additional traffic passes) then the situation is re-evaluated and the routes changed accordingly.

Further mitigations are proposed in terms of the speed limit etc. viz:

Keep strictly to the speed limit of 40km/h on the island and slow down even further to 20km/h in the vicinity of nesting sites and penguin crossings.

The road must be checked for any penguins or chicks crossing the road before a vehicle accesses the site.

and

During breeding times of the birds, staff must ensure the roads are clear of chicks and other birds before using the road

These are all laudable, but can they actually be enforced? In my experience few drivers keep to the speed limits on the island and there is no effort to enforce the limit. The limit of 20kph in the vicinity of nest sites and crossing would apply to the entire length of the journey to the quarry on the proposed northerly route as penguins breed close to (within 5m of) the road along the entire length of Cornelia Road. It is not just the road that should be checked for penguins and chicks, an area up to at least 5m either side of the road should be checked. Penguins can be startled by passing vehicles and will run off, but they have no road sense and the direction they run in is as likely to be into as away from the road. Some form of enforcement will be needed – my suggestion would be to obtain and use a speed gun to be used by the penguin monitor or RIM staff and fine the contractors should they be caught speeding.

A further question is how many trips will need to be made each day. Clearly some trips will be needed to transport the rocks that need to be broken up to and from the site where the jackhammer will operate. Also, it is likely that some comfort breaks for the workers will be needed. The more trips that are made the greater are the risks to the birds, so some thought needs to be given to setting up a system that combines trips to keep the number to the absolute minimum required.

Working from the North and continuous working

Two further actions are proposed by the avifaunal report: starting the work at the north end of the quarry and working southwards and beginning the work as soon as possible and then working consistently everyday until the work is completed. There are good reasons for both these recommendations, but there are also many drawbacks and the balance of what procedures will have the least bad outcomes needs some discussion. The reason for starting as soon as possible is to minimise the risk that other seabirds - gulls, terns and cormorants - will start to breed in the quarry before the work begins and thus further delay the work until they have completed their breeding. It would not be legal to disturb birds breeding in the quarry so if they do choose to breed there it is inevitable that work on the wall would have to stop. The reason for continuous working is that seabirds in general and penguins in particular can become habituated to changes in their environment so if disturbance is necessary its impact can be minimised if the level of disturbance remains constant so that as birds become habituated the overall impact may slowly reduce.

However, there are potential problems with both of these actions. First, when the project was first envisioned it was made quite clear that the project would be completed in a relatively short timescale - a maximum build period of 6 months was agreed for the original larger scale project. This was important as it permitted the project to be carried out in the summer months when penguin breeding was at its lowest and the penguins were mostly moving to sea well before 9 am

and not returning to their nests until late afternoon thus allowing plenty of time in the middle of the day to avoid clashes between the workers and the penguins. While the birds may become habituated to seeing people in the quarry, the effects will become increasingly important as the work moves southwards. The hope is that by starting in the North penguins will be less disturbed and will by the time the work reaches the southern area where the penguins are most likely to come into conflict with the workers they will have become somewhat habituated to their presence. There is however, no evidence that this will happen.

A further issue will occur when the work reaches the southern end of the quarry where the penguins crossing the revetment wall will come into direct conflict with people working to shore the wall up where it is being undercut by the action of the ocean (see below for more detail).. Without knowing the timescale of the project (the rate at which the work will move from North to South) it is not possible to assess the impact the work is likely to have on birds returning from the sea in the evenings or going to sea in the mornings.

The penguins on Robben breed throughout the year with maximum breeding numbers around May and June and minimum numbers around November to January. It is mainly during the breeding season that penguins follow predictable patterns of attendance at the colonies – this is because they have to feed their chicks and so need to follow a pattern that maximises their foraging opportunities (i.e. they are largely restricted to the daylight hours). When they are not breeding penguins do not need to feed as much and can adjust their patterns of behaviour to fit other priorities. The result is that patterns of attendance at the colonies become unpredictable at these times making mitigations such as limiting working hours less effective in limiting damaging disturbance to the penguins.

Breaking rocks at the harbour and reducing disturbance at the harbour

It is proposed that to avoid noise disturbance at the quarry site the use of a jackhammer to break up larger rocks into pieces that are suitable for the wall construction should be carried out at the harbour and the broken rocks then driven to the site as needed. In a separate mitigation to attempt to provide further breeding space for Cape Cormorants, it is suggested that all disturbance on the long arm at the harbour is stopped. These two interventions are incompatible – the noise from the jackhammer would not only affect the nesting cormorants, but also affect visiting tourists. It seems to me that it would be much better to identify a place well away from people and nesting birds for the jackhammer work (possibly on the airfield?). Possibly the same location could have toilet facilities for the workers which could help to reduce the total number of trips made.

The repairs on the South revetment wall where the penguins now cross: an issue not addressed in the proposal

If one looks at the outside of the revetment wall below and just to the east of the point at which penguins climb the wall to get into the quarry, it is very clear that storm damage has seriously undercut the structure (see figure 2) and that some considerable reconstruction will be required to stabilise and repair the wall here. I cannot see how that work can be carried out without interdicting the current route the penguins take to climb the wall for the duration of the work. By the time the work reaches this area all the work to the north will have been completed so there will no longer be any easy route to the south over the original now collapsed wall. Once work starts along this section, the danger of a collapse of the overhang to workers at the base of the wall will almost certainly mean that safety and health considerations will force the partial demolition of this section and hence remove at a stroke the penguins only remaining route ashore.



Figure 2 photograph taken at the top of the south revetment wall in early June 2021 overlaid with a sketch showing the route penguins returning from the sea take to reach the foot of the wall and then climb over it. The damaged (undercut) part of this wall can be seen top centre.

I do not have any solution to this issue. But it may be possible to develop plans that allow the work to be phased to allow that there is always an easy route for the birds to cross the quarry wall (e.g. creating a ramp up over the rebuilt outer wall) and encouraging birds to use that route by the judicious use of fences, etc. If that can be done then once the penguins do actually take up the alternative route – and only once they have done so – it could be possible to work on the section of wall where the penguins currently cross.

Cormorants

The proposal suggests reducing disturbance to the cormorants that breed on the long arm so as to provide additional nesting habitat in the hope that this will discourage cormorants breeding anywhere near the quarry. I rather doubt this will be effective. It is notoriously difficult to persuade any birds to choose to breed where one would prefer they did. The cormorants that have in recent years chosen to breed on the north west area of the island, near the quarry, have always had the opportunity to join the majority of the Cape cormorants that breed at the long arm of the harbour wall on Robben, but they have chosen to form a 'breakaway' breeding group. Nonetheless it can do no harm to improve the breeding environment at the harbour and may be effective. But this is not a sufficient mitigation to reliably prevent Cape cormorants choosing to breed at the quarry.

It is notable that now (June 2021) large numbers (>250) of Cape cormorants are choosing to roost overnight in the quarry occupying the rocks between the two pools inside the quarry and also on the internal revetment walls. If this behaviour continues then the probability of their choosing to breed there later this year becomes significant. Should the cormorants start breeding in the quarry then any human activity within the quarry walls would most certainly disturb them sufficiently that they

would abandon their nests. Such harassment of an endangered species would not be permissible under TOPS. So in that event the project could not begin this year or if started would have to be abandoned.

Other seabirds

At present the only other seabirds that may be affected adversely are the Kelp gulls that are roosting along the Eastern perimeter road and the Caspian tern that has returned to the Blue Stone Quarry and may start to breed there again. The Kelp gulls are of little concern, but could pose a Safety and Health risk to workers at the site if they are disturbed. The Caspian terns are a rare bird in this area and deserve some protection if at all possible.

Although they are not currently breeding in the area, it is always possible that next season, swift terns and or Hartlaub's gulls may choose to breed at or close to the quarry. Disturbing them once they start to gather to breed would contravene TOPS legislation so a contingency plan should be in place before permission is given for the work to commence.

Monitoring the impact of the work

If this project does go ahead, then it will be very important to monitor very carefully the full impact it has on the avifauna and if these impacts are seen to be serious for there to be a mechanism in place to provide further mitigations or if necessary to stop work completely. This is particularly the case for the impact on breeding African penguins as this species is in rapid decline. It is now on the cusp of becoming critically endangered. Around 10% of the population of the species breeds on Robben Island making it one of the four most important colonies, so a project that will impact up to 20% of the population on the island has the potential to cause immeasurable damage.

Such monitoring has to happen in real time and there needs to be a mechanism whereby actions can be taken very quickly to deal with any adverse effects on the penguins that are found. This work will need to be funded as the analysis will take up time for which somebody will need to be employed, and there are capital (equipment) and consumable (batteries, etc.) costs to the necessary work required to collect the data.

As a minimum, passive transponder readers should be set up along the route penguins take to and from the quarry (realistically two readers are needed as one is not sufficient to cover both the major road crossing points). The Earthwatch project is willing and able to provide one such reader. Further camera traps should be placed at fixed locations to ensure as far as possible that all birds crossing the quarry are recorded along with the times they pass. The Earthwatch project can provide up to six cameras for this purpose; I estimate up to 12 cameras may be required to provide full coverage. The data from these cameras and transponder readers will need to be downloaded and analysed at least once a week so that changes in commuting behaviour can be seen and where necessary adjustments to the operating procedures (working times and locations, routes, etc.) can be modified before serious negative impacts occur. Similar monitoring is required at a site not disturbed by the work so that changes that are due to natural conditions prevailing at the time can be distinguished from changes that are caused by disturbance at the quarry.

Summary

I believe the risk of serious damage to the Island's Avifauna outweighs the scale of the work proposed and that there must be alternative ways to commemorate the work and suffering of the EPPs who worked in the Blue Stone quarry.

However, I accept that this may not be the final view of the permitting authorities and that the work may, despite my objection, go ahead.

In that case I ask that the mitigations are firmed up and that there are discussions between the various interested parties on how best to implement the project so as to minimise the damage to the natural environment.

Specifically, I would like to see:

The working hours are not fixed, but are related to the times of sunrise and sunset and remain flexible, for example, in the case of foggy weather when the birds tend to start to move later in the day. A penguin monitor should be appointed to keep look out for penguin movements and should be able to tell the workforce when it is safe to begin work (by seeing that no more penguins are starting to approach the site) and when they should stop working by observing when in the afternoon birds start to gather at sea and will soon be heading back through the quarry.

There should be continuous independent monitoring of the impact of the works on the birds and regular meetings to discuss how changes in the mitigations might be made to reduce negative impacts. There should be trigger points that if crossed would call for an immediate cessation of the work (e.g. a 50% reduction in the number of penguins crossing the road by the quarry, the time at which penguins cross the road on their way home in the evenings becoming much later – in terms of sunset, or any penguins, snakes or tortoises killed or injured by works traffic, etc.)

Visible enforcement of traffic rules: e.g. speed limits, not driving along roads when there are birds or other animals – e.g. tortoises in the roadway, etc.

A clear plan agreed with all parties for how to carry out works on the South revetment wall without preventing penguins from crossing through the quarry.

A clear plan agreed with all parties for what will be done in the event that cormorants (or swift terns, etc.) decide to breed in the vicinity.