

QUAGGA PROJECT ASSOCIATION

GENERAL MEETING OF : Quagga Project Members
TO BE HELD AT : Elandsberg & by Zoom
ON : 28 August 2020
AT : After Quagga Project Ltd. AGM

AGENDA

1. **SECRETARIAL**

a. Apologies & Attendance Register

Apologies:	Zoom Attendance	EB Attendance
Henry & Lynette Louw	Mick D'Alton	Mike Gregor
Tom & Katja Turner	Craig Lardner	Albé Bester-Treurnicht
Steve Mitchell	Fernando Rueda	Nic Treurnicht
Linda Mason	Ross Kettles	Bernard Wooding
Patricia Swanepoel	Eugene Hahndiek	JP Hugo
Boet Le Roux		Frederick Le Roux
Gary Buhrman		Zhaantel & Stefan Steenkamp
Butch Hulley		

2. **QUAGGA PROJECT CORE HERD REPORT**

BW

Bernard Wooding submitted two reports in advance of the meeting

- A narrative of the recent history and current status of the project herds. This report is attached. This report is attached as **Appendix 1**.
- A printout of all the animals in the project with their salient details.

Nic Treurnicht observed that he had been impressed by the people they have worked with at UniStel, and the interest they had in the Quagga Project. Mike Gregor suggested getting in touch with them and seeing whether we should consider bringing anyone at UniStel on board to bulk up our scientific expertise, in the absence of Prof Harley.

3. **COORDINATOR'S REPORT**

MT

March Turnbull reported on the following items:

- Status of the Audit and Tax affairs of the Quagga Project section 21 company and the Quit Project Association. The Association still needs to have it's records updates with SARS / CIPC in order to get up to date with historical nil returns.
- Prof Peter Heywood or Brown University. Peter has been documenting the history of the quagga for some years and is due to publish his book on the subject in early 2021. He is a friend of the Quagga Project and we look forward to the publication.

- Thanks to Bernard Wooding for his work through the year, as well as Erica Brink, Eugene Hahndiek, Zhaantel and Stef Steenkamp, Boet and Frederick le Roux.

4. BUDGETS & ACTUALS

MT

Cash Flow budget and actuals: A spreadsheet was circulated in advance of the meeting.

Budgets continue to be met and on current estimates, the project will be in funds until the end of the first quarter 2023.

5. OTHER HERDS

- Zhaantel Steenkamp reported on behalf Pampoenvlei
- Frederick le Roux reported on behalf of Vlakkenhuiwel
- Eugen Hahndiek reported on behalf of Nuwejaars Wetland SMA
- JP Hugo reported on behalf of Arc en Ciel.
 - A number of animals have been sold to Dave Cassell (sp?).
 - 4 foals have been born this year
 - A stallion bought from the Quagga Project sadly died in a subsequent capture operation
- Albé reported on behalf of L'Ermitage Game based at Middelpoos
 - Two female foals were killed by stallions. Both foals were 'good' and both were in a camp where the dominant stallion is Manie. In each case, the foal's mother had failed to drive their older male foals out of the nuclear herd before giving birth. This appears to have contributed to the kiloling of the foals.
 - Several animals, including a good young stallion, Spring, were moved from Middlepos to L'Hermage property in Schweizer Reneke, in the North West Province

6. QUAGGA SHOWCASE: NUWEJAARS WETLAND SMA?

MG

Due to issues with Zoom connectivity, Mick D'Alton of the Nuwejaars Wetland SMA was not able to present this item.

Mike Gregor took over and with the aid of a report circulated prior to the meeting, outlined the proposal to make Nuwejaars the future stronghold of the Quagga Project. This was in response to Craig Lardner's thoughts at the Interim meeting in March 2020. At the time he observed that the original objective of the Project was to 'land' quaggas in a National Park in fulfilment of its stated aims – but that this was no longer possible.

This had been known for some time but no firm alternative plan had been articulated. Accordingly, the Nuwejaars proposal was developed over the last few months and was formally tabled at the meeting. There were no objections to the proposal, the outline of which is appended as **Appendix 2**.

Mike Gregor also told the meeting that discussions are ongoing with the Fossil Park near Langebaan. The tentative proposal is that this would be a good fit for a small showcase herd of quagga. The Park has about 400ha of open ground and it may well be mutually beneficial for a quagga group to be permanently homed here. There are some issues that would need to be managed, including the fencing of the grazing lands. A meeting with the Fossil Park is proposed for some time during September 2020

7. RAU QUAGGA BREED SOCIETY

ABT

Albé Bester Treurnicht used this meeting to introduce everyone to the steps needing to be taken to get the Rau Quagga Breed Society up and running.

Essentially, the meeting was informed that the Breed Society exists in law and is deemed to have seven founding members.

Four of these (or their nominated representatives) were present at the meeting: Mike Gregor, Nic Treurnicht, Mick D'Alton, Frederick le Roux (representing AJ 'Boet' le Roux).

At this stage, the Quagga Project Association meeting was closed. Immediately subsequent to that, the Inaugural Meeting of the Rau Quagga Breed Society of South Africa was held.

Appendix 1. Bernard Wooding Quagga Project Core Herd narrative report

Herd Report 28 August 2020

Breeding Groups

The total number of animals in the Quagga Project herd is 95 animals. There are 11 breeding groups on the 4 core herd properties.

- Elandsberg -21 animals (3 breeding groups) of which 3 are stallions (1 is technically still a colt as no foals yet), 9 are breeding females, 3 young females. The remaining 5 are yearlings and 1 foal.
- Elandsberg Camp – 7 animals (1 breeding group) – 1 stallion(technically still a colt), 3 mares, 2 fillys and 1 foal
- Nuwejaars North – 9 animals (1 breeding group) of which 1 is a stallion, 3 are breeding females and 2 young female, 2 young males and 1 foal.
- Nuwejaars South – 16 animals (1 breeding group) of which 1stallion, 6 breeding females, 4 young males, 3 young females and 2 foals
- Pampoenvlei – 21 animals (2 breeding groups) of which 2 are stallions, 8 breeding females, 8 yearlings and young males and 2 foals
- Vlakkenhuiwel – 18 animals (3 breeding groups) of which are 3 stallions, 10 breeding females and 1 yearling, 4 foals
- 4 mature nomad stallions being hosted by Arc en Ciel, Kosierskraal and Wedderwill,

Births:

6 births have occurred over the last 6 months. The total of 18 foals where born over the last year.



Acute - from Soetanys and Angle, Nuwejaars South.



Corona - from Soetany's and Frederica, Nuwejaars South.



Howa - from Robin and Marjean, Kosierskraal.

Expected Births

There are currently 40 breeding females in the project. 31 are 3 to 8 years old and 9 are 10 to 17 years old. This is a well-balanced demographic that should ensure foals for many years to come.

We have had 18 foals in the past year, up from the 13 of last year, but still less than expected. This shows that the adjustment period after the captures of 2017 and 2018 is still having an effect on the breeding rate of the mares.

Three of the five Core Herds still have space to grow (Elandsberg, Nuwejaars South and Nuwejaars North).

Vlakkenhiiwel is reaching carrying capacity.

The herd size at Pampoenvlei is over carrying capacity and will require an intervention in the coming year.

Sales:

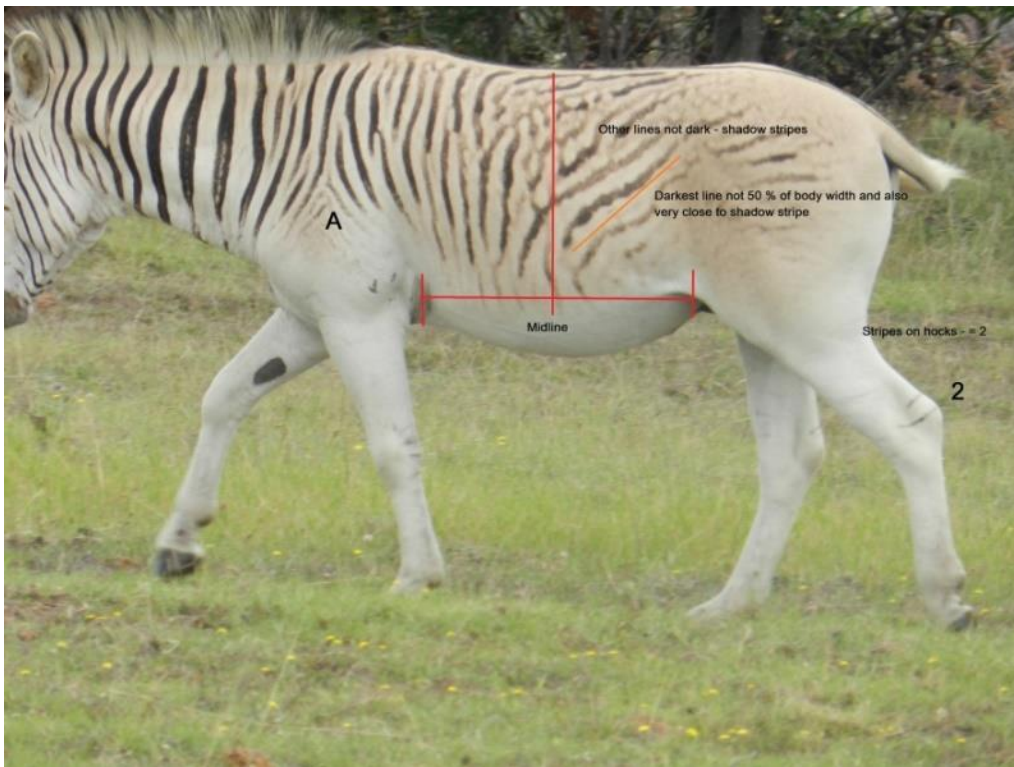
No sales were done over the last year.

Removals

Ziggy at Nuwejaars South was removed so that a new young selected stallion, Sydney, could take over any free mares in that area.

Grading

The system of grading animals is working well with Bernard doing the evaluation and grading using the template pictured below.



If a certificate is issued this is first double checked by March before it is issued.

The example above

of Francois at Kosierskraal created some debate as to what is a stripe and what is a shadow stripe. He was given an A2 grading at the end of the evaluation as even the darkest diagonal line is less than 50% of the body width (diagonally).

Research

Bernard has been finding and filing historical photographs from the archives for Brenda Larison who is doing her own evaluation of stripes and linking it to the heritability (of stripes and other factors). So far over 800 animals (with at least 2 photographs each), from the founders to the present, have been individually catalogued and saved in the database and shared with Brenda.

Brenda is also busy with an epigenetic study using the samples previously collected from the Quagga Project. Apparently DNA samples can be used to tell the age of the animal it was collected from. This has already been done with humans, dogs, and mice and other mammals and she is calibrating it for

zebras using the known ages of the animals she has sampled. The abstract is attached below.

Developing an Epigenetic Aging Clock for Equids

Brenda Larison^{1,2*}, Joseph Zoller³, Gabriella Pinho¹, Christopher B. Kaelin^{4,5}, Gregory S. Barsh^{4,5}, Bernard Wooding⁶, Steve Horvath³

Effective conservation and management of wildlife populations depends on the ability to predict demographic trends and hence population viability. Accurate predictions require accurate estimates of age structure. However, for long-lived species such as large mammals, the ability to reliably estimate the age of individuals has been limited. However, recent studies in humans, dogs, mice and other mammals have shown that it is possible to use methylation patterns in the genome to develop highly accurate epigenetic clocks for estimating the age of individuals. Studies also suggest that a clock developed for one species can accurately predict age in a closely related species. Epigenetic clocks therefore hold a great deal of promise for increasing the precision of demographic inferences and thereby improving the monitoring and management of wild populations. Environmental stressors that can impact health and longevity also increase methylation. Therefore application of epigenetic clocks to wild populations may also identify instances where stress is diminishing health and accelerated aging. Equids are a group that could benefit from the development of an epigenetic clock as seven of the nine extant species of Equids are endangered. Here we develop a molecular clock for plains zebras (*Equus quagga*) using blood samples from known age samples in a captive population, and validate it using horse methylation data. Results show that DNA methylation is strongly correlated with actual age in these zebras (β 0.9) and the zebra clock accurately predicts age in domestic horses (β 0.78). In addition we develop a clock using minimally invasive skin biopsy tissue acquired via remote darting in the same captive zebra population. We use the skin-based clock to assess population structure [and viability] in a small, isolated population of plains zebra. Finally we and assess the effects of inbreeding on methylation patterns in both blood and skin.

Planned work

Complete registration of properties with Dept. Agriculture – Pampoenvlei and SMA South

Appendix 2. Proposal for a Quagga stronghold at Nuwejaars Wetland SMA

At the Interim meeting of the Quagga Project in March, the question was asked once again about where the QP would home its herd, if and when it achieves its objective.

At its simplest, the objective is to breed a herd of ± fifty animals which could pass unnoticed in a 19th Century herd of quagga. The project was started with SANParks and the expectation was that those fifty animals would be showcased in a National Park. Since SANParks ceased its collaboration with the Quagga Project, that is no longer likely.

Accordingly, a new plan must be made for locating a future herd of true-breeding Rau quagga. This is the QP's 'exit strategy', if everything goes well.

Nuwejaars Wetland SMA is the currently preferred destination of the Quagga Project showcase herd

There are several reasons why the Nuwejaars Wetland SMA is well placed to be the long-term stronghold of the quagga.

1. Nuwejaars has a long history with the Quagga Project and key players in the SMA are very supportive its objectives.
2. The SMA has recently committed to continue hosting QP animals and to expand the current herd.
3. It has the carrying capacity to take on a herd of roughly this size.
4. It has existing tourism facilities and capacity.
5. It has existing wildlife management facilities and capacity.
6. Nuwejaars shares a boundary with the Agulhas National Park. In the event that SANParks renews its interest in the quagga rebreeding project, it would be logistically straightforward to transfer animals to the Agulhas NP.
7. Creating a quagga stronghold at Nuwejaars could have a significant and positive effect on the future sustainability of the SMA as a tourist destination.

Management of QP animals at Nuwejaars

The QP would continue to direct all decisions regarding movement, management and selection of its animals, regardless of their physical location.

However, the QP would obviously include, and benefit from, on-the-ground support from the Nuwejaars team. This is how it works currently and the QP is stronger for it.

Other Satellite herds of the Quagga Project

While the plan is for Nuwejaars to be the showcase and stronghold of the quagga, there will be other centres of excellence, including other QP and private herds.

It is not the intention of this initiative to diminish the quality of animals at other QP locations. Nuwejaars alone is not big enough to keep the project moving forward. Until the final showcase herd can be assembled, all QP herds need to be involved in breeding the best quality animals.

Furthermore, other locations might serve different purposes. For example, we have briefly discussed the Fossil Park. This may be suitable for a small 'educational' quagga herd bringing the quagga to a quite different audience.

Practical steps to move the QP's Nuwejaars programme forward

1. Create four notional locations in the SMA. We know that animals can migrate between these areas if they are determined but mature zebra do maintain distinct stable groups:
 - a. Nuwejaars North: Currently home to Freddy's group.
 - b. Kosierskraal: Mick D'Alton's grazing lands are adjacent to the Nuwejaars North area. A new QP breeding group will be established here.
 - c. Nuwejaars Central ('Con's land'): Farmed lands recently committed to game. A new QP breeding group will be established here.
 - d. Nuwejaars South: Currently exists in the vleiland and home to Soetany's group
2. Select animals for relocation to Nuwejaars. This is quite a complex job. Nuwejaars North will be largely unaffected but each of the other three 'camps' will need a mix of animals drawn from other parts of the project.
3. Relocation. This could be done in the winter months of 2021, with further adjustment in winter 2022. This will be expensive but the current budget can support this programme.
4. Monitor and stabilise carrying capacities, group stability, strategies for removing surplus / unsuitable animals.

How long will it take to establish a herd of 50 top quality quagga in a balanced herd structure at Nuwejaars?

The best animals at Nuwejaars already look quite different from 'normal' plains zebra. The Freddy group are very quaggalike, individually and as a group. They are ambassadors for the QP and easily justify a visit.

We call our quagga 'Rau quagga' because, although they are bred to be visually indistinguishable from 19th Century quagga, they are not direct descendants of those animals. We do not yet have 50 animals like that. criteria.

Even within the project there is debate on how many animals do fulfil this criterium but it is probably not more than a dozen. Our single biggest challenge is finding stallions who have a reliably heritable brown colour.

- There are already more than a handful of excellent animals in the QP herd.
- We should produce \pm 30 QP foals each year.

- Of those at least two will be top-quality females. They will improve the breeding stock and ratio of top-quality foals year on year.
- The variables are many but we can reasonably expect to add at least 25 top-quality mares to the project in the next ten years and to have introduced another full generation of improved stallions.
- That will get us to around 50 showcase quality animals in stable breeding groups, producing more and better foals every year. That would look very like success.
- The red lines on the map below shows the boundaries of the Nuwejaars Wetland SMA. The SMA covers many farms and several landowners. The R43 runs through the conservation area, between the map points marked 'Black Oystercatcher Restaurant' and 'Nuwejaars Wetland SMA Office'.
- North of the road, and loosely called Nuwejaars North, the enclosed area is just over 4,000 ha. To the south, Nuwejaars South is just under 2,500 ha.
- The four proposed quagga territories are marked with white pointers.