

DRILL INFO

Rettet
DEN DRILL
save the drill
...mehr als Artenschutz!



Issue 19, May 2015

Dear member and friends of the drill,

every week, every day we expect news from Nigeria.

The last information we received in January from Liza Gadsby:

"Tony Chasar - who set up all the GIS and collar software - is coming back for 3 weeks in January. We plan to release the drills while he is there."

Tony will train as many people as possible on the project on the data recording system for the collars which he set up in June.....Then we will release the group!

This of course will be very exciting but we have no idea what will happen. Will they refuse to leave their enclosure? Will they immediately run to the mountain? Will they disperse? Will they all stay together? No one can know so it will be very interesting, for sure! I wish some of you could be there."

Tony was already last years in the Afi region to equip some drills with GPS collars. Since this time it was tested if the 240 gram GPS collars influence the social life, the mobility or any other aspect of the drills wearing them. But this is absolutely not the case: the five adult males, equipped with the collars, behave and life like without them. Now Tony Chasar returned to the Afis to train the people how to handle the collars. Liza noted that everybody is really excited, because such a release is complete new and was never done before. They are all really enthusiastic to see how the drills will behave in their natural habitat. However, again some complication occurred with using the collars. Liza said:

„Tony is still here and probably staying a little longer than expected. The UHF transceiver for the collars was not functioning and we had to send it to Sweden, they replaced it and it is now in Lagos where Customs wants us to pay euro 150 for it!"

Due to a technical defect in the receiver Tony had to stay unexpected longer in Nigeria until the the device was shipped back from Sweden. Since this time we receive short notes e.g. *„the release is ongoing“* or in the beginning of March *„the release program is real and very soon“*.

We do not want you to wait longer for the drill info, that's why we summarized all the information about the release since February 2009. This shows particularly which massive amount of energy and work the release needs since years and this might explains why we have to wait just a little bit longer until the drills are released.

Until then enjoy reading

all the best, **the editorial board**



*"the collar fitting team" from left:
Peter Jenkins,
veterinarian Ainare Idoiaga,
Tony Chasar,
release group keeper Emmanuel Okon,
interim Drill Ranch Afi manager Innocent Itakwu,
Liza Gadsby*

Drill monkey reintroduction: post-release monitoring with telemetry

Afi Mountain Wildlife Sanctuary, Cross River State, Nigeria

Description of project

The Drill Rehabilitation & Breeding Center (Drill Ranch) project was designed specifically to meet the needs of drills as a species, with reintroduction the logical conclusion to creation of a viable captive population in Nigeria. Work with the captive animals is part of a larger conservation plan for these species, including: habitat protection, law enforcement, and collaboration with international institutions holding drills (EEP and SSP). After 22 years of drill recovery and rehabilitation, including the formation of six natural-demographic breeding groups, which were managed for genetic diversity and considerable habitat conservation achievements with benefits for local communities, the project is prepared to face the release of the drills. The project "drill reintroduction" meets pre-release requirements including extensive high standard medical screening, and an animal adaptation to semi-wild living in their natural habitat - most of the drills in this project were already born in the forest enclosures in the Afi Mountains.

So far, only a few primate species were reintroduced, despite to the high number of threatened primates in comparison with other taxa. The reasons therefore are practical:

Primates

- - live in social complex groups
- - are highly intelligent
- - potentially dangerous and strong
- - mature slowly

Furthermore, primates are vulnerable to human diseases, thereby arising tremendous concern that released animals are maybe infected and transmit the disease into the wild population. Over 20 years Pandrillus was preparing for these challenges with careful planning, and we are all optimistic that the reintroduction of the rehabilitated and captive bred drills will succeed without any harm for the wild primates. The conservation benefits are:

- Increasing the number of animals and the genetic diversity of the wild drill population
- Supporting the existing habitat protection by focusing attention in the field
- Studying opportunities by testing novel equipment and developing new methodologies which may be required in future projects to save/protect other endangered wildlife.

In addition to these conservation benefits, the release of the drill group should increase their well-being in the wild. Also after the release of the group our largest enclosure will be available for the other five groups of the project and will substantially improve their welfare.

Technically, the drill release will be a "reinforcement reintroduction" as defined in the IUCN Guidelines for Non-human Primate Reintroductions in 2002, for which project co-founder Liza Gadsby served on the core review board. A reinforcement reintroduction is preferable in comparison to a 'pure' reintroduction, assuming that the released drills will eventually encounter and join, remaining wild individuals or a wild group.

These wild drills have the 'local knowledge', which may the released drills require for their survival: the location of key food sources e.g. fruiting trees throughout the year, water during the dry season and the avoidance of humans and human settlements.

This is the first reintroduction of a group of endangered African monkeys. The planning of Pandrillus, was in close collaboration with scientists, conservation agencies and with the government. Pandrillus had established good relationships with the surrounding communities, traditional rulers as well as with local, state and federal governments. A community protection scheme for the Afi Mountain release site initiated by Pandrillus in 1993 won the prestigious Whitley Award for Wildlife Conservation in 1996. This community protection scheme developed into an official government program. Also the protection status of the area was legally

upgraded from forest reserve to a wildlife sanctuary in 2000. To protect and manage the Afi Mountain Wildlife Sanctuary, other NGOs have collaborated with Pandrillus and the Cross River State Forestry Commission. Today the focus is on: increase awareness, ongoing education in local communities, legal protection of the release site, and a higher profile of the area nationally and internationally with concomitant interest and support of state and federal government to meet the requirements to release a drill group.

The pre-release activities are already completed: final veterinary screening, sampling and marking of each animal, as well as a survey of the release site for habitat quality, calculation of threats and collection of baseline data of the existent wild drill population. The plan is to track the released drills with satellite telemetry supported by a field team.

Specific goals

1. The release of a semi-captive drill group (~100) to the wild
2. Continuous monitoring of the released drill group and potential sub-groups that may originate
3. To be prepared to react efficiently to potential needs of the released animals and community neighbors
4. To re-establish a viable drill population in the Afi Mountain Wildlife Sanctuary and to gain knowledge for future releases

Release group profile

The release group is composed of four generations, including wild born, F1 (first child generation), F2 (second generation) and F3 descendants of the 14 wild born orphan founders. The majority of the release group is now F1 and F2 generation. Aside from the founders and a few F1 individuals, all drills in the release group were born in their existing, seven hectare, electrified fence enclosure of natural drill habitat. The group has therefore lived together in the forest, albeit in an enclosure, all their lives. The exceptions are two adult males from another group. These two males - Penjok and Mfamosing - represent four additional founder animals and thus increase the diversity of release group substantially.

The wild born founder drills were formed into a breeding group at the Calabar facility. They went through extensive medical screening before they were moved to the forest facility at Afi Mountain: Calabar is essentially a quarantine facility. Therefore, all the captive bred animals in the group were born post-quarantine to wild born animals deemed to be free of disease, except for the first five captive bred drills who moved with their parents from Calabar in 1996 and who were born post-quarantine. Most of the group members were never handled until the screening and sampling program that has been undertaken as a pre-release step.

Pre-release veterinary screening

The pre-release screening was conducted over a period of 18 months. It is too risky to dart a drill in the large forest enclosures as they may climb up to 40 meter in a tree after being darted, then succumb to anesthetic and crash to the ground unconscious. Capturing the drills safely required construction of a capture cage that also served as a holding satellite for the duration of an individual's screening period. The captive bred animals are more 'wild' than the hand-reared, wild born animals and luring them into the capture cage was



Release group members.

often time-consuming because most of them had never entered a cage in their lives.

Once captured, the protocol included:

- general physical exam, weights and measures
- dental exam, extraction of problem teeth as needed
- tuberculosis skin test



Medical examination of an adult Drill in the Afi Mountains

- hematology:
 - a. full blood count
 - b. full blood chemistry
 - c. viral screening (HIV/SIV, Hepatitis B & C)
 - d. serum preparation for long term storage in a frozen serum bank
 - e. whole blood storage for future DNA testing
- fecal collection for local microscopy and culture, and for intensive screening at University of Barcelona
- Fecal collection for testosterone and glucocorticoid (stress hormones) study for post-release comparison
- Tattoo
- Microchip implantation

Pre-release methodology: the release site

Inherent in the original design of the Drill Ranch project in 1992 was the plan to site the captive drill groups at the future release site. The Afi Mountain area was chosen for these reasons:



- the mountain is of high biodiversity value with an important population of Cross River Gorilla *G. g. diehli* - the world's most endangered great ape taxa
- the mountain had no conservation initiative and was part of a production forest reserve with an existing timber concessionaire
- the mountain is an 'outrigger' habitat for drills, at the very northern and western edge of their range, thereby providing an ideal situation for an experimental "reinforcement reintroduction"
- the project's location on the mountain's southeast flank could help maintain the tenuous habitat corridor that existed between Afi Mountain and the next nearest drill and gorilla habitat, the Mbe Mountains to the east

- by rising the animals at the release site, the risks associated with capture and transport to a new environment at the time of release are avoided
- by keeping the project open to the public the people from surrounding communities would be familiar with the project's goals and achievements and take on board drill conservation as interested stakeholders

- by establishing at Afi Mountain, economic benefits from Drill Ranch could be felt immediately by the communities in the form of staff salaries, animal food purchases from local farmers, and additional jobs with the Afi Mountain community ranger program

These original plans have played out well in the intervening years. The logging concession for the mountain was cancelled. In the year 2000, the protection level of the mountain was legally upgraded from state forest reserve to state wildlife sanctuary. Three other NGOs (Nigerian Conservation Foundation, Wildlife Conservation Society, Fauna & Flora International) joined Pandrillus and the Cross River State Forestry Commission to form the Afi Mountain Wildlife Sanctuary Partnership. Each organization plays its role in the partnership. FFI (Fauna & Flora International) and the state government provide most of the funding.

Today, a combined force of Forestry Commission (government) rangers and community rangers hired by the Partnership patrol the mountain; total ranger strength is 21. The rangers are supervised by Peter Jenkins, the Afi Mountain Conservation Coordinator, who is employed by the NGOs.

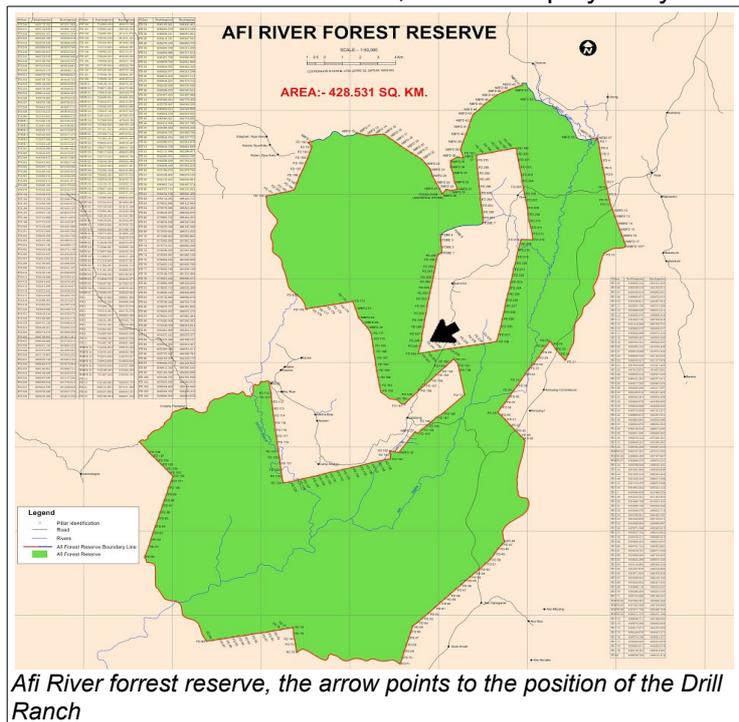
<http://www.atfcr.org/>

The current coordinator is Ubi Sam Ettah who worked for Pandrillus for ten years; Sam left

his job as Drill Ranch Project Manager to take up the coordinator's position. Therefore, the drills have an old friend and ally who understands them very well in charge of release site protection.

Other pre-release methodology - field surveys

Since there is a remnant population of drills surviving in the release site, it is vital to have baseline data on their population, as well as data on habitat quality and threats, the level of hunting, and an assessment of contiguous habitat areas that the released drills may use in future. Two intensive surveys were carried out to achieve these goals, one in the wildlife sanctuary itself, and one in an important contiguous forest.



Afi River forrest reserve, the arrow points to the position of the Drill Ranch

Sadly, no drills were actually seen by any of the survey teams but convincing evidence was gathered that a small drill population still exists on the mountain. No evidence was recorded in adjoining lowland areas, although drills utilized these areas as recently as 15 years ago. In the sanctuary, poaching is mostly limited to trapping; these traps are sought out and removed on a regular basis by the Afi Mountain rangers.

Release methodology - monitoring equipment

Due to the rugged terrain and closed canopy of much of the wildlife sanctuary, GPS satellite telemetry is preferred over VHF (very high frequency) radio telemetry equipment. While VHF systems are lower cost at the outset, the Afi terrain precludes their effective use, due to radio signals bouncing off canyon walls and therefore not practical. A GPS collar with UHF (ultra high frequency) radio download option (from LOTEK of Canada) was tested with humans in the field and also found to be inadequate in terms of distance over which signals could be received.

The next investigation is the option to use a GPS-GSM (Global System for Mobile Communications) download collar by conducting a thorough foot survey of the sanctuary to test GSM (cellular phone) reception. Three cell phones, each subscribed to one of the three major GSM network providers were carried over a two-week period into the remotest corners of the

sanctuary. There is coverage from most open ridge crests and some valley faces and conclude coverage is sufficient to warrant the investment in this technology.

Collars are built to order and Pandrillus had purchased one collar with all peripherals to test from Followit of Sweden (www.followit.se). Also included is the UHF and VHF download options as auxiliary backups. The collar was programmed to switch on in the evening and turn off before daylight, because this maximize the opportunity to capture GPS readings from the satellite, as the drills are stationary at night and 25-40 meter above ground, sleeping in the trees. By switching off during daytime when the collar is less likely to connect with a satellite for GPS points as the animals are moving on the ground, the battery life will be extend and therefore the tracking capacity of the collar.

The big release group is likely to fragment into subgroups by following different adult males. The group has been unstable for over a year in a fusion-fission state, with different adult males able to break off for parts of each day with their respective sub-groups. Fortunately, their enclosure is large enough for this natural behavior to occur. The most likely males to lead the group or sub-groups are fitted with the collars. The limited data available from the wild indicates that drills live in groups of 25-100 individuals with multiple adult males. Groups may temporarily split into sub-groups with one fully adult male. Based on this knowledge, and on the number of potential dominant males in the release group, they could fragment into 2-5 groups, which may or may not remain in contact. These most likely adult male leaders will wear the collars when being released.



"Mbulu" recovering



GPS scanning in the forrest

The collar was tested pre-release by being carried (by a human) into the sanctuary. Data were collected with the GPS-GMS but also with a hand held GPS, to be able to compare the data in hand with that transmitted by the collar and subsequently received by us by email from the provider. Due to high pre-investment in the collars, the more we are able to know in advance as to how accurate and consistent data transmissions are likely to be, the better. After the collar was tested in the field, four more collars were ordered (over 3.000 dollar each).

Co-director Peter Jenkins went to Sweden to work out all the details with the manufacturer and hand-carry the additional collars back to Nigeria.

Communications with the field team(s) are maintained via the VHF and the main VHF base station in the Afi Drill Ranch camp. Because VHF will not be able to transmit to camp once the animals and tracking teams are deep into the sanctuary, the field teams will also be equipped with low-cost, local GSM telephones, which can

pick up a signal in many areas, just as the collars can.

Post-release monitoring methodology

The monitoring plan for the released drills is two-pronged: 1) collection of satellite telemetry data, and 2) on the ground tracking by a field team to corroborate telemetry data, collect samples and visually evaluate the drills' condition and behaviors.

Satellite data will be collected via email at Drill Ranch in Calabar; it was discussed with the local provider to see if it is possible to install an antennae and pick up emails at the Drill Ranch Afi camp. Otherwise, data can be relayed from Calabar to Afi via a regular HF radio communication or by text message.

The field team will attempt to have visual location on the released drills daily. Forms for recording desired data have been devised and are included in the veterinary protocol report. In addition to visual identification of individuals (the lead keeper who is part of the field team can identify every animal visually), the team will note: general condition, behavior, feeding, and numerous indicators of individual health and wellbeing.

Fecal samples of the drills will be collected when ever possible and subsequently analyzed for parasite load and stress hormones. An increased parasite load can indicate poor condition or stress, and it will be fascinating to see if parasite levels decrease or increase in the wild. A post-doctorate study by Roehampton University (UK) at Drill Ranch in 2009 established baseline levels for two stress hormones from our drills. The researcher has agreed to analyze the post-release samples from the same group to compare stress levels in semi-captivity versus the wild.

Benefits to local indigenous communities

Drill Ranch is the largest private employer in the Boki tribal area where it is located at the foot of Afi Mountain. Most staffs at Afi site live in the nearby village of Buanchor. Their income from Drill Ranch salaries combined with the daily animal food purchases of nearly 100 dollar to local farmers and other supplies bought from the village, earns Buanchor about 60.000 dollar annually from the project.

The project draws visitors from across the country, including Cross Riverians, influential Nigerians from the public and private sectors and expatriates. These visits help attract attention to this remote area where the local villagers' development and infrastructure needs were historically overlooked.

After then - President Obasanjo visited Drill Ranch in 2001, the state and federal governments stepped up their commitment to the area, providing improved roads, bridges, health centers and water supplies to some of the nearest communities. By putting Boki on the map, Drill Ranch has attracted government interest and investment to the area, helping meet some of the development demands of the Boki people, demands that a small NGO like Pandrillus cannot address.

The project has also attracted researchers, other conservation and development NGOs and

ecotourism developments to the area, all of which provide additional income for local people. This is an important trend to reorient the local economy, where the only earning opportunities were slash-and-burn agriculture, illegal timber exploitation and hunting.



Employees of Pandrillus ont the Drill Ranch in the Afi Mountains

Major Considerations and Recommendation For Reintroduction Time

Since there exists such limited data about the specific feeding requirements for wild drills, it

is difficult to pinpoint at which time within one year would be optimum for their reintroduction. One of the few known possible challenges is the scarcity of water in the final phases of the drought (January - March). Another is the high point of the birth period (May - July). This is a challenging time for the females with newborns or those who are in the third trimester of pregnancy. Drills therefore have a peak in their birth rate during the time in which there are optimum feed and water conditions.

The "reintroduction" group's facility is located approx. 600 meters from the Afi Mountains wildlife sanctuary. On the appointed day the fence on the spot closest to the hillside shall be opened and

the keepers familiar to the group will start to lure the drills in a passive way (with the help of fruits) into the wild. A second team, which the main responsible keeper Emmanuell is part of, will be prepared to follow the animals as long as required. There will be food for the corresponding teams for two days each to make sure they can complete their work. A half open path leading from the fence to the free area has already been cleared; it is situated close to a river that steadily follows the path. This path was created in order to bring the drills directly to an area where there is a plentiful forest with lots of fruits and water.

There are a variety of measurements being performed to assess the group's success. On a short-term basis they are concerned with the animals' ability to find food and water and to stay together in one or several groups (these are key factors to success).

Equally important is the willingness of the groups to stay directly in the sanctuary or in the adjacent areas of the reservation. In case they leave the forest for habited or agricultural areas, they will be monitored. A particular measure that can be considered is to sedate and remove leading individuals from the drill group in order to drive the animals back into the forest.

The long-term success of the project will be measured by the mortality rate, the birthrate, and the physical constitution of the animals after their return to the wild. Also, the question whether or not a remaining group living in the wild can attract fellow wild drills is of great importance.

The best time to reintroduce this species is March/April, the start of the rainy season.



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<p>Contact:</p> <p>RETTET DEN DRILL e.V. Hesepfer Weg 140 48531 Nordhorn Germany info@rettet-den-drill.de www.rettet-den-drill.de</p>	 <p>...mehr als Artenschutz! Editorial staff: Carsten Zehrer, Kathrin Paulsen, Tanja Wolf, Hauke Meyer</p>	<p>Donations account:</p> <p>Kreissparkasse Grafschaft Bentheim Konto-Nr: 14075956 BLZ: 267 500 01 IBAN Nr: DE95 2675 0001 0014 0759 56 BIC: NOL ADE 21 NOH</p>
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