

DRILL INFO

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Issue 21, August 2016

Visiting the Drills in Cameroon



Young female drill at LWC

By Kathrin Paulsen

This spring, already for the third time, I visited the Limbe Wildlife Center (LWC) in Cameroon.

Since last year October the French biologists Guillaume le Flohic and Peggy Mosch took over its management.

They both have many years of experience with project management of rescue centers in tropical Africa; moreover, they have great experience concerning the work with primates. Almost for three years they worked and lived with guenons, mandrills, and apes in Gabon as well as in the Congo. In this project they were heavily involved with the research of the Primates' natural habitat.

I had to reschedule my original travel time – it was announced at very short notice, that the Douala airport would be closed for several weeks (that's Africa). Because I did not want to take a journey over Jaunde, including a stay at a Hotel and a seven-hour bus drive to Douala, I delayed my journey for two weeks to the beginning of April.

I had a pleasant flight over Paris, and at the airport I met Robinson, the center's driver. After an approximately three hours' drive

through a completely overcrowded Douala (this "sight-seeing-tour" alone had taken about two hours) we arrived at Peggy and Guillaume's house around 10:20 pm. The following morning we drove together to the center. What a nice surprise: Many of the animal keepers immediately recognized me; it was a great moment of joy for all of us!

Peggy and Guillaume took me on a tour around the center and showed me many innovations as well as some of their plans for the future. Those plans include, of course, renovations of enclosures, but furthermore the plan to increase the visitors' knowledge of primates, and also of the entire local wildlife, such as lizards, birds, and insects as well as plants. More than 50.000 people visit the LWC every year. Many of these visitors are foreign tourists, such as the group of Japanese businessmen that visited the center recently; however, there are also local people who take weekend trips with their families to the center.

Some animals are kept on purpose behind the scene, for example a civet cat, which was confiscated by authorities. Because the cat will be reintroduced into the wild in the near future, it is important that the animal shows shy behavior towards humans.

Moreover, the handling of young monkeys, the so-called bushmeat-orphans, has changed since my first stay in Cameroon nearly ten years ago. These orphans are often traded as pets on the local markets, after hunters had shot their families for their meat. In the past, these animals received a lot of attention, and almost constant physical human contact. During my first stay, I took care of a small Preuss' Guenon in my accommodation. In the wild, infants live in direct physical contact with their mother for up to a year. But young animals that are brought up by humans, even if they are integrated into a social group of peer monkeys as soon as possible, they rarely experience or learn to be rejected.

However, rejection is something they would have frequently experienced from their mothers or other members of the group ("who would want to play with the children all day long, just because they want to", monkey mothers also need "5 minutes of peace", too). Therefore, the orphans are on the risk that they cannot deal with natural rejections in a social environment of primates. Not only drills, all primates live in a certain hierarchy, to which all individuals in the group have to adapt to, and when food is not available for every animal, sometimes low ranking animals have to wait until all the other dominant animals have eaten.

To learn to deal with such behavior is not easy, including humans. But to enable the orphan animals to integrate later in life into a social group at LWC, the contact with humans is limited and attention is paid to ensure that young animals experience rejection as well. As harsh as it might sound, it is still the right path for their future life with other primates.

Following a schedule and regulation of the quarantine– an entire change of clothing is required from all keepers. But then the keepers affectionately attend young animals. There is fur care ("grooming") and the little once is allowed to climb on-, and cuddle the animal keeper to its heart's content. As soon as possible, usually around half a year, they are socialized with other primates.

All of these issues are discussed in the early-morning meetings. Work begins at 8 am and starts with a short meeting where the shift plan as well as additional assignments, special works or problems are discussed. For the rest of the day Guillaume and Peggy are always available to the employees for question or just to have a nice talk.

Of course I had a look at the "green leaf project", which was proportionate financed by "save the drill" for the last 4 years under the name "Aframomum Project". The name change was – as I realized – necessary, because the project deals no longer exclusively with the harvest of the fodder plant "Aframomum". This plant is sustainably harvested in the forests by former hunters, who are now involved in the "green leaf project", along with other plants. Now, there are 30 men in fixed positions in species protection, and no longer dependent on (illegal!) hunting.

The local people grow various crops specifically for the animals of the LWC. This includes for



Head of quarantine Killi Matute takes care of the infant drill



Akala Sipora with her colleagues from the green project

example potato-, cassava-, or tomato plants, from which the leaves are fed to the animals. This work is carried out primarily by local women (usually the former hunters' wives). The plants are picked three times per week; then a driver of the LWC is called to transport the harvest. The driver meets the workers, who guide him to the places where the harvested plants are stored. In total it took approximately two hours to collect around 500 kg of fodder crops within a radius of 25 km and to carry them to the LWC. At the LWC everything is weighted and then paid per kilogram by Peggy. The money is then given to Daniel Akala,

the project leader, which I have met on my previous visit to Cameroon, who distributes the money to every employee in the surrounding towns.

Only things that are permitted by Peggy are bought on the market, and the prizes are predetermined too. Every purchase has to be countersigned by the dealer. In some cases this includes many, very important stamps on a receipt voucher – or in other cases, more or less illiterate squiggles – the point is, to ensure the traceability of every purchase.

This transparency is important for our association and appreciated already by previous managers, such as the Spanish veterinarian Ainare Idoiaga.

It is not only important for us and our donors to know, for what exactly the money is spent, it is also taken in account with tax legislation; it's the state of nonprofit character that makes it possible for us to accept donations.

Our current major project, financing the “drill monitoring”, fulfills these requirements too.

The project is about examining the drills ethologically at LWC for the first time. There are 89 animals living in a big group; 11 of those are fully-grown males. In such groups, given the crowded living conditions, there

is always some stress, and some smaller or larger injuries caused by biting. To know this group better, to structure them, and if applicable even to split them up into smaller groups, every animal of the group has to be individually analyzed in regards to their family relationship, behavior, character, and social rank within the group.

To accomplish this task, a scientific approach is absolutely necessary, just as much as a lot of time and money.

With equipment financed by save the drill (cameras, binoculars as well as tropic proof cases with silicates, that prevent moisture from entering) the drills are observed.



Unloading of the leafs at LWC



Equipment for the drill monitoring

Members of the project

Noe:

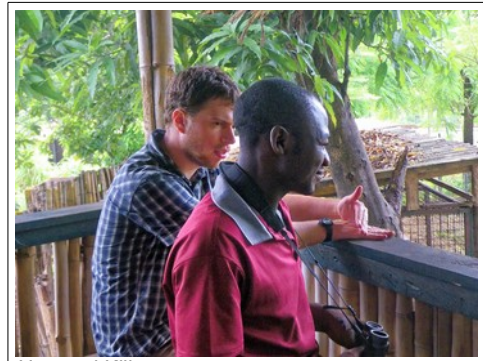
Noe is a young biologist, who has already worked with Peggy in Gabon. There he was trained by her to assess groups of mandrills. He has a wide range of expertise and is able to carry out this work for the next twelve month, because our association covers his living expenses.



Glenn Motumba

Glenn:

Without Glenn, Noe would not be able to perform his task. Glenn is a drill keeper at LWC, and knows all the animals very well. He pointed out various animals and their characters to Noe. Furthermore, he gave him tips to distinguish them from each other. (His living expenses are covered by save the drill too, because he is employed by Pandrillus instead of the Government. Around half of the employees are employed by Pandrillus.).



Noe and Kilian

Kilian:

Kilian is studying Biology/Ethology at the University of Buea, a small town approximately 30 km from Limbe. He is writing his master thesis about the social behavior of the drills at LWC, under the guidance of Noe. This is going to be the first scientific research regarding the social behavior of a large drill group.

By now, Noe is able to identify each drill. He passes his knowledge on to Kilian and supports him with his master thesis.

All this research is necessary to release the drills to their natural habitat one day.

This summer, Guillaume himself will assess the areas where enclosures of several hectares could be built to keep the drills in a half wild environment (the entire preparatory work has already been done by the former manager Ainare Idioaga). Since the animals should be able to primarily find food themselves, he wants to examine especially the plants, and check if they would provide a year-round availability of food.

Still, the main goal is not the reintroduction of the animals to the wild, but to improve significantly animals' life quality.

The next step, the reintroduction to the wild, will take place as soon as the animals are able to find food themselves, and have lost human contact.

Again, two weeks were much too short, and the experiences by far too complex, to be able to summarize them in a short article like this.

At our next annual general meeting in Saarbücken I will have plenty of pictures to show and even more to tell.



Kilian

Drills at Osnabrück Zoo

By Tobias Klumpe

On the 20th December 2014, during optimizing of the animal management, the Osnabrück Zoo send its group of hamadryas baboons (*Papio hamadryas*) off, consisting of 40 animals.

Colleagues from the Jalta Zoo transported over land the entire baboon family, whose founding animals came to Osnabrück from Emmen Zoo in the Netherlands in 2010, to the Crimean peninsula.

Now, the free enclosure of ca. 2800 m³ within the African theme world "Takamanda", was renovated and remodeled to meet the housing requirements of drills (*Mandrillus leucophaeus*), diana guenon (*Cercopithecus diana*) and african buffalos (*Syncerus caffer nanus*).

The enclosure is barrier-free accessible at three points along the Takamanda-circular-trail. On the topmost as well as on the bottommost viewpoint, the visitor areas are separated from the animals by large water basins. The middle viewpoint is a shelter with a large panorama window. Slowly, over the course of several weeks, individuals of all three species moved to Osnabrück.

In regards to the European Endangered Species Program, we got the recommendation to take the male drill "Aku" (born 13th Oct. 2005) from Wuppertal Zoo, as well as the three females "Nala" (born 18th Aug. 2009), "Bokassi" (born 14th June 1996) and Kimani (born 15th June 2011) from Saarbrücken Zoo. All animals arrived in autumn 2014, and were socialized in the centrally located monkey house until the completion of their facility in Takamanda.

Also the first few diana guenons arrived in September 2014, and were also socialized in the existing monkey house.

Sadly the male diana guenon "Kindi" (born 04th Sept. 2000 in Twycross) passed away three months after arriving from Warsaw Zoo, due to an acute circulatory failure.

In addition to the two females "Mawembe" (born 07th Mar. 2005) and "Nyuki" (born 08th July 2007) send from Duisburg Zoo, in July 2015, the new breeding male "Tumbili" (born 25th May 2011) came from the French Zoo of Beauval.

Apart from the numerous primates, three female African buffaloes were taken in from Berlin Zoo.

Due to the exclusively use of hamadryas baboons previously, new stables for the buffaloes had to be built. The former hamadryas baboons existing sections were modernized to give the possibility of separation of diana guenons and drills in the indoor enclosures.

This was proved to be unnecessary, only a few days after the animals moved in in autumn. After every species separately got to know the indoor and outdoor enclosures, the next step was taken; over the course of several days, the African buffaloes were socialized with the drill group.

Hereafter, the diana guenons spent a few days together with the African buffaloes in the outdoor enclosures. After the socialization had merely caused a cautious avoidance on the diana guenons side, which was followed by nothing more than a friendly, mutual acknowledgement, all three species got together in the outdoor enclosure.

Although inferior in both, number and statue, the diana guenon proved to be the dominant primate group. However, there were never any aggressive disputes. By now, the two species share the indoor enclosures even during nighttime.

To the African buffaloes, neither the diana guenons, nor the drills, showed any interest, although a short playful phase was observed, initiated by the male drill "Aku".

The three-dimensional enclosure, structured with rocks and tree trunks, was proven to be an important factor in the successful socialization; especially the primates used the given structures to their full potential. As far as the diana guenons are concerned, they prefer to linger in higher positions of the facilities, while the drills primarily stay on the ground or climb up to about half the possible height.

The socialization was so successful that in September 2015 another three animals were added to the drill group, making it to one of the biggest breeding groups within the European Endangered Species Program. From Hannover Zoo the female drill “Karara”(born 01th Jan. 2008), and from the



Drills, african buffaloes and diana guenons at Osnabrück Zoo

Spanish Parc Zoologic de Barcelona the males “Moaba”(born 03th Sept. 2011) and “Nzuri”(born 03th Nov. 2012) moved to Osnabrück.

In near future, Osnabrück Zoo is interested to keep more female diana guenons, to establish also a breeding group for this species.

Knowledge Corner

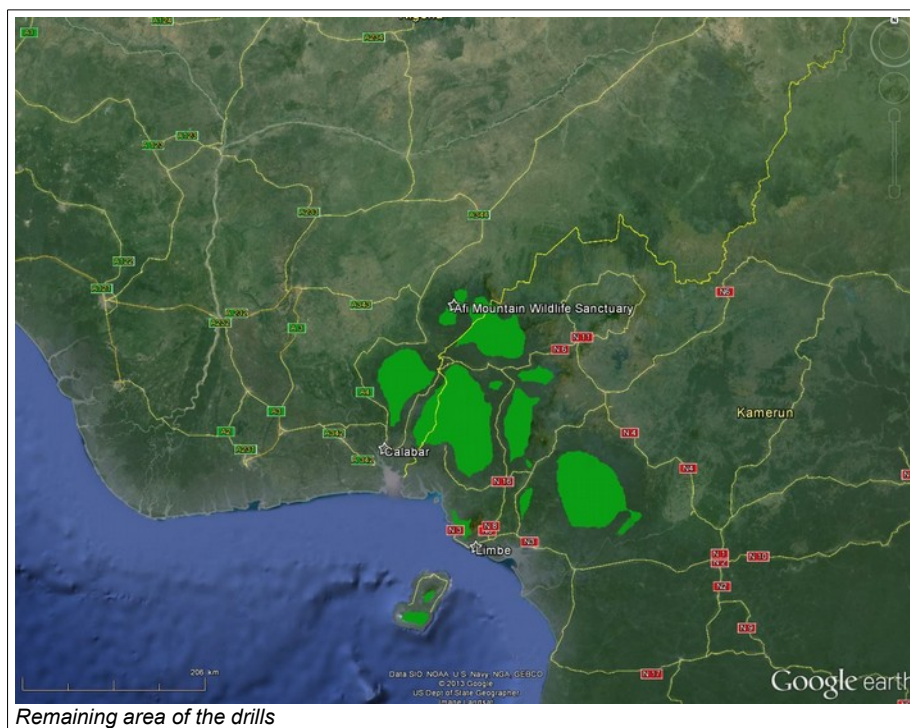
By Dr. Verena Behringer

The natural habitat of many endangered species is becoming increasingly fragmented. Collecting information about subpopulations (small groups of the former population) is therefore of importance, to allow for effective protection for these animals, living in territories primarily inhabited by humans. The drill (*Mandrillus leucophaeus*) belongs to one of the most spectacular, but unfortunately also to one of the most endangered primate species in Africa. However, there is only little information about its distribution, population, and conservation status.

Bethan J. Morgan and her colleagues have conducted a systematical evaluation to determine the drill population in Cameroon. They presented their results with the title, “The distribution, status, and conservation outlook of the drill (*Mandrillus leucophaeus*) in Cameroon”, in “International Journal of Primatology”, at the beginning of 2013.

The historical distribution of drills in Cameroon extended from the south savannah zone as far as the rivers “Sanaga” and “Mbam river”, which mark the southern and eastern border. This territory was divided into 52 small research areas. Over the span of seven years, data were collected to gain more knowledge about the current distribution, the status of the population, and their protection. For this purpose, hunters were questioned, animals were counted, and an analysis of land usage was conducted. In only 24 out of 52 areas, the presence of drills could be verified. The

animals were exclusively found in closed forest areas, but never in direct neighborhood of villages or on farmland. Based on interviews and observations, the authors believe that the northern part of “Takamanda National Park” is the northern border of drills distribution area. This National Park is



located at the border to Nigeria and is part of a transnational biosphere corridor, which also includes the “Okwangwo-Sector” of the Cross-River-National Parks, the “Afi Mountain Wildlife Sanctuary”, as well as the “Mbe Mountain Community Wildlife Sanctuary”. The eastern border is “Ndokbou” area. The southern border of the distribution area is harder to determine. Originally it was thought that the area of “Douala-Edéa Reserve”, which borders the coast of the gulf of Guinea, is the southern border; however, drills could never been

spotted there. Interviews of local hunters produced very inconsistent results. While some stated that drills are still living in this area, others said that they had not seen any in the last ten years. If there really are drills left in this area, then it is a small population, completely isolated from the next known population called “Ebo”, by 100 km of plantations, human settlements, and a road network.

For the last remaining drills in Cameroon, there is a territory of approximately 46.000km² in the west of Cameroon. However, this not a comprehensive area, but sprinkled with white dots, caused by streets, settlements, farmland, and - in growing number - banana and palm oil plantations, leading to a isolation of the last remaining drill populations.

During the last 30 years the drill population has presumably decreased about 50%, due, primarily, to hunting and loss of habitat. This is not only the drills’ fate, but also that of other primates in Cameroon, such as the Preuss’ Guenon, the Red-eared Guenon, or the Preuss’s Red Colobus.

As reported in a previous “Knowledge Corner”, there was already a dramatic decrease in the drill population 3.000 to 5.000 years ago (Ting et al. 2012; Drillinfo 16). The fact that the population recovered itself since this time, gives hope that it will maybe happen again. It is very complicated to evaluate the future of the drill populations’ development, considering the double burden of increasing isolation and human threat.

To save the remaining drill population, it will be necessary to protect the existing forest areas to preserve corridors, for drills and other species. Furthermore, it will be necessary to up-date maps, concerning the land use. Until now, there are only few maps publically accessible, marking the plantations. For that reason, the authors recommend to update the existing maps, to be able in advanced to publically discuss plans, concerning deforestation, and land use.

EDI = Eurorpean Drill Initative

By Carsten Zehrer

A while ago a small group discussed together the ever-increasing problems of drill keeping in European zoos.

The group consists of the EEP coordinator Carsten Zehrer, Wildlife Park Hellabrunn, Munich; Prof. Michael Böer from Osnabrück Zoo as a representative of a German drill-keeping zoo; Dr. Heike Weber of the Wildlife Park Nordhorn as a veterinarian; and Kathrin Paulsen as speaker for save the drill.

The captive European drill population is rather small, 86 animals in total.

The so-called “coefficient of inbreeding” is currently 0.0336 (the optimum would be 0 of course) and is thought to increase in the coming years.

With this value it is possible to define the level of inbreeding, in other words, to scientifically determine the direct family relationship between animals. Following a complicated system, this value is calculated for every single individual. Initially, the drills coefficient of inbreeding appears to be very low; however, from a genetic point of view, it is alarming. Many animals are closely related; hence the genetic diversity is at risk, increasing the chance of inbred birth defects, drastically.

In the preceding weeks - in cooperation with Pandrillus – it was considered to import animals from the rescue centers in Cameroon or Nigeria to European zoos, to preserve the European drill population.

While talking of this intention, we of course insist on only transferring captive bred animals in at least the second generation. NO free living drills will be taken or NO animals which have the chance to be releases to the wild.

We are only interested in those animals which are born in human care and therefore are familiar with animal keepers since birth and are unsuitable for reintroduction to the wild; with other words, animals that live in so-called “education groups” in the Pandrillus stations. In such groups, just as in our own wildlife parks, they are ambassadors for their species.

Such “negotiations” are very tough and complicated, due to the many factors involved.

It is not only the political and veterinarian complications coming along with such a project, furthermore, the project causes also extreme expenses.

Nevertheless, we are trying to “keep it rolling”, to ensure the survival of the drill population here, in Europe!

Further information will follow...

Save the drill at work(shop)

By Dr. Anne Fallner

“More than just the protection of a species”... - this statement appears on the logo of the save the drill association, and “more” is something we also want to fulfil in terms of raising awareness, education, and teaching lessons.



Looking for information about drills

Therefore, we gladly accepted the invitation of the comprehensive school Harsewinkel to inform the teaching staff as well as the students in the lower secondary education level about the drill and general species protection as part of the school's application to become a certified UNESCO - school. In May last year we offered for the first time workshops for teachers and students. The focus of these workshops was the drill as a fascinating, but yet severely endangered species as well as topics concerning species and nature protection in Cameroon and Nigeria. The students proved to be especially interested in the work with the animals at Limbe Wildlife Center and at Afi Mountain, animal

trade (keeping drills as pets), poaching (bushmeat), and the destruction of the African rainforest, as well as the drills' way of life. My task consisted of providing adequate information material, presenting the different events, and reacting to as many questions as possible asked by the workshop participants. After general information phase in plenary, regarding the topics mentioned above, the attendees divided themselves into groups specializing on one topic each. After thoroughly researching their topics, they created information posters, which were made accessible to the entire school in form of a seasonal exhibition later on.

The students presented themselves as "Species-Protection-Experts" and attracted a great deal of attention, not least thanks to the sale of "bags of animal food" (seeds, dried fruits...- everything the drills like).

The teachers'-workshop is meant to enable teachers to add the protection of species, with the drill as an example, to their lessons.

Furthermore, topics like the political situation in Cameroon and Nigeria, "from poacher to ranger", the womens situation in Nigeria, "Aframomum " and "Green Leaf", "school in Cameroon and Nigeria" as well as infections with HIV and Ebola were covered within the broad program.

The teachers' feedback after the workshop was positive without exception. Now we wish to create a curriculum with functional and interesting work material for both, the students' and the teachers' workshop, based on the gathered information material and worksheets, as well as on the feedback we got.

In the future, parts of the exhibition at Nordhorn Wildlife Park may be taken into account, to make the topics "drills" and "species protection" even more "tangible".

This is a great deal of work – but after these experiences an important and worthwhile one!

The students and teachers of the school in Harsewinkel have already worked as disseminators; we have been approached by other schools, asking for the workshops.



Manuel, "expert" of species protection

Short news about Drills:

Munich: On 19th February 2016, 10-year-old "Afi" born healthy twins. This sensation concerning the drills, has only been observed three times worldwide.

Saarbrücken: This April, the three-year-old female drill "Fajola", sadly passed away. Also the breeding female, "Antonia", passed away at the age of 18, presumably due to the consequences of an overdewed baby.

Donations:

This year's events and generous donations made it possible for us to keep supporting the work for the Drills in Africa:



The boost project of Munich Wildlife Park Hellabrunn www.boost-project.com, as well as the end-of-year-premium of conservation resulted in the gratifying amount of 1500,- Euro for the drills.

www.hellabrunn.de

We would also like to thank the Zoo shop's lessee in Munich, Mr. Bernhard Muenster, for selling various merchandising items of our association at Wildlife Park Hellabrunn.



At this year's Zoo Run at Hannover Zoo we get – like last year - the great donation about 1500,- Euro for our work for conservation

www.erlebnis-zoo.de



Again, we received the wonderful donation of 3000,- Euro by the German association of zookeeping (BdZ). The BdZ has already been supporting our association, which, by now, is only known as the "drill association" throughout Germany, for a long time. Many, many thanks to you!

www.zootierpflege.de



Happy children and the wheel of fortune

Through various events, with help of small and large donations and a tireless spinning of the wheel of fortune, members of our association have raised almost 1000,- Euro.



With help from Osnabrück Zoo, we were able to cover the expenses of 2000,- Euro for the Aframomum Project (green leaf project) for the drills at Limbe Wildlife Center.

www.zoo-osnabrueck.de



The ICZ (international congress of zookeepers), which comes together every three years to provide further training in all areas of zoo keeping, has issued an ICZ grant for species protection with an amount of 1000 US\$ during the last year. Save the drill applied for this grant, and received the first ICZ grant for the monitoring of the drills at Limbe Wildlife Center!

www.iczoo.org

Of course we also thank our – partly long-term – donors with all our heart:

Mr. Walter Riedel

Ms. Birgit Eggers

Family Dr. Veh

Mr. Rainer Weber

Mr. Heinz Weydmann

Students of year 11 and 12 of the Oberstufen-Kolleg at Bielefeld University

We also welcome following new Members:

Zoofreundeverein Hannover e.V.

Zoo Wuppertal

Ms. Sigrid Weber

Mr. Holger Ahlbrecht

Ms. Charleen Klings

Ms. Christine Bertram

Sadly, we have to say goodbye to our long-term member (and founding member) Ms. Angela Krüger, who passed away this spring.

We want to thank TIERPARK NORDHORN for the support of their association through transfer- and mail costs. We also want to thank VisionConnect GmbH for their regular support of our homepage and for their provision of the transfer volume.

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