

## CONCLUSIONS AND SUGGESTIONS AFTER EEP-VCF STAFF VISIT AT THE AMNÉVILLE ZOO

Following the proposal from Amnéville zoo to participate in the Bearded Vulture EEP network, it was accorded between Amnéville zoo and EEP/VCF to invite Alex Llopis to visit the Zoo, and have a look for the possibilities to house a pair of Bearded Vultures in their facilities.

### Introduction:

During winter 2015 Amnéville zoo, Mr Anthony Cardineau –responsible of the Raptor Breeding Unit- contacted the EEP coordinator and asked the possibility to participate in the Bearded Vulture EEP. After several email exchanges, was accorded to invite Alex Llopis to visit the Zoo and evaluate the two possibilities that Amnéville zoo suggested for holding a pair of Bearded Vultures coming from the EEP:

- adapt one of their aviaries for holding a pair of Bearded Vultures
- construct a new aviary in a new location, following the EEP guidelines

The visit was done between the 3<sup>rd</sup> and 6<sup>th</sup> of August 2015. I had the opportunity to visit the whole Parc, especially the raptor collection and their aviaries. Furthermore I had the pleasure to meet the General Director Mr Michel Louis and the staff from the raptor Unit with whom I could exchange knowledge in relation vulture behaviour, infrastructure of aviaries and their sense, artificial incubation and rearing, etc. with pictures presentation.

### The potential Bearded vulture aviary:

In the middle of the birds of prey collection, a huge aviary is located at the end of a corridor without exit -where actually a pair of white headed vultures is housing-, giving the potential future Bearded Vulture pair the quietness necessary for welfare and breeding success.

The aviary is 8m wide x 10.5m large and 6m high. Additionally at the front of the aviary, there is a 1m greened buffer area, giving a secure distance between the public and the fence (picture 1). On the back side, by each corner, there is installed a covered nest platform (picture 4-5). The distance between the nest platform and the roof is about 2m. The entry to the aviary is under the right nest platform. The floor of the aviary is covered with grass, not plane being in the middle higher, where is located a small drinking bowl. Furthermore three big stones are around the drinking bowl and the aviary is filled with vegetation, small green and dry trees as perches (picture 2). Additionally in the walls a few perches -branches with a diameter around 8-12cm thick- are installed but not in the front (picture 1).

The back wall is completely closed with wood and the side's walls only the lower part. The higher part, as well the full front wall, are closed with an intertwined wire mesh (picture 1, 3 and 6).



Picture 1-2. One meter greened buffer area, giving a secure distance between the public and the fence. Drink bowl.

**Dr. Alex Llopis Dell, VCF Bearded Vulture Programme Manager**

Centre de Fauna Vallcalent, Pda. Vallcalent 63, 25199 Lleida, Spain

Tel: 00 34 657 47 33 78 email: a.llopis@4vultures.org



Picture 3-6. Inside view from left to right.

There is dense vegetation outside the aviary, offering the birds the required shadow.

### Conclusions and suggestions:

From the dimension and location of the aviary, the EEP-VCF staff recommended Amnéville zoo to use the aviary for holding a Bearded Vulture pair after realizing several ameliorations. All the conclusions as well suggestions were directly transmitted to Mr Anthony Cardineau – responsible of the Raptor Breeding Unit-. Nevertheless, following are mentioned the exposed suggestions to keep them in mind.

- Bearded Vultures as cliff breeders use small caves in the wild (90-120cm height), and well protected from bad climatology. Is well known that Bearded Vultures by wet nest normally abandon the clutch. It will be necessary to completely rebuild the nest platform and the roof. We recommended to **install a platform running along the width of the aviary and divided into two**, to provide the subordinate bird with somewhere to shelter in bad weather. The platform should be 1.3m deep and built 1.2m below the nest. Install the nest at the platform corner where in the morning the sun shines.



- Bearded Vultures are soaring birds of prey and are impossible for many of them, especially females and older birds, to access perches through flapping flight. Steps make it much easier for the birds to transport material to the nest (an important behaviour during the breeding season that reinforces the pair bond) and to bring food to the perches, where it can be handled more easily than on the floor. **Spiral steps** (20cm wide, 4-5cm thick, 150cm long, and with a height of 45-50cm between them) are the best option to **allow Bearded Vultures to access perches and nest platform**.





The spiral leader is recommended to install in the middle where the platform is divided in two.



- To prevent the nest from getting wet, the **roof should project out 1-1.5m** above the nest platform.
- To prevent injuries caused by collisions, remove the **green and dry trees inside of the aviary**. These are obstacles that by other facilities have already caused the loss of several individuals.
- **We suggest removing the branches which are installed as perches.** Bearded Vultures as cliff breeders, the perches need to be adapted to suit the anatomy of their feet. For assuring to maintain its balance on it is recommended to install **flat perches, around 20cm wide, 4-5cm thick** and also need to be **rigid enough** to prevent them from bending during copulation on the perch. It is recommended to install a **holding arm perches system which avoids collisions** with it.



For preventing collisions by flying against the fence is recommended **to install perches around the aviary** (60cm away from the mesh and **never higher than the nest**). This gives them the possibility to move around the cage without getting on the ground, especially when the nest must be controlled by the keepers. Furthermore by installing perches throughout the aviary, pairing birds can move towards each other gradually. Subordinate birds can escape from attacks by the other and can choose to sit on a perch where they feel safer.



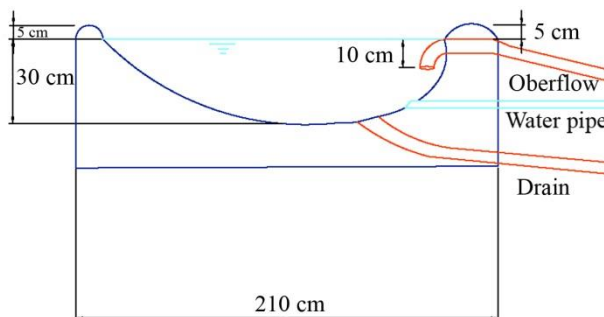
- Is recommended that the entrance to the aviary should be located in the part of the aviary that is furthest away from the nest. Furthermore the access route to the aviary must be clearly visible to the birds. This means that if it is necessary for staff to enter the aviary, the birds can see them approaching beforehand and won't react with fear. In addition, to prevent birds from escaping as staff enter the aviary, it is important to install a security cabin with a double door system, where the doors open inwards. We recommend to **close the actually entrance** and to **install the security cabin on the left wall of the aviary** -far away from the nest-. For giving the birds the possibility to see when the staff approach to the aviary, we suggest to build the cabin with a **welded wire mesh** with a mesh size of 2.5 x 2.5cm, which will also prevent problems caused by rats or small carnivores.



- Is recommended to feed the birds through the mesh.** We must remember their cage = their territory. Like in the wild, if you approach their territory the pair feels threatened and leaves the nest. Install a 90 x 90cm feeding place in front of the security cabin and feed the birds daily through the cabin mesh without entering in the aviary.



- All birds of prey drink and bathe regularly. During egg formation, females drink large quantities of water. It will be **necessary to rebuild the bath bowl for adapting to the species**. Drinking bowls should have a soft access ramp and be big enough to allow the birds to bathe (210 x 130cm wide and 30-35cm deep). Drinking bowls should have a mechanism that allows them to be regulated from outside the aviary.



- Bearded Vultures develop the peculiar habit of bathing in mud rich in iron oxide. Although the reason for this behaviour is still unknown, they must be kept in captivity in good physical and psychological condition, offering them all available means of developing as many innate behavioural patterns as possible. Therefore it is recommended to install a mud bath where mud rich in iron oxide can be provided every 15 days (1m in diameter, and 10cm deep). The best **location is near the drinking bowl**. Use only mud free of any toxic substances (heavy metals or other organic contaminants).





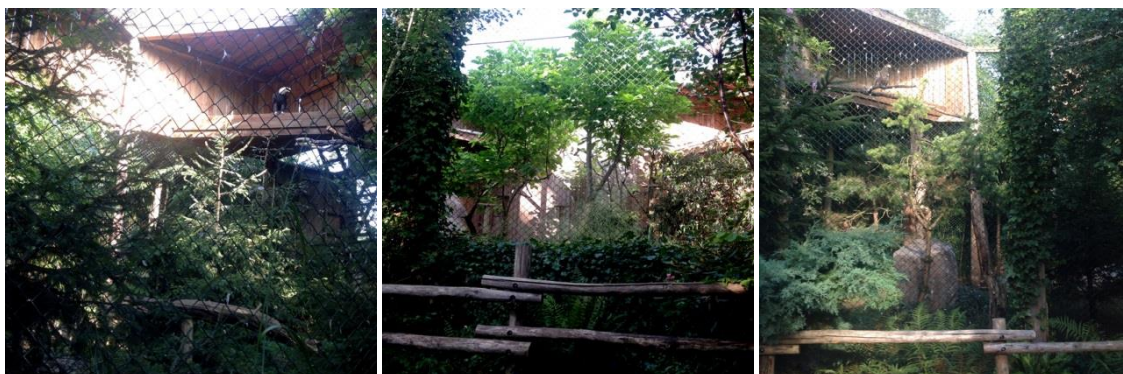
- Direct visual contact from the nest between neighbouring pairs can lead to birds neglecting incubation due to being more concerned with defending their territories. We recommend to **close the directly contact** between the neighbour species.
- Furthermore we recommended to install a visitor observatory which minimise stress and give the possibility expose panels about the project and reproduce pictures of the nest video monitored.



#### Additional suggestions for other raptors aviaries:

In general terms the aviaries destined for the birds of prey collection are adapted to the different species. By all aviaries there is dense vegetation around them. Additionally at the front of the aviary, there is a 1m greened buffer area, giving a secure distance between the public and the fence. Furthermore, each aviary has minimum two nesting place providing the subordinate bird with somewhere to shelter in bad weather.

However almost all aviaries, especially by the large birds of prey, dense vegetation is also inside the aviary and only a few perches are present. All of them installed perpendicular to the wall and none at the front fence.



- To minimize injuries because of collision is very important to offer visible and clear landing places. E.g. raptors with a total wing span from 2.5m they need minimum a double landing place free of vegetation. During pair bonding or breeding season - where birds are more sensitive-, fights can occur and provoke forced landing by the subordinate bird. That's why is very important that birds have a clear visible landing site. Furthermore by flapping to reach to the upper part of the aviary, dense vegetation can avoid the transport of food or nest material -consequently reduce breeding stimulus-, or/and damage the flight feathers, giving the birds a bad look for the public. **We suggest to remove the full vegetation.** Maximum you can keep small trees/bushes at the corners of the aviaries.

- Perpendicular installed perches have provoked deathly injuries by birds. Additionally they don't avoid the collisions against the fence.

When perches are installed throughout the aviary the birds can move towards each other gradually. Furthermore more, in non-established pairs, subordinate birds can escape from attacks by the other and can also choose to sit on a perch where they feel safer. In aviaries with few perches, subordinate birds are forced to spend most of their time on the floor, where they feel threatened and consequently become more stressed. Moreover, in aviaries with more perches, there is less of a risk that birds will fly into the mesh when they are disturbed or when they become violent (e.g. during attacks or when handling is taking place in the aviary). For preventing collisions by flying against the fence is recommended **to install perches parallel to the fence and around the aviary**. The perches type and size should be adapted at the anatomy of the claws of each species: cliff breeders flat perches and tree breeders round perches.



Follow us : [www.4vultures.org](http://www.4vultures.org)

