

Criteria for selecting hacking sites for Bearded Vultures

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INTRODUCTION

Within the framework of the reintroduction project of the Bearded Vulture into the Alps a modified method of “hacking back” has been developed in the EGS centre (Haringsee) using offspring of black kites. The “traditional” hacking back is a method originally used by falconers to raise nestlings of falcons under more or less natural conditions. The goal is to get birds with perfect flight abilities.

In the falconry tradition hacking towers are constructed with hacking boxes in the upper part. The front side of the hacking box is closed with a door made of wire. Inside the falcons are fed by the falconer. The birds can observe the surrounding of the hacking tower, but cannot leave it. The box is opened only after the normal time of fledging. After the release the birds can train their flight ability free ranging, but are still dependent on feeding. They get their food at the hacking tower. As soon as they are able to hunt successfully they are caught again and trained for hunting purposes.

The idea was to modify this technique for the goal of a reintroduction project using more natural conditions, and an imitation of the natural fledging of a bird of prey. Former studies with barn owls and kestrels in the EGS centre proved that imprinting on different nest types can happen. Therefore we propose natural nest sites in caves or ledges, constructed similar to a Bearded Vulture nest in the wild.

No nestling of any rock breeder will jump from the nest before it is able to fly. So the conclusion was that it is not necessary to lock up the nestlings. They can leave the nest whenever they want, at the physiological time for the species. And normally they stay near the release site after fledging because this is an inborn behavior as well to keep contact to the parents. This was tested first of all mainly with the help of black kite nestlings in the EGS centre with excellent results.

ADVANTAGES OF THE HACKING METHOD

1. The Bearded Vulture nestlings are **released with an average age of 90 days**, when the birds are able to eat and prepare the food alone, strong enough to defend themselves against

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others birds of prey or foxes, and are young enough to recognize the release site as their rearing place. Their learning and adaption capacity are also in their maximum phase.

2. It is **more or less the “natural” way of fledging**. The role of the parents at that time is protection against predators, food supply and social contacts. The human keeper can substitute these functions to a big part. Although 90 days-old Bearded Vulture nestlings are large and strong enough to defend themselves against any natural predator, we suggest choosing nest sites not reachable for terrestrial predators to prevent any possible injuries. Food is offered by the keeper avoiding any direct contact. And social contacts are possible if two nestlings are released together.



90-days old Bearded Vultures nestlings are able to eat and prepare the food alone, strong enough to defend themselves against any natural predator, and will recognize the release site as their rearing place.

3. After leaving the nest, **released birds show the same behavior as wild fledglings**, making short flies and keeping close to the nest during the first weeks. This makes possible an intensive monitoring by researchers and volunteers, reducing to minimum eventual fledgling losses, and gives the birds the possibility to learn and adapt in their new environment.
4. The birds **become independent after short time** (about one month after fledging, depending on quantity of natural food resources in the release area). To search for natural food, and to break bones is innate behavior. They don't need the example of the parents to start or train this behavior.
5. **Philopatric behavior is inborn as well**. With this method released nestlings recognize the release site as their hatching place. This results in a high return percentage to the release sites, occupying territories in the surrounding of the release area. Using this release strategy will build up a local subpopulation.
6. **Learning and adaption capacities depend from the age and species**. In birds, learning and adaption capacities peak during the nestling and especially fledgling phase. On the contrary released adult birds have much lower survival rate because they have lost their learning and adaption capacities. Additionally, released adult birds will be expelled by any established territorial pairs because the Bearded Vulture is not a colonial species. Nestlings released

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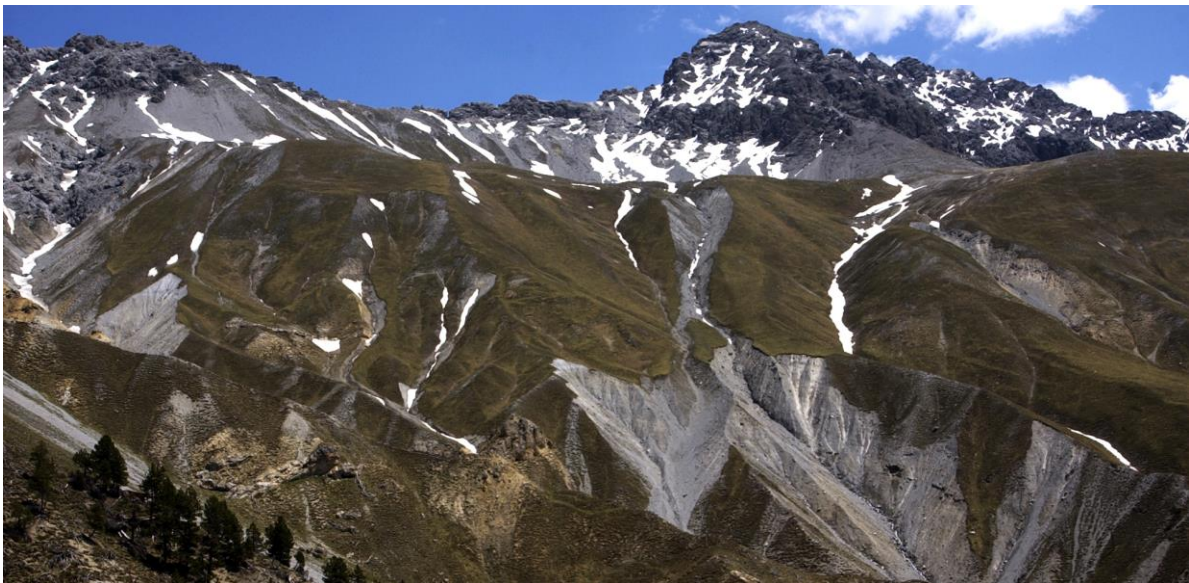
with this technique will be shaped by natural selection and will eventually become perfectly adapted to the habitat conditions in the reintroduction area. We believe that this is an important condition for a successful reproduction without any human help later.

A behavior perfectly adapted to the local conditions is one of the keys factors for any reintroduction project. Therefore only birds-raised offspring (as opposite to hand-raised ones) should be used for this purpose. The permanent contact with one of the parents is the normal situation and very important for the development of the nestlings brain and behavior.

CONDITIONS FOR A SUITABLE RELEASE SITE

Release area:

1. Bearded Vultures inhabit mostly open landscapes. So the vegetation should be sparse (no dense forests or bushes).



2. Excellent natural food resources are of great importance for the fast emancipation of the released birds.
3. Human impacts (traffic, tourism, climbers, photographers, military activities, helicopters) should be as low as possible.
4. Recommended in protected areas where hunting and outdoor sports are restricted/forbidden.
5. The area should be comparatively easy to access (pathway, if possible not open for public).

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6. Accommodation nearby for the monitoring team.



7. Possibility for the storage and conservation of food (freezer).
8. Suitable rock faces for the nest site.



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Release site:

1. Caves or well-protected rock ledges, big enough to house at least 2 nestlings and to install minimum 2 separate feeding places. Dominant birds can cause stress or even injuries. Therefore the release site has to offer enough space for the subdominant partner to keep distance or to hide itself. One should try to avoid a configuration when the mobbed partner is cornered in a narrow space or at the end of a corridor.



2. The birds should not have the possibility to climb higher or to the sides from the nest site. If this possibility exists it has to be closed with dense branches or a wire.
3. The same equipment is necessary if the birds could escape down.

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4. The cave or ledge should be situated in the lower part of the rock face to avoid injuries if one of the nestlings is pushed out by another. If this is not possible the edge or cave should be protected by a fence until the birds are ready to fly.
5. In the surroundings of the release site open grasslands with few bushes or tree vegetation is important for an effective monitoring after fledging. This is also an advantage for the fledglings, enabling them to find offered food more easily.
6. If possible, the release site should not be too accessible for terrestrial predators.
7. The installation of a water basin at the release site is important to give the birds the possibility to drink.
8. It should be possible to observe easily the release site from a viewing point for monitoring (minimum 250-300 m). A small observation hut has to be constructed there to protect and hide the observation team.



9. Having mobile phone coverage is a big advantage.

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10. The release site should not be within the breeding territory of a golden eagle pair. A distance of about 1,5 – 2km to the next occupied golden eagle nest is enough.
11. In the case of a restocking project, it is better to choose a site not within an occupied bearded vulture territory. Our past experience showed that some territorial birds adopted the newcomers, but others mobbed and even injured them. So it is better to choose a site not at the center of an occupied territory.
12. The release site should not be situated near the sea or bigger lakes.
13. An ideal position is the end of a valley.

Feeding and monitoring:

1. A team of at least two persons is necessary. This is important in any case of accidents (human and birds as well).
2. During the first years in an new project, the new release team need support from experienced people in hacking of Bearded Vultures.
3. Feeding has to be done during the night - during daylight if one can prevent that the birds observe who is offering food. Any association between man and food has to be strictly avoided.
4. Food has to be offered every second day as the latest (depending on weather conditions and the existence of other birds like ravens). The intake of food has to be controlled.
5. Eviscerated rabbits or pieces of sheep and goat are the ideal diet for nestlings. Never use shot animals with lead ammunition for feeding the birds. Lead intoxication is one of the biggest causes of deaths in this species.
6. An observation protocol is essential. All important activities have to be documented (for example fights, wing exercises, intake of food, etc.).
7. Never try to force the birds to leave the nest by reducing feeding. The birds have to choose the right time for fledging themselves and there are big differences between individuals.
8. After fledging food has to be offered on several open places easy to detect by the birds near the release site.
9. The birds demonstrate themselves when the time is right to stop feeding at the release site. This can happen extremely soon when they find contact to other Bearded Vultures in the surrounding area, if there is a plenty of food around. A few birds stay longer and take food for some more time. On average after one month birds don't use the feeding place at the release site any more. But this may be completely different in a habitat with little food. So careful monitoring is essential!

