

White-tailed Eagle *Haliaeetus albicilla* Video Surveillance Project in the nature reserve on the island of Kaninchenwerder, Mecklenburg, Germany, 1993, 1994 and 1995

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INTRODUCTION

From around the middle of this century up to the 1980s, the number of White-tailed Eagles stagnated and in the whole of Germany the number of breeding pairs remains at 110-120. The reproduction rate is on average 0.2 young per breeding pair. Only about 20% of all breeding pairs have successfully bred during this time. The main reasons for this low breeding success and consequent stagnation were the effects of environmental pollution caused by DDT, egg-shell softening which results in the eggs prematurely breaking during incubation (Oehme 1984).

In many cases it was suspected that human interference and forestry work close to the eagles' breeding grounds were responsible for the low reproduction rate. Direct evidence of this comes to light annually. However, over the last 30 years, due to existing eyrie conservation regulations, forestry work has only rarely caused a disturbance. Although there has been an increase in the reproduction rate and therefore in the number of White-tailed Eagles, the damage and disturbance which occur near breeding grounds still constitute a grave danger. In particular, the increased development of the countryside for recreation and tourism means that there is still cause for serious concern over preservation of the White-tailed Eagle in our country.

After discontinuation of the use of DDT in the 1970s, there followed, at first, a gradual increase in the reproduction rate which kept the number of White-tailed Eagles constant after the 1980s and this still prevails (Hauff 1993,

1996). In this context, during the winter of 1991/92, a pair of White-tailed Eagles re-occupied the nature reserve on the island of Kaninchenwerder, within the regional capital Schwerin, Mecklenburg, West Pomerania. Already within the course of the first year, this pair successfully bred and reared a chick. The 33ha island, situated in the Schwerin lake, has been a popular place for excursions for over a century and a nature reserve since 1935. Nature conservation and leisure recreation do not appear to conflict with each other in this particular case. Thus in 1992, when several paths were temporarily closed to visitors and a ban placed on water sports, these regulations were respected and adhered to. In 1993, this led to the establishing of a video surveillance project.

METHODS

The project was carried out and financed by the Ministry of Environment, Mecklenburg, West Pomerania. Preparation for the project was generously supported by the Lesser Spotted Eagle surveillance project in Mecklenburg, already instituted in 1991 by Dr.Scheller and Dr. Meyburg. The extensive technical installation was set up and mounted by Fa.Ruess, Av, Berlin. The author of this report, employed by the regional office for Environment and Nature, was commissioned to lead the project, which began at the end of February 1993, with two objectives:

1. Documentation by video camera of all occurrences during the pre-breeding and rearing stages. Filming took place during the hours of daylight each day (from Lux 3). The control centre was situated 300m from the eyrie in a permanent building. Filming alternated between a fully automatic camera and a hand camera operated from a control panel using a monitor.
2. To enable the public to observe the breeding stages at a White-tailed Eagle's eyrie. To this end, the office for Nature Preservation and Landscape Cultivation staged a special exhibition in 1993. In this, parallel with the video control centre, live pictures were shown on a monitor. This exhibition was opened on 30th April 1993, by the Minister of Environment, Frieder Jelen.

RESULTS

On 22nd February 1993, in the afternoon, the equipment was installed during conditions of sleet. The camera was mounted 20m above the ground and 19m from the eyrie by C.Rohde from the regional office for Environment and Nature, Teterow. The following morning an eagle was observed for a few minutes at the eyrie. From its behaviour, it was clear that the small distant camera had not been noticed. Then, from 24th February to 14th March the

pair were seen repeatedly at the eyrie for short and longer periods. At this time the completion of the eyrie was essentially finished. Occasionally padding material was gathered for the hollow of the nest. Mating was repeatedly observed; however, this did not take place in the eyrie, but on a nearby branch. Prey was brought to the eyrie at regular intervals and gorged by both partners. The pair were extremely intimate with each other. No dispute was observed between them.

The male eagle wore one ring. The regional tag with the date when the eagle had been tagged by the ornithological station was missing, so its origin could not be identified. Only the year ring was present on his left leg, according to the date of which he was 5 years old. On 15th March 1993, incubation began. This date almost coincided with the one known from 1992. The five and a half weeks of incubation elapsed without any noticeable disturbances. Only once, on 23rd March 1993, did the pair become highly agitated. This was not due to the Carrion Crow *Corvus corone*, which landed next to the brooding and contentedly sleeping female in order to steal food, but to a single White-tailed Eagle which suddenly landed for a moment near the eyrie and then flew away again. So there was no direct fight. On 22nd April 1993 the incubation period ended. At this time a heavy thunder-storm returned, especially on the evening of 24th April, when water managed to penetrate the camera casing. A chick hatched from the one egg, but, after only five days was dead. It is assumed that this was the result of severe cold and humidity during the hatching period. Even though the dead chick remained in the nest, the pair continued to bring prey back to the eyrie over the following days and gorged themselves. The dead chick received no special attention.

A Carrion Crow which reappeared carried off the dead chick on 28th April 1993. After this, the eagles rarely visited the eyrie. On 5th May 1993, video surveillance was discontinued. Altogether in 1993 around 800 hours of video film were recorded on events at the eagles' eyrie, parts of which were shown at the exhibition.

RESULTS IN 1994

At the end of November 1993, a dead White-tailed Eagle was found on the outskirts of Schwerin, near Wickendorf. Presumably it flew into an electricity cable in the fog. This eagle had a year ring, because of which it was suspected to be the same male from the pair which had bred on Kaninchenwerder. Despite close observation, it was only on 3rd January 1994 that a pair of White-tailed Eagles were again observed on Kaninchenwerder. Video surveillance recommenced on 17th January. On 18th January, the new pair were filmed for the first time at the eyrie, and suspicion about the male

was confirmed. The new male had received his year ring as a chick in 1991 in Germany. This provided the first concrete proof of an immature eagle two and a half years old attempting to mate. The question of whether such a young bird was able to fertilize the eggs could not be answered as another male eagle appeared only one week after video surveillance began. This led to a violent fight which drove the immature eagle away one week later.

The new pairing began with both eagles showing obvious uncertainty. During the following days their relationship gradually developed visibly into one of trust. Nine days after courting, the first mating took place. This, and all further matings, took place in the eyrie. After this new pairing the eyrie was thoroughly reconstructed, especially by the male. Small fights occurred when the female refused to mate. However, when it came to sharing prey, the fights became more violent. At one point an argument over an eel became so violent that the male ended hanging upside down under the eyrie. Only when the female let go of the eel could the male fly away. On this occasion part of the nest material from the edge of the eyrie was torn off. Because of this, it was possible to weigh and measure the largest branch which the male had carried to construct the eyrie. The dry beech branch was 1.78m long with a diameter of 5cm at its base, and weighed 1.030kg. Such material is grasped by the eagle's talons and broken off from the top of the surrounding trees while in flight. This behaviour was recorded on film. Both partners shared in procuring nesting material, however, the male made the largest contribution. An impression that brooding would take place was gained from the eagles' activities.

On 25th February 1994, when extremely frosty weather prevailed and the Schwerin lake was almost totally frozen over, a renewed argument broke out, typical for White-tailed Eagles. The pair defended the eyrie with violent agitated cries. The rival was not detected by the video camera, however, four White-tailed Eagles were repeatedly seen on the ice near the island. Two days later, on 27th February, the female was observed for the last time, sitting on top of a beech tree with her wings spread out like a Cormorant. She appeared to be drying her feathers, which were wet through. This preening, which lasted for almost half-an-hour, led to the assumption that there had been a territorial dispute over an open stretch of water where the female got wet. On the same day extremely frosty weather prevailed. As the male, who had been perching near the eyrie during this time, flew away the female flew directly after him. This was the last recording of the female, after which the eyrie was deserted for over a week; only on 5th March 1994 was an eagle seen for a very short time at the eyrie. Nothing was known about the whereabouts of the female. It is possible that she died in a territorial fight or as a result of illness.

On 8th March 1994, the male returned to the eyrie with a new female. Once again, for the third time within a few weeks, there was a new pairing. The new female wore a regional tag which revealed her to be of German origin. The year ring was missing, so her age could only be assessed from her immature plumage, the conclusion being that she was five years old. Just a few hours after the pair appeared at the eyrie, the first mating took place in the afternoon; this was certainly the first time ever for the female. Nevertheless, signs of courting, willingness to share prey and general mutual trust slowly developed. By now it was too late for the eagles to breed in 1994. The courtship of the pair was continuously filmed until 19th May 1994.

The completion of a new pairing at this particular White-tailed Eagles' breeding ground was documented twice in 1994 by video camera. First, for over two weeks during the pre-breeding stage, when there were clear signs that breeding would take place. The second new pairing took place at a time when breeding could no longer occur in the year 1994. The behaviour of the male, which was the same in both cases, was very aggressive when it came to sharing prey with the female.

In 1994 the video camera filmed and documented around 1,500 hours covering events at the eyrie. This was the first time that all stages of the White-tailed Eagles' breeding behaviour had been observed. The results obtained from 1994 are particularly valuable for the protection of nature and wildlife species. Only through video surveillance is it possible to identify the causes of breeding failure, which otherwise are largely speculation.

RESULTS IN 1995

In the winter of 1994/95, the new pair were repeatedly seen on Kaninchenwerder. For this reason video surveillance began again on 28th January 1995. Although the pair remained at the eyrie, there was no attempt to reconstruct it, nor any visible sign of courtship or mating. After 21st February 1995, the pair were no longer seen. However, in the autumn of 1994 another eyrie had been discovered on the eastern side of the lake 4km away from Kaninchenwerder. It is presumed that this was constructed by the same pair. Within a few days this eyrie, which had been damaged by winter storms, was restored and prepared for breeding, which then began in early March.

After the disappearance of the pair from the eyrie on Kaninchenwerder, a pair of Red Kites *Milvus milvus* moved in and began preparations for breeding. On 25th March 1995, a White-tailed Eagle landed at the eyrie for a short time, very probably the male of the known pair. He was violently attacked by the Red Kites and driven away. On 5th April 1995, the Red Kites began

incubating. The pair of young eagles had not been successful in their attempt to breed and repeatedly appeared at the eyrie on Kaninchenwerder, driving the kites away. These immediately repaired a year-old kite eyrie, situated 100m away, with nesting material taken from the White-tailed Eagles' eyrie and prepared for a second breeding attempt which began on 1st May 1995. On 18th May the video camera was moved to the kites' eyrie and began filming the incubation and rearing periods, including the chicks' first flight. The video recording was transmitted to a monitor placed in a restaurant on Kaninchenwerder, so that visitors could experience life at the kites' eyrie live. From the two eggs laid, one hatched on 1st June and the other on 6th June. On 12th June 1995 a crow carried off the oldest chick. Four days earlier the same crow had taken half a fish from the eyrie. The second chick grew up without incident and was fully fledged by 20th July 1995. During the following days, the tagged young kite returned repeatedly to the eyrie. On 3rd August it was found under the eyrie, torn to pieces with its quills bitten off.

A short film entitled 'White-tailed Eagles in Schwerin' was made out of the extensive video recordings and made available to the public through the Ministry of Environment and Nature Preservation. Scientific evaluation of the material took place at the regional office for Environment and Nature in Schwerin.

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