

# The Situation of the Lesser Spotted Eagle *Aquila pomarina* in Germany: The need for an Action Plan and active Conservation

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## ABSTRACT

Since about 1800 the total breeding area of the Lesser Spotted Eagle *Aquila pomarina* in Germany has shrunk by some 90 % from a then 83,000 km<sup>2</sup> to a small residual area today of some 10,000km<sup>2</sup>. The western border of the breeding range has shifted several hundred kilometres eastwards.

The reasons for this decline were a massive annihilation campaign of shooting and egg theft. Increasing habitat loss became a negative factor only in the course of the 20<sup>th</sup> century.

At present the species breeds only in the federal Länder (States) Mecklenburg–West Pomerania, Brandenburg and Saxony–Anhalt in relatively small areas of 6,600, 3,600 and 13km<sup>2</sup> respectively. In 2001 the total population consisted of some 115 breeding pairs.

Today the reasons for the continuing decline are principally habitat changes and hunting on migration routes. As long as the causes of the present population limitation persist, and protection measures are not intensified, the negative trend in Germany will continue, in the worst case until the species becomes extinct.

An action plan to rescue the species is therefore urgently required. The protection measures determined must also be implemented rapidly in order to prevent a further population decline and, if possible, promote an increase.

## INTRODUCTION

Situated on the western edge of its range, Germany bears a special responsibility for the conservation of the Lesser Spotted Eagle (LSE), not least

because the area of distribution has shrunk considerably during the past two centuries and the rump of the population still shows a steady decline. The reasons for the decline in preceding centuries were principally deliberate human persecution through systematic hunting and egg theft.

Changes in agricultural practice during the past 10 years, which have led to a massive intensification of agricultural and forestry management, have impaired the LSE's habitat. The proposed action plan will therefore also be of importance for the new EU member countries whose area comprises the main distribution of the species and which are about to rapidly introduce western economic forms.

In addition to the risks caused by the worsening of the situation in the breeding grounds, a considerable hazard for the species exists along the migration routs. LSEs migrate over long distances and winter in the south of Africa. They use thermals and therefore avoid the open Mediterranean, concentrating instead on its eastern edge. Here they are vulnerable to intensive and uncontrolled hunting, especially in the south of Turkey, Lebanon and Syria.

### **Present-day distribution and population of the species**

The LSE populates the eastern part of Central Europe, further to the east Belarus and western Russia and, in the north-east, the Baltic region. In the south-east it is to be found in the Balkans and throughout Turkey as far as the Caucasus and the South Caspian Plain in Iran (Meyburg 1994). The extent of the easterly distribution range in Europe is still insufficiently well-known. The species is today to be found somewhat further east in Russia than was earlier believed. The world population consists of only about 20,000 breeding pairs (Meyburg 1996; Meyburg *et al.* 2002).

### **Present German population and distribution**

Today (with the exception of an isolated instance in Saxony-Anhalt of only two breeding pairs in 2003) the LSE is confined to only a very small breeding area in the extreme north-east of Germany, in the federal Länder (States) of Mecklenburg-West Pomerania (MWP) and Brandenburg covering some 10,000km<sup>2</sup>. Of the 115 breeding pairs recorded in 2001, 80% were to be found in MWP (Langgemach & Sömmer 1996; Meyburg 1996, 2001; MLUR in press; Scheller & Meyburg 2001; Scheller *et al.* 2001).

**Table 1: Number of breeding pairs of the LSE in Germany in 2001**

Federal State	Territories occupied known	Area occupied (in km <sup>2</sup> )
Mecklenburg-West Pomerania (MWP)	84	approx. 6.600
Brandenburg	27	approx. 3.600
Saxony-Anhalt	4	approx. 13
Germany in total	115	approx. 10.000

### **Former distribution outside the present breeding area**

The present-day breeding area in MWP and Brandenburg represents the rump of a much larger region in the North German Plain, which previously

measures, as the population is unlikely to be reinforced from the east,

Ending the population decline and avoidance of a further island isolation of part-populations,

Stabilisation and step by step increase of the population, resettlement of abandoned breeding areas and a general regional expansion through nestling management.

The planned German National Action Plan should be harmonised with the “European Species Action Plan for the Lesser Spotted Eagle (*Aquila pomarina*)” (Meyburg *et al.* 2001) of BirdLife International on behalf of the European Commission, with detailed annexes specific to Germany.

In preparation for the German National Action Plan for the LSE a meeting of some 45 experts took place at the nature protection station in Wobnitz on 17<sup>th</sup> November 2002. The basic content and aims of the National Action Plan were discussed at this meeting.

### **Management of nestlings**

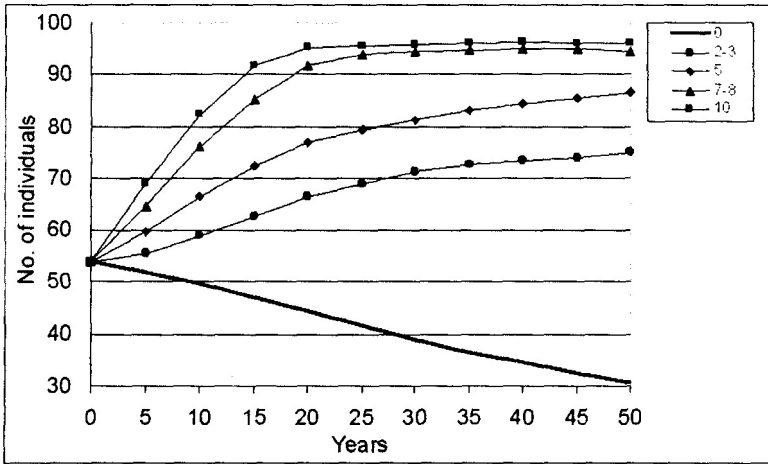
In view of the known facts on the intensive persecution of LSEs on migration routes, the methods for artificially increasing the reproduction rate should be reintroduced accompanied by scientific monitoring, above all the use of satellite telemetry, within the framework of a practical pilot project. The scientific value of this consists of finding out if this method is suitable to assist in achieving a population stabilisation and increase. Long-term monitoring of the success should be achieved by the use of suitable marking methods in addition to telemetry. A gain of additional data on the shooting threat to young birds on their first migration flight can be expected.

The method is based on increasing the number of fledglings by avoiding Cainism (Meyburg 1971, 1978 a,b). The LSE is one of the eagle species in which Cainism is obligatory, i.e. in most nests two young hatch but only one survives to fledging. The many factors responsible for this are comprehensively described in the relevant literature (Meyburg 1970, 1974, 2002). If the second chick (or egg) is removed from the eyrie in time and reared in captivity, ideally by a foster bird, it can be reintroduced to its sibling in the original nest without risk shortly before fledging. At this stage the aggressiveness between the young birds, which causes Cainism, has disappeared. In this way the reproduction rate can be almost doubled with relatively little effort.

On the basis of the parameter values shown in Table 2, the effects of a different number of additional fledglings, which also means the number of pairs rearing two young, were simulated.

The results (see Figure 7) show that nestling management by avoiding cainism can be a very effective means of reversing the present negative trend. This can be achieved in principle with only 2-3 additional nestlings annually. With a higher number (7-8 or even more) there is a good chance that population increase will be apparent within the next few years.

**Figure 7. Effect of the number of nests with a second fledgling (currently 0) on the population dynamics of the LSE in Brandenburg.**



### Preventing dangers on migration routes

At the same time an attempt must be made to reduce the risks on the migration routes. This problem must clearly be studied more closely on an urgent basis. More precise details on shooting "hot spots" and other pertinent circumstances must be collated.

It is clearly urgently necessary to consider migration risks comprehensively within the scope of the action plan. Germany must, as a "wealthy" country, be above all active in this field and provide financial and personnel support to diminish the risks. The best habitat protection is of little avail if the birds are shot down in passage through the Near East.

### REFERENCES

- BERNDT, R. & K.-H. NAGEL 1989.** Schreiadler *Aquila pomarina* C.L. BREHM, 1831. Pp. 175-179 in: ZANG, H., H. HECKENROTH & F. KNOLLE (eds.): Die Vögel Niedersachsens. - Natursch. Landschaftspflege Niedersachsen, Sonderreihe B, Heft 2.3
- BÖHNER, J. & T. LANGGEMACH 2004.** Warum kommt es auf jeden einzelnen Schreiadler *Aquila pomarina* in Brandenburg an? Ergebnisse einer Populationsmodellierung. Vogelwelt 125 (in press)
- DANKO, S., B.-U. MEYBURG, T. BELKA & D. KARASKA 1996.** Individuelle Kennzeichnung von Schreiadlern: Methoden, bisherige Erfahrungen und Ergebnisse. Pp. 209-243 in: MEYBURG, B.-U. & R.D. CHANCELLOR (eds.): Eagle Studies. World Working Group on Birds of Prey, Berlin, London & Paris (with English summary).
- GLUTZ VON BLOTZHEIM, U.N., K.M. BAUER & E. BEZZEL 1971.** Handbuch der Vögel Mitteleuropas. Band 4. *Falconiformes*. Frankfurt am Main, Akadem. Verlagsges.
- KAISER, W. & H. ZIMMERMANN 1969.** Ornithologische Notizen aus der Lewitz (1). Falke 16: 166-173.
- KUHK, R. 1939.** Die Vögel Mecklenburgs. Faunistische, tiergeographische und ökologische Untersuchungen im mecklenburgischen Raume. Güstrow, Verlag Opitz & Co.
- LACY, R. C. 2000.** Structure of the VORTEX simulation model for population viability analysis. Ecol. Bull. 48: 191-203.
- LANGGEMACH, T. & SÖMMER, P. 1996.** Zur Situation und zum Schutz der Adlerarten in Brandenburg. Otis 4: 78-146.
- LANGGEMACH, T., T. BLOHM & T. FREY 2001.** Zur Habitatstruktur des Schreiadlers (*Aquila pomarina*) an seinem westlichen Arealrand - Untersuchungen aus dem Land Brandenburg. Acta ornithoecol. 4: 237-267.
- LESHEM, J. 1985.** Report of the "massacre of the innocent" in Lebanon. Bull. WWG Birds of Prey 3: 149-152.
- MEIER, W. 1969.** Die Vögel des Kreises Lüchow-Dannenberg - Übersicht -. Lüchow-Dannengerber Orn. Jahrsb. 1: 9 - 99.

**MEYBURG, B.-U. 1970.** Zur Biologie des Schreiadlers (*Aquila pomarina*). Jahrbuch Deutscher Falkenorden 1969: 32-66 (with English summary).

**MEYBURG, B.-U. 1971.** Versuche zur künstlichen Steigerung der Vermehrungsrate des Schreiadlers (*Aquila pomarina*) zu seinem Schutz. Beitr. Vogelk. 17: 207-227 (with English summary).

**MEYBURG, B.-U. 1974.** Sibling aggression and mortality among nestling eagles. Ibis 116: 224-228.

**MEYBURG, B.-U. 1978a.** Sibling aggression and cross-fostering of eagles. Pp. 195-200 in TEMPLE, S.A. (ed.): Endangered Birds Management techniques for Threatened Species. Univ. of Wisconsin Press, Madison.

**MEYBURG, B.-U. 1978b.** Productivity manipulation in wild eagles. Pp. 81-93 in GEER, T.A. (ed.): Birds of Prey Management Techniques. Oxford, British Falconers' Club.

**MEYBURG, B.-U. 1991.** Der Schreiadler (*Aquila pomarina*): Bisherige und zukünftige Bemühungen um seine Erforschung und seinen Schutz. Populationsök. Greifvogel- u. Eulenarten 2: 89-105 (with English summary).

**MEYBURG, B.-U. 1994.** 206. Lesser Spotted Eagle *Aquila pomarina*. Pp. 192-193 in: del HOYO, J., ELLIOTT, A. & SARGATAL, J. (eds.): Handbook of the Birds of the World. Barcelona: Lynx Edicions.

**MEYBURG, B.-U. 1996.** Der Schreiadler *Aquila pomarina*: Bestandssituation und derzeitiger Stand seiner Erforschung. Pp. 377-387 in: MEYBURG, B.-U. & R. D. CHANCELLOR (eds.): Eagle Studies. World Working Group on Birds of Prey, Berlin, London & Paris (with English summary).

**MEYBURG, B.-U. 2001.** Schreiadler *Aquila pomarina* (C. L. Brehm 1831). Pp. 186-190 in: ABBO: Die Vogelwelt von Brandenburg und Berlin. Natur & Text, Rangsdorf.

**MEYBURG, B.-U. 2002.** On Cainism in the Lesser Spotted Eagle (*Aquila pomarina*) and a possible Explanation for the Phenomenon in this and other Eagle Species. Pp. 53-61 in: YOSEF, R., M.L. MILLER & D. PEPLER (eds.): Raptors in the New Millennium. Intern. Birding & Research Center, Eilat.

**MEYBURG, B.-U. 2004.** Zug und Verfolgung der Greifvögel in der südlichen Türkei. Orn. Mitt. (in press.).

**MEYBURG, B.-U., W. SCHELLER & C. MEYBURG 1993.** Satelliten-Telemetrie bei einem juvenilen Schreiadler (*Aquila pomarina*) auf dem Herbstzug. J. Ornithol. 134: 173-179 (with English summary).

**MEYBURG, B.-U., W. SCHELLER & C. MEYBURG 1995.** Zug und Überwinterung des Schreiadlers *Aquila pomarina*: Satellitentelemetrische Untersuchungen. J. Ornithol. 136:401-422 (with English summary).

**MEYBURG, B.-U., L. HARASZTHY, M. STRAZDS & N. SCHÄFFER 2001.** European Species Action Plan for Lesser Spotted Eagle (*Aquila pomarina*). Pp. 1-16 in: Schäffer, N. & U. Gallo-Orsi (eds.): European Union action plans for eight priority bird species. Luxembourg: Office for Official Publications of the European Communities.

MILLER, P. S. & R. C. LACY 2003. Vortex: A Stochastic Simulation of the Extinction Process. Version 9 User's Manual. Apple Valley, MN, Conservation Breeding Specialist Group (SSC/IUCN).

MLUR (Ministerium für Landwirtschaft, Umwelt und Raumordnung Brandenburg) (in press): Artenschutzprogramm Adler. Potsdam.

**SCHELLER, W. & B.-U. MEYBURG 2001.** Schreiadler (*Aquila pomarina*). Pp. 65-70 in: KOSTRZEWA, A. & G. SPEER (eds.): Greifvögel in Deutschland. Bestand, Situation, Schutz. Wiesbaden: Aula-Verlag. 2. Aufl.

**SCHELLER, W., E. FRANKE, J. MATTHES, M. NEUBAUER & C. SCHARWEBER 2001.** Verbreitung, Bestandsentwicklung und Lebensraumsituation des Schreiadlers in Mecklenburg-Vorpommern. Vogelwelt 122: 233-246.

**SCHALOW, H. 1876.** Materialien zu einer Ornis der Mark Brandenburg. J. Ornithol. 24: 1-35, 113-145

**SCHALOW, H. 1919.** Beiträge zur Vogelfauna der Mark Brandenburg. Berlin.

**WOLDHEK, S. 1980.** Bird killing in the Mediterranean. Zeist: European Committee for the Prevention of Mass Destruction of Migratory Birds.

**WÜST, W. 1981.** Avifauna Bavariae. Band I. München.

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