



The current situation of the garden dormouse (*Eliomys quercinus*) in Germany

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Abstract

A comparison of historical data on the occurrence of *Eliomys quercinus* in Germany until 1987 with available data from 1990 until today for many regions shows a decline of the species and in some parts of its former range in the East an extinction. In general the knowledge on the actual range of the garden dormouse in Germany and the development of its populations on a regional scale are unsatisfactory. There is urgent need for an actual mapping of the species and research on its habitat requirements as Germany carries a high degree of responsibility for the conservation of *Eliomys quercinus*.

Keywords: Decline, nature conservation, need for research

1. Introduction

The garden dormouse (*Eliomys quercinus*) is a rodent species endemic to Europe. During the last 30 years the species declined more than any other rodent species in Europe and has lost about 50 % of its former range (Temple & Terry 2007). Reasons for this decline are not known.

As Germany covers more than 10 % of the species' range, the country carries a high degree of responsibility for its future conservation (Meinig 2004). At the moment there exist no conservation programmes for the species and there even is a lack of information on the current situation of the species in most regions of Germany. In the German Red List of endangered species the garden dormouse is classified as 'endangering to be assumed' because of a lack of data (Meinig et al. 2009).

The garden dormouse uses a broad variety of habitats in Germany. One can not call the garden dormouse as highly specialized regarding its habitat needs. It is well known to people in some parts of South-West Germany as noisy guest in houses, orchards or vineyards especially in the valleys of Rhine and Moselle. But the most common habitat are spruce (*Picea abies*) dominated forests in mountainous landscapes. Typical are or were places with boulder fields and areas with bare soil (Storch 1978, Schlund 2005, Büchner 2009).

2. Material and methods

The study mainly is based on a diploma thesis by Andreas Bitz from 1987 (Bitz 1987). He collected all data available on the occurrence of Gliridae in Germany and adjacent countries. In his work he presented specific maps on the occurrence of each species in the western federal states at that time. For eastern Germany data were much sparser and only presented in a map covering whole Germany, therefore data were completed according to Görner & Henkel (1988). By evaluation of literature, data from the internet and personal interrogations

of museum stuffs and people engaged in nature protection on a local scale the records of occurrence of the garden dormouse of A. Bitz were checked for the time 1990–2012. Records that could be confirmed for the last five years are shaded in a map (Fig. 1).

3. Results

The occurrence of garden dormice in the western part of Harz-Mountains in **Lower Saxony** seems to be stable. At least animals were observed regularly by bat workers, when mist-netting bats (D. Anderson, W. Rackow, pers. comm.). Several observations were gathered from nest boxes. Between 2005 and 2008 five dead animals were found mainly during forestry activities in spruce forests. One hostel in the mountains is regularly visited by garden dormice (A. Kirzinger, pers. comm.). I. Diederichs radio-tracked several garden dormice in the eastern part of the National Park Harz-Mountains in 1997 and 1998 (Diederichs & Stubbe 2003). This part belongs to **Saxony-Anhalt**. The garden dormouse lives there in open rock areas, grassland and spruce forests without understorey in altitudes between 600 and 900 m a.s.l.

The garden dormouse still occurs in **North-Rhine-Westphalia** around the city of Bonn, but the number of records decreases from year to year (R. Hutterer, pers. comm.). In the eastern hilly areas there have been no records since the 1980s. In areas, where the species was found regularly when checking and cleaning nest boxes, the last findings date back to 1989 (Belz & König 1991). People who are engaged in local nature protection, just started to think about the lacking of the species when asked for records.

In **Hesse**, the occurrence of the garden dormouse is confirmed for the lowlands in the surroundings of Wiesbaden. Here the species occurs in habitats like old vineyards and southern slopes along river Rhine and river Main. There even was a new finding northeast of Frankfurt in an area where it was not known hitherto (Main-Kinzig Kreis). From the south-eastern part of the federal state some older records are known from the mountains. The situation there stays unclear so far (Lang 2012). At the moment an action group of mammalogists around J. Lang is running an inquiry for observations of the species in Hesse (www.gartenschlaefer-hessen.de).

In **Rhineland-Palatinate** the species obviously has declined during recent years (O. Strub, pers. comm.). The garden dormouse is regularly found in the lowlands, where it occurs in areas with large orchards and vineyards. Here it is often regarded as a pest, although legally protected, because it enters houses and storages. Most stable populations exist in the valleys of Rhine and Moselle and around the city of Mainz.

From the **Saarland** only a few old (from before the 1990s) records exist, although the species should occur more frequently as there are known populations in the bordering regions of Rhineland-Palatinate and Luxembourg (J. Schlichter, pers. comm.).

In **Bavaria** the current range of the garden dormouse is not well known, most records come from a dormouse investigation in the 1980s (Faltin 1988), in particular from the Spessart Forest and the mountain range along the German-Czech border. Few records exist from the Alpine region, but the species is still present there at least in Garmisch-Partenkirchen (P. Boye, pers. comm.). Woodlands and hillsides covered with block stones at an altitude of 350–1,000 m a.s.l. seem to be preferred habitats.



Fig. 1 Recent distribution of the garden dormouse in Germany (2007–2012).

Data from **Baden-Württemberg** are relatively fresh because of a large atlas project on the mammals of this federal state that increased the records in respect to the time of Bitz (1987). Most records are based on data collected by checking nest boxes by forestry administration. While in the eastern part of the federal state the garden dormouse is only found sporadically, populations in the northern and southern Black Forest (North and South of Freiburg) seem to be more stable (Schlund 2005).

For **Saxony** the decline of the garden dormouse is well documented. There are specimens from the lowland in the east of the state from the middle of the 19th century in the Görlitz Museum. At the beginning of the 20th century the garden dormouse was only known from the mountains in the south (Zimmermann 1921). In the 1920s an extinction in the south eastern mountains was observed (Kramer 1925). Afterwards other records came from spruce forests in West-Ore-Mountains (Erzgebirge) and from the sand stone areas in Saxon Switzerland. The western population vanished between 1980 and 1990. However, a recent finding is now documented in the West-Ore-Mountains in the Czech Republic, only 15 km from the German border (V. Mikeš, pers. comm.). The last observation from Saxon Switzerland dates from 2006. After that, even with intensive searches with several methods and inquires among ornithologists and mountains climbers, no more records of the species could be obtained (Büchner 2009). For Saxon Switzerland a competition between the garden dormouse and the edible dormouse (*Glis glis*) was assumed because the edible dormouse spread in areas formerly occupied by garden dormice. For some years in some places both species could be observed, later on only the edible dormouse. But for all other parts of Saxony where the garden dormouse disappeared no edible dormice are known.

Data from **Thuringia** indicate a reduction in range (Görner & Stefen 2009). The species is mainly present in the south in the mountainous area.

The north and the north-east of Germany (**Schleswig Holstein, Brandenburg, Mecklenburg-Western-Pomerania**) do not belong to the range of the garden dormouse. Borkenhagen (2011) states after proofing all old records, that there is no substantial evidence for reproduction of the species in Schleswig-Holstein and therefore it should not be counted as a part of the autochthonous fauna.

From several places outside of the known distribution of the garden dormouse in Germany single records are known. Some cases could be clearly connected with escapes from captivity (e.g. mentioned by Borkenhagen 2011). There are some breeders of garden dormice in Germany. Additionally garden dormice are also accidentally transported by cars or together with building material. A garden dormouse for instance appeared in Brandenburg near the centre for mammalogy. It came with chalk stones from Bavaria (J. Teubner, pers. comm.).

4. Discussion

The knowledge of the situation of garden dormouse populations in Germany is very heterogeneous and in many parts could be considered as a 'forgotten' species. Although Germany carries a high degree of responsibility for the conservation of the garden dormouse, the species is not in the focus of official or honorary nature protection programmes. Also during the 8th International Dormouse Conference only three out of 64 communications dealt with the species.

Reasons for the decline of the garden dormouse in whole Europe are not yet understood. In Germany several factors or a combination of them possibly seem to be responsible. Main

factors could be a reduced offer of invertebrates as food (e.g. see Schuch et al. 2010), break up of the metapopulation-net, diseases or genetic bottlenecks. Old German local names connect the garden dormouse often with oaks. A change of forestry practices with lesser old oaks present in the woods could be therefore also assumed as a reason for the decline. However, the decline or extinction of the species already started more than 150 years ago (see data from Saxony) before the changes in forest management.

With the present knowledge we can expect that the species will disappear from many regions, especially east of river Rhine where the decline started much earlier than west of the river.

An actual mapping of the species and a specific habitat analysis are absolutely necessary. It should be combined with analyses of the food and the genetics.

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