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DISTRIBUTION AND CONSERVATION OF ITALIAN DORMICE

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ABSTRACT – With reference to the literature and original data, a description is given of the present distribution and status of the Dormouse species found in Italy (*Dryomys nitedula, Eliomys quercinus, Muscardinus avellanarius* and ***Myoxus*** *glis).* Possible causes of reduction in numbers and distribution of the four Dormouse species are also discussed.

Key words: Rodentia, Myoxidae, Italy, Distribution, Conservation.

RIASSUNTO – *Distribuzione e conservazione dei Mioxidi in Italia* – E' riportata su dati bibliografici ed originali la distribuzione del Driomio *(Dryomys nitedula),* del Quercino *(Eliomys quercinus),* del Moscardino *(Muscardinus avellanarius*), e del Ghiro *(Myoxus glis)* in Italia. Inoltre vengono sinteticamente discusse, per ogni specie, le possibili cause di rarefazione **e** riduzione degli areali delle popolazioni.

Parole chiave: Rodentia, Myoxidae, Italia, Distribuzione, Conservazione.

INTRODUCTION

Four dormouse species occur on Italian territory: the Forest dormouse (*Dryomys nitedula*), Garden dormouse (*Eliomys quercinus*), Hazel dormouse (*Muscardinus avellanarius*) and Fat dormouse *(Myoxus glis).* The aim of this paper is to report the distribution of Italian Dormice, with some information concerning their conservation status and ecology.

MATERIAL AND METHODS

The I.G.M. (Istituto Geografico Militare of Italy) cartography units at 1:100.000 scale were adopted to produce the detailed distribution maps of Italian dormice. Original data and historical information from the literature, from 1950 until the present, were considered (cf. Amori et al., 1986; Cagnin & Aloise, 1995; Sara & Casamento, 1995; Scaravelli & Aloise, 1995). For a few regions only (Valle d'Aosta, Piedmont, Lombardy and Veneto), data collected for "Progetto Atlante Mammiferi Italia" (Italian Mammal Atlas Project; Prigioni et al., 1991) were also used.

RESULTS AND DISCUSSION

D. nitedula is known from the South-eastern Alps (Paolucci et al., 1987), Pollino Massif (Filippucci, 1986), Sila (Aloise & Cagnin, 1987) and Aspromonte Massif (von Lehmann, 1964) (see Fig. 1). In the Alps it inhabits mainly mixed stands of broadleaf trees and conifers (Paolucci et al., 1987) and in the Calabria

region (Cagnin & Aloise, 1994) densely forested areas (beech forest). In the Alps the species is recorded at elevations of 200 m above sea level and at higher altitudes. In southern Italy it is found from 1300 to 1600 m a.s.l.. No information is available concerning population trends, but these are likely to be negative for the southern populations, due to their probable isolation.

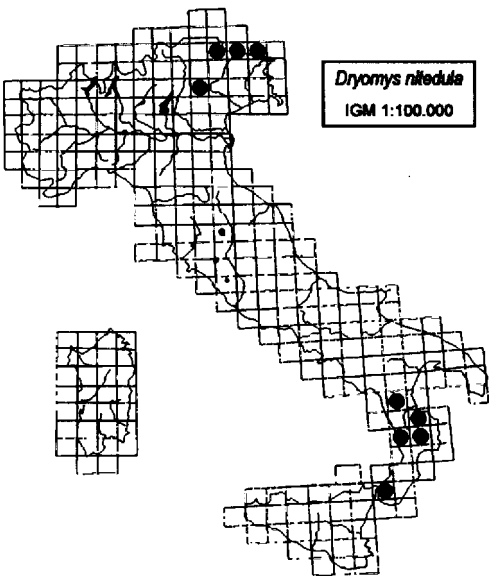

Fig. 1 – Distribution of *Dryomys nitedula* in Italy.

E. quercinus in Italy displays a wide range of distribution (Fig. 2). The Garden dormouse inhabits mainly coniferous and mixed forests in the Alps up to 2000 m a.s.l.. In the islands (Sardinia, Sicily and Lipari) as well as in some central and southern areas, it occurs on cultivated land (fields) divided by dry-stone walls; also in fruit trees, oaks and prickly pears. Some populations of *E. quercinus* display a noticeable decrease in numbers of individuals, particularly those living on the islands of Sardinia and Sicily (Amori, 1993). Here, the subspecies *E. **q.** sardus* Barret-Hamilton, 1901 and *E. q. dichrurus* (Raphinesque, 1814) respectively, have become very rare; as well as *E. q. liparensis* Kahmann, 1960 on Lipari island (Cristaldi et al., 1987).

Muscardinus avellanarius is widely distributed (Fig. 3). The only island in wich it occurs is Sicily (Amori et al., 1986; Sara & Casamento, 1995). The Hazel dormouse is found from low levels to the mountain zone, up to 1500 m a.s.l. This does not exclude the occasional occurrence of this species in the subalpine zone up to 2000 m a.s.l. (Cantini et al., 1988). Its preferred habitats are wooded areas with diversified shrub layer, often in ecotone zones. Several populations of the Hazel dormouse became isolated and locally heavily affected by decreasing numbers of individuals, putting them at risk of extinction mainly due to habitat fragmentation.

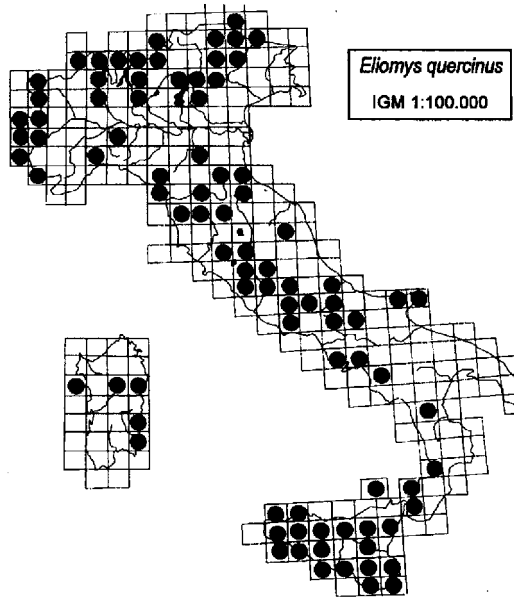

Fig. 2 – Distribution of *Eliomys quercinus* in Italy.

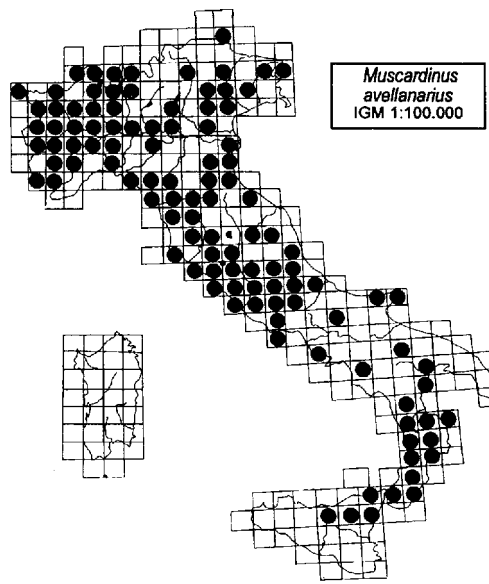

Fig. *3* – Distribution of *Muscardinus avellanarius* in Italy.

Myoxus glis is still widespread (Fig. 4) and also occurs on small islands such as Elba (Vesmanis & Vesmanis, 1980) and Salina (Cristaldi & Amori, 1982) and on larger ones such as Sicily (Amori et al., **1986)** and Sardinia (Mocci-Demartis,

1981). The Fat dormouse habitats are broadleaf woods, parks, orchards, hazel groves and oak woods, from the plain through the hills and up to the mountain regions, but not above 1500 m a.s.l.. The numbers of individuals in Fat dormouse populations are affected, in some areas, by intensive agriculture (eg. in the Po Valley).

What emerges from the distribution maps (Figs. 1-4) is that for some Italian regions there is a lack of information (i.e. central and southern regions such as Molise and Campania). The absence of reports for the Salentine Peninsula (South-East Italy) is real because the four dormouse species have never been found there (Battisti & Cignini, in prep.).

In Italy, populations of all four dormouse species are affected by habitat fragmentation, reduction of their appropriate habitat and unsuitable habitat management (Amori, 1993).

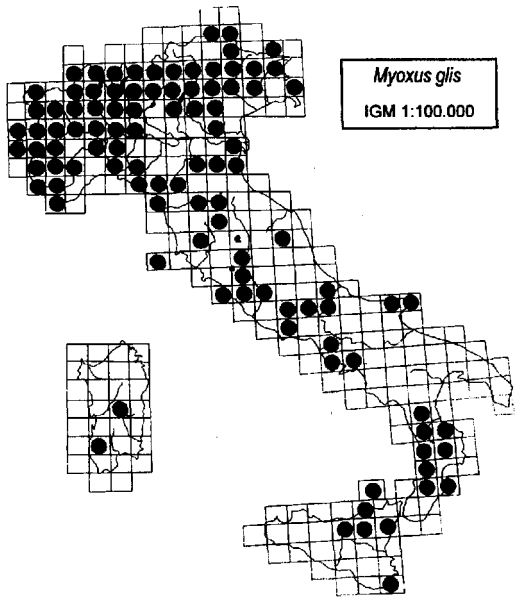

Fig. 4 – Distribution of *Myoxus glis* in Italy.

The Hazel dormouse and Fat dormouse are particularly affected by destruction and progressive decay of lowland woodlands, replacement of deciduous woodlands with coniferous ones [Franco, 1990), unselective techniques in rodent pest control and uncontrolled use of pesticides. Another important factor is genetic isolation of populations due to artificial barriers, especially considering the low dispersal ability of the species (Mallinson, 1978; Mader, 1984; Bright & Morris, 1992).

The Fat dormouse and the Garden dormouse can cause economically significant damage, mainly in specialized cultivations such as orchards and hazelnut groves (Santini, 1978, 1983; Currado & Scaramozzino, 1990) and coniferous plantations

(von Vietinghoff-Riesch, 1960; Sampo, 1971; Storch, 1978). However, the impact is sufficiently sporadic and localized that it does not require special population control strategies. On the contrary, it is necessary preserve rare taxa such as the Forest dormouse, the insular subspecies of Garden dormouse and local and isolated populations at risk of extinction.

All dormice are fully protected under Italian law (Law no. 157/92, "Norme per la protezione della fauna selvatica omeoterma e per il prelievo venatorio"), nevertheless some conservation strategies are suggested.

For all dormouse species, protection of preferred habitats, ecological studies and the improvement and promotion of distribution surveys are all urgentely needed. Moreover for the Hazel dormouse, appropriate management of deciduous woodlands is often necessary (Bright & Morris, 1990). Preservation of the components that maintain the environmental diversity of agriculture is needed and the use of improved techiques in rodent pest control is recommended. For the Fat dormouse, Hazel dormouse and Garden dormouse the use of nest-boxes, mainly in those areas where nesting sites are a limiting factor, should be promoted (Bright & Morris, 1989; Morris et al., 1989).

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