



Introductory Article

## The Background to the 11<sup>th</sup> International Dormouse Conference, Svilengrad, Bulgaria, 9-13 May 2022: a Personal View

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Congratulations to the Organising Committee of the 11<sup>th</sup> International Dormouse Conference (IDC 11) for making it possible in 2022, despite the many problems caused by the Covid 19 pandemic in the previous years.

Eleven conferences on dormice! Who would believe it was possible? I am the only person who attended all of the previous ten and sadly, I was unable to attend this time. I was honoured and deeply touched by the invitation to speak online at the opening session. In the past, I have given a review of the previous conferences as an introduction. Now, there are ten of them and I would like to comment on their development, which forms the background to the 11<sup>th</sup> meeting.

When I started work on hazel dormice in 1984, we did not know the average body weight of British *Muscardinus*, we knew almost nothing of their ecology and there had been only three papers published about British hazel dormice in the previous 100 years. The main problem was finding methods to study these elusive animals. Dormice do not normally enter small mammal traps and they are not interested in grain bait. Cats and owls rarely catch them. All the usual ways of detecting small animals simply do not work with dormice. I suggested that perhaps dormice were not rare, we were just unable

to find them, and we should focus on developing ways of doing so.

I made some special traps, like little cages, baited them with apples and put them up trees. And I caught dormice! I think that was the first time that anyone had gone out deliberately to catch dormice and succeeded. Then I met Doug Woods, an amateur naturalist who had noticed that dormice were often found in bird nest boxes, so he built some special ones that were easier for dormice to use and more difficult the birds to enter. He was successful too. So, he joined me, and together with my former student Paul Bright, we set about using traps and nest boxes to begin a study of hazel dormice and their ecology. We later used radio tracking as well, which was extremely difficult in those days when accurate GPS was not available.

Our team came to the first dormouse conference in Bavaria, organised by Heiko Müller-Steiss in 1990. He had contacted all the people he could find who had studied dormice in Europe, but there were so few we could all sit at the same table! We exchanged our ideas and shared our methods, encouraging others to organise a second conference in Fuscaldo, Italy, in 1993. This time there were more dormousers sharing ideas and information about their studies across Europe and in faraway Japan.

**Table 1.** A list of the ten previous International Dormouse Conferences, their locations and publications. It forms a tribute to those who formed the Organising Committee in each case and successfully published a substantial body of data regarding dormice.

No	Year	Location	Publication
1	1990	Bavarian National Park, Germany	Schlafer und Bilche, Nationalpark Bayerischer Wald, 1996 (8 papers)
2	1993	Fuscaldo, Italy	Hystrix 6 (1-2), 1994 (31 papers)
3	1996	Moscenicka Draga, Croatia	Natura Croatica 6(2), 1997 (12 papers)
4	1999	Edirne, Turkey	Trakya University Journal of Scientific Research 2 (1), 2001 (17 papers)
5	2002	Gödöllő, Hungary	Acta Zoologica Academiae Scientiarum Hungaricae 49 suppl.1, 2003 (21 papers)
6	2005	Siedlce, Poland	Polish Journal of Ecology 54 (3), 2006 (9 papers)
7	2008	Shipham, Somerset, England	20 papers but no separate formal publication
8	2011	Senckenberg, Germany	Peckiana 8 (33 papers)
9	2014	Svendborg, Denmark	Apodemus 14, Danish Mammal Society (10 papers)
10	2017	Liège, Belgium	Folia Zoologica 64 & 67 (17 papers)

Dormice form a special family of rodents (Gliridae) that were once widespread and numerous. They are of evolutionary interest being later displaced by the more successful rats and mice (Muridae), leaving seven distinctive genera as survivors and ecological specialists whose (mainly arboreal) way of life is of ecological interest. They are also physiologically interesting because of their seasonal hibernation and (in at least one species) daily torpor. Other interesting features include their taxonomy and population genetics.

Back in England, an amateur naturalist, Elaine Hurrell, had organised the first dormouse distribution survey, based on finding characteristically gnawed hazel nuts. This revealed that hazel dormice had become rare and with reduced distribution since the late 19<sup>th</sup> century. So, in 1993 we made a much bigger survey, “The Great Nut Hunt”, an early example of “Citizen Science” in which the public inspected over a third of a million nuts for us. It resulted in an up-to-date distribution map and confirmed local extinction of dormice in most of northern England. I remember suggesting to Sven Büchner at a dormouse conference, that he should try a survey based on gnawed hazel nuts in Germany. He said “No, the English are mad. Germans are serious people. They will not do these crazy things”. But they did, and much useful information was obtained about dormouse distribution and decline in Germany. The conferences have helped many other studies too, enabling us all to share experience and publish the results of our studies. Our discussions also helped

Shusaku Minato with his successful programme of building special ‘arboreal animal pathways’ for dormice in Japan.

As we continue to learn more about dormice, they turn out to be very special animals, not just some other kind of ‘mouse’. We learn that edible dormice have possibly unique patterns of reproductive biology and extraordinarily long lives, although in England they are pest, which poses more immediate research questions. A lot more study is needed to understand dormice better, even though we know much more now than we did 40 years ago. As studies have progressed, and we learned more about hazel dormice, it became apparent that their conservation is not only important in itself, but also because they are “flagship species” (now sometimes referred to as “umbrella species”), important bio-indicators of a healthy and functional ecosystem. Where the habitat allows them to thrive, many other species can live too. That principle is the reason why *Muscardinus avellanarius* has been elevated to the status of a European Protected Species by the EU Habitats Directive. This requires particular efforts to be made to safeguard remaining populations and employ special mitigation measures to limit the damage caused by road construction and similar development projects. A similar situation exists with the endemic *Glirulus japonicus* in Japan, now designated a “National Icon”, focussing attention on the need for habitat continuity and conservation, from which many other species will benefit.

Hibernation by the edible dormouse (*Glis glis*) has been extensively studied, along with the nuisance it causes to humans, especially the introduced population living in England since 1902. Its response to climate change and consequent impact on hole-nesting birds has been subject to increased study there and Germany. The link between reproductive biology in *Glis* and masting cycles shown by beech trees invites more attention, particularly the mechanism by which the animals curtail their breeding in years when there will be a shortage of food a few months later when mast crops fail. The mechanism (endocrines? springtime food biochemistry?), may affect males, females or both and may differ according to the habitats where the animals live. Who knows, studies have been few.

At the 10<sup>th</sup> IDC in Belgium, much concern was expressed about the apparent decline across Europe, of the garden dormouse (*Eliomys quercinus*), despite its widespread distribution and occurrence in a variety of different habitats. I first trapped them in northern France in 1964. They lived in small patches of woodland, but also in sand dunes along the seashore. At the first dormouse conference, I was shown where they occur in pine forests and among the rocks high up in the mountains of Bavaria. Later, I was told they lived in vineyards in France. It has always puzzled me why a species that is so obviously adaptable should be in decline. Why is its distribution so patchy? How is it possible for a species to live in populations, some of which are separated by more than a hundred kilometres? This calls for more detailed investigation and I hope IDC 10 helped to prompt several of the papers given at this subsequent conference.

I have a special interest in the mouse-tailed dormouse (*Myomimus*), having published the first record of its existence in Turkey, based on finding subfossil remains in a cave there in 1965. This probably encouraged the successful searches for living animals reported at the 4<sup>th</sup> IDC in Edirne in 1999, where I was greeted as a 'Dormouse Discoverer!' My record had stimulated Turkish biologists to find living populations and begin behavioural studies. Now we have ecological studies taking place in Bulgaria. How exciting! But there is a problem with this animal. Like the garden dormouse, it appears to be rare and lives in small isolated populations. How is it possible for them to survive? Millions of years ago, there were many species of dormice across Europe, but slowly they were replaced by more efficient rodents, leaving just a few specialised dormouse species living mainly up in the trees away from competition on the ground. However, not *Eli-*

*omys* or *Myomimus*, which seem not to be arboreal specialists and spend more time on the ground. How can they do this successfully, in competition with rats, mice and voles? Maybe we are just watching a natural evolutionary process, and both are dying out because of competition from other rodents? Perhaps they need our help with conservation support. But what help, what do they need? We cannot conserve rare species, if we do not understand why they are rare. Thus, it is very good news that research effort is being focused on both these animals.

We can feel some satisfaction with our comprehensive understanding of *Muscardinus* and *Glis* and our improving knowledge of other species, but maybe we need to focus more attention on the forest dormouse (*Dryomys nitedula*) which remains an elusive species, only ever studied in a few locations. Even *Muscardinus* still needs Continent-wide comparative investigation in its most challenging environments. In northern Europe, it hibernates in the winter months, but in the Mediterranean region, the challenging season is the hot dry summer, when aestivation may occur. It also lives at high altitudes in habitats quite unlike those where it occurs over most of the continent. It is clearly a very adaptable species, but comparative studies in extreme locations are lacking and would probably be of particular interest as climatic patterns change. The several widespread species of the African dormouse (*Graphiurus*) pose similar questions but studies have been few and mostly limited to South Africa.

It is not just dormice that benefitted from our conferences, they have been good for people too. Some conferences have been attended by nearly a hundred participants, with representatives from about 20 countries. My wife Mary and I have made many good friends and we will miss them. She and I privately visited dormousers in Germany, Denmark, Slovenia, South Africa, and Japan. We have welcomed visitors to England too. Conferences have enabled the exchange of addresses and emails, as well as information and ideas. I am particularly pleased that so many young students were able to give their papers at the dormouse conferences, perhaps speaking in public for the first time, but comfortable among friends and fellow dormousers. I am sure the conferences held in eastern Europe were especially helpful when students found it too expensive to travel westwards. It was also helpful for them to practice their English. The official conference language was always English; otherwise, we hopeless British would understand nothing!

Each time I have spoken at the start of a dormouse conference I have pointed out that if there is

to be another conference, somebody present in the room must stand up in the next few days and say “Yes, I will do it!” They will get plenty of help and encouragement and be secure in the knowledge that we all enjoy these meetings and there will be ben-

efits for wildlife too. It is for the next generation to carry things forward, who I hope enjoyed this meeting as much as I enjoyed all the others. We can look forward to the twelfth International Dormouse Conference in 2024!