



Bee Population

Motion to Take Note

4.17 pm

Moved By Lord Moynihan

That this House takes note of the decline in honey bees in 2012 and of measures to combat the prevalence of disease in bee colonies.

10 Jan 2013 : Column 308

Lord Moynihan: My Lords, in preparing for this debate, I would like to place on record my thanks to **Phil McAnespie**, president of the Scottish Beekeepers Association; **Dr Stephen Palmer**, a master beekeeper with over 30 years' experience; **Professor Ratnieks** from the University of Sussex; Professor Poppy and **Dr Newman** from the University of Southampton; **the British Beekeepers Association**; Dr Peter Neumann from the Swiss Bee Research Centre; David Wootton, whose *Bee Keeping: A Novices Guide* is invaluable to the beginner and expert alike; and Richard Carlile, Bob Bridle and Robert Stovell, who assist me with the hives we manage for the love of beekeeping and no commercial gain at our home in East Sussex.

First, I have some positive news. Since I had the good fortune of securing a debate on this subject in 2009, in which my noble friend Lord Patten made a memorable and impressive speech, beekeeping has undergone a dramatic increase in popularity. The number of beekeepers has doubled in the past 10 years, with impressive developments in urban areas. There has been a corresponding growth in awareness and public concern regarding honey bees. However, I have tabled this Motion for debate because there is real and serious cause for concern about the plight of bees in recent years, as well as wider concerns about pollinators and pollution.

Before focusing on the situation in the United Kingdom, it is timely to remind ourselves of what is happening elsewhere in the world, summarised best in the findings of the United Nations Environment Programme Report, published as we headed into 2012, and well covered by Michael McCarthy, the environment editor of the *Independent*. That report demonstrated the decline in managed bee colonies, seen increasingly in Europe and the US in the past decade and now also being observed in China and Japan, with the first signs of African collapses.

The authors, who include some of the world's leading honey bee experts, issued a stark warning about the disappearance of bees, which are increasingly important as crop pollinators around the globe. Without profound changes to the way human beings manage the planet, declines in pollinators needed to feed a growing global population are likely to continue. The scientists warn that a number of factors may now be coming together to damage bee colonies around the world, ranging from declines in flowering plants and the use of damaging insecticides to the worldwide spread of pests and air pollution. They call for farmers and landowners to be offered incentives to restore pollinator-friendly habitats, including key flowering plants near crop-producing fields, and

stress that more care needs to be taken in the choice, timing and application of insecticides and other chemicals. Although managed hives can be moved out of harm's way, wild populations of pollinators are completely vulnerable, the report states.

The way that humanity manages or mismanages its nature-based assets, including pollinators, will in part define our collective future in the 21st century. The fact is that of the 100 crop species that provide 90% of the world's food, more than 70 are pollinated by bees. Some human beings fabricate the illusion that, in the 21st century, they have the technological prowess to be independent of nature. Bees underline the reality that we are more, not less, dependent on nature's services in a world of 7 billion people.

Declines in bee colonies date back to the mid-1960s in Europe, but have accelerated since 1998. In North America, losses of colonies since 2004 have left the continent with fewer managed pollinators than at any time in the past 50 years. Chinese beekeepers have recently faced several inexplicable and complex symptoms of colony losses in both species. It has been reported elsewhere that some Chinese farmers have had to resort to pollinating fruit trees by hand because of the lack of insects.

The report lists a number of factors which may be coming together to cause the decline. They include: habitat degradation, including the loss of flowering plant species that provide food for bees; some insecticides, including the so-called systematic insecticides, which can migrate to the entire plant as it grows and can be taken in by bees in nectar and pollen; parasites and pests, such as the well-known varroa mite; and air pollution, which may be interfering with the ability of bees to find flowering plants, and thus food. Scents that could travel more than 800 metres in the 1800s now reach less than 200 metres from a plant.

"The transformation of the countryside and rural areas in the past half-century or so has triggered a decline in wild living bees and other pollinators",

said one of the lead authors, Dr Peter Neumann of the Swiss Bee Research Centre. He continued:

"Society is increasingly investing in 'industrial-scale' hives and managed colonies to make up the shortfall and going so far as to truck bees around to farms and fields in order to maintain our food supplies. A variety of factors are making these man-made colonies vulnerable to decline and collapse. We need to get smarter about how we manage these hives, but perhaps more importantly, we need to better manage the landscape beyond, in order to recover wild bee populations".

Moving from the international scene to the United Kingdom, the awful weather of 2012 has compounded the problems. The honey crop of 2012 was dramatically reduced, and there are concerns about how bees are currently over-wintering because of poor queen-mating during last season, leaving some hives queenless or with the real risk of becoming drone laying queens. The incidence of beekeepers resorting to regular feeding is known to have increased to record levels. As the BBKA honey survey found, the productivity of the average hive has dropped by 70% to eight pounds of honey compared to the more typical average of 30 pounds in the past. Losses have also occurred through starvation.

Of course, one bad year can ultimately be reversed, but the trend is disturbing, with a reduction in the British honey bee number of 75% in the past 100 years. Honey bees are in serious decline and that should be a matter of concern to all of us. For with their decline come wider issues around the importance of pollination for food production. It is incumbent on government, working with the beekeepers, to reverse this trend and to maintain high levels of pollination.

Diseases are important, but in my opinion the biggest challenge facing honey bees and much of British wildlife is agricultural intensification. Agricultural land makes up 75% of the United Kingdom. Despite the growth of beekeeping in urban areas and a welcome variety of flora in back gardens, it is on and around agricultural land where bees mostly forage and live. Even if we could cure all bee diseases, bees still have to eat. Of course, food production, at a time of rising demand, meteorological unpredictability and change, is vital, but in the coming decades we have to look for win-win situations in which we can make farming more wildlife-friendly, yet still satisfy growing consumption. One way we can do this for bees is to have more flowers in grazing land.

The use of pesticides has long been recognised as a serious problem. The neonicotinoid group of chemicals is widely used and may be having a serious and deleterious effect on honey bees, as was highlighted in the report provided for your Lordships before this debate. There will be those contributing to this debate who have far more expertise on this subject than I, but I would proffer one observation. My reading of the situation is that the use of insecticides in the UK is probably not the principal cause of the decline in honey bees or bumblebees. The increasing loss of biodiversity also affects the state and health of the insect population. Despite the greater awareness among the farming population, farming practices remain which are highly damaging to the welfare of honey bees. Widespread monoculture is a vector for disease and decline.

The diseases and pests of bees are also on the increase and the use of medicaments may be becoming less effective as the result of resistance. In addition, the British beekeepers have much to learn from a new generation of pests and parasites, previously unknown to these shores, which are making their way here. In the past few decades some additional pests and diseases of honey bees have been transferred from an Asian honey bee species, *Apis cerana*, which is very similar to the western honey bee, *Apis mellifera*. The best known of these is the varroa mite, but, even with varroa, existing diseases are not fully understood, and problems such as CCD-colony collapse disorder-are as yet not fully explained or resolved.

The solution to these challenges comes through research and education, and that is my key point today. In this context, the report of the Public Accounts Committee, published soon after our debate in 2009, is telling. It states:

"Despite their importance to the agricultural economy the Department has given little priority to bee health".

In 2007-08, research expenditure in this field was just £200,000. In 2009, the department announced that this sum was to be supplemented by an extra £2.5 million over the following five years. However, this additional work to support the department's new bee health strategy will be diluted by including research into other pollinator insects as well as honey bees.

Regular inspections of colonies are also very important and enable the department to monitor the health of colonies and the incidence of disease and parasites. Nearly 80% of cases of notifiable disease in England are identified through such inspections, but the effectiveness of these inspections is hampered because around half of the estimated 37,000 active beekeepers in England have not joined the department's voluntary register, BeeBase. In marked contrast to registered beekeepers, very few reports of notifiable disease are made by previously unregistered beekeepers. I ask my noble friend the Minister to provide an update on the current position and to confirm that the Government attach priority to ensuring that UK research councils and government-funded initiatives continue to support research into the health and welfare of both honey bees and other classes of pollinators. For example Professor Ratnieks, who has been undertaking considerable research on the Sussex Plan for Honey Bee Health and Well-Being at the Laboratory of Apiculture and Social Insects at the University of Sussex, and who inspired me to keep bees as a hobby, is looking at ways to control or reduce honey bee diseases. In particular, he is working on hygienic honey-bees.

The word "hygiene" in this context requires a brief explanation. Hygiene is a natural disease resistance mechanism in which the bees themselves remove dead or sick brood, thereby reducing the incidence of brood diseases in a colony, including varroa. Hygiene occurs in British bees but is rare, so we have to look for hygienic colonies and breed from them. Hygiene is inherited and, as at least 92 noble Lords therefore understand, it is in the genes. Bees do not learn to do it; they do it instinctively if they have the genes. Only 10% or less of British bees are hygienic, so with focused research there is substantial potential to increase their contribution to healthy hives.

I hope the Government will look favourably on supporting research of this type, for such research is not a cost on the Exchequer. It is an investment in the future—an investment which will see returns well in excess of the sums under consideration. Healthy pollinators are the building blocks for high-quality food production. The seasonal bee inspectors do a great job and this is not the time to cut back their numbers or their workload.

As **Tim Lovett** of the British Beekeepers Association wrote in preparation for this debate, in general the BBKA and its member associations are cautiously optimistic about the future of the honey bee here in the UK. It believes there remains much practical applied research to be done to give beekeepers better tools to improve their bee husbandry skills and funds should be provided to fill these data gaps. It is hoped that the planned DEFRA public consultation on honeybee disease legislation and control will emphasise the need for effective measures to help the beekeeper to manage the health of their colonies and provide the necessary resources. Education and training are high priorities in the work of the BBKA and its member associations and it is hoped that the current modest contribution of funding from the public purse will improve the skill of bee-keepers and will continue.

However, poorly maintained hives can compound the problems we are considering today and well informed beekeepers are critical to the future welfare of honey bees. Relatively inexperienced beekeepers may also be a factor as diseased colonies, if not dealt with effectively, may act as reservoirs of infection. Current evidence is that, rather than there being a single smoking gun underlying bee declines, the cause is multifactorial. Factors include availability and a lack of diversity of forage crops. There is evidence that the immune systems of honey bees are impaired if they do not forage on a sufficiently broad range of flowers. This in turn may contribute to the prevalence and impact of particular pests and pathogens, such as the varroa mite and deformed wing virus.

While no single factor is, in my view, the cause of decline or poorer honey bee health, steps to control and understand the impact of the individual factors will contribute to improved hive and colony health. I urge my noble friend the Minister and the Government to redouble their efforts to support research in this sector and reverse the trends which are decimating populations of honey bees in this country and abroad.

4.33 pm

Baroness Thomas of Winchester: My Lords, the House is extremely grateful to the noble Lord, Lord Moynihan, for such a well informed and expert speech. A honey bee beekeeper is prized indeed in this kind of debate. My interest in bees goes back to the long, hot summer of 1976, when the Liberal candidate for Winchester told me that his bees had collected four times more nectar than usual in May, as if they knew what was coming. Honey from the wild flowers of the Hampshire chalk downland is second to none, and I hoped there would be a limitless supply. However, we now know that things are very different today in the bee world, with fewer flower-rich meadows, unpredictable weather, the stranglehold of the varroa mite, and the possible weakening effects of even small amounts of the widely used systemic insecticides known as neonicotinoids.

As we have just heard, the importance of bees is not just because of the honey they produce, but because of their vital role as pollinators. They are the most efficient pollinators in the insect kingdom and the crisis in the bee world, if it is not halted, could have devastating effects on crops worldwide. In this country, it is estimated that 39 commercial crops rely on insect pollination, although there are wildly different estimates of how much this is worth. The figure seems to vary between £400 million and £500 million per annum. Perhaps the Minister could give us the latest estimate.

Although pests and diseases, as we have heard, are still thought to be the main threat to honey bees, it is significant that the UK has lost a staggering 97% of its wildflower meadows since the 1930s. The evidence is mounting about the possible harmful effects of systemic insecticides. The many research findings now in existence simply cannot be ignored, particularly those that are field-realistic rather than just laboratory findings.

Last month I tabled a Written Question asking the Government what assessment they had made of the impact of these insecticides on bee colonies, at the request of another beekeeper I know in Hampshire. Reading between the lines of the Answer from my noble friend, I got the impression that although Defra is very cautious in its approach, it nevertheless is taking seriously some new studies published last year which suggest that even low doses of neonicotinoids could have sub-lethal effects on bees: that is to say, they do not kill the bee, but alter its physiology or behaviour. In particular, research from the University of Stirling concluded that there was a clear need to re-evaluate the safety of these chemicals. **Professor Dave Goulson**, who supervised the work, said:

"Our work suggests that trace exposure of our wild bees to insecticides is having a major impact on their populations. Only queen bumblebees survive the winter to build new nests in the spring, so reducing the number produced by 85% means far fewer nests the following year. Repeated year on year, the long-term cumulative effects are likely to be profound".

As we know, this is not just a British phenomenon. Last month, the European Environment Agency and MEPs issued a policy document, in which the first of the key findings was:

"Although bee declines can be attributed to multifarious causes, the use of neonicotinoids is increasingly held responsible for recent honeybee losses".

The **European Food Safety Authority (EFSA)**, on behalf of the European Commission, is carrying out a review on bee health and insecticides which should provide new insights into the issue and may recommend a reassessment of EU regulatory guidelines. Some countries, most notably France and Italy, have taken action to mitigate the use of some of these insecticides, but I do not think any country has yet banned them altogether. However, some research carried out in France is, perhaps, significant. This is research by a team led by **Professor Mickael Henry at INRA Research Centre in Avignon** which analysed the effect on honey bees of a new generation of systemic insecticides called-I hope I have the pronunciation right- thiamethoxam. They fitted tiny electronic tags to over 650 bees and monitored their activity around the hive. Those exposed to commonly encountered levels of this insecticide suffered high mortality, with up to one-third of the bees failing to return. **Professor Henry said:**

"They disappeared in much higher numbers than expected...Under the effects we saw from the pesticides, the population size would decline disastrously and make them even more sensitive to parasites or lack of food".

Therefore, what are we to make of the conflicting evidence of the chief causes of the decline in bee health? Is it the widespread use of these systemic insecticides, or is the picture more complicated than that? On the one hand, many beekeepers and concerned members of the public find some independent studies on the sub-lethal effects of these insecticides on bees very worrying.

On the other hand, many farmers quite understandably say that if there were to be a ban on, for example, the planting of oilseed-rape-treated seeds, far less oilseed rape would be planted, which could mean that many bees would starve. Of course, fields planted with ordinary oilseed rape seeds would then have to be sprayed. What are we to make of the evidence from Australia where, apparently, these systemic insecticides are widely used but where there is no varroa mite to weaken the bees' immune system? Australian bees are thought to be the healthiest on the planet.

We have to look for help to independent scientists whose job it is to carry out trials and publish the results in peer-reviewed scientific journals. The scientists at the Rothamsted Research station in Hertfordshire are old hands in this field. Yes, a small proportion of its work is funded by agrichemical companies-it is quite open about that-but most of it is publicly funded. It has always been committed to sustainable agriculture by improving and developing novel methods of pest and disease control while ensuring minimal harm to wildlife, including pollinators. It says that the management of pesticide use is not as simple as "use it" or "don't use it". If the concentrations used and the methods of application were strictly adhered to, the risk to insect pollinators would be minimal, which has to be balanced against the risk of not protecting farmers' crops. It also acknowledges some of the evidence linking neonicotinoid use with sub-lethal effects on pollinators.

Therefore, the scientists, the public and beekeepers, including, I think, the British Beekeepers' Association, want this research to be done as speedily and effectively as possible, otherwise the calls for neonicotinoids to be banned altogether will grow louder and louder. Perhaps my noble friend could help me with whether any of these pesticides are licensed for use domestically or by local authorities for use perhaps on roadside verges.

Turning to the role of Defra, I hope that it will continue to work closely with the farming community to encourage more bee-friendly measures, such as the planting of flower-rich field margins and wildflower meadows, particularly through agri-environment schemes. I believe that the funding of those schemes is due to end in a few months' time. Will the Minister tell us what will happen then?

Perhaps the Government will also consider encouraging all those who have gardens, however small, to plant nectar-rich flowers, shrubs and even trees, to help bees obtain the nectar that they need for survival. This is especially true in big cities such as London, which is home to many beekeepers and whose bees need as much help as they can get from ordinary garden owners. We hear that bees in urban settings are often flourishing better than their rural neighbours, possibly because they are not so exposed to pesticides. However, before the expansion of beekeeping in big cities, we have to make sure that there are enough nectar-rich sources. I applaud the mayor of Runcy who I have just heard is encouraging primary schools in the area to plant nectar-rich flowers.

Defra is to be congratulated on spending more money on research into insect pollinators in recent years, but I hope that it will continue to act vigorously in trying to get to the bottom of the very alarming decline in the health of honey bees, and will be fearless in pursuing the goal of a healthy and sustainable bee population.

4.44 pm

Baroness Byford: My Lords, I congratulate my noble friend Lord Moynihan on returning to this important subject today and reminding us of the disease affecting our native honey bees, which is even more acute than it was when he had his debate in 2009. He spoke about the importance of biodiversity, which I totally support, and the seriousness of the honey bees' decline. At the time of that debate, the Government pledged some £10 million to research projects. I hope that the Minister, in winding up, will be able to tell us more about the outcome of that and what the work has produced.

I pay tribute to the British Beekeepers Association, bee farmers and others who promote good beekeeping practice and are willing to share their knowledge. As we have heard, finance is limited and, therefore, the amount and quality of the help available for those starting up in beekeeping is rather patchy. It is better in some areas than others.

We do not keep bees at home but our lime trees attract wild bees, although there were noticeably fewer of them around this year. I know that they do not fare very well in cold, wet conditions and we all know what has happened this year. The Met Office has provided statistics to remind us of the preponderance of abnormal rainfall over the past decade. We also have flowers and a vegetable patch and we grow fruit at home. We have a few beehives on the farm in Suffolk, which we believe makes good sense. I think that it was estimated in 2009 that the bee contribution to commercial crops was worth between £150 million and £300 million. The last figure I had for this year was £500 million but, again, the Minister can clarify that for me. We grow oil seed rape and cereals on the farm. Indeed, I can tell the noble Baroness that we are members of the entry level scheme and that we try to have areas that allow for biodiversity. I think that more farmers are increasingly aware not just of their responsibilities in producing biodiversity areas but of its importance, particularly for bees.

In January, Natural England announced changes to the regulations affecting the importation of bumblebees for commercial pollination which are designed to safeguard the health of the native bee. Non-native bees are important and are used for pollination in commercial horticulture in England. I believe that some 10,000 colonies were imported last year. One of the questions raised is whether it is possible that long-distance transportation also affects their health. I do not know the answer to that at all. The new licensing regime requires all growers wishing to use non-native bumblebees to register their premises with Natural England. I am not in favour of lots of regulation but I am sure that this is a very essential step. The rules include a requirement to follow improved disease-screening protocols, to restrict the use of these bees to polytunnels or greenhouses, taking all reasonable steps to prevent them escaping, and, finally, to destroy them to prevent them establishing in the wild.

We have heard that disease can wipe out colonies very quickly. The Food and Environment Research Agency has a bee unit, which is responsible for the enforcement of statutory disease and pest controls. It also runs programmes giving training and advice to beekeepers. I welcome the voluntary surveillance studies initiated by the European Commission and currently undertaken by 17 member states. The first results are due in the spring and we await their analysis with interest later this year.

For many years, it has been suggested that treatments applied to plants and the land to improve the quality and quantity of agricultural produce were the cause of deaths among birds, small animals and wildlife. We now know that many things that are recommended for the lessening or eradication of one problem may well worsen another. It is therefore surely right that the research continues. In September last year, a Defra report stated that the use of pesticides was not unequivocally linked to bee deaths. Continuous review of research is essential if we are to reduce this infection in the bee population. Looking at Parliamentary Written Answers over recent weeks tends to make one feel that climate change is not the sole or even the main cause of bee deaths. If it were, there would be a chance that nature might adapt and find a new balance.

On 29 November, the Minister referred to the publication on 18 September 2012 of a study on honey bees and bumblebees and a subsequent study on bumblebees that was discussed on 13 November by the Advisory Committee on Pesticides. He did not have any resulting recommendations. Is he able to update us on that?

In December last year, the Minister stated that the Government are,

"currently considering a range of evidence on the state of bees and other pollinators in order to determine what action is required".-[Official Report, 3/12/12; col. WA97.]

I understand that this will be completed early in 2013. If the underlying research is successful, we should then know whether the actual levels are abnormal. I also understand that the Government have commissioned work into the exposure of wild bumblebees to sub-lethal insecticide doses, to which my noble friend referred earlier.

On 11 December last year, the Minister wrote about the UK National Ecosystem Assessment, which was published in 2012. It concluded that wild bee diversity had declined in most landscapes, as had many insect species with specialised feeding or habitat requirements. The Minister drew attention to a recently begun review by Natural England on the status of invertebrates in England. What is the timetable for that? Has the Minister any news on it?

I also wonder whether we are looking in all the right places. Over the past decade there has been an increase in the number, nature and variety of diseases affecting plants and trees. Has there been any research into the effect of such disease on the insects that visit them? Is there any evidence that insects can recognise when a plant or tree is affected and, if so, do they avoid it? Is there any possibility that diseased plants or trees are more attractive to insects? We continue to import huge numbers of trees and plants into this country. One has to pose the question whether that is bringing in disease as well.

I read with interest the POSTnote of the Parliamentary Office of Science and Technology on insect pollination, which stated that there have been large-scale honey bee losses over the past 200 years, and that those had occurred some 30 times in 200 years. It would be interesting to know how many have occurred in, say, the past 50 years because, if a lot of them occurred prior to that, the use of herbicides might be questioned and the changes in the way that farming has been carried out in recent years might also be taken into account. I had not got my mind round that interesting issue and was very grateful for that document.

As other noble Lords have said, honey bees are hugely important to us as individuals but this issue is a global phenomenon. If we in this country could be part of research and development that managed to resolve this problem, we would do the world a great service.

The NFU briefing reminds us that our investigations need to be based on science rather than accepting the claims of people who say that this problem is all due to pesticides. I know that the Government are very focused in their approach to the whole question of the bumblebee and bumblebee research. I congratulate my noble friend on his past three years of work and on his work as a beekeeper. As I say, my family do not keep bees but we know how valuable they are on our farm.

4.54 pm

Lord Rea: My Lords, I thank the noble Lord, Lord Moynihan, very much for giving us the opportunity to debate this important issue again, and for the very clear way in which he presented the wide extent of the problem. He emphasised the importance of honey bees as pollinators, as will all speakers, but, of course, several other wild insect species are also pollinators, and there is evidence that some of these, such as bumblebees and butterflies, are also in decline. The topic has been raised on a number of occasions over the past few years in both Houses, most recently in a series of Questions for Written Answer by the noble Lord, Lord Moynihan, and answered in fact by the noble Lord, Lord De Mauley, perhaps in a warm-up exchange for this debate.

I am no expert on apiculture but I have chosen to join this debate since I have had personal experience of keeping bees—admittedly in a very amateur and unregistered capacity—for a number of years. I confess that I have never been on a formal training course in bee husbandry and have learnt what I know from talking to other beekeepers and through reading around the subject. But most of all I have learnt from experience through trial and error. Over the years I have lost several colonies which failed to survive the lean winter months. This was due to various identifiable causes, such as raiding of the hive by mice and even by woodpeckers, harvesting honey too late in the season for the bees to collect winter stores, not feeding the colony with enough sugar, and other errors that could be attributed to incompetence or inexperience.

However, I have always managed to keep the hives free from varroa and, as far as I am aware, other infestations, although wax moths have sometimes been a nuisance. In good years I have collected, as the noble Lord, Lord Moynihan, said, about 30 pounds of honey per hive, which is a good yield that is enough to keep family and friends in honey for a year or so. I keep only one or two hives. In the past three years, though, I have lost two colonies for no explicable reason. There were more than adequate winter stores of honey but the bees did not use them. In one case the colony simply died and in the other the surviving bees in March or April appeared disoriented and unable to forage. The old queen had died but the colony had not replaced her, as would normally be the case, and it soon dwindled in strength and numbers and perished. Perhaps an expert would have spotted this early enough to requeen the colony but it was too late in my case.

This unusual behaviour alerted me further to reports, which I was already aware of, describing how low-dose, sub-lethal amounts of certain pesticides—especially the systemic neonicotinoids—have been shown experimentally to result in damage to bees' central nervous system, with subsequent aberrant behaviour. For instance, in one study affected bees appeared to become disoriented and a higher proportion than usual, as the noble Baroness said, failed to find their way back to the hive from foraging flights, due possibly to memory failure or loss of communication skills. It has also been shown recently in several studies that neonicotinoids can increase the severity of infections—for example, from the common fungal infection of bees, *Nosema apis*. A study of bumblebees given low doses of a neonicotinoid showed that the number of new queens produced fell markedly compared with control colonies. These findings seemed to me to be quite relevant to the fate of the two lost colonies that I described. The loss of bee colonies may not be due to the direct lethal effect of the high doses of pesticide on bees; rather, it may be due to the reduced resistance to other pathogens and maladaptive behaviour caused by quite small doses.

There is a recent report from the policy department of the European Parliament, published last month. I am not sure whether this is the document circulated by the noble Lord, but I am afraid that I did not receive it anyhow. It is entitled: *Existing Scientific Evidence of the Effects of Neonicotinoid Pesticides on Bees* and it gives a very up-to-date picture of current research. It has 48 references to scientific papers, mostly published between 2009 and 2012. These describe the evidence on which the descriptions of the effects on bees, including bumblebees, of low doses of what I am going to call "NNs" are based. I have described these effects. The case seems to be clear that the use of these chemicals should be reduced and/or further controlled. Those that are shown to be most damaging should be banned. There is enough evidence, I feel.

This is already the case in Italy, where bee health was seen to recover after the use of some NNs was forbidden, and also in certain German Länder, and in France and other countries. Perhaps the noble Lord, Lord De Mauley, can fill us in on the whole international picture. In the UK, Defra has until very recently taken a very cautious position on the effect of NNs, as has the British Beekeepers Association. Many of us wonder how much influence the agrochemical and farming industries are having on the Government's position. The use of pesticides can certainly increase crop yields, so I can understand that evidence of the damage that they also cause to pollinators needs to be robust. However, I hope that the Minister will now recognise that the scientific case for action is becoming stronger all the time.

As other speakers have pointed out, not only are beekeepers losing their livelihood but the health of our horticulture and natural environment are at stake through the loss of pollinators. There are reports that insectivorous bird numbers are diminishing in some areas because of the decreased numbers of insects due to agricultural pesticides. It is not yet *Silent Spring* in the UK but there is a strong case for tighter regulation of pesticides and increased research to develop new, less harmful ways of obtaining good crop yields. This could be done through plant breeding, for example, and dare I mention it?—genetic modification, and the development of plant-pest predators so that harmful pesticides can be phased out. However, I am of course aware of the useful nostrum, "For every complex problem there is a simple solution and it is wrong". I agree with the noble Lord, Lord Moynihan, that many factors may be responsible. In conclusion, I ask the Minister whether he agrees with one of the recommendations of the report from the European Parliament which I mentioned that, as long as there are uncertainties concerning the effects of neonicotinoids on honey bees, the precautionary principle in accordance with the EC Regulation 1107/2009 should be applied when using neonicotinoids.

5.02 pm

Lord Patten: My Lords, it is not all bad news for bees. It is truly paradoxical that at a time when, as my noble friend pointed out in his introductory and wide-ranging speech, there are so many major threats to the health of our honey bees, the number of people taking up beekeeping is surging, with the numbers of those seeking membership of the British Beekeepers Association having doubled in the past three years. After listening to the speech of the noble Lord, Lord Rea, I do not know whether he may also be seeking membership of that great organisation.

It is, however, equally paradoxical that at a time of challenge to our honey bees the numbers of bee inspectors have plummeted. I have never seen one of these great public servants, a bee inspector. I have been looking out for them but I have never spotted one. I do not know whether perhaps they wear a uniform. I do know that in statute they have more or less unfettered and police-like powers of entry in the matter of hive-patrolling. So my noble friend Lord Moynihan and other noble friends—such as, in his beekeeping activities in Wiltshire, my noble friend Lord Marland, who is sad not to be taking part in this debate—should watch out for the thud on their drive of the boots of the bee inspector, if such a person still exists. I wonder whether they are in as much decline as our honey bees. I ask the Minister what their role now is. Are they of any help or are they in fact extinct? I look forward to hearing more about them later.

All that said, the problem that we face is Europe-wide, just like the ash tree issue. That is complex, but the threat to honey bees and bumblebees is even more complex. In the matter of bees, as in the matter of ash trees, I assure the Minister—a countryman himself—that I do not blame the Government for every lack of foresight or lack of action. That is too easy to do. It is a very complex problem and we are all—farmers, beekeepers, the agrochemical industry and others—up to our necks in the issue.

I know that up to one-third of our domestically produced diet is bee dependent; it needs pollination, as my noble friend Lord Moynihan pointed out. Of course, bees do not have a monopoly on this activity—there are other pollinators—but they are certainly the nation's prime pollinators both for legumes such as peas and beans and for top fruit such as apples and pears, for which they are absolutely vital. Overall, the impact on our rural productive economy of substantial failure in the pollination cycle has been estimated—as my noble friend Lady Byford pointed out—at many hundreds of millions of pounds. That was pointed out also by my noble friend Lord Moynihan.

That the problem is not fully understood is self-evident. It cannot be explained, otherwise, with the expertise of your Lordships' House, we would have had the explanation by now in the debate. Just as there are cyclical changes in climate, with the Met Office recently "fessing up" that there has been little global warming since 1998, so there are sometimes extraordinary population explosions in the animal world, mirrored by equally extraordinary population declines on other occasions, generally but not always self-regulating after a period of mutation. There is an unpredictable asymmetry to these swings of nature, in which mankind is sometimes potentially a damage-doing participant-as the noble Lord, Lord Rea, pointed out-but sometimes merely a puzzled spectator, as are many of us in your Lordships' House today. We are unclear about the root cause or causes of the problem.

Good science will one day reveal whether what we are discussing today is simply one of those cyclical swings, willingly working itself out over time, or whether this time there is some terminal quality to what is going on in this country. I do not know the answer but I suspect that the trend is not down to a single cause. A consensus seems to be emerging from noble Lords on both sides of the House that there is probably not one single cause but a mixture, from the spread of the varroa mite, to which my noble friend Lord Moynihan first alerted me in 2009, to the currently fashionable suspicion that we may be having a *Silent Spring* for honey bees because of new "killer pesticides". I simply do not know. That would be an easy explanation but, as I understand it, it is not clear scientifically. The only assurance that I seek today from the Minister, in addition to confirmation of the existence or non-existence of bee inspectors, is that the Government and our European partners are doing all they can, as quickly as they can, to deal with the issue through good science of the highest quality. In the end, that is what we who are not scientists must depend on.

In the mean time, I have two suggestions of a rather pragmatic sort. First, there is a need for ever-improving pest and hive management that not only strives to find ways of dealing with the mite but involves better treatment of gut diseases by antibiotics, ever-closer attention to hive hygiene and particularly to the introduction of new forms of hygienic bees-pinpointed by my noble friend Lord Moynihan-and very careful temperature control in winter. It is a matter of integrating all measures to sustain our colonies-easier said than done in your Lordships' House but critical to their preservation.

Secondly, much can be done by farmers and landowners in the smallest of ways by sustaining wild plant species that provide nectar for bees. The cumulative effect of changes to relatively small patches of land over a number of years could well be one of the factors in the decline of pollinating insects such as bees. This has occurred not just because of monocultural clearances in the agricultural landscape but because of nectar-producing plants in patches here and there being effectively crowded out by the growth of more competitive plant species, encouraged by airborne nitrogenous compounds being deposited around them just like fertiliser. Undoubtedly we need food and good agriculture, but it is also a fact that intensive monocultural agriculture offers little forage to pollinators-QED. That is just a simple fact. So let us hope that with the Government having done all they can, the honey bee will bounce back like its relative the bumblebee, having drunk too freely of the flowers of that beautiful lime tree *tilia petiolaris*. It is a magnificent tree. It is highly floriferous and is wonderful for human beings to smell, but it is deeply narcotic to the bumblebee, as anyone who has stood underneath *tilia petiolaris*, as we do in our West Country home, has seen. After a short period of sniffing-or perhaps I should say snorting-by the bumblebees, they generally fall intoxicated to the ground, on their backs, legs twitching. There is a short recovery period, then they generally bounce back, although some, like humans, often return, recidivist-like, to the scene of their earlier intoxication. They are rather like the old habitués of the Bishops' Bar in the old days of legend in this House-a long time before I came to join your Lordships and naturally much before the time of anyone represented in the Chamber today. One can only hope, as I do, that the honey bee turns out to have the same bounce-back resilience of the lime flower intoxicated bumblebee, recovering from the damage that, alas, both bumblebee and honey bee have had because of nature and self-indulgence.

Lord Jones of Cheltenham: My Lords, I, too, congratulate the noble Lord, Lord Moynihan, on his wonderful introduction to this debate, and the noble Lord, Lord Patten. I must get a lime tree from somewhere. I first became aware of the serious nature of the decline in the population of honeybees and other pollinators when a campaign began in my former constituency of Cheltenham some years ago. It was started by some keen environmental campaigners who wanted to protect a meadow from development. I went to see the save the meadow campaigners to hear their case and was impressed by their knowledge-and somewhat alarmed by what they told me. As we have heard, there has been a massive loss of wild habitat for bees and other pollinators.

According to Buglife, 3 million hectares of flower-rich grassland has been lost since the end of the Second World War, leaving only 100,000 hectares remaining. Plantlife says that only 2% of wildlife meadows and grasslands that existed in the 1930s survive, with over 7 million acres lost. I commend to noble Lords Plantlife's Saving Our Magnificent Meadows campaign, which aims to save 75,000 acres of the most vulnerable habitat. I would be interested to know from the Minister what assessment the Government have made of the effect of loss of habitat on bee populations. The Open Spaces Society has concerns about this too. It points out that open spaces in town and country are crucial to the nation's health and well-being. Unfortunately, it says that the Growth and Infrastructure Bill threatens people's ability to protect their rights to land which they have long used and loved. The Bill outlaws the registration of land as a town or village green once it is threatened with development. It hopes that the Bill will be amended to ensure that people can still protect their precious open spaces. Will the Government consider protecting meadows-and indeed village greens-in any future planning legislation?

We have heard that honeybees are only part of pollination: wild pollinators are crucial, too. Hoverflies and other fly varieties, butterflies and moths, bumblebees and other wild bees all play their part in pollination. However, these species, too, as we have heard, are in decline. Buglife tells me that scientific evidence suggests that in the UK only between 5% and 10% of pollination is done by honeybees and 90% to 95% by other pollinators. Does the Minister agree with Buglife that, while important, honeybees form only a small part of the insects which pollinate crops?

Honeybees are generalists that do not and cannot pollinate many plants. For example, bumblebees and flowerbees use buzz pollination-their wings must vibrate to ensure pollination. Many wild flowers have very specific relationships with certain insects which have long tongues or corollas. Because solitary bees carry pollen loosely on their abdomens and not packed tightly in bags, they are 300 times as effective at pollinating apple flowers compared with honeybees.

There is some scientific evidence that increasing the number of honeybees reduces the fitness of bumblebees in the local area. The last thing we want to end up with is a monoculture pollination system relying on one species that has been, and will be, subject to cycles of devastating disease. Six of 25 species of UK bumblebees have declined by at least 80 per cent in the past 50 years; short-haired bumblebees have been extinct since the early 1990s; 72% of butterfly species are declining; and two-thirds of larger moth species have declined. In the past 35 years, 75 species have declined by more than 70% and more than 250 UK pollinators are in danger of extinction and are listed on the UK BAP priority list.

If these losses continue unabated, there could be the loss of up to 80% of plant species and 13% of agricultural production, which would limit future food production options and add considerable costs to the agricultural industry. In the context of a global population that is predicted to reach 9.5 billion by 2075, this is very serious.

The Bumblebee Conservation Trust points out that 84% of European crops and 80% of wild flowers rely on insect pollination. Soft fruit pollination is carried out predominantly by bumblebees. The trust suggests that in the absence of bees, food prices would rise. For example, the farm gate price of strawberries would increase from a 2009 price of £2.21 per kilo to £4.06. There are many

different estimates, as we have heard, of the costs to British agriculture. What assessment have the Government made of the cost of the decline in honeybees and other pollinators? Do they agree with the highest figure that I have seen, from Friends of the Earth, that the decline in pollinators could pose an annual cost to British agriculture of £1.8 billion to pollinate crops?

Let me turn to professional beekeepers and their most wonderful product-honey-for which I have a particular weakness. Noble Lords will know that honey products from around the world can be bought in British shops. Indeed, a visit to Fortnum & Mason's will be rewarded with the opportunity to buy honey from Pitcairn Island, where the human population is around 50. The island must have the highest ratio of beekeepers in the world. My particular favourite is honey from Botswana-I refer noble Lords to my entry in the register. I believe that the beekeepers of Botswana have applied for approval to export their honey to the European Union and I hope that they are successful.

I asked Mr Chris Broad, the secretary of the Worcestershire Beekeepers, for his view on the decline in the population of honeybees. He currently manages around 350 hives and has some interesting views. His main concern is that the Government's policy should be driven by a good understanding of the true state of affairs and he believes that in recent years there has been a lot of misinformation and spin on honeybee health. He paints what he believes to be a more accurate picture.

He says that honeybee decline has been badly misunderstood. Population has only ever been measured by estimating the number of beekeepers and the average colonies per beekeeper. Even when beekeepers lose colonies in winter they can easily double their hives in summer using the bees' urge to reproduce.

The beekeeper population has approximately trebled in the last five or six years. This has resulted in a trebling of the measurable honeybee population. It also means the average beekeeper is inexperienced.

In 2005, for example, Worcestershire Beekeepers had 170 members. Now they have 524. The umbrella organisation, the British Beekeepers Association, has shown a similar percentage growth over the same period.

Mr Broad says that honeybee health is a different thing entirely. He is expecting poor survival statistics this winter as a knock-on effect of the atrocious summer, combined with the relatively low skill level of the average beekeeper. My noble friend Lady Walmsley told me yesterday that she had lost all her bees this summer, and I have been trying to imagine her in full beekeeper's outfit, tending to her hive. I must also now add the noble Lord, Lord Moynihan, to that picture.

There are a number of major health threats to honeybees, Mr Broad tells me, primarily varroa, nosema and foulbrood, but he believes that all these are manageable by competent beekeepers. However, he points out that we are struggling to deliver adequate training to novice beekeepers while also attempting to train waves of brand new beekeepers each year. Virtually all training is given by volunteers. Pesticides are a concern because they could potentially cause localised beehive deaths. However, Mr Broad knows of only one such incident in the last 10 years in Worcestershire and says that it would be nice to have some kind of compensation scheme in case of big kills but that practically speaking no knowledgeable beekeeper would treat this as a priority. He believes that our short-term priority should be to increase the skill level of beekeepers by any means possible. Mr Broad criticises the overreliance on the bee inspectorate-FERA-service, which in its current form acts as a very expensive crutch to inexperienced beekeepers, and could be regarded as a disincentive to them to learn to manage honeybee health on their own.

Do the Government have any plans to encourage new beekeepers, to improve training for those who have started beekeeping recently; and what measures are available, for example, on capital allowances to help those setting up and maintaining hives?

This morning Mr Broad informed me that he had received something from Defra regarding the consultation "Improving honeybee health", which runs for two months from today. After skimming through it, he says that it looks very positive; you might say that the consultation has received broad approval. The consultation includes a list of consultees. I suggest that the Government also invite responses from Buglife, Plantlife and the Bumblebee Conservation Trust, which have been very helpful to me in preparing for this debate.

We have heard a lot about insecticides from noble Lords more experienced than me. My contact at Plantlife, Adrian Darby, is particularly concerned about the effect of neonicotinoids. What assessment have the Government made of research by scientists at the Harvard School of Public Health into colony collapse disorder?

In my view, the population decline of bees and other pollinators needs to be treated as a national emergency. The public needs to be more aware of the problem and encouraged to play a part in solving it.

The Bumblebee Conservation Trust has a section on its website where individual gardeners can assess the bee-friendliness of their current garden, and it suggests the right plants to grow. The top 10 recommendations are mahonia, pussy willow, viburnum, lavender, scabious, borage, comfrey, pink allium, bell flower, and yellow aquilegia.

Do the Government agree with the Bumblebee Conservation Trust that encouraging individual gardeners to grow particular bee-friendly plants would be beneficial to bee populations and other pollinators? In addition, do the Government have any plans for an awareness campaign to inform the public of the importance of bees and other pollinators? I look forward to the Minister's reply.

5.23 pm

Lord Selsdon: My Lords, one of the great privileges of being in your Lordships' House is that when one speaks late in the list, one gets the feeling of being an outpatient at some form of university college hospital where you are bound to learn. You also get a dry feeling in your throat while you are waiting to speak. The answer to that is very simple: you should wiggle your toes, and just before you come into the Chamber you should have a small spoonful of liquid honey. Then you will not have that problem.

I am probably the least qualified person to speak today, and I do so mainly because I have a great regard for my noble friend Lord Moynihan. We had two great mentors: Lord Jellicoe was one, and for me the other was Lord Shackleton.

My involvement in beekeeping is rather strange. All I can do is to explain what happened to me rather accidentally in my life. At the start of the war I was exported, to be kept out of the way so I would not be knocked off. I came back as a five year-old to be put on my grandfather's farm, and I had no coupons or sweets. I was told that my job was bees, and that I should move the beehive at night to put it near the chickens so that no one stole the eggs.

I was introduced to the bees as a small boy by someone who today we would call a beekeeper but was actually a German prisoner of war, who had great knowledge of such things. We had a whole range of people on the farm. I got quite interested in honey but I had been brought up in Canada with maple syrup. I was not quite sure how you got honey, and I thought it was probably illegal to try to do so because I did not have any coupons. When I was introduced to the bees, they became my friends. It was one of those strange relationships that you have as a child; I could not quite understand why, but I had a feeling that they got to know me.

I move on to many years later, during which I went into various activities. When I was in the banking world, one of the jobs that I had was to help to advise the Government of Jamaica-I suppose because I was conceived on the beach there during my father's honeymoon, which is as good a reason as any. I was asked by Eddie Seaga if I could help with bees. I said, "I don't know anything about bees", but then I remembered Winnie-the-Pooh's line,

"Isn't it funny how a bear likes honey?"

When I first met the bees on my grandfather's farm, I had a small teddy bear called Marmaduke, and I thought that by using that teddy bear I might possibly get a larger allowance of honey. That stuck in my mind when I was in Jamaica, and I was officially asked to help to reinstitute Jamaica's logwood honey business. I have to say that I had not heard of logwood honey but I knew that it was quite important. I did not realise that Her Majesty had been given a patch of it, as well as a patch of Blue Mountain coffee. Together with the high commissioner, John Drinkall, I thought, "What do we do? They need some honey equipment", but I had no idea where to get it. We formed the Wild Flower Honey Company of Jamaica and I managed to arrange export credit from Her Majesty's Government, with the guarantee of the Wild Flower Honey Company of Jamaica, which had 10,000 Jamaican dollars. I did not know that I had put in half of that sum; indeed, at the time I had not, but I was soon asked to make the payment.

So you arrive back here, and then Mr Seaga arrives here on a visit and you get invited to go to Downing Street for the first time for lunch because you are an important investor in Jamaica. The Prime Minister gets up and says, "We are very happy to have some big investors in Jamaica here, particularly Lord Selsdon, who has a substantial investment in the honey business of 5,000 Jamaican dollars".

Those are the sorts of things that stick in the back of your mind and suddenly come to the fore on occasions such as just before Christmas, when the wax chandlers brigade invited me to go and speak at their annual dinner where they would introduce a new master. Although I introduced the Powers of Entry Bill and the Bees Act was within that, I knew only roughly what I was talking about-but they gave me some help. Your Lordships will know that under the powers of entry in the Bees Act, if you happen to see a bee on your property supping nectar, you may follow it wherever it goes to take a share of what is in the hive. The Home Office confirmed that that provision is still extant, which is an interesting point for noble Lords who are beekeepers and feel that their bees may be roaming.

As I roam around, I come back to perhaps the more serious issue here. By various accidents, I happen to be a peasant farmer in Provence. We have an ancient vineyard: my neighbours have all been there since the Templiers or even before and, of course, you have the normal combination of honey, olive, wine and fig. If one goes back into the mists of time, it is not all about eating locusts and wild honey, but you realise the importance of the history of honey throughout the whole of the Mediterranean. It was more than just a product-it was a culture. We do not have bees, but we have commuting bees. I look after about 15 hectares of vines for other people, and I have a fairly rough team down there, who will be longing to get the full translated text of this debate today. I will try to arrange this, perhaps through the Information Office here, because it is an important cult.

In general, what we deal in is mono-floral honeys. That means that you want the bees to sup off the chestnut trees or the lavender, so they commute. They come in on a lorry in hives painted in different colours, because I am told they can recognise colours and know where to go. These are placed in strategic positions and then later they are moved on up to the Haut Var when the lavender harvest starts. It was suggested that I should have a whole range of hives and become a beekeeper myself. However, the instructors there-as I call them, because they are pretty switched-on-said that I would have to spend at least half the year there for the bees to trust me. I said, "Even if they are commuting bees?" They said, "Yes, because they do get to know you".

Normally, every year I bring back a bit of olive oil in small bottles to the important people who make decisions—who are not Members of this House—either olive oil or lavender bags or honey, but this year we had no honey. The problems were partly on account of the weather because we go from plus 40 degrees to minus 20, but the bees survive. There is very little varroa disease, and I cannot quite work out how it all fits together.

One of the projects I was involved with previously was with Lord Shackleton. He said to me, "Ah, you know a bit about bees and honey, can you help with the Noah's Ark?" The Noah's Ark was the project to reinstitute agriculture and other things in the Falklands. What they wanted were some more bees that could effectively increase pollination. I always used to be given these strange tasks in your Lordships' House when no one knew anything; they thought that neither did I, but I had to find out. The idea was that we should get a bee that would take off into the wind, rather than flying downwind to take off, and would go short distances, load up and be blown back down.

Now, often when there are many things to deal with, I go to the church and I go to the monasteries. In the end, I got Brother Peter from a monastery—or monkery as I call it—in Cyprus, who said, "*No problem, you want the Braemar bee. Ask the Queen Mother*". We got hold of the Queen Mother's office and found that the Braemar bee had come from there, so we got a whole lot of bees put in a basket and off they went. But effectively we had to produce some queens as well, because queens can cost quite a lot of money. I did not know what the monks did, but you just make a bigger hole in the comb and the worker bees feed it and you get a bigger bee and therefore a queen bee, but that is beyond my competence. They went out there and, needless to say, it worked.

Over time, I have found that I have gained such affection for this particular subject and topic, but I did not realise that there are certain things that are helpful because of where I am in France. You need a jolly good fire every so often, and we have them in abundance. They clear everything up and, within months, the spring flowers are back as never before. You are not able to clear the sorts of forest that we have otherwise. One trick is to watch the tortoises because, when a fire is coming, the tortoise knows and goes to the side of the tree away from the fire and slowly digs down. He survives, whereas all the small birds fly around. The bees know the fire is coming long before anyone else; they move off and out and then come back.

I have found this an interesting subject. I think it is important and I would like to know more about it. The Bees Act will give you an introduction to it—but above all we should promote the bee and we should promote honey. Honey has medical abilities, for bruises and everything else. At the moment we are all talking every day about health. Every single problem in the health world is being announced on television, and scare ads are put in—but the medical contents and abilities of honey are considerable.

I support my noble friend and I believe that we should advance upon a major bee promotion business: have yourself named after a bee.

5.34 pm

Lord Hodgson of Astley Abbots: My Lords, I add my thanks and congratulations to my noble friend on having given us the chance to debate this important topic this afternoon. I am the eighth speaker on what is a fairly narrow subject so I will endeavour not to re-plough the ground that has already extensively been discussed.

I grew up in a bee-focused household. After the war, my mother began to raise and look after a few bees. We reached a peak of about 60 or 70 hives, which represents a tonne of honey. In my teenage years my pocket money was supplemented by having to look after these beastly things. I had to carry the heavy supers out of the fields back to decap them, extract them, strain them clean, bottle them and label them, and to do so in the height of summer in a room that was completely sealed and

therefore roasting hot, because if it was not sealed you had some angry bees joining you very quickly indeed.

In addition, the local authority pest control department quickly gets to know that you are the source of bee collection so when there is a problem with a swarm

10 Jan 2013 : Column 328

and a householder rings up you are sent to pick up the swarm. My noble friend Lord Patten talked about the dangers of being under the tree with inebriated bumblebees. Up the tree, on a ladder, trying to scoop a swarm into a box is a challenge of a different kind.

More seriously and most importantly, we used to get calls from local farmers asking us to move our hives to the edge of their fields to improve pollination. My noble friend Lord Patten referred to apples. The area I am talking about, south Shropshire and north Worcestershire, is a big cider apple-growing area and bees are the major pollinators of these fruits. Moving hives is also a challenge because it has to be done at night: you seal up the hives, strap them together, put them into the back of your pick-up truck and drive them to the edge of the field. Invariably, from time to time one of the straps comes loose, the hive breaks open and the result is not attractive for the driver.

Despite all this, I admired the determination and single-mindedness of bees. When I was about 18, I was told by a doyen of the British Beekeepers Association that to make a pound of honey the bees would fly 24,000 miles around the world and would visit, depending on the size of the flower, between 3 million and 9 million flowers. I thought that was a pretty impressive achievement. Clearly, bees also did an enormous amount in improving crop yields and increasing biodiversity.

As for my personal experience of bees, I liked bees but they did not like me. I was stung so many times during those years that I now have an extreme allergic reaction to bees and therefore have to carry an EpiPen antihistamine injector with me as my reward for having stolen all that honey.

My family's bee colonies have experienced the familiar story that has been described earlier in this debate; that is, weakening and dying colonies. A lot of focus has been put on varroa and similar diseases that kill outright. Like my noble friend Lord Moynihan, I wonder if that is not too simplistic an approach. Yes, we have seen hives dwindle and die and sometimes it has been because of varroa. But more often there appears to be a gradual diminution of the health of the hive, which precedes complete collapse. The diseases that weaken hives include the chalkbrood fungus, which kills the larvae, and nosema apis, which causes dysentery in the hive. These and similar diseases cause enormous stress.

Stress and bees may seem an unusual combination but when you move hives, even if you take them to the edge of a field where the pollen collection opportunities are very great, it is two or three days before the bees settle down and start to fly normally. It would be very helpful if the Minister could spend a minute or two explaining to my noble friend and me what is the wider view of colony susceptibility. We could usefully spend some time trying to pick apart the different strands of that problem.

As my noble friend also said in his excellent introduction, there have been attempts to increase the number of hygienic honey bees. He gave the figure of 10%; I am told that it is about 15%; nevertheless, as he pointed out, it is important to see whether we can increase those strains to tackle those diseases in a different way. As an alternative approach to improving the health of a hive, there is the facilitation of food collection. Research has shown that, in spring and early summer, bees, on average, fly only about 700 metres to find food. By March, that figure has risen to nearly 4,000 metres. That is another type of stress for a hive and, as many noble Lords have said, is a direct result of the intensification of our agriculture.

We need to find ways to increase pollinated habitats. Perhaps the Minister could update the House on developments in that area through the environmental stewardship schemes or similar policies. We need not just to increase the pollinated habitats, because, as the noble Lord, Lord Jones of Cheltenham, said, certain plants in the pollinated habitats can be particularly effective and helpful to bees, and we need to focus on them.

That takes me to the important point: who is in charge of all this? My research, via my mother, found a range of bodies involved. Of course, there is Defra. There is the 10-year healthy bee strategy referred to by my noble friend Lady Byford. That covers England and Wales, but not Scotland. There is a five-year insect pollination initiative, which is led by the research councils, also includes Defra, and covers Scotland. There is the Natural England environmental stewardship scheme and the Veterinary Medicines Directorate, covering the licensing of honey bee medicines. Are those bodies, plans and programmes properly co-ordinated to best effect, and, if so, by whom?

The debate has, understandably, focused on honey bees, but I add my support to those noble Lords who have talked about the importance of alternative pollinators: bumblebees, moths, which have not been mentioned in the debate so far today-67% of common species have declined in the past 40 years-and butterflies, which are making a comeback in ordinary species, but specialist species appear to remain in decline. There is work to be done. Research and assistance is needed if we are to reverse those trends, which broadly follow the decline of the honey bee.

To conclude, it is easy to see this issue as one of the availability of honey-the Rupert Brooke romantic vision, "Is there honey still for tea?"-but it has a much wider dimension. A 2009 study by Reading University suggested that a total loss of pollinators would drastically cut the yields of oilseed rape, orchard fruit, soft fruit and beans. The Reading estimate of the cost was £400 million, or 13% of UK farming income. That, in a nutshell, is why my noble friend Lord Moynihan has performed such a valuable task by introducing the debate today.

5.43 pm

Lord Stevenson of Balmacara: My Lords I apologise to the House that I am not my noble friend Lord Knight of Weymouth. I should have spoken earlier in the debate and I am sorry for the shock that that caused the noble Baroness, Lady Thomas, who had to come in early. My noble friend Lord Knight could not stay and I offered to stand in on the Front Bench for him.

I add my thanks to the noble Lord, Lord Moynihan, for securing this debate and for his excellent speech, which gave a wonderful tour d'horizon of the issues, and to all noble Lords for their contributions. It has been interesting that we have had contributions not just from the amateur beekeepers-of whom I am one-but from the profession. I was very interested in the approach taken by the noble Lord, Lord Hodgson. Sometimes, policy in this area seems to be dictated by the large number of amateurs, to the possible exclusion of the interest of those who had to make a living out of this operation. It must be difficult for Defra to come up with coherent policy in this area, but that should not stop us criticising its efforts to date, which I shall do later.

As I said, I am a beekeeper. I got into it because my grandfather, who was a doctor in the north-west of Scotland, kept bees. He had about nine hives at one stage. I got fascinated by it. I can still remember the excitement of lifting the heather honey and the effort it took to carry all the supers away, even as we were being pursued by large numbers of bees. I have two hives, sometimes three if I am lucky and capture a swarm. As we have heard, it is a rather odd industry. You can have a good year and have no honey and you can have a bad year and still get honey because you have managed to prevent your hives from swarming.

I am obviously not very bright about this stuff because in my research for this speech today I discovered all sorts of things that I thought I should have known. For example, I had spent a lot of

time in my garden trying to align my beehives and my greenhouse in order to make sure that my tomato crop was properly fertilised, only to discover when I did my research that honey bees are absolutely useless at fertilising tomatoes. You need bumblebees because they vibrate at the right frequency and the pollen somehow shakes itself off and does the necessary. I wish I had known that because it would have saved quite a lot of effort. I also did not realise that the masonry bees that were in our house when we first moved in and which I carefully had excluded at great cost by professional insect killers would have been a blessing for my orchard; but you live and learn.

I am very enthusiastic about my bees. I am not very knowledgeable but I am quite good at talking about them, and that got me into trouble. I will indulge the House very briefly with a short anecdote. A few years ago, when I was working in No.10, there was an initiative to think about ways in which we could look at environmental issues, including bees. I had been talking up my highs and lows in relation to bees and I got saddled with doing something on the bee front. I will not go through all the details, but eventually we decided that there was one thing that would be interesting and perhaps of long-term value. Chequers, although not owned by the Government or indeed by the Prime Minister but by a private and separate trust, had lost its bees some years ago and there were no bees there. It seemed a pity that such a wonderful estate-those who have visited it will know-could easily support a large number of hives. So I was charged with trying to get bees back into Chequers. It took a bit of time but, working with a local beekeeping association, I found a willing beekeeper, who helped with the negotiations with the trustees, who were very hard task masters. I discovered a fundamental flaw, which was rather surprising for that part of Buckinghamshire: Chequers has no natural water.

As any beekeeper will tell you, bees need three things: a secure base, access to forage-particularly to the stuff that they use to gum up the insides of their hives so that they protect themselves against rain and wind-and water. Water is the element or the chemical that they use to get the nectar that they collect from the flowers to the right consistency so that it will stay in the comb and not ferment-you see how one can get carried away with these things and start boring people to death. Anyway, I got involved in that project and we ended up with two hives just as you approach the back of Chequers from the road. You can actually see them against them against the former orchard. They have been moved this year partly for weather reasons. I mention this only because it illustrates the problems that a beekeeper has. Two hives were put in four years ago. There was no honey in the first year, which is quite common. There was some honey in the second year, just at the change of government. I leave noble Lords to speculate what we felt about that. There was good honey last year, but over the winter one hive went queenless. We are now back to one hive and we are trying to recover. That is the story, in a nutshell, of what happens in beekeeping. I am sure that the Prime Minister now and in the future will have access to Chequers honey for himself and guests, should they wish to do so.

We have heard about the substantial challenges during this debate. We have touched on the weather, pests and diseases and loss of habitat. We have touched on how agriculture impedes the way in which bees operate, pesticides and the need to train better our beekeeping force-that is really important. We have talked about the need to register and keep a record of not only our beekeepers but our beehives. We had a good example from my noble friend Lord Rea about those who are operating outside the system. They are having a perfectly good time and doing all the things that we would want from our beekeeping activity, but are not part of the formal systems.

All these issues, including the question mentioned by the noble Lord, Lord Hodgson, about leadership and who is in charge here, interact in a complex and varying matrix-compounded by the fact that there is an ongoing and chronic lack of research to help us understand all these issues and put in place appropriate measures to respond to the challenges. The only real research is the insect pollinators initiative. The IPI is centred on nine projects, each receiving about £1 million. Of those nine projects, only four are related to honey bees, yet there are real problems in honey bee health and numerous questions to be answered.

One good example is of the lack of effective medicines to treat the diseases that we already know bees face. The varroa mite not only debilitates bees, mainly through attacking the larvae of the drones-the males-but allows worker bees to be attacked by viruses because it weakens their strength. There are no effective medicines for that. We can add nothing except palliatives, which seem to have some effect in reducing the ability of the varroa mite to thrive. However, there is no killing of them. That simply reduces the numbers rather than destroying them. Why can we not get some research going on that? It seems absolutely vital to make sure that we can do that. The 'foul broods', European and American, are terrible things to have happening to your colony. They effectively kill it off, yet they are very difficult to eradicate. Again, we are not on top of the chemistry there. Then there is nosema, which is likely to become much more prevalent following an absolutely ridiculous decision to permit the EU to withdraw the only known effective medicine on the grounds that it was affecting other animals and things, not bees.

I think I have eight questions to pose to the Minister. Some of them are obviously more detailed and I would be happy for him to write to me at the end of the debate if that is a better way of doing it. The first is about agriculture, which was touched on by many noble Lords. Clearly, the use of our landmass in relation to the production of food and the way in which it interacts with bees is important. The way that agriculture is operated has a significant impact on bees. It affects the quality and diversity of habitat within the landscape. Can the Minister say what the UK Government could do to further "green" farming in the UK and provide much needed support to fruit and vegetable growers, perhaps by encouraging and supporting environmentally friendly farming systems? Here again, research would be important because we simply do not know the pollination requirements of crops, so if there was more information that was better disseminated to farmers and better applicable to bee keepers, that would certainly help.

A number of speakers mentioned pesticides. They clearly are having an adverse impact on bees. Why would they be used if they did not? What is worrying is how they may be affecting the breeding success of our bees and their resistance to disease, which is a component of that. Will the Government commit to introducing a targeted reduction of pesticide use by 2020? Perhaps that could again be with funding research on the impact of all these pesticides on bees, not just honey bees but others which are available to pollinate.

Agri-environment schemes, which have been mentioned, have great potential to provide forage and nesting sites for bees but the uptake of the most beneficial options has been limited. What support will the Government give to Natural England to improve the uptake of those options and develop more targeted objectives for agri-environmental schemes? I think that would help.

Many habitats of national conservation priority provide important forage and nesting resources for bees, yet despite protected designations they are in decline. Can the Government strengthen protection for these sites by designating more sites with priority habitats for bees, reforming environmental impact assessment regulations and improving cross-policy co-ordination to deliver the strongest benefits to bees over the whole landscape?

One of the earlier speakers mentioned planning. Despite the importance of bees to the economy-and of course to human well-being-the new planning guidelines do not provide detailed information for local authorities so that they could develop green infrastructures that might benefit bees. I am thinking here of things such as allotments or flower-rich road verges. Why would it not be possible for the Government to introduce new guidelines for local authorities that integrate these beneficial options and ensure that environmental damage is reduced?

There is also the question of whether we should make a special priority for bees. Several bee species are recognised as national conservation priorities but, as a group, bees have never received very much formal monitoring. Will the Government include bees as a priority species, for example,

in the new England biodiversity strategy? Will they establish a network of experts to advise local authorities on developing bee-targeted action plans?

A policy on bee health is limited by a lack of research on possible cures. We really must change that. There is also a rather adverse regulatory structure, which does not take the needs of bees into account. Can we have some initiatives in that area? Perhaps there should be a trial period, within which restrictions on veterinary medicines, which apply largely to animals and not to insects, could be lifted.

Finally, will the Government take steps to create a statutory beekeeper register? Again, without the actual knowledge of how many beekeepers we have, how many hives, and what effect they are having on the environment, we will not be able to make progress on this. That goes alongside a cause which I absolutely endorse for national standards for education and training. Like a number of other noble Lords, I was trained by a local volunteer. It was a terrific exercise-heavily weather-dependent, so I got only two out of the four possible slots, but it was enough to get me going. There is no national accreditation for this, and it really would help if we had a common standard to which everybody was working.

In that context, I just wanted to make one other important point that has not yet been raised. We are talking about the bees we know-the bees we can identify as being related to the hives that we ostensibly organise, although the truth is that we are not very good at running them. There are probably at least as many wild bees about which we know absolutely nothing. I am almost certain that my bees are bred and crossbred with the wild bees in the area. What do we know about their disease resistance, their capacity or their livelihood?

A few years ago a book entitled *A World Without Bees* was published. It was written by Alison Benjamin and Brian McCallum. A number of noble Lords will know about it. It was an interesting book, but the most interesting thing about it was its starting premise. It was a quotation attributed to Albert Einstein, no less:

"If the bee disappeared off the surface of the Earth, then man would have only four years of life left. No more bees, no more pollination, no more plants, no more animals, no more man".

It probably reads better in German. It seems to be the case that Albert Einstein never actually said it, but that should not devalue the message it gives across-a message which has been running through this debate and is something of which we must take account. Bees matter: we must do something about it.

5.57 pm

The Parliamentary Under-Secretary of State, Department for Environment, Food and Rural Affairs (Lord De Mauley): My Lords, I thank my noble friend Lord Moynihan for initiating this debate and for giving me this opportunity to highlight what the Government have been and are doing to improve honeybee health and to outline our future plans for this important area. I would like to thank all noble Lords for their fascinating contributions. They have almost talked me into developing a healthy conflict of interest.

Honeybees are extremely important for pollination, yet, as almost every noble Lord who has spoken has said, they are facing a growing number of threats from pests and diseases that pose a significant challenge to beekeepers. Noble Lords will also be aware of the very poor summer we experienced in 2012 and the effects that this had on agriculture and the environment. Last year was described as the most difficult beekeeping year ever, even by experienced beekeepers, and the annual honey crop is estimated to be down-as I think my noble friend Lord Moynihan said-by more than 70%

compared with 2011. Therefore, we are taking this very seriously and are taking action to improve honeybee health and support beekeeping for the future.

Let me first explain the work we have already got under way. The main focus of our efforts in protecting bee health is through the work of the National Bee Unit, which is acknowledged as having one of the best bee health surveillance programmes in Europe, with a global reputation for excellence. The first of the unit's main activities is inspection and enforcement. We have a team of professional bee inspectors out in the field, about which my noble friend Lord Patten asked and to which I will return, controlling notifiable diseases and surveying for exotic pests. I am pleased to report that, because of their work, we are able to say that the incidence of the two notifiable diseases-European and American foulbrood-remains low, with infection rates around half of those observed during the 1990s. Most importantly, no evidence of exotic pests, such as the small hive beetle, has been found and fortunately these pests remain absent from the UK.

Secondly, the unit provides advice to beekeepers, which was particularly important in view of the very poor summer weather, and specific advice was published to help beekeepers during this period. Thirdly, among the unit's main activities is research development, such as developing control methods for small hive beetle. Fourthly, it contributes to evidence-based policy development, including quantifying risks to bee health from current and emerging threats, diagnostic services for pests and diseases, and contingency planning against the arrival of exotic pests and diseases.

Fifthly, the unit helps beekeepers to become more self-reliant in controlling pests and diseases through training and education programmes jointly run with beekeeping associations. The National Bee Unit was involved in nearly 500 training events last year, which were attended by more than 22,000 beekeepers. Feedback from those attending has shown that beekeepers have valued and benefitted from these events.

The Healthy Bees Plan, which has now been under way for more than three years, was initiated by the previous Government and has been enthusiastically pursued by this Government. Let me set out what has been achieved so far and our plans for the future. A first priority of the plan was to get a more accurate picture of the numbers and distribution of beekeepers and the health of their colonies. Between 2009 and 2011, the NBU visited and took samples from around 5,000 apiaries in England and Wales, which was one of the biggest surveys of its kind ever undertaken.

As the results on the health of our bees became available, we began a review of our pest and disease control policies. This was undertaken by the Food and Environment Research Agency, the Welsh Government, the NBU, representatives from beekeeping associations and an independent scientist. The review considered how best to manage pests and diseases in the future to ensure that effective policies and support are in place; that priorities for future collective action by government and beekeepers are clear; and that we are making the best use of public funding. I should like to take this opportunity to announce to your Lordships that today we are launching a consultation seeking views on the proposals which emerged from this review. These proposals build on current policies and, importantly, set the future direction for pest and disease control.

The second priority of the Healthy Bees Plan was to improve beekeeper training, about which several noble Lords have asked. We have co-funded initiatives with beekeeping associations, of which an example is 400 new beekeeper trainers and a suite of new training materials and courses. These jointly funded programmes will continue during the next phase of the plan to 2015. One of these programmes is the development of an apprenticeship scheme to be launched shortly to encourage young people to become bee farmers and we are working with the Bee Farmers' Association to take this initiative forward.

The third priority of the plan was to increase the number of beekeepers registered on the NBU's BeeBase database. BeeBase is an important tool in the control of bee diseases and pests, and the

chances of successful control are significantly improved if the location and contact details of beekeepers and their apiaries are known. I am pleased to report that the number registered has increased from around 18,000 when the plan was launched to nearly 29,000 now, which is a tremendous achievement.

We are also working to improve the availability of medicines for the treatment of bee diseases and have developed an action plan involving manufacturers, beekeepers and bee inspectors. Details of bee medicines which veterinarians can import from other member states are available on the Veterinary Medicines Directorate's website.

Turning to the ongoing issue of the effect of neonicotinoid pesticides on bees, which my noble friend Lord Moynihan mentioned, as did several other noble Lords, perhaps I may stress to your Lordships that I take very seriously any threat to bees and other pollinators. We have kept evidence on neonicotinoids under close and open-minded scrutiny and will restrict the use of these products if the evidence shows the need.

Government scientists and the independent Advisory Committee on Pesticides advise that, while the potential for toxic effects has been shown, the evidence currently available does not indicate harmful exposure in the field. Nevertheless, my noble friend Lady Thomas referred to the fact that we are working rapidly to fill crucial knowledge gaps. We have research under way which is nearly finished to look at field effects of neonicotinoids on bumble bees. We are studying historic data on bee health and neonicotinoid usage. We are analysing the implications of possible restrictions for the environment and for agriculture. These work streams will deliver very soon. We will consider the results and the action required as a matter of urgency.

I turn now to research funding, about which several noble Lords have asked. We have joined some of the UK's major research funders to tackle the decline in insect pollinators. Understanding the causes of this decline will help us to identify the best possible action to support and sustain these species for the future. This is important given the role of pollinators in local food production and in our overall food security. The initiative's total spend is up to £10 million over five years. Nine projects were announced in June 2010 that will look at different aspects of the decline of insect pollinators and bring together researchers from many disciplines, including ecology, molecular biology, mathematics and computing. Some will focus on specific species and/or diseases; others will look broadly at factors affecting the health and survival of pollinating insects more generally. Two of these projects focus specifically on honeybees and six will benefit both honeybees and bumblebees. We look forward to seeing the results of these studies over the next two years.

My noble friends Lord Moynihan and Lord Hodgson asked about progress on developing a bee strain resistant to Varroa. Many attempts have been made both in this country and worldwide to breed Varroa-resistant or Varroa-tolerant bees. This includes work carried out at the University of Sussex since 2008. I understand that, despite anecdotal evidence to the contrary, this has so far been unsuccessful. This is in part due to the genetics of honeybees. Other novel molecular approaches are currently being developed for the control of Varroa. The recent sequencing of the genomes of *Apis mellifera* and *Varroa destructor* could aid the identification of tolerant strains in the future by targeting relevant genes and traits more effectively.

My noble friend Lord Moynihan, among others, stressed the importance of education. A key priority of the Healthy Bees Plan is to deliver an enhanced training and education programme for beekeepers, driving up husbandry standards and the management of pests and diseases. Defra has so far co-funded education and training initiatives with beekeeping associations and I referred to that a little earlier.

My noble friend Lady Thomas asked whether neonicotinoids were used by local authorities on verges and, indeed, in private gardens. Agriculture and horticulture is by far the largest market;

although they are also authorised for use in other situations including, for instance, use on high-quality turf on golf courses. They are unlikely to be used by councils on roadside verges where herbicides are more likely to be used. They are authorised for amateur use in private gardens but these products are authorised at much lower doses than are allowed in professional applications and are used on a much smaller area. Furthermore, they are only authorised if they can be used without harmful effects on human health or unacceptable risks to the environment. No product is authorised for home or garden use if its correct use requires training or protective equipment.

My noble friend Lady Byford asked about the results of the IPI-the Insect Pollinators Initiative. I can tell her that all projects within it are progressing well and we look forward to seeing the results in 2014. She also asked whether research has been carried out into the nature and variety of diseases affecting plants and trees and whether there is any evidence that diseased plants or trees are for some reason more attractive to insects. In fact, a considerable amount of work has been carried out by Defra, Fera, Forest Research, universities and research institutes into the nature and variety of diseases affecting plants and trees. That may be, perhaps, a subject for further debate. However, specifically in respect of whether diseased plants or trees are more attractive to insects, it is true that certain studies have indicated that this can sometimes be the case. For example, a recent paper shows that a plant pathogen can make the host more attractive to insect vectors and there is, of course, a risk that they further spread the pathogen.

A paper published in 2005 suggested that the pathogen causing Dutch Elm disease makes host trees attractive to insect vectors. However, a recent Dutch paper showed that white clover mosaic virus infection can decrease the attractiveness of white clover plants for female fungus gnats. I hope that my noble friend is aware of the expert task force set up by Defra's chief scientist specifically to see what can be done to enable us to be on the front foot in anticipating plant diseases from abroad that pose a potential risk to us. The interim report of that expert task force is very welcome.

My noble friend Lady Thomas and the noble Lord, Lord Rea, spoke about restrictions on neonics in other countries. There were several incidents in May 2008 in which these pesticides killed bees in Germany. As a result, the circumstances in which they can be used have been restricted in Germany although the products have not been banned. According to the German authorities, the incidents resulted from the inadvertent exposure of bees to one of the neonic products applied as a seed treatment to maize seed. We have assessed the risk of the German situation being replicated here as negligible for a variety of reasons. Three other EU member states, France, Slovenia and Italy, have introduced some restrictions although all have neonic products authorised. Slovenia took action following incidents similar to those in Germany. Italy has restricted the use of these pesticides in the wake of the German incident as a precautionary measure and in France Imidacloprid has been suspended for seed treatments on sunflowers since 1999, and on maize since 2004. The basis for the recent French action is not entirely clear. They cited a review by the French agency ANSES. However, ANSES did not in fact call for a ban and its review does not appear to support one. The UK is therefore in step with most other EU countries and, most importantly, we are acting in accordance with the evidence.

The noble Lord, Lord Rea, asked whether we agree with the use of the precautionary principle. We fully accept that the precautionary principle is applicable in considering the appropriate response to the potential effects of pesticides. The principle guides decision-making when a serious potential risk has been identified and where, following the best possible risk assessment, there remains scientific uncertainty. It does not dictate the appropriate decision.

My noble friend Lord Patten asked about bee inspectors. I assure him that they exist. I have met them, or many of them, on a course on my visit to Fera in Yorkshire. There are about 60 National Bee Unit inspectors. They are an extremely important component of the bee health programme and they are gearing up for another busy year. I can tell my noble friend that, far from reducing, their

numbers have increased since the 2009 launch of the Healthy Bees Plan. He asked whether the inspectors have a uniform. It is grey and has the Fera logo on it.

My noble friend also asked about the quality of science obtained by Her Majesty's Government and our European partners for any decisions on pesticides. The Government have made clear their determination to act on the evidence. We have therefore commissioned a number of research projects to fill gaps in what is known. These include, among a number of other projects, a study of real exposure of bumblebees in the field to oilseed rape treated with neonics and a study of the significance of pesticide residues in disease levels in healthy honeybees. This work is being taken forward as rapidly as possible and is nearly ready for consideration by the independent experts of the Advisory Committee on Pesticides. In Europe, the focus is on using the new science to update the standard process for assessing the risks of pesticides to bees, and UK experts are actively involved. My noble friend referred to the need to improve pesticide management and hygiene. I absolutely agree with that. That is a key aspect of the consultation we are launching today.

My noble friend Lord Jones of Cheltenham asked what assessment the Government have made of effect of the loss of habitat on bee populations. In 2011, the UK National Ecosystem Assessment concluded that since 1980 wild bee diversity has declined in most landscapes. It identified land use change and habitat loss as key drivers of the decline in wild bees as well as other pollinating insects alongside disease and the use of some pesticides. We have lost 97% of our flower-rich grasslands since the 1930s. This is why the focus of our conservation effort for pollinators is the protection and management of habitats through protected site policy, agri-environment schemes and new initiatives such as nature improvement areas.

He asked whether the Government would consider protecting meadows in any future planning legislation, and the noble Lord, Lord Stevenson, raised questions in that area as well. Protection for meadows is in place. Flower-rich grasslands, including lowland and upland meadows, are already recognised in the list of habitats of principal importance for the conservation of biological diversity in England, published by the Secretary of State, under Section 41 of the NERC Act 2006. The National Planning Policy Framework, published in 2012 requires planning authorities to promote the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations. The Environmental Impact Assessment (Agriculture) (England) (No. 2) Regulations 2006 protect uncultivated or semi-natural areas, such as hay meadows from being damaged by agricultural work, such as ploughing, draining and use of fertilisers and herbicides where the uncultivated land or semi-natural areas directly affected are two hectares or more in area. I could go on, but I am conscious of the time. Perhaps I might suggest that a detailed debate on the Bill, to which my noble friend referred, could be conducted when it comes before your Lordships' House.

My noble friend Lord Jones asked whether the Government agree with Buglife. While important, honeybees are only a small part of the insects which pollinate crops. Of course, we agree. Recently published research from Reading University suggested that managed honeybees were responsible for about a third of pollination in the UK, noting that this was after a decline in managed bee populations. The national ecosystem assessment suggested that wild pollinators contribute a significant proportion of that total. My noble friend also asked what the Government were doing to conserve wild bees and other pollinators. Perhaps I will write to him on that because I have covered it a little already and can expand on it. He asked whether the Government will invite responses from Buglife and other organisations to the consultation. The Government would welcome responses from any individual or organisation with an interest in protecting our bees.

My noble friend Lord Hodgson asked who is in charge. Well, my Lords, I am. I am the Minister responsible for bees. To be slightly less glib, Defra has the co-ordination role and collaborates closely with the Welsh and Scottish Governments who also fund Fera in part. I will write to noble Lords-the noble Lord, Lord Stevenson, invited me to do so. I think that I have rather good answers

to some of his questions but I have simply run out of time. There are continuing challenges for bee health that need to be addressed and there are no signs that these are likely to diminish. Although the number of colony losses noted by the National Bee Unit inspection during the beekeeping season has fallen from 12.5% in 2008 to 5% in 2012, the poor summer weather could see this trend reversed, so the challenge continues. I assure noble Lords that the Government are committed to continue to play their part in working with beekeepers to sustain the health of honeybees. Our successes in recent years provide a clear platform for determining the priority actions necessary to achieve that important goal.

6.17 pm

Lord Moynihan: My Lords, it would be invidious and inappropriate for me to comment individually on the many contributions to this important debate. Suffice it to say that the quality of all contributions could not have been of a higher standard. We have achieved our collective objective, which is to provide the Government with an agenda, to keep them busy at least until our next debate which on current form comes round, like the Olympic Games, once in a quadrennium.

My sincere thanks to all noble Lords who participated in this debate; there is urgent and important work to be done, and I am grateful to my noble friend for his support as the new self-appointed chief bee inspector. We will hold him to that role, but I am particularly grateful once again to everyone who contributed today to what I believe has been a very useful and informative debate.

Motion agreed.