

## **SPIDER (ARANEAE) PROTECTION MEASURES AND THE REQUIRED LEVEL OF KNOWLEDGE**

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### **Abstract**

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Nature conservation is an activity of national governments and private societies. Invertebrates have been largely neglected. On the international European level the Bern Convention and the Habitats Directive include some invertebrate species. The number of invertebrate species needs to be increased. For the useful selection of species one needs to have access to databases on distribution and habitats. The available catalogues and national or regional checklists for spiders, in print or on the internet, are listed. A more centralized organization is proposed, in order to profit successfully from the current growing interest in the protection of invertebrates and their habitats.

### **Introduction**

Nature conservation is an activity which has developed on different levels. There are governmental actions, usually supported by legal measures, to save the environment, stop extreme deterioration of the landscape and improve upon the general living conditions for plants and animals. Governments often create national nature reserves. In many countries there are also private societies for nature conservation. Two examples can be given: the National Trust in the United Kingdom, and Natuurmonumenten in the Netherlands. The membership of these two societies represent considerable percentages of the populations of the respective countries, and both are responsible for the acquisition and management of large natural areas. Other countries have equivalent organisations, if on a slightly smaller scale.

The general pattern of such nature conservation efforts is the protection of landscapes and plants, birds and mammals, then of vertebrates in general, and often also the regulation of hunting and collecting. Very late in the process the invertebrates come into the picture. Within the invertebrates the butterflies come first. This sequence reflects the general rule that attractive organisms have a better chance of protection.

## **European developments**

During the last 50 years threats have increased as well as efforts to repair the damage done. In Europe nature conservation has now become a recognised issue. This is the first time in the history of Europe that we see international efforts and investments in nature protection. European activities are based on a concept of federal or central cooperation. On the European international level we have had several initiatives, such as the Bonn Convention, the Ramsar Convention, the Bern Convention, the Biodiversity Convention, the Birds Directive, the Habitats Directive, and finally Natura 2000.

The Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats) concerns itself with the protection of organisms (plants and animals) and their habitats. The convention was drafted in 1982 by the Council of Europe in Strasbourg. Through the initiatives of the European Invertebrate Survey (E.I.S.) invertebrates were put seriously on the agenda of the Bern Convention Standing Committee. The Standing Committee of the Bern Convention had accepted for inclusion in the Bern Convention a list of invertebrates proposed by the IUCN. E.I.S. criticised the contents of this list and organised a workshop to make clear what could be effectively done to the benefit of invertebrates. After that, in 1989, E.I.S. was asked to participate in an Invertebrate Specialists Group for the Bern Convention.

The E.I.S. argued that the list of invertebrates was too short and ill-composed in that it comprised only few orders and classes out of the large numbers of threatened invertebrate animal species. The Bern Convention Standing Committee agreed and in 1997 the E.I.S. was asked to draft an extension of the list. This list was presented in 1998. It comprises myriapods, arachnids, Lepidoptera, and Diptera. That list is now awaiting approval of the Standing Committee, that is to say approval of the participating countries. It is our intention to expand the list further with representatives of some other taxa, a.o. with Orthoptera.

## **Strategies**

The selection of species for the list is a serious matter. The Standing Committee wants threatened organisms on the lists. The Expert Group always states that there is a reason why an organism is threatened and that one has to eliminate the causes rather than fight the symptoms. This implies restoration and protection of habitats, which are usually threatened.

Whoever analyses the situation for a given taxon will soon discover that the number of species in serious decline, or close to disappearing, is high. Generally speaking, the stenoeious species fall in this category, because they are the more sensitive species with special habitat requirements. A small change in their environment will cause them to die out locally and when comparable habitats in the surrounding area suffer equally, or have already disappeared, the species will die out regionally, or even completely. Many of such species are rare, are found on few isolated sites, or are local endemics.

Should we put all threatened, rare or stenoeious species on the lists? The answer is ‘no’, because it simply is not feasible to protect large numbers of species. We should not forget that we are dealing with decision makers in the political arena! One option is to make a selection of threatened species and put the best known, the nicest, the showy species on a list. Such illogical selections have been carried out in the past. Alternatively, we should switch to the protection of threatened habitats, and this is exactly what the Bern Convention and the Habitats Directive have set as their goals. The Bern Convention makes Action Plans for some of the species on the lists, and the Habitats Directive has identified a large number of valuable and threatened habitats, which have to be protected by the EU countries.

A difficulty rises from the differences in the spheres of influence of the Bern Convention and the Habitats Directive. The Habitats Directive holds for all EU countries and is an EU law, which one has to respect. An EU country which does not implement the law and act accordingly will be called before court and eventually be fined. The Bern Convention, on the other hand, is a product of the Council of Europe and is ratified by most of Europe, including the non-EU countries and even some African and Middle-East countries, but it is only a voluntary agreement. If a country ignores the agreement, the other countries may become annoyed, but the transgressing country will never receive more than a reprimand.

### **Future tasks**

It is clear that for this type of work, on the European level, one has to have available an up-to-date database for each group of species. One has to know also what the status of a species is. Basic data are needed on distribution within and outside Europe, on habitat and ecological preferences, local densities, and, if possible, on all of these characteristics, past and present.

Arachnology is a relatively strong section of the relevant biological disciplines, such as taxonomy and ecology. We have a fairly good idea of the composition of the European spider fauna, although there still is an impressive yearly increase of new species, new synonymies and new information on distributions.

Let us see what we have got for spiders. We have the catalogues by Pierre BONNET (1945-1961) and Carl ROEWER (1942-1954), both comprising all the known species up to 1940 with an indication of their ranges, while ROEWER for some families also included data up to 1954. We are extremely lucky that first Paolo BRIGNOLI (1983) and, after his untimely death, Norman PLATNICK (1989, 1993, 1997) picked up that loose end and continued to register all the nomenclatorially important events. Thus we are much better off for spiders than, for instance, for mites (and many other groups of invertebrates). These supplementary spider catalogues comprise all the new species and recognised synonymies, and often also new distribution data. For many European countries national or regional catalogues or checklists have been published. Some are more recent than others. Some are available on the internet. Some are being constructed but are not ready yet. The terms “catalogue” and “checklist” have been used by authors without strict definitions. Either type of document

Table 1. Survey of available (sub)recent catalogues and checklists for European countries, in print and on the internet.

Country	Source
Andorra	–
Austria	KRITSCHER 1955; KRITSCHER et al. 1956; THALER 1991-1997 (N.-Tyrol); KROPF & HORAK 1996 (Steiermark); NOFLATSCHER 1997 (S.-Tyrol)
Belgium	BOSMANS & MAELFAIT 1986; <a href="http://www.ufsia.ac.be/Arachnology/Pages/Arabel/BelgianSpiders.html">http://www.ufsia.ac.be/Arachnology/Pages/Arabel/BelgianSpiders.html</a>
Belorussia	MIKHAILOV 1997
Bulgaria	DRENSKY 1937-1943; DELTSHEV (in prep.); DELTSHEV & BLAGOEV 1998 (red list and endemics)
Cyprus	–
Czech Republic	BUCHAR 1993; BUCHAR et al. 1995; <a href="http://www.butbn.cas.cz/klimes/arachno/">http://www.butbn.cas.cz/klimes/arachno/</a>
Denmark	BRAENDEGARD 1966-1972; BENGTON & HAUGE 1979 (Faroer Islands); HOLM 1980 (including Faroer Islands); <a href="http://www.aki.ku.dk/zmuc/ento/arachnid/dklist/checklst.html">http://www.aki.ku.dk/zmuc/ento/arachnid/dklist/checklst.html</a>
Estonia	VILBASTE 1987; MIKHAILOV 1997
Finland	PALMGREN, 1977
France	SIMON, 1914-1937; CANARD, 1990 (W. France); CANARD & CHANSIGAUD, 1997
Germany	PLATEN et al., 1995
Greece	DRENSKY, 1936
Hungary	SAMU & SZINETAR, 1999
Iceland	AGNARSSON, 1996
Ireland	McFERRAN & ROSS, 1993; VAN HELSDINGEN, 1996
Italy	PESARINI, 1994; NOFLATSCHER, 1997 (Südtirol)
Latvia	STERNBERGS, 1979-1998 [not all families treated]; MIKHAILOV, 1997
Liechtenstein	–
Lithuania	MIKHAILOV, 1997; VILKAS, 1992; RELYS, 1994
Luxemburg	MULLER, 1955-1967
Moldavia	MIKHAILOV, 1997
Netherlands	VAN HELSDINGEN, 1998, 1999
Norway	HAUGE, 1989
Poland	PROSZYNSKI & STAREGA, 1971, 1997; STAREGA, 1983; KRZYZANOWSKA et al., 1981 (Warsawa and Mazovia)
Portugal	BACELAR, 1928; <a href="http://www.geocities.com/RainForest/Vines/5197/checklist.html">http://www.geocities.com/RainForest/Vines/5197/checklist.html</a>
Romania	FUHN & OLTEAN, 1970
Russia	ESYUNIN & EFIMIK, 1996; MIKHAILOV, 1996, 1997
San Marino	–
Slovakia	GAJDOŠ et al., 1999; GAJDOŠ & SVATOŇ, 1993 (red list)
Slovenia	POLENEC, 1992 (red list)
Spain	BARRIENTOS et al., 1979-1983 (some families)
Sweden	JONSSON (in prep.); KRONESTEDT (in prep.)
Switzerland	MAURER & HÄNGGI, 1990; HÄNGGI, 1993, 1999
Turkey	KAROL, 1967
United Kingdom	ROBERTS, 1993; WILLIAMS, 1980 (Jersey)
Ukraine	MIKHAILOV, 1997
Yugoslavia (former)	NIKOLIC & POLENEC, 1981

can be used for our purpose. Sometimes national or regional taxonomic revisions at the generic or family level can supply additional information.

By putting such documents together we can compose one European checklist giving a more accurate picture of the distributions of the species. In Table 1 all (sub)recent regional and national checklists, printed or on the internet, which could serve as basic documents, are presented per country. I am convinced that more catalogues and checklists will be published in the near future. In the European project "Fauna Europea", adopted by the European Union, we arachnologists can demonstrate what we have achieved during the last decades.

However, for the purposes mentioned above we do not only need a survey of distributions, but also data on habitats of the species over their full ranges. These are much less readily available in an easily accessible form. HÄNGGI et al. (1995) brought together a selection of data for a large number of species, using the main publications which gave data on habitat preferences. Here, much further research has still to be carried out, by collecting data from the literature as well as in the field.

A third, and much less easily obtainable, set of data concerns the size of populations and densities of local populations. This is necessary in order to meet the requirements outlined by the IUCN in order to identify the threat categories that endangered spiders belong to (IUCN, 1994). We all know how difficult that will be, because for the classification of a species in a threat category one needs to know the decline in population and/or its decline in distribution area.

Useful to a certain extent are the Red Lists published in several countries. To a certain extent, because the criteria used are not always made clear and the lists, therefore, in many cases are not comparable to those of other countries. Red Lists are political instruments. The purpose of Red Lists is to convince responsible governments or comparable agencies of the necessity to take measures to improve the living conditions for the species on the list to the effect that the species can be removed again from that list in the future, because it is no longer threatened. A Red List tabulates species that should be removed from the list as soon as possible.

### **The European Invertebrate Survey**

For the Fauna Europea project the E.I.S. (European Invertebrate Survey) has taken the initiative to co-ordinate and streamline the activities for certain taxa. When other organisations are active already, such as the Societas Europea Lepidopterologica or the world societies for the study of Odonata or Molluscs, the E.I.S. does not have to play an active role, but for some other and often more obscure groups we want to centralise existing initiatives and activities. Arachnology will be dealt with by the E.I.S. We will make use of available structures whenever possible. I want to stress here that we have to accelerate our activities considerably if we want to go along with the main stream of growing international interest in habitat protection on behalf of invertebrate organisms. Moreover there are other scientific, biodiversity-related projects in which the E.I.S. is involved. Once we have our dataset operational it can be used for many purposes.

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