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CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

Group of Experts on Conservation of Invertebrates

2nd meeting
Strasbourg, 25 - 27 March 1992

Secretariat Memorandum
prepared by the
Directorate of Environment
and Local Authorities

The Group of experts on conservation of invertebrates held its 2nd meeting from 25 to 27 March 1992, following the mandate of the Standing Committee.

The Standing Committee is invited to:

1. Take note of the report of the meeting

2. Take note in particular of some proposals concerning the possible amendment of the Appendices:

   a) that for the inclusion of invertebrate species, the criteria proposed by the Group (in Appendix 4 to this document) be taken into account

   b) that marine invertebrates be considered

   c) that the species Discus defloratus (an endemic Madeira land snail) be deleted from the Appendices as it is not a good species

3. Examine and, if appropriate, adopt the list of invertebrates that has been identified by the Group as species requiring special habitat conservation measures (in Appendix 7 to this document)

4. Examine the proposal of amendment of Appendix IV for Unionids and, if appropriate, decide on its future formal adoption (see Appendix 9 to this document)

5. Examine and, if appropriate, adopt a draft recommendation on pearl fishing (see Appendix 10 to this document)

6. Examine and, if appropriate, adopt a draft recommendation on conservation of some invertebrate species in the Appendices of the Convention (see Appendix 11 to this document)

7. Take note and, at the moment of adopting the programme and budget, decide on the activities planned by the Group of experts for the following two years:

Activities without financial implications

7.1 Reports on the status of some species listed and on the conservation of invertebrates in the territories of Contracting Parties. Reports will be presented at the next meeting of the Group in 1994

7.2 Endemic species requiring special conservation attention. Reports will be requested from Contracting Parties

7.3 Sub-group of alpine high mountain invertebrates. At the proposal of Austria, a sub-group will be formed that will present a report at the next meeting of the Group

Activities with **financial implications** (presented in order of priority set by the Group. See item 8 of the agenda for further details)

7.4 Revision of the reports on butterflies, dragonflies and saproxylic invertebrates (updating and extension to Eastern Europe)

7.5 Report on habitat types of special significance for large groups of invertebrates

7.6 Marine invertebrates: report on specific conservation problems with data sheets on threatened species. Seminar or group of experts to amend the report

7.7 Report on new groups of insects: Neuroptera, Trichoptera, and Carabidae (with data sheets)

1. Opening of the meeting by the Chairman

The Chairman, Dr Martin Speight (Ireland), welcomed participants (see Appendix 1).

The Secretariat presented the papers for the meeting.

2. Adoption of the agenda

The agenda was adopted as it appears in Appendix 2.

3. Progress in invertebrate conservation since the last meeting of the Group (April 1990)

The different delegations present informed the Group on the progress in invertebrate conservation in general, and in particular that concerning the species listed in the Appendices to the Convention (called "Bern Convention Invertebrates" - or BCIs for short).

The reports presented are found in Appendix 3 to this document (reports were not translated).

The Chairman summarised the progress on invertebrates in the last two years stating that there had been substantial improvement in many of the Bern Convention Invertebrates. Several states had started or continued survey or protection programmes on them even if there was still much to know on the situation of many BCIs. The reports that had been presented were useful but could be more complete. Many of the recommendations that were addressed by the Group in 1990 had been followed, and some problems solved. There seemed to be a general increase in the attention devoted to invertebrate conservation from national conservation agencies and from non-governmental organisations, even if some important questions (absence of regular monitoring of threatened species, lack of invertebrate inventories or protected areas or areas candidates for protection, absence and increasing old age of invertebrate taxonomist) remained unsolved.

The Group decided that national reports should be requested from Parties and observers well in advance of meetings and that they should include detailed information on BCIs, in particular those for which special habitat conservation measures were requested (see Appendix 7).

It was suggested that reports include, for each species:

1. Presence and (if known) distribution in the state
2. Conservation status
3. Main bibliography on the species
4. Other comments that may help add to the knowledge of what conservation problems are faced by the species and the measures (if any) taken in its respect.

The different states should also submit a short report on the legal protection of invertebrates in their states, and of the legal situation of BCIs in particular. The report should be completed with a list of invertebrate species that need special conservation measures (both BCIs and others).

The Secretariat would prepare, in collaboration with the Chairman, a questionnaire to be circulated to the Parties and observers.

4. Amendment of Appendix II

4.1 Criteria for amendment

The Group considered this matter carefully and stated that amendment of the Appendices should be one of the priorities of the Group, second only to the encouragement of the conservation of listed invertebrates and their habitats.

Yet the criteria used for including further species into the Appendices of the Convention needed to be redefined. The Group adopted new criteria, which are mostly based on the criteria used by the Standing Committee for amendment of Appendix I to the Convention (plants). These criteria are specified in Appendix 4 to this document.

The delegate of the Russian Federation made a statement about the criteria they were using for possible proposals of inclusion of species (Appendix 5).

4.2 Species of Central and Eastern Europe

The Group held a discussion on the need to extend the lists of invertebrates in the Convention to cover new species from Central and Eastern Europe. There was general agreement that such work was a priority but was, at the same time, quite a difficult task. The Group examined the Europe Red List of Globally Threatened Animals and Plants edited by the United Nations Economic Commission for Europe, as well as other lists of invertebrates (in the Habitats Directive, in CORINE etc). The Group considered that rather than taking those lists as a basis for modifying the Appendices of the Bern Convention, it was preferable to concentrate, for the moment, on some important groups (butterflies, dragonflies, molluscs, saproxylic organisms) on which there was enough information. The Group felt that the reports prepared in past years for the Council of Europe could be a good basis for amendment of the Appendices once they were revised by their authors.

The delegate of the Russian Federation said that the Invertebrates Red Book for the ex-USSR would be prepared in a year or so.

4.3 Marine invertebrates

The Group noted that there was no marine invertebrate mentioned in the Convention but that some species might be threatened. The Group took note of the conclusions on the international colloquy on "marine species to be protected in the Mediterranean" (held at Carry-le-Rouet, France in November 1989). Participants at this colloquy asked that some species be given legal protection (equivalent to listing under Appendix II or III). Data sheets of those species are presented in Appendix 6 to this document.

The Group proposed that in any future amendments of Appendices II and III, the inclusion of marine invertebrates be considered.

4.4 Endemic species

The Group decided to carry out an exercise to identify endemic species that would merit listing under the Convention (provided they agree with the adopted criteria). The Group asked the Secretariat to

contact Contracting Parties to get that information, which will be gathered by Mr Speight, who will prepare a paper for the next meeting of the Group.

In this context, it was noted that one of the endemic species included in Appendix II (Discus defloratus), a land snail from Madeira (Portugal) had ceased to be recognised as a good species.

The Group asked the Standing Committee to delete this species when revising Appendix II.

5. Invertebrates and their habitats

5.1 Species requiring special habitat conservation measures

The Group, following the terms of Recommendation No. 14 of the Standing Committee, identified the species in Appendix II requiring special habitat conservation measures. They are listed in Appendix 7 to this document.

5.2 Habitat types of special importance for large groups of invertebrates

The Group thought that it was an important matter to identify habitat types (in the sense of Resolution No. 1 of the Standing Committee) which had a great diversity of invertebrates or which contained a high proportion of endemics. The Group thought that, even if it could suggest some of these habitat types, it was preferable to engage a consultant to prepare a detailed report.

Some habitat types were mentioned as known to a special invertebrate interest (but this list did not pretend to be comprehensive):

Cave ecosystems	Dry grasslands
Wetlands	High alpine ecosystems (above tree line)
Old-growth forests	High Canary mountain (above tree line)
Riverside shingles	

In this context, the delegate of Austria proposed that a sub-group be created on invertebrates of the high alpine ecosystems. The Group agreed to this proposal. The sub-group will coordinate with other groups and organisations concerned with the alpine region and will present a report to the next meeting of the Group. Mr Haslett was given the responsibility of coordinating the sub-group, which will work autonomously.

The delegate of the Russian Federation presented a document on rare communities requiring special protection on the territory of European Russia (see Appendix 8 to this document).

6. Prohibited means of capture and exploitation of Unionids and crayfish

After studying a document presented by Mr Fred Woodward (T-PVS (92) 13), the Group made a proposal, to be studied by the Committee, for modification of Appendix IV of the Convention for Unionids (see Appendix 9 to this document). The Group also proposed a recommendation on pearl fishing of Margaritifera margaritifera (see Appendix 10).

As far as the prohibited means for crayfish were concerned, the Secretariat informed the Group that it had contacted without success the International Astacological Society on this issue. The representative of Norway volunteered to provide the name of a person to be contacted for this purpose. The Secretariat was charged with making the necessary arrangements and presenting the Standing Committee with a proposal.

7. Conservation priorities for Bern Convention Invertebrates including recommendation to the Standing Committee of the Convention

The Group was partly satisfied with the results of the conservation proposals suggested at its previous meeting but felt that, to give its proposals more weight, they should be adopted by the Standing Committee. Thus the Group proposed a draft recommendation for adoption by the Standing Committee (see Appendix 11) on the conservation of some invertebrate species in Appendix II of the Convention.

8. Suggestions for invertebrate conservation activities within the framework of the Convention for 1993 and 1994

The following activities, requesting financial means, were suggested for future work programmes of the Convention. They are listed by order of priority:

1) Revision of the studies on butterflies, odonata and saproxylic invertebrates to include Central and Eastern Europe. These studies should produce updated data sheets of Bern Convention Invertebrates and of species which might be good candidates for listing in the Appendices of the Convention (according to the criteria set). Dr Speight himself offered to harmonise the different data sheets of BCIs produced by the experts, which would be prepared for publication in the Nature and Environment Series.

2) The making of a report on habitat types of special significance for large groups of invertebrates such as those which have an unusually high proportion of endemic or threatened species.

3) Reports on new groups such as

a) **Marine invertebrates.** A report will be prepared by an expert. The report will deal with specific conservation problems of threatened marine invertebrates and will contain data sheets on some threatened species, including conservation measures proposed. Those measures would comprise the listing of species for inclusion in the Appendices of the Convention if they met the criteria for listing. The document is to be presented for comment and amendment by a specialised group of experts or seminar (to meet only once) which should report directly to the Standing Committee.

b) **Neuroptera.** A report by an expert, with relevant data sheets for threatened species.

c) **Trichoptera.** A report by an expert, with relevant data sheets for threatened species.

d) **Carabidae.** A report by an expert, with relevant data sheets for threatened species.

9. Election of Chairman and Vice-Chairman

Dr Peter van Helsdingen (The Netherlands) was elected Chairman and Dr Marc Meyer (Luxembourg) was elected Vice-Chairman. Their mandates extend till the end of the next meeting of the Group of experts and may be renewed once.

10. Other business

None.

APPENDIX 1

LIST OF PARTICIPANTS

AUSTRIA/AUTRICHE Dr John R. HASLETT, Universität Salzburg, Zoologisches Institut, Hellbrunnerstrasse 34, A 5020 SALZBURG (E)
Tel. 0662/8044-5600 Telex Fax 0662/8044/5698

BELGIUM/BELGIQUE M. Benoit DE BAST, Faculté des Sciences Agronomiques de Gembloux, Unité de Zoologie générale et appliquée, Passage des Déportés 2, B 5030 GEMBLOUX (F)
Tél. 32-81.62.22.86 Télex FSAGX 59482 Fax 32-81.61.45.44

M. Jean-Pierre MAELFAIT, Ministerie van de Vlaamse Gemeenschap, Instituut voor Natuurbehoud, Kiewitdreef 5, B 3500 HASSELT (E)
Tél. 32-11.21.01.10 Télex Fax 32-11.24.22.62

CZECH AND SLOVAK FEDERAL REPUBLIC/REPUBLIQUE FEDERATIVE TCHEQUE ET SLOVAQUE
RNDr Jan KARA (apologised for absence/excusé)
Federal Committee for the Environment, Sleská 9, 120 00 PRAHA 2 (E)
Tel. 42-2-255 226, 2152014 Telex Fax 42-2-259 042

DENMARK/DANEMARK Mr Claus GOLDBERG, Ministry of Environment, The National Forest and Nature Agency, Slotsmarken 13, DK 2970 HØRSHOLM (E)
Tel. + 45 45 76 53 76 Telex 21485 NATURE DK Fax +45 45 76 54 77

EUROPEAN ECONOMIC COMMUNITY/COMMUNAUTE ECONOMIQUE EUROPEENNNE
Mr Marc ROEKAERTS, Commission of the European Communities, DG XI-EEA-TF, Rue de la Loi 200, B 1049 BRUXELLES, Belgique (E)
Tel. 32-2-236 88 17 Telex Fax 32-2-236 95 62

FINLAND/FINLANDE Mr Ilmari VALOVIRTA, Curator of Invertebrates, Finnish Museum of Natural History, Zoological Museum, P. Rautatiekatu 13, SF 00100 HELSINKI (E) Tel.+358-0-1917451 Fax +358-0-1917443

FRANCE M. Robert GUILBOT, Secrétaire Général, Office pour l'Information Eco-entomologique, BP n° 9, 78283 GUYANCOURT Cédex (F) Tel. (1) 30 44 13 43

M. Jacques LHONORE, Professeur des Universités (Biologie Animale), Laboratoire de Biosystématique des Insectes, Faculté des Sciences, BP 535, Av Olivier Messiaen, 72017 LE MANS Cédex (F/E)
Tel. 43-83-32-51 (secret. 43-83-32-50) Fax 43-83-33-66

GERMANY/ALLEMAGNE Dr Horst GRUTTKE, Bundesforschungsanstalt für Naturschutz und Landschaftsökologie, Konstantinstr. 110, D 5300 BONN 2 (E)

Dr Harald SCHREIBER, Curator, Univ. des Saarlandes, Lehrstuhl für Biogeographies, D 6600 SAARBRUECKEN 11 (E)
Tel. 06897 798 104 Telex Fax 06897-798-155

GREECE/GRECE Dr Nikos AVTZIS, T.E.I, Rue Dramas, GR 66100 DRAMAS
Tel. 0521 37707 Telex Fax 0521 34743

IRELAND/IRLANDE Dr Martin C.D. SPEIGHT, Wildlife Service, 51 St Stephen's Green, IRL DUBLIN 2 (E) Tel. 1/28 19 719 Telex Fax 1/28 10 465

ITALY/ITALIE Prof. Roberto ARGANO, Dipartimento di Biologia Animale e dell'Uomo, Università de Roma "La Sapienza", Viale Università 32, I 00185 ROMA Tel. and Fax 06.499 147 43 Telex (F)

LIECHTENSTEIN Apologised for absence/excusé

LUXEMBOURG M. Marc MEYER, Conservateur, Musée national d'Histoire naturelle, Section Zoologie, 24 rue Munster, L 2160 LUXEMBOURG (F)
Tel.+352-462233200 Telex Fax +352-463848

NETHERLANDS/PAYS-BAS Mr Peter J. van HELSDINGEN, Deputy Director, Rijksmuseum van Natuurlijke Historie, Raamsteeg 2, NL 23 11 PL LEIDEN (E)
Tel. (31) 71 14 38 44 Telex Fax (31) 71 14 33 44

NORWAY/NORVEGE Mr Kaare AAGAARD, Norwegian Institute for Nature Research (NINA), Tungasletta 2, N 7005 TRONDHEIM (E)
Tel.+47 7 580 500 Telex Fax +47 7 91 54 33

SPAIN/ESPAGNE Mrs Mª Angeles RAMOS, Head of project FAUNA IBERICA, Museo Nacional de Ciencias Naturales, José Gutierrez Abascal 2, E 28006 MADRID (E)
Tel. 41 11 328 Telex Fax 56 45 078

SWITZERLAND/SUISSE M. Yves GONSETH, Musée d'Histoire naturelle, Centre suisse de Cartographie de la Faune, Rue des Terreaux 14, CH 2000 NEUCHATEL (F)
Tel. 38 257 257 Telex Fax

M. Raymond Pierre LEBEAU (Apologised for absence/excusé) Chef de section, Office fédéral de l'environnement, des forêts et du paysage, Département fédéral de l'Intérieur, Hallwylstr. 4, CH 3003 BERNE (F)
Tel. Telex Fax

UNITED KINGDOM/ROYAUME-UNI Dr S.G. BALL, Invertebrate Zoologist, Species Conservation Branch, Joint Nature Conservation Committee, Monkstone House, City Road, GB PETERBOROUGH PE1 1JY (E) Tel. 0733 62626

Mr Paul T. HARDING, Head, Biological Records Centre, NERC Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton GB HUNTINGDON Cambs PE17 2LS (E)
Tel. 04873-381/8 Telex 32416 MONITE G Fax (04873) 467

Mr Fred. R. WOODWARD, Deputy Keeper (Natural History), Art Gallery & Museum, Kelvingrove, GB GLASGOW G3 8AG (E) Tel. 041-357 3929 Fax 041-357 4537

OBSERVERS/OBSERVATEURS

ALGERIA/ALGERIE M. Farid BOUDRAA, Consulat Général d'Algérie, 101 route de Schirmeck, 67000 STRASBOURG, France

RUSSIAN FEDERATION/FEDERATION DE RUSSIE Mrs Nadejda I. KOCHETOVA, Head of Laboratory of Invertebrates' Protection, Institute of Nature Conservation, Znamenskoye-Sadki, P/O Vilar, 113628 MOSCOW M-628 (E)
Tel. 4232-21-44 Telex 411584 MFAC SU Fax

EUROPEAN INVERTEBRATE SURVEY Mr Richard D. KIME, Professeur de Biologie, Membre du Conseil cartographie des invertébrés européens, Ecole européenne, 46 avenue du Vert Chasseur, B 1180 BRUXELLES, Belgique (E/F)
Tel. Bruxelles 374 58 44 Telex Fax

OECD/OCDE Apologised for absence/excusé

UN ECONOMIC COMMISSION FOR EUROPE/ONU COMMISSION ECONOMIQUE POUR L'EUROPE
Apologised for absence/excusé

UNESCO Apologised for absence/excusé

MEDASSET Apologised for absence/excusé

SECRETARIAT

Mr Eladio FERNANDEZ-GALIANO, Administrator, Environment Conservation and Management Division/Division de la Protection et de la Gestion de l'Environnement

APPENDIX 2

AGENDA

1. Opening of the meeting by the Chairman

2. Adoption of the agenda

3. Progress in invertebrate conservation since the last meeting of the Group (April 1990)

4. Amendment of Appendix II

   4.1 criteria for amendment
   4.2 species of Central and Eastern Europe
   4.3 marine invertebrates
   4.4 endemic species

5. Invertebrates and their habitats

   5.1 species requiring special habitat conservation measures
   5.2 habitat types of special importance for large groups of invertebrates

6. Prohibited means of capture or exploitation of Unionids and crayfish

7. Conservation priorities of Bern Convention invertebrates, including recommendation to the Standing Committee of the Convention

8. Suggestions for invertebrate conservation activities within the framework of the Convention for 1993 and 1994

9. Election of Chairman and Vice-Chairman

10. Other business

APPENDIX 3 / ANNEXE 3

NATIONAL REPORTS / RAPPORTS NATIONAUX

Contracting Parties / Parties contractantes

3.1 Austria/Autriche

3.2 Belgium/Belgique

3.3 Finland/Finlande

3.4 France

3.5 Germany/Allemagne

3.6 Ireland/Irlande

3.7 Netherlands/Pays-Bas

3.8 Norway (with notes on Sweden) / Norvège (avec des notes sur la Suède)

3.9 Spain/Espagne

3.10 Switzerland/Suisse

3.11 United Kingdom/Royaume-Uni

Observers/Observateurs

3.12 Russian Federation/Fédération de Russie

3.13 Progress on conservation of Margaritifera and other European freshwater Unionids, by Fred Woodward / Développement de la protection de Margaritifera et d'autres Unionidés européens des eaux douces, par Fred Woodward

3.1 Conservation of Invertebrates in Austria

by John R. Haslett

Report to the 2nd meeting of the Group of Experts on Conservation of Invertebrates.

In Austria, issues of nature conservation are usually regarded as the responsibility of local, rather than national government. Thus, Austrian representation at this meeting is officially on behalf of the County of Salzburg. However, the Group of Experts is assured that this is not a limitation to the potential effectiveness of the meeting at the Austrian national level.

Austria was not represented at the first meeting of the Group of Experts on Conservation of Invertebrates in 1990, so it is not appropriate to report here on progress made according to the specifics discussed at that meeting. Rather, some brief observations on the present "state of the art" may provide a more useful contribution.

a) Bern Convention Invertebrates

Considerable distributional and biological information is available on some BCI species occurring in Austria, while even the presence of others remains unknown. Considerable further work is required, particularly in mountainous, less accessible, areas.

b) Invertebrate faunas of protected areas

Recently, attention has been drawn to the lack of knowledge on the invertebrates present within the Hohe Tauern National Park in the Austrian Alps. Three basic types of information necessary to allow proper protection and management for invertebrates within the National Park have been identified by Haslett (in press). These may be listed as species inventories, distributional patterns (on biologically relevant scales) and functional roles of invertebrates in ecological communities. Long term monitoring programmes are considered desirable for successful future management of selected biotopes.

c) Invertebrates used in site evaluation

Invertebrates are assuming an ever-increasing importance in multi-disciplinary studies of site quality in Austria. The taxonomic groups used are selected according to the specific aims of the individual projects, and may therefore include "bio-indicators" and/or "threatened" species.

Taken together, the above points represent a rather positive attitude towards invertebrate conservation in Austria, which, with European support, will hopefully continue to be improved upon.

Reference

Haslett, J.R. (in press). Protection and management for invertebrates within the National Park Hohe Tauern. Jahrb. National Park Hohe Tauern 1:

3.2 La protection des invertébrés en Belgique

par

B. DE BAST, Ch. GASPAR

Communauté française de Belgique
Faculté des Sciences agronomiques de Gembloux
Unité de Zoologie générale et appliquée
Passage des Déportés, 2, B-5030 Gembloux

Le souci de protection des invertébrés en Belgique s'oriente distinctement vers des inventaires biogéographiques de leurs populations, des programmes d'étude des modalités de gestions de biotopes, ainsi que des campagnes de promotion en leur faveur vis-à-vis du grand public.

1. Inventaires biogéographiques

De nombreux groupes d'entomologistes cherchent à actualiser les connaissances biogéographiques collectées de longue date comme c'est le cas, par exemple, pour la Banque de données fauniques de Gembloux.

Parmi ces associations, par exemple, le "Groupe de Travail Lépidoptères" s'est défini la tâche prioritaire de prospecter la campagne dans le but de cerner la répartition actuelle des espèces et d'en évaluer la vulnérabilité.

Cet objectif vise à compléter les connaissances relatives à la biogéographie et à l'écologie de ces insectes, et à cerner ainsi les derniers sites dignes de faire l'objet de mesures de protection.

Le "Groupe de Travail Lépidoptères" a établi, pour le territoire belge, une liste d'espèces de papillons et une cote de vulnérabilité correspondante. Parmi les 116 espèces recensées, 76 sont en danger contre 23 non-menacées.

Le "Groupe de Travail Lépidoptères" ainsi que le groupe "Gomphus", lequel étudie les Odonates, participent au programme de surveillance de l'environnement wallon organisé par le Ministère de la Région wallonne. Ce programme relève d'une méthode originale basée sur la surveillance d'indicateurs biologiques. Le suivi de ceux-ci, d'année en année, permettra de

détecter les modifications dans les populations de papillons et de libellules, conjointement aux perturbations éventuelles de leurs habitats.

2. Gestion des biotopes

En vue de développer une stratégie globale de protection et de conservation des invertébrés, des programmes sont élaborés en vue d'analyser les réactions des populations en fonction du type de gestion des biotopes. Les pelouses xérothermiques sur coteaux calcaires ont fait l'objet d'études toutes particulières.

En outre, depuis peu, des associations de naturalistes prennent en considération les invertébrés comme critère de sélection, dans la perspective du classement de sites comme réserves naturelles.

3. Promotion des invertébrés vis-à-vis du public

La prise de conscience par le public de l'importance des invertébrés en tant que maillons indispensables dans une politique de sauvegarde de l'environnement a été amorcée par la publication de deux posters illustrant les différentes espèces d'insectes protégés en région wallonne, par la publication de deux fascicules intitulés "Abeilles et guêpes de nos jardins" et "Abeilles sauvages et pollinisation" ainsi que par la réalisation d'un film évoquant la biologie des Hyménoptères de nos jardins.

3.3 Progress in invertebrate conservation in Finland in 1990-1992

Ilmari Valovirta
Finnish Museum of Natural History

Second edition of the Red Data Book of Finland (published 1992) is the most important recent progress in invertebrate conservation in Finland. For this report the Committee for the Conservation of Threatened Animals and Plants in Finland, checked about 12 000 invertebrate species. In these, 6.1 % (733 species) were threatened, 62 had disappeared, 61 were endangered, 98 were vulnerable, and 512 required monitoring.

During the five year period 1985-1990, 364 invertebrate species have been added to the list of threatened species. By the same time, 31 species (19 Lepidoptera, 11 Coleoptera, and 1 Neuroptera species) have been omitted from the list.

The number of threatened species in different invertebrate groups. (The new Finnish Red Data Book, 1992). (Ex=extinct, E=endangered, V=vulnerable, M=monitoring).

Groups	Ex	E	V	M	Total
Annelida	-	1	-	-	1
Mollusca	-	3	3	17	23
Arachnida	2	1	5	30	38
Crustacea	1	-	-	1	2
Diplopoda	-	-	1	1	2
Chilopoda	-	1	2	-	3
Ephemeroptera	-	-	-	6	6
Odonata	-	-	3	3	6
Plecoptera	-	1	1	3	5
Orthoptera	-	1	2	-	3
Heteroptera	4	2	-	25	31
Homoptera	-	1	-	6	7
Neuroptera	-	-	1	2	3
Mecoptera	-	-	-	1	1
Lepidoptera	10	16	19	109	154
Trichoptera	-	-	-	5	5
Diptera	4	1	9	19	33
Siphonaptera	-	-	-	1	1
Hymenoptera	2	2	3	70	77
Coleoptera	39	31	49	213	332
	62	61	98	512	733

Another large scale progress in invertebrate conservation has been on legislation. Since the 1st of May 1991, the protection and monitoring of all the threatened species in Finland belong legally to the government authorites, mainly to the Ministry of the Environment. All kinds of disturbance on the habitats of the threatened species must be reported to the officials. On the other hand, the conservation and monitoring of the threatened species must be officially financed.

During the yeras 1990-1992, four new national parks covering altogether 1480 km^2, and the Friendship Park in north-east Finland (166 km^2) have been established. In addition, numerous smaller conservation areas on wetlands, ancient forests, deciduous forests, and treeless mountains in Lapland have been established.
On some of these conservation areas many invertebrate groups like Lepidoptera, Coleoptera, Heteroptera, Plecoptera, Mecoptera, Neuroptera, Araneae, Mollusca and Oligochaeta, have been preliminarily investigated.

The Ministry of Environment and the WWF of Finland have started very effective national monitoring programs on the threatened Lepidoptera and Coleoptera. The aim of the monitoring is to define the exact size of the populations and to find the best ways to protect them. The Finnish Museum of Natural History has programs e.g. on land molluscs, freshwater bivalves (including Margaritifera), lumbricids, butterflies, and beetles.

During the last few years more and more attention has been paid on the threatened habitats and the diversity of the invertebrates within them. This is useful also for the international projects like the CORINE, in which all indicator species are not typical threatened species in Finland, but the diversity of the species is high on the selected sites.

3.4 Développement de la protection des insectes en France au cours des années 1990-1991

par R. GUILBOT (1) et J. LHONORE (2)

Depuis la dernière réunion du "Groupe d'Experts sur la Conservation des Invertébrés" organisée par le Conseil de l'Europe les 23-25 avril 1990, il nous semble utile de dresser le bilan des études dont la finalité est la protection des insectes en France. Il peut apporter, à nos collègues du groupe d'experts, des informations sur les travaux réalisés en France mais permet aussi, au vu des résultats, au Groupe National d'Etude et de Réflexion pour la Protection des Insectes et de leurs Milieux (G.N.E.R.C.I.M.) de définir une politique sur les actions à entreprendre ; par exemple dans le choix de projets scientifiques, la recherche de nouvelles collaborations, voire le développement d'actions pédagogiques etc.

La plupart des études présentées ici sont initiées par l'OPIE. Elles n'ont pu être réalisées qu'avec le soutien du service de la Direction de la Protection de la Nature (Ministère de l'Environnement), du Bureau des Ressources Génétiques (Ministère de la Recherche et de la Technologie), de l'Institut National de la Recherche Agronomique, d'Universités, d'entomologistes amateurs dont beaucoup adhèrent à l'OPIE, mais aussi d'entomologistes professionnels qui depuis des années, travaillent parallèlement à leur profession, à des activités de recherche dont la finalité est de pouvoir prendre en compte l'entomofaune dans la gestion des milieux naturels.

ETUDES CONCERNANT LES INSECTES PROTEGES PAR LA CONVENTION DE BERNE :

Pour chaque étude réalisée depuis 1990, nous indiquons son titre, son responsable scientifique et les collaborations éventuelles. Nous avons choisi de présenter pour chacune d'elles la conclusion (ou partie de celle-ci) des rapports des auteurs :

Programme de recherche et d'action pour le sauvetage des populations menacées de Parnassius dans le sud-est de la France (1989-1990-1991) :

Responsable scientifique : DESCIMON H. - Université de Provence-Marseille (3) - Collaboration de NAPOLITANO M. (Thèse de Doctorat 1990) - VESCO J.P. (entomologiste amateur)

Ce travail concerne les 3 espèces du genre présentés en France : *Parnassius apollo*, *Parnassius phœbus* et *Parnassius mnemosyne*, dont les caractéristiques écogéographiques et génétiques sont bien distinctes. Les méthodes employées jusqu'à maintenant sont, du côté de la génétique des populations, la biométrie et l'étude du polymorphisme enzymatique par électrophorèse, complétées par des méthodes d'analyse sophistiquées. Au niveau écologique, le choix des plantes nourricières et la cinétique des populations (évaluation des effectifs par marquage-recapture) ont été privilégiés.

Le compte-rendu intermédiaire du contrat et les résultats acquis ultérieurement permettent de dégager déjà des faits importants :

Données écologiques

Nous noterons incidemment que la distribution des 3 espèces a été précisée à l'occasion de ce travail et que des populations nouvelles ou mal connues ont été étudiées (p. ex. *P. mnemosyne* à l'Aigoual et dans l'Aubrac).

Un contraste considérable existe entre les populations des deux grands massifs montagneux français

(Alpes et Pyrénées) et celles des massifs secondaires. Les premières ont montré une grande tolérance aux aléas climatiques des dernières années et leurs fluctuations quantitatives ont été mineures. Au contraire, les populations des massifs secondaires sont dans une situation critique, pour deux facteurs au moins :

- la destruction directe des biotopes par l'activité humaine et leur disparition indirecte par la déprise.

- le réchauffement climatique a fait remonter la limite inférieure de la zone où les espèces peuvent effectuer leur cycle de développement de plusieurs centaines de mètres, rendant impossible leur vie dans les massifs possédant une réserve d'altitude insuffisante.

Dans ces conditions, *P. apollo* a déjà complètement disparu des Vosges et de la majorité de ses stations de l'est du Massif Central. Abondant jusqu'en 1988 sur le Larzac, il en a disparu à partir de 1989, à la suite de deux hivers aberrants. En 1990, des recherches multiples n'ont permis de retrouver aucune des colonies, abondantes jusqu'en 1988, sur les plateaux jurassiens d'altitude basse ou moyenne ; seules celles des régions hautes subsistaient, d'ailleurs en abondance normale. Des populations de *P. mnemosyne* des Préalpes du sud se sont effondrées ou éteintes ; sur une aire de vol à la Sainte baume où avaient été dénombrés 3 000 papillons en 1985, aucun individu n'a été vu en 1989 et 1990, et un seul en 1991, avec un effort d'observation comparable.

Données génétiques

La situation est très variable selon les espèces. *P. mnemosyne* possède une structure génétique très diversifiée dans la région considérée, signe d'une histoire complexe et ancienne. Plus les colonies sont isolées, plus elles sont appauvries génétiquement et semblent en même temps se "fermer" (Descimon et Napolitano, soumis à ***Biological Conservation***). On peut distinguer 3 grands ensembles, très cohérents géographiquement :

- un groupe des Préalpes du sud, très fragmenté, où les échanges géniques interdémiques sont faibles à l'heure actuelle. La colonisation des massifs isolés (Sainte Baume p. ex.) s'est vraisemblablement faite par sauts discontinus et récents. La différenciation s'effectue essentiellement par dérive et effet des fondateurs (Napolitano et Descimon, 1992) mais une diversification plus ancienne témoigne de la permanence de l'espèce dans la région.

- un groupe alpin, où les échanges géniques sont intenses et le pool génique très divers (taux d'hétérozygotie élevé et présence de nombreux allèles rares), signe que les populations n'ont pas subi de crise démographique sévère. On observe néanmoins une régionalisation, liée à des lacunes actuelles de la distribution.

- un groupe nord-occidental, d'une variabilité interne importante mais peu diversifiée, couvrant non seulement les Préalpes du nord mais le Massif Central et les Pyrénées. Il s'agit donc d'une vague de colonisation récente, Würmienne, ce qui est d'ailleurs cohérent avec d'autres données biogéographiques. Cependant, nous manquons encore de données pour certaines régions (ouest des Pyrénées et du Massif Central).

Variabilité enzymatique et variabilité phénotypique (celle-ci ayant une composante génétique évidente) sont partiellement couplées. La seconde est plus évidemment corrélée avec des facteurs de l'environnement (mélanisation, taille, forme des ailes). Le choix de la plante nourricière (*Corydallis solida*) est très constant et, d'une manière générale, les preferenda varient peu (espèce précoce et de milieux frais).

L'espèce est incluse dans la liste de la Convention de Berne. Dans notre pays, l'espèce ne semble menacée que dans ses localités marginales et spécialement dans le cas d'un réchauffement climatique durable. Seuls quelques reboisements intempestifs ont amenuisé des populations.

L'étude de *P. phœbus* confiné aux Alpes au dessus de 1 500 m, a commencé par une première surprise : les populations du Mercantour (*gazeli* Praviel) sont distinctes des autres à un niveau qui peut être considéré comme spécifique. Autant par l'électrophorèse que par la biométrie, elles se distinguent à 100% des autres. La plante nourricière (*Rhodiola rosea*, Crassulacées) est différente de celle des autres populations (*Saxifraga aizoides*, Saxifragacées). Des croisements ont montré des troubles de la diapause, caractéristiques des incompatibilités interspécifiques, chez les hybrides. La structure génétique des populations du reste des Alpes (nous avons examiné des individus suisses) est beaucoup plus homogène. Une autre surprise est venue de la biométrie, qui a montré qu'au lieu de la différenciation nord-sud que nous attendions, c'est une différenciation est-ouest qui se manifeste ; il semble que ce fait soit dû, là encore aux péripéties glaciaires, où l'inlandis alpins aurait séparé l'espèce en deux ensembles, oriental et occidental.

A part les incompatibilités qui freinent très probablement les flux géniques entre *gazeli* et *phœbus s. str.*, les populations que nous avons étudiées semblent présenter un brassage de proche en proche notable.

Espèce protégée par la loi française, *P. phœbus* ne montre aucun signe de déclin - il ne semble même pas sensible à l'impact des stations de sports d'hiver. Peu abondant, limité à de petites populations, *gazeli* est vulnérable mais entièrement situé dans le territoire du Parc national du Mercantour.

P. apollo est l'espèce la plus répandue et celle qui pose le plus de problèmes, il est beaucoup moins diversifié au niveau des enzymes que *P. mnemosyne*, ce qui nous a posé d'ailleurs des problèmes techniques. En revanche, au niveau du graphisme alaire, il présente une intense variabilité. Au niveau des preferenda écologiques, il semble en être de même. Les populations des Alpes et des Pyrénées sont assez généralistes dans leurs plantes nourricières (beaucoup d'espèces de *Sedum*, de *Sempervivum*, voire des Saxifrages) et ouvertes dans leur comportement territorial. Au contraire, les populations des massifs isolés montrent une tendance à la spécialisation ; même en présence de plusieurs plantes nourricières potentielles, elles sont souvent monophages. C'est le choix de ponte des femelles qui est déterminant ; les chenilles conservent un spectre étendu, au moins au niveau de l'acceptation de la nourriture. Parallèlement, il apparaît un comportement de confinement dans l'habitat qui est souvent stupéfiant : les individus se limitent à un territoire comme s'ils étaient enfermés dans un enclos. Il semble bien que ce comportement soit déterminé par la présence de la plante nourricière choisie. On pense évidemment au rôle de l'olfaction, chez les mâles comme chez les femelles. Nous allons bien entendu tenter de confirmer ces hypothèses par l'observation et l'expérience.

Les colonies isolées de *P. apollo* se caractérisent en électrophorèse par leur faible diversité, comme chez *P. mnemosyne*. D'une manière générale, tout se passe comme si l'espèce dans son ensemble avait envahi notre territoire assez récemment, au cours du Würm sans doute, puis avait été fragmentée au cours du réchauffement postglaciaire. Vue la faible sensibilité de l'horloge moléculaire enzymatique, ces durées sont trop faibles pour produire une différenciation détectable au niveau des mutations ; seuls la dérive et l'effet des fondateurs ont eu le temps de modifier les fréquences alléliques. Nous ne savons pas encore si une variation plus importante à grande échelle se révèlera. De même, il sera sans doute nécessaire de faire intervenir des marqueurs moléculaires plus sensibles pour évaluer les niveaux fins de la différenciation, les flux géniques et les péripéties démographiques dont la génétique des populations donne une image certes imprécise mais irremplaçable. En revanche, au niveau des caractères morphologiques et éco-éthologiques, la différenciation est intense ; nous avons déjà mentionné les plantes nourricières (souvent distinctes à petite échelle), mais le choix de l'habitat traduit lui aussi des "microadaptations" locales (Ehrlich, 1983) ; par exemple, les *P. apollo* des Causses préfèrent des terrains plats, ceux de l'Aigoual des pentes fortes, même en semi-captivité. Ce niveau de différenciation, beaucoup plus accusé que le niveau moléculaire, s'explique à la fois par le rôle de la sélection, facteur évolutif rapide, et l'instabilité génétique des caractères étho-éco-morphologiques, souvent polygéniques (Lande, 1988).

D'un côté, ces données ont de quoi rendre très pessimiste sur l'avenir des populations isolées de *P. apollo* du Massif central, du Jura et même des Préalpes du sud, en particulier si l'"effet de serre" s'accentue.

Les microadaptations observées rendent plus problématiques les réintroductions. Mais il ne faut pas désespérer car la plasticité espèces et leur rapidité d'adaptation peut surprendre. Comment peut-on autrement concevoir la colonisation, certes passagère, mais assez importante du plateau de Millevaches par *P. apollo* il n'y a pas très longtemps ? Il est en tout cas certain que des restaurations de biotopes, très sérieusement menées, sont un préliminaire indispensable.

D'un point de vue conservatoire, nous signalerons qu'il est important d'éviter le boisement volontaire des biotopes (par exemple la destruction par les Eaux et Forêts des localités passablement étendues de la forêt de Mazan en Ardèche) et si possible de revenir en arrière. Par ailleurs, et encore plus évidemment, il faut lutter contre le boisement spontané (et l'envahissement par les genêts) par déprise. Une action conjointe des entomologistes amateurs (qu'il est essentiel de ne pas décourager par des tracasseries administratives), des associations de protection de la nature, surtout locales, peut permettre de sauver et de reconstituer des populations. Et on soulignera qu'à grande échelle, les mesures encourageant les formes d'occupation traditionnelles du terroir, le maintien des exploitations agro-pastorales natives sont un élément essentiel de la survie des espèces de *Parnassius* comme celle de beaucoup d'autres insectes.

Structure génétique des populations en habitats fragmentés : le cas des lépidoptères "relique glaciaire" dans le sud-ouest de l'Europe (1991) :

Responsable scientifique : H. DESCIMON - Université de Provence-Marseille - collaboratio BARASCUD B. (Thèse de Doctorat, en cours)

Cette étude de biogéographie et génétique porte sur les populations françaises de *Proclossiana eunomia* et *Lycaena helle* , Lépidoptères reliques glaciaires classés comme menacés par la législation française et dont la distribution est extrêmement fragmentée dans notre pays.

Ce travail permet d'abord de faire le point sur l'état des populations des deux espèces étudiées et de formuler des recommandations spécifiques pour leur conservation.

Considérées comme menacées, les deux espèces sont évidemment liées à des localités et des milieux restreints. Des années 1960 à nos jours, les populations ont changé. De toute évidence, dans le nord de l'aire, les populations ont régressé. La cause majeure en est le boisement intensif de ce type de paysage par les résineux, épicéa, douglas et sapin. Il convient de souligner que des limitations très restreintes et des aménagements modestes pourraient arrêter ce déclin ; il suffirait de ménager les clairières dans certaines parties des fonds de vallées, plus ou moins connectées entre elles (mais nous avons observé que les papillons sont capables de passer au dessus de la canopée). Le boisement, protégeant ces clairières, serait alors favorable. Dans les localités plus méridionales, la situation parait bien meilleure ; on observe même une extension dans certaines régions. Mais cette extension, liée à une déprise des prés de fonds de vallées risquent d'être éphémère, car le boisement, spontané ou provoqué se produira fatalement après un certain temps. Enfin, l'implantation dans des régions vides s'est montrée efficace et, semble-t-il très vraisemblablement, sans effet négatif.

Au plan des concepts fondamentaux, bien que déjà fructueux, le précédent travail n'est que préliminaire. Nous avons semble-t-il un bon modèle de métapopulation. Les aspects qui nous semblent évidemment à développer sont :

- la recherche de marqueurs plus diversifiés,
- la poursuite des observations biométriques,
- des études sur le terrain mettant en oeuvre des suivis de populations,
- peut-être et avec précautions, de nouvelles implantations contrôlées, effectuées de manière à mieux connaître les paramètres démographiques et génétiques de départ.

Etude biométrique et électrophorétique de quelques populations de *Zerynthia* (*Lepidoptera - Papilionidae*) (1990)

Responsable scientifique : H. DESCIMON - collaboration S. BRACONNOT (mémoire de D.E.A)

Ce travail de D.E.A. porte sur deux espèces de *Papilonidae* cohabitant dans le Sud-Est de la France : *Zerynthia polyxena* et *Zerynthia rumina*. Les lépidoptères sont un matériel favorable pour les recherches de systématique évolutive. Leur variabilité géographique semble grande si on considère le nombre de sous-espèces décrites, en particulier chez les papillons diurnes. La méthodologie employée pour cette approche typologique reste empirique, elle a soulevé de nombreux doutes sur la valeur de ces descriptions. NAPOLITANO (1988) lors de son travail sur les Parnassius du Sud-Est de la France a montré l'intérêt d'un renouvellement faisant appel à des méthodologies modernes et rigoureuses : l'étude de génotypes par électrophorèse des enzymes et la biométrie multivariée de la pattern alaire.

Certains caractères phénotypiques alaires, de déterminisme génétique complexe sont assez directement soumis à des pressions sélectives. Celles-ci peuvent être d'ordre climatique comme le mélanisme, ou être liées à la prédation. Il est souvent admis que les caractères phénotypiques plus évidemment exposés à la sélection que les caractères moléculaires des enzymes, évoluent plus vite que ceux-ci. Dans ces conditions, les échanges géniques seraient moins efficaces pour homogénéiser les populations.

Ces observations suggèrent donc une structure de populations avec des échanges géniques modérés, suffisants pour compenser les mécanismes de la différenciation moléculaire, mais laissant quelques latitude à la différenciation phénotypique, de rythme plus rapide.

En l'absence d'observation et d'expérience, nous relevons seulement que les populations de *Z. polyxena* d'altitude liées à *Aristolochia pallida* sont bien séparées des autres. Ceci suggère qu'il existe un bloc de caractères adaptatifs jouant un rôle dans la différenciation des populations.

Toutes ces données nous amènent naturellement à penser aux implications dans la protection.

Ces dernières années, il a été constaté une régression considérable des populations de *Z. polyxena* dans les Alpes-Maritimes. Ce sont justement les populations très nombreuses et étendues de l'espèce qui occupaient jadis les marais côtiers qui ont disparu ou ont connu une réduction dramatique, cependant, nous avons récemment constaté que, dans les moyennes vallées de la Siagne et de la Cagne, des cultures de cannes de Provence (pour la fabrication des canisses) servaient de refuge à des populations importantes du papillon. Tout espoir n'est donc pas perdu ; ce fait permettrait de concilier conservation et maintien d'une activité agricole.

Z. rumina, plus liée à des milieux moins pénétrés et profitant indirectement et dans une certaine mesure des incendies, régresse bien moins.

Des mesures de protection des biotopes paraissent nécessaires et urgentes, ainsi que de l'espèce, en particulier pour les colonies résiduelles. Cependant, l'intense développement qui affecte la zone ne doit laisser guère d'illusions sur les chances d'obtenir de telles mesures.

D'après nos résultats, nous pouvons soupçonner des micro-adaptations à chaque biotope; donc chaque fois qu'une colonie s'éteint, un patrimoine génétique le fait aussi. La situation est grave et urgente.

Méthodologie en vue d'une observation permanente des populations de lépidoptères. Projet de faisabilité (1991) :

Responsable scientifique : J. LHONORE - Université du Maine - LE MANS - collaboration FAILLIE L.

CAMA A., LAMBERT B., MILLE C., DESS J.M., LEMOINE C., LEVESQUE R., GRELLIER Y., LETELLIER Y. (entomologistes amateurs)

Cette étude concerne trois lycènes (*Thersamolycaena dispar, Maculinea alcon, Maculinea teleius*) et un Satyre (*Coenonympha oeddipus*). Ces insectes sont inféodés à des habitats humides bien définis écologiquement et représentent donc des "indicateurs" de milieux.

Les observations sont réalisées sur dix départements de l'ouest de la France. Les investigations permettent de dresser l'inventaire des stations détruites par modification intégrale des biotopes : assèchement, drainage, plantation de peupliers, création de routes ou de bases de loisirs artificialisées. L'on y note bien évidemment une très forte régression des espèces, voire leur disparition. Quelques stations se maintiennent malgré de nettes modifications des habitats telles l'assèchement ou l'évolution vers une Mégaphorbiae : association de hautes plantes herbacées en milieu humide par suite d'un enrichissement en nitrate du sol. C'est le cas pour *T. dispar* au sud de Bordeaux, *M. teleius* en Gironde, *M. Alcon* dans la Sarthe ou *C. oedippus* dans les Landes.

Au plan cartographique la participation de deux ou trois personnes par région géographique doit permettre de compléter la connaissance de la répartition spaciale et suivre l'évolution des milieux et de l s peuplements.

Si la répartition géographique commence à être connue, l'état actuel des populations (effectifs, dynamiques, etc.) reste méconnu. Les problèmes se posent pour chacune des espèces. *M. alcon alcon* semble l'espèce la plus facile à suivre. Dans un des deux biotopes sarthois, pour une densité de pieds de gentiane qui variait de 1 à 25 pour 25 m2, la population de l'un des champs (environ 1 ha) était comprise entre 250 et 300 papillons.

Au cours de cette étude, des tentatives d'élevages en laboratoire ont concerné trois espèces : *M. alcon* , quatre stades ont été observés (contrairement à d'autres populations ou trois stades seulement ont été observés : J. Thomas), l'élevage de *M. teleius* a pu se poursuivre jusqu'au 5ème stade (3 mois de vie dans la fourmilière). Une forte mortalité (50 %) fût constatée pour *C. oedippus*. au début de l'hivernage.

Les exigences écologiques n'ont été que partiellement étudiées, en particulier les facteurs abiotiques n'ont pas été évalués par manque de matériel. Il apparaît cependant que :

- *M. alcon* dépend toujours de prairies humides, au sol pauvre, à caractère neutre ou légèrement acide ; souvent exploitées en "prairie à litière", à condition que le fauchage soit rotatif a parcelle tous les trois ou quatre ans) et/ou tardif (après le 15 août).

- *M. teleius* dépend de milieux très similaires dont le sol est parfois plus riche en nitrate (limite à déterminer) au pH plus basique. Ses marais sont toujours inclus entre des plateaux ou terrasses calcaires. Comme l'espèce précédente il lui faut un milieu ouvert où les fourmis puissent aussi vivre.

- *C. oedippus* vit sur le même type de prairie que *M. alcon* et ne peut supporter un assèchement ou un recouvrement par une strate arbustive ou arborée. Sa préférence va à un substrat acide ou neutre mais il s'accommode de terrains légèrement basiques.

Ce travail préliminaire montre que l'estimation et le suivi des populations sont possibles sur le terrain, avec un minimum de personnes. L'élevage des espèces d'azurés est réalisable, au moins plusieurs mois jusqu'à l'acceptation par les fourmis, sans trop de problèmes techniques ; sa standardisation dans l'optique de réintroductions n'est donc pas utopique. Enfin les aménagements sur le terrain conduisant à une régénération des habitats, puis ensuite à leur gestion, semblent réalisables à moindre frais.

Contribution à la connaissance de *Graellsia Isabellae galliægloria* Oberthür (*Lepidoptera - Attacidae*) connu uniquement de France : 1- Biologie et connaissance des relations Plantes/Insectes. 2- Identification des phéromones sexuelles et répartition géographique dans le Parc National des Ecrins et le Parc Naturel Régional du Queyras.

Responsable scientifique : R. COUTIN - OPIE - Collaborations : Parc National des Ecrins - Parc Naturel Régional du Queyras - Laboratoire des Médiateurs Chimiques (INRA) - Station de zoologie forestière d'Orléans (INRA) - VUATTOUX R. - ADES D. - LEMAITRE R. (entomologistes amateurs OPIE)

G. Isabellae figure sur la liste des espèces protégées en France ainsi que sur celle de la Convention de Berne. La rareté de cette espèce fait qu'à l'exclusion de descriptions morphologiques, sa biologie est pratiquement inconnue. Cette méconnaissance est particulièrement évidente en ce qui concerne les relations des insectes avec leurs plantes-hôtes et leur milieu physique, qui constituent des points essentiels de la dynamique des populations de la majorité des insectes forestiers.
Les objectifs de cette étude sont :

- de préciser la biologie de l'espèce notamment en ce qui concerne ses arrêts de développement (nymphes) et donc, préciser ainsi ses exigences écologiques et son habitat potentiel.

- d'étudier l'incidence de l'hôte sur la survie et le développement de l'insecte, en testant plus particulièrement différents clones susceptibles d'être utilisés par les améliorateurs ayant montré des aptitudes de toxicité vis-à-vis d'autres espèces. Cette étude sera complétée avec celle de la variation de la composition chimique des aiguilles.

- de caractériser les phéromones de l'insecte et des les synthétiser afin de disposer d'un outil non destructeur, permettant d'étudier sa répartition géographique.

AUTRES ACTIONS EN FAVEUR DE LA PROTECTION DES INSECTES :

Listes régionales d'insectes à protéger

Les listes nationales et internationales d'espèces de la faune ou de la flore protégée sont utiles pour connaître la valeur patrimoniale des milieux naturels et permettre, à l'échelon d'un Etat voire d'un continent, le classement de sites remarquables. C'est ce que propose par exemple la Directive Habitat. Par contre, pour gérer convenablement la faune et la flore d'une région géographiquement restreinte, par exemple l'une des 23 régions administratives de la France, ces listes ne sont absolument pas adaptées. De nombreuses espèces ont une large distribution dans laquelle elles sont abondantes, puis se retrouvent en limite de leur répartition géographique. En Ile-de-France par exemple il existe de nombreuses stations où persistent un cortège faunistique relictuel ; soit d'origine boréo-alpine, venue lors des dernières glaciations, soit d'origine méridionale, les animaux étant remontés vers le nord après le retrait des glaciers. Là, la protection s'avère nécessaire.

L'établissement de listes régionales d'espèces à protéger peut être un pas en avant vers le maintien des faunes. Ce projet doit contribuer à la conservation des inscectes par une meilleure connaissance de leur biologie, à une maîtrise de l'aménagement et de la gestion des milieux concernés, voir même leur protection.

Cette procédure ne vise en aucun cas à entraver l'activité des entomologistes ; au contraire, elle requiert leur participation et leur soutien pour le suivi de la dynamique raisonnée de protection de l'environnement. La participation des amateurs est souhaitable et nécessaire, et devrait permettre la valorisation de l'usage du carnet d'observation au détriment des prélèvement abusifs.

L'OPIE incite donc les entomologistes régionaux à dresser l'inventaire des espèces menacées, d'en établir

une liste commentée afin de la soumettre au Ministre de l'Environnement. Déjà, la région Ile-de-France propose une liste qui comprend une centaine d'espèces réparties entre les Odonates, les Hortopteroïdes, Lépidoptères, Hyménoptères (apoïdes), et les Coléoptères. Les régions Champagne-Ardennes et Picardie réalisent actuellement ce travail.

Impact de la circulation automobile sur les populations d'insectes dans la région de Fontainebleau et dans le Parc Naturel Régional des Vosges du nord (1990-1991) :

Responsable scientifique : CHAMBON J.P - Laboratoire de Faunistique - INRA - Versailles (4) - collaboration FOUILLET Ph.

Si l'effet favorable des fauchages tardifs des bordures des routes sur les populations d'invertébrés a été mis en évidence à la suite de diverses études (rapport SRETIE n°8061), il reste cependant un certain nombre de questions sans véritables réponses en ce qui concerne la mortalité des insectes butineurs, pollinisateurs, entomophages, phytophages, détritiphages... (Lépidoptères, Hyménoptères, Diptères, Homoptères...) par percussion directe avec les véhicules lors de leur présence dans le volume de circulation ou de leurs déplacements sur la chaussée, que ce soit en vol ou à la marche. Les résultats de cette étude indique que la période de la journée au cours de laquelle les insectes sont les plus vulnérables se situe dans la tranche horaire 15 H - 18 H, que les zones boisées accusent la plus grande mortalité par rapport aux zones cultivées ou urbaines et que la période où la mortalité est la plus élevée se situe v la fin juin. L'auteur estime au nombre de 66 billions le nombre d'insectes tués par les calandres !

PROJETS DE DEVELOPPEMENT :

L'Observatoire du Patrimoine Naturel pour l'Entomofaune :

Notre objectif, à cours terme, est la création d'un observatoire du Patrimoine Naturel pour l'entomofaune. Il ne s'agit pas d'établir une structure lourde, mais il est souhaitable de lui assurer une certaine pérennité. Il sera un outil objectif susceptible de permettre la prise de décisions à partir de données concernant l'état et l'évolution de l'entomofaune, à partir également de scénario de gestion, qui permettent d'adapter les mesures de protection. Il nous permettra également de répondre aux obligations européennes (Convention de Berne...) et internationales : désignation d'espaces et d'espèces protégés et contrôle du respect des engagements.

L'observatoire peut nécessiter la mise en place de projets d'études appliqués à la protection de la nature sans pour cela se substituer à la recherche fondamentale.

Les experts du Groupe National d'Etude et de Réflexion pour la Protection des Insectes et de leurs Milie (G.N.E.R.C.I.M.) a déja mené une réflexion sur l'organisation de l'observatoire du Patrimoine Natu.. concernant l'entomofaune.

La protection des insectes passe obligatoirement par la protection des habitats. Dans ce contexte, les Z.N.I.E.F.F. permettent d'aborder l'aspect espace. La France a acquis une certaine technologie en matière de stockage des données qu'elle doit conserver er perfectionner. C'est l'occasion pour nous de développer les inventaires de l'entomofaune.

Sur la base des inventaires publiés et des connaissances acquises, les espèces ou groupes d'espèces à étudier dans le cadre de cet observatoire seront choisies selon plusieurs critères :

- A partir des listes d'espèces déjà établies dans le cadre des réglementations régionales, nationales ou internationales (Convention de Berne, ect.).

- Indépendamment des listes existantes, mais plutôt à partir de notre acquis sur les menaces qui pèsent sur certaines populations ou quelques milieux, nous ferons précéder le choix des espèces par celui des

milieux qui présentent un réel intérêt (superposition avec les Z.N.I.E.F.F. par exemple). Les espaces déjà protégés seront à privilégier dans le choix du site.

- En superposant les espèces végétales menacées avec celles des insectes qui leurs sont associés. C'est le cas bien connu des relations entre les fleurs l'Ophrys (Orchidaceae) et divers Hyménoptères, Apoïdes, Vespoïdes et Sphécoïdes, espèces qui elles aussi voient leurs populations dangereusement régresser.

- Espèces avec des caractéristiques biologiques facilitant le suivi de leurs populations (comportement grégaire par exemple) ou vivant dans des milieux favorables à des rassemblements saisonniers (sommets, zones humides en région méditerranéenne par exemple).

Dans ce contexte, en collaboration avec le Secrétariat Faune et Flore du Muséum National d'Histoire Naturelles, nous allons dresser la cartographie sur le territoire français des espèces d'insectes protégées dans le cadre de la Convention de Berne. Nous comptons rassembler l'iconographie afférente à ces espèces.

Développer les collaborations :

La notion d'observatoire nécessite la mise en place de dispositifs qui permettront d'évaluer l'état de santé de l'entomofaune française. Il est impensable que l'on se limite aux seules espèces dites remarquables.

La gestion de la biodiversité des insectes auxilliaires ; des ennemis naturels des ravageurs des cultures, et des insectes pollinisateurs doit évidemment être prise en compte.

Quelle incidence aura sur l'entomofaune (entre autre) l'usage généralisé des biopesticides, celle des plantes rendues résistantes aux insectes par génie génétique, ou encore l'utilisation de nouveau clônes d'essences forestières, alors que l'on sait déjà qu'ils modifient la biologie de certaines espèces d'insectes phytophages ?

Quelles peuvent être les répercutions sur la faune sauvage de l'introduction (même contrôlée) d'insectes à usage agricole (entomophages, pollinisateurs...) ou de la déprise agricole ?

On voit bien là, que des collaborations sont à rechercher tant auprès du monde agricole (d'Instituts techniques), qu'auprès d'Organismes de Recherches, d' Universités etc.

CONCLUSIONS :

Le développement des activités pour assurer la protection et la gestion des Insectes au cours de ces dernières années, montre la motivation des entomologistes français, professionnels (essentiellement universitaires) et amateurs adhérents à l'OPIE, à vouloir participer activement à l'organisation de la gestion du patrimoine naturel tant en France qu'au niveau de l'Europe. Mais on voit aussi que la protection de l'entomofaune ne concerne pas spécifiquement les quelques centaines d'espèces d'insectes protégés par les conventions internationales. Bien d'autres problèmes, pernicieux ceux-là, se font jours et si l'on n'y prend garde, porteront atteinte à la biodiversité dont les insectes sont les champions !

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(1) GUILBOT R. - Secrétaire général de l'OPIE - Coordinateur du GNERCIM - B.P. N° 9 - 78341 GUYANCOURT Cedex

(2) LHONORE J. - Professeur de biologie - Université du Maine - Laboratoire de biosystématique des insectes - Route de Laval - 72535 LE MANS Cedex 017

(3) DESCIMON H. - Professeur - Université de Provence - Laboratoire de Zoologie biotaxonomie - 3, place V. Hugo - 13331 MARSEILLE Cedex 3

(4) CHAMBON J.P. - Laboratoire de faunistique - INRA - C.R.A. - 78000 VERSAILLES

Guyancourt le 10 Mars 1992

3.5 On the progress in invertebrate conservation in Germany

by Horst Gruttke

For the timeperiod since 1990 a lot of activities in favour of invertebrate conservation in Germany could be presented. In this report only a short review will be given.

1. Legislation
Because of the unification of the FRG with the former GDR two different legislations on nature- and species conservation have to be harmonized. Worked out submissions are still on the way through the official channels. Some species new for the FRG - also invertebrates - have to be integrated into the lists of legally protected species in Germany.

2. Red lists
Three new or revised regional red lists of federal german states, which include invertebrate taxa have been published:
Berlin (Auhagen et al.(ed.), 1991) with 13 groups of invertebrates; Saxony (Sachsen), including a list of diurnal butterflies (Reinhardt, R. & R. Thust, 1991) ; Baden-Württemberg (Ebert, G. & E. Rennwald (ed.), 1991) integrated in a comprehensive book (2 volumes) on diurnal lepidoptera.
The last mentioned publication is also of great value for public education and information.
The elaboration of a national red data book had been started in 1991. This work will not be finished before 1993.

3. Invertebrate surveys and databanks:
It is an official task of every german federal state to make regional surveys on endangered species. This is done with different effort and success in the 16 states. Positively mentioned may be Baden-Württemberg, Niedersachsen and Bayern (Bavaria). For certain groups of invertebrates also other federal states had been very active.
A nationwide survey had been elaborated on private initiative for odonata (Schorr, M., 1990). The german national government has started to finance a national survey on molluscs organized by J.H. Jungbluth.
The BFANL (Federal Research Centre for Nature Conservation and Landscape Ecology) has begun to build up a databank on endangered lepidoptera.

4. Other activities and progresses
A lot of researches on ecological demands, habitat selection and dispersal dynamics of invertebrate species have been performed and different types of habitat management (at meadows, banks of rivers, lakes and sand- or clay pits, hedges, woodland) have been tested in respect of enhancing invertebrate colonization and maintaining populations of endangered or rare species. BCI's occuring in Germany are included in such researches, not as BCI's, but as regional or national endangered species.
Progress can also be recognized in regard of using invertebrate groups for evaluating sites or biotopes which are proposed to be put under legal protection. Also in programms for developing

nature in areas of national importance funded by the german government, surveys on certain invertebrate groups will be officially promoted and demanded.

5. Concluding remarks

Despite the great number of activities performed in favour of invertebrates, the situation of most endangered species has not or only locally been improved. This is also true for most BCI's. Some populations of Margaritifera margaritifera, Maculinea nausithous and M. teleius and a few other species had been growing or stabilized because of protection measures, changed cultivation or improved management practices and there exist also new records for Hypodryas maturna from Bavaria for 1991, but nationwide the number of populations of most endangered species is still decreasing. Economical and infrastructural developments causing many changes in landuse and landscape structure, which are responsible for the decline of species, are still going on in most regions of the old FRG.

Some positive trends with regard to nature- and also invertebrate conservation may be recognized in new federal states, on the territory of the former GDR. The economical break-down and quick activity of some people working for nature conservation are responsible for this. It may be hoped that some of the positive results achieved will become of lasting value for nature protection.

Finally it may be remarked that the importance of dealing with invertebrates and listing endangered species in the annexes of the Bern Convention had been positively noticed in Germany, especially with regard to its influence on EEC legislation (FFH-directive).

3.6 ACTIVITIES CONCERNING BERN CONVENTION INVERTEBRATES IN THE IRISH REPUBLIC. 1990-1992

Four of the invertebrate species included in the Bern Convention Appendices are recorded from Ireland, as follows: Austropotamobius pallipes (Appendix III), Euphydryas aurinia (Appendix II), Geomalacus maculosus (Appendix II), Margaritifera margaritifera (Appendix III).

During 1991, a Ministerial Order was brought into effect under the provisions of the Wildlife Act, 1976, providing for total protection of Austropotamobius pallipes, Geomalacus maculosus and Margaritifera margaritifera. License is now required for all forms of exploitation of or interference with any of these species. No licenses have so far been issued for exploitation of any of these species. The only licenses which have been issued relate to collection of limited numbers of individuals for defined research purposes.

Austropotamobius pallipes

Crayfish plague, which could more or less eradicate A.pallipes, is not yet established in Ireland and one of our current concerns is to try to prevent its establishment. In this regard, the Ministerial Order referred to above enables us to prevent introduction of non-native crayfish to the Irish Republic. At the first meeting of this group, we requested information of the UK delegation, as to regulations currently in force or to be brought in in N Ireland, in respect of introductions of non-native crayfish there. Unfortunately, we have as yet received no response to our request. Clearly, there is little point in attempting to prevent establishment of crayfish plague in Ireland by prohibition of import of non-native crayfish to the Irish Republic if such species can be imported to N Ireland.

Euphydryas aurinia

We have had a review of the status of this butterfly in Ireland carried out, and the results will appear in print later this year. The author's principal conclusions can be summarised as follows:

a) E.aurinia is not under threat in Ireland.
b) despite statements to the contrary by previous authors, there is no evidence that E.aurinia has declined in Ireland, particularly during the last decade.
c) the status of E.aurinia as a species requiring special measures to be taken for its protection at the international level probably requires to be reviewed.
d) the small number of Irish sites maintaining very large populations of this butterfly probably warrant consideration for protection, on that basis alone.
e) more data is needed on site management, for those sites where the butterfly occurs in large numbers, if success is to be had in maintaining the butterfly on protected sites.
f) more data on parasitism and predation are required, if short term fluctuations in numbers of E.aurinia are to be understood.

Geomalacus maculosus

An up-dated data-sheet for this mollusc is attached to this text. Comprehensive survey of G.maculosus in Ireland in the last few years shows that although the range of the species is restricted in Ireland it does not seem to have undergone any decline since 1950. It remains vulnerable to land use change and insufficient is known of factors limiting its distribution. It is doubtful that any significant extension of the range of G.maculosus in Ireland would result from further survey. However, it is less clear whether its range in Portugal and Spain is adequately known - better distribution data from these countries could affect perceptions of the degree of threat to which this species is subject and might lead to its declassification as a threatened invertebrate.

Margaritifera margaritifera

The inability of the Bern Convention to cope with the problems posed by infra-specific taxa are highlighted by M.margaritifera in Ireland. The freshwater pearl mussel remains widely distributed in Ireland, with high populations in some rivers. But matters are complicated by the presence of the infra-specific taxon M.m.durrovensis. This infra-specific taxon has received mention in a set of recommendations pertaining to M.margaritifera, but is not mentioned in the Bern Convention Appendices. Opinion remains divided as to the taxonomic status of M.m.durrovensis, ranging from belief that it should be recognised as a separate species, to belief that it is but a geographically restricted phenotype. A review of the available data on M.m.durrovensis, involving morphological, biological/physiological and genetic investigation, in about to be published. But this does not resolve the taxonomic issue. We have had a comprehensive survey of the distribution of M.m.durrovensis (which is easily recognisable, from features of its external morphology) carried out and this will be published during 1992. This survey reveals that M.m.durrovensis is restricted to a 10km stretch of the main channel of one river, and that its total world population may be as low as 3000 individuals. Further, there is no evidence that this taxon has spawned for a number of years. The river catchment concerned is currently threatened with exploitation for mineral extraction, which involves alteration of the water characteristics and flow of a major tributary. By the time the question of the taxonomic status of M.m.durrovensis is resolved, the taxon may well be extinct, since the need to protect this mussel is not perceived as likely to prevent use of the catchment for mineral extraction. If M.m.durrovensis were now recognised as a separate species and were named in the Bern Convention Appendix II list, the case for its protection could be more easily put. The fact that infra-specific taxa are not named in the Bern Appendices ensures that this endemic, hard-water form of M.margaritifera receives no more protection than the widespread nominate subspecies, M.m.margaritifera.

EIS DATA SHEET

Species: Geomalacus maculosus Allman, 1843 (Arionidae)

Recent synonyms: grandis Simroth, sensu Cateillejo-Murillo, 1981

Phylum: Mollusca Class: Gastropoda Order: Stylommatophora

Biology: occurs in two rather different biotopes, on lichen-covered boulders (where it shelters under patches of deep moss) of non-calcareous rock, close to water in open country and on trunks of lichen and moss-covered trees in old deciduous woodland (where it shelters beneath bark on rotten logs etc.). In the parts of Europe in which this slug is found, the open-country biotope in which it occurs is a man-made feature, caused by forest clearance, over most of the altitudinal range of the slug. In Ireland, it is active throughout much of the winter, but aestivates for part of the summer. Food: browses lichens and algae (and probably a range of other materials) in the wild and feeds on various vegetables, fungi and breakfast cereals in captivity. Life history: a review of available data is given in Platts & Speight (1988).

Range

Europe: SW Ireland, N Portugal, NW Spain. Recorded in error from Great Britain and France (see Platts & Speight, 1988). Not known outside Europe.

Status

See Figure 1, map of distribution in Europe (plotted on the UTM grid, distribution unit 50km x 50km square). There are no data to suggest this slug has decreased in either frequency or distribution in either Ireland or Spain. The data from Portugal are insufficient for conclusions to be drawn concerning the present status of the species.

Status in Ireland: found in four adjacent 50km squares, with post-1950 records from more than thirty 10km squares (see Platts & Speight,1988). Not endangered, but vulnerable to change in land-use practises. Since June, 1991, the species has received total protection in Ireland, by Ministerial Order, under the Wildlife Act, 1976. The species occurs in 3 nature reserves (Derrycunihy, Glengarriff and Uragh Woods) and a National Park (Killarney National Park). It is threatened in some localities by the spread of Rhododendron ponticum, which prevents woodland regeneration and causes disappearance of lichens from boulders. It is threatened in other localities by attempts at farm improvement or re-afforestation with conifers. Distribution data: National Parks and Wildlife Service, Dublin.

Status in Spain: found in twelve 50km squares, with 21 post-1950 10Km square records, in the provinces of La Coruna, Leon, Lugo, Palencia and Pontevedra. Most post-1950 records are from Galicia. Probably not threatened in Spain: see Castillejo-Murillo (1981), Castillejo and Rodriguez (1991).

Status in Portugal: found in Beira Baixa and Minho, but recorded from only 1 50km square post-1950, with 2 10km records. The species may be threatened in Portugal, due to land-use changes, in particular conversion of large areas into Eucalyptus forest: see Castillejo-Murillo (1981), Castillejo and Rodriguez (1991), Platts & Speight (1988).

Conservation: there is a need for more comprehensive survey of the distribution of this species in Spain and Portugal. In particular, better distribution data are required from Portugal, to allow assessment of its status there. The species can be maintained and bred successfully in captivity (see Platts & Speight, 1988), so captive breeding programmes could be established for potentially reintroducing it to areas from which it has been lost, IF appropriate habitat conditions can be re-established. However, it is not at present known whether it would be feasible to re-create appropriate habitat conditions, because the habitat requirements of G.maculosus are not sufficiently understood. Better understanding of the habitat requirements of this slug is needed, if survival of the species is to be ensured. Special measures should be taken to ensure that, in Protected Sites where this slug is known to occur, its habitat is not interfered with.

Identification: description, figures of internal structures, photographs of adults and diagnostic keys are provided by Platts & Speight (1988).

Bibliography: a comprehensive review of the literature pertaining to this species is provided by Platts & Speight (1988). A review of the relevant Spanish and Portugese literature is provided by Castillejo and Rodriguez (1991).

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Data sheet compiler: M.C.D.Speight
Date of compilation: October, 1988, updated February 1992.

MUSEE NATIONAL D'HISTOIRE NATURELLE

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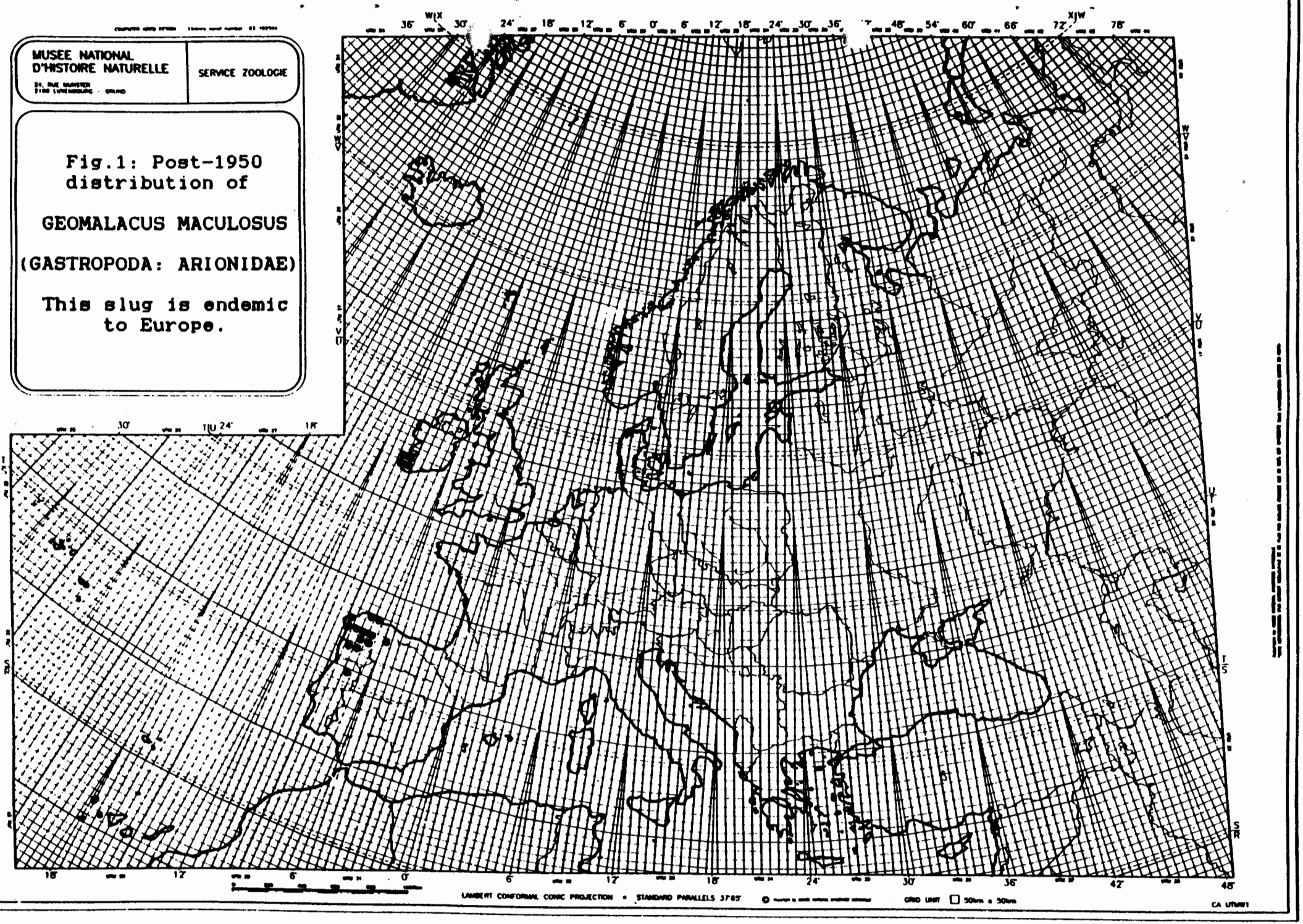
Fig.1: Post-1950 distribution of

GEOMALACUS MACULOSUS

(GASTROPODA: ARIONIDAE)

This slug is endemic to Europe.



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3.7 National Report for The Netherlands

P.J. van Helsdingen
National Museum of Natural History, Leiden, The Netherlands

The Nature Conservation Act of The Netherlands of 1973 had its Appendix on protected species revised in 1991. The former four invertebrate species have been replaced by 34 invertebrates from five different groups: Mollusca (1), Decapoda (1), Odonata (8), Coleoptera (5) and Lepidoptera (19). This means that, instead of one species from Appendix II of the Bern Convention and three from Appendix III, now 15 species from Appendix II and the same three from Appendix III of the Bern Convention are in the Dutch Nature Conservation Act, together with 16 species not classified in the Bern Convention. The inclusion of these latter species is the result of a national mapping scheme and ecological study of the diurnal butterflies (Rhopalocera), carried out since 1975. We are well aware of the unbalanced representation of protected species over the major taxonomic groups. It is also regretted that the act has as its objective species protection, forbidding killing and collecting of specimens as well as trade, but does not aim at habitat protection.

For diurnal butterflies a species recovery programme has been adopted. This scheme includes plans for reintroduction of species which became extinct recently, special management measures for improving butterfly populations, and educational programmes.

In 1990 the reintroduction of two species was carried out: Maculinea teleius and M. nausithous. Populations will be monitored during the coming years. Both are of Bern Convention concern.

Data collecting and preparation of atlases

Three national programmes on the collecting of data and the production of atlases are in progress.

Collecting of ecological and distribution data for Carabidae have been going on for about two decades. An atlas is now in an advanced stage of preparation.

A three year contract has been given to a coordinator for a project on collecting of data from collections and through fieldwork for Orthoptera in The Netherlands. An atlas has to be produced in three years' time.

The E.I.S.-Bureau in The Netherlands has obtained a grant for completing the data base for Hymenoptera aculeata and the production of an atlas, which has to be ready in 1993.

The National E.I.S.-bureau has the responsibility for all three projects and is recognised by the government as the national centre of expertise. The bureau is presently being reorganised in order to cope with the growing attention for invertebrates and increasing demand for data.

In 1991 the Nature Conservation Council published a booklet "Wie het kleine niet eert..." (Who heeds no the small ones...), a manual for the management of the environment with special attention for the survival, protection and promotion of invertebrates. The manual stresses the importance of care for microhabitats and small-scale management measures, extensive grazing, and the value of mosaic, and describes the negative effects of burning, large-scale mowing, and intensive grazing.

3.8 Progress in invertebrate conservation since April 1990

National report from Norway
Kaare Aagaard

Protection by law.
The two butterflies species *Parnassius apollo* and *P.mnemosyne* are still the only insect species protected by law. The capture of the grayfish *Astacus astacus* has been regulated for a long time in Norway. A new Act concerning the freshwater fishes will include also freshwater invertebrates and give new possibilities for regulating the exploitation of *Margaritifera margaritifera* and *Hirudo medicinalis*.

Red data lists
An increasing number of invertebrate groups are considered for inclusion in the national red data list. A revised list which will be printed this spring, comprises among others groups the Lepidoptera, Trichoptera, Odonata, Coleoptera and Mollusca.

Research on invertebrate species on the Bern appendices
A population study project on *Parnassius mnemosyne* has been carried out for last four years. Population estimates are done by the capture - recapture method on five local subpopulation. Each year 400 - 500 individuals are marked and the total population is estimated to be 1000 - 2000 individuals. In 1981 enzyme electrophoretic analysis were carried out to test the effect of long term isolation (1000 - 2000 years) on the Norwegian population. Analyses of individuals from France, Sweden and Norway were carried out on the same gels in our laboratory.

Some notes from Sweden

According to Bengt Ehnström, the number of invertebrate, especially the insects, on the Swedish red data list have increased during the last years. An additional number of 630 species of Coleoptera are listed. A permanent databank for threaten invertebrates have been set up at the University of Agriculture in Uppsala and a specialist committee of 10 to 12 persons is engaged in this work.

The legal protection of invertebrates in Sweden are regulated by local regulations given in each county. A number of "Bern species" are protected in this way, while other are guarded by an agrement among entomologist to renounce from sampling these species.

3.9 REPORT FROM SPAIN (SUMMARY)

Progress in invertebrate conservation since the 1990 meeting of the Group of Experts on Conservation of Invertebrates. (COUNCIL OF EUROPE)

The Iberian Peninsula is one of the most richest areas of Europe in terms of fauna and flora. Its geographical location, physiography and biogeographical history provide a great variety of habitats. Furthermore, a certain delay in economic developement accounts for the relatively low degree of anthropogenic environmental impact on Spanish natural systems in comparison with neighbouring countries. Unfortunately, Spain is not an exception, and the decline in biotic diversity has been in the last years a current subject of concern. The ratification of the Bern Convention and the inclusion of Spain in the European Community brought out most directly the debate on the necessary balance between economical progress and environmental conservation.

On this basis the Spanish Government has continued previously started actions on vertebrates, extending the study to their habitats according to the corresponding Directive recently approved by the European Commission.

In spite of its biogeographical interest and richness in species diversity and endemic elements, Spain has not published faunistic catalogues on invertebrates as those existing in most European countries. However, along the last decade, the number of specialists in Iberian Animal Taxonomy has suffered a remarkable increase together with the knowledge on our Fauna. This information is disperse among scientific publications and museum collections, being necessary to carry out a synthesis completed with new data and studies. All these factors have made the present conditions optimal for the developement of projects that gather information on invertebrates relevant for their conservation.

Since the 1990 meeting where no data could be provided on specific actions concerning the invertebrate fauna of Spain, things have changed in a favourable way. We emphasize two projects among those supported by state funds:

First, one specific project concerning those species of Invertebrates that are represented in Spain and included in at least one of the following International Conventions: Bern Convention (Appendices II and III), Habitat Directive E.C., Bonn Convention, Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) and IUCN

Invertebrate Red Data Book. In this work we reviewed the knowledge and status of sixty one species of invertebrates, their detailed distribution, habitat requirements and an evaluation of their current conservation status. This work has been possible through the cooperation of different taxonomic specialists in the animal groups covered by the Conventions and the financial support of ICONA.

This study enhances the idea that some of the investigated species are not in need of protection in the Spanish territory (that is the case, for example, of *Lucanus cervus, Graellsia isabellae, Euphydryas aurinia,* or *Geomalacus maculosus*), while others, among them some endemics, have reduced populations and are vulnerable or endangered. It suggests that further studies are needed in order to improve our knowledge of what? why? and where? to protect. This work will be published in a few months. It ought to be considered as a preliminary step towards increasing social and administrative awareness on the problem of invertebrate conservation. Moreover, it provides an example of fruitful cooperation of scientists towards nature conservation.

"*Fauna Ibérica*" is a long term research Programme whose aim is to increase the knowledge on the Iberian biodiversity by improving and promoting systematic studies on this area. With this study we attempt: 1) to create a public natural history data bank in the Museo Nacional de Ciencias Naturales, 2) to publish a series of books entitled *Fauna Ibérica,* monographies on the different animal groups with identification keys, descriptions, geographic distribution and biological data, and 3) to improve the Museum collections both in quality and quantity. This project will include, in following steps, the majority of the systematics and most of the taxonomical laboratories of our country, together with foreign specialists on our Fauna. Eighty researchers take part in *Fauna Ibérica* which is funded by the DGICYT with 175 million pesetas over the first five year period.

Specific actions, at a more reduced level, concern legislation by different Autonomic Governments, on protection of species and habitats of their own area (e.g. Andalucia).

Human resources for undertaking this taxonomic study are available from the *Fauna Ibérica* Data Base and the DIRTAX (Directory of Taxonomy Data Base).

Mª Angeles Ramos
Museo Nacional de Ciencias Naturales
José Gutierrez Abascal, 2.
28003 - Madrid. Spain

3.10 PROTECTION DES INVERTEBRES : EVOLUTION DE LA SITUATION EN SUISSE DEPUIS 1990

par Yves Gonseth
Directeur du Centre suisse de cartographie de la faune (CSCF)
Terreaux 14, CH-2000 NEUCHATEL

Aucune étude d'envergure ciblée sur l'une ou l'autre des espèces citées dans les annexes de la Convention de Berne n'a été, à notre connaissance, entreprise en Suisse depuis 1990. Cela ne signifie toutefois pas que les recommandations émises dans ce document n'ont eu aucun effet sur l'évolution de la situation en Suisse depuis cette date. Ce texte esquisse les dispositions prises à divers niveaux qui, à terme, devraient déboucher sur une meilleure protection de la faune suisse d'invertébrés.

Dispositions légales

En janvier 1991, l'Office fédéral des Forêts, de l'environnement et du paysage (OFEFP/BUWAL) a promulgué une nouvelle version de l'Ordonnance concernant la protection de la nature et du paysage. Ce texte comporte deux parties bien distinctes, l'une traitant de la protection des biotopes, l'autre de la protection des espèces. L'article 14 de ce document mérite une mention particulière. Il stipule en effet qu'un milieu qui abrite des espèces citées dans les Listes rouges reconnues par la Confédération mérite protection. Cette disposition peut avoir des implications pratiques réellement performantes : la Confédération suisse oblige par exemple les collectivités locales à effectuer des études d'impact sur l'environnement pour tous les projets de développement qu'elle finance (construction de routes ou de voies ferrées par ex.) ; elle a en outre un droit de regard sur tous les projets urbanistiques susceptibles d'avoir un impact important sur les milieux naturels et sur le paysage. Lors de telles études, la découverte d'espèces appartenant aux Listes rouges susmentionnées dans des milieux potentiellement touchés peut entraîner des modifications importantes des ouvrages planifiés. Nous soulignons en outre qu'une partie des espèces citées dans les annexes de cette ordonnance comme méritant une protection intégrale à l'échelle nationale émanent directement des annexes de la Convention de Berne.

Si cette ordonnance n'a pas force de loi (la Suisse a un système fédéraliste), nous soulignons toutefois que plusieurs cantons suisses ont d'hors et déjà modifié leur législation pour tenir compte des recommandations de ce texte.

Dispositions pratiques :

Plusieurs dispositions pratiques prise par la Confédération suisse tiennent compte des recommandations émanent du Conseil de l'Europe. Les exemples suivants le prouvent :

1) lancement d'inventaires spécifiques parmi lesquels nous citerons

- l'inventaire des Hauts-Marais (tourbière bombée)
- l'inventaire des milieux humides
- l'inventaire des pelouses enneigées
- l'inventaire des biotopes protégés

2) soutien financier apporté à l'activité d'institutions impliquées dans des projets nationaux d'inventaires des espèces, auxquelles le CSCF fait

partie. Cette disposition a des implications potentielles implantées sur la protection des espèces d'invertébrés puisqu'elle permet le développement de projets améliorant nos connaissances sur la distribution et sur le statut national des espèces impliquées. Parmi les projets déjà réalisés ou en cours actuellement sous l'égide du CSCF nous citerons :

- l'inventaire des Lépidoptères Rhopalocères de Suisse qui a permis l'édition d'un atlas de distribution en 1987
- l'inventaire des Odonates de Suisse qui a permis l'édition d'un atlas de distribution en 1987
- l'inventaire des Diplopodes de Suisse qui fera l'objet d'une publication en 1992 ou en 1993
- l'inventaire des Orthoptères de Suisse, en cours actuellement
- l'inventaire des Carabides de Suisse qui fera l'objet d'une publication en 1992
- l'inventaire des Mollusques de Suisse qui fera l'objet d'une publication en 1992/93
- le catalogue des Araignées de Suisse qui a fait l'objet d'une publication en 1990
- le catalogue des Coléoptères de Suisse (environ 6 000 espèces), en cours actuellement. Ce projet implique notamment la création d'une banque de données complètes pour de nombreuses familles de Coléoptères dont plusieurs sont saproxylophages (Catambycidés, Buprotidés, Scolytidés par ex.

3) édition d'un ouvrage qui devrait être publié en 1992, renfermant les Listes rouges d'une partie importante de la faune suisse de vertébrés et d'invertébrés.

A titre de conclusion, nous soulignerons qu'à notre avis, un choix a ainsi été fait en Suisse parmi les recommandations émises à l'échelle européenne. L'accent du travail entrepris a été mis sur l'acquisition de données de base visant à améliorer nos connaissances sur la nature des biotopes naturels encore présents en Suisse et sur la distribution générale des espèces. Ces dispositions vont sans nul doute vers une meilleure protection des habitats et des espèces et ainsi vers une meilleure protection de la faune suisse d'invertébrés.

3.11 Bern Convention Invertebrates in the United Kingdom

Introduction

Relatively few species listed in the appendices of the Bern Convention have been recorded in the United Kingdom. Only six species have native populations, and two more have become extinct, but have been re-introduced. Two alien species have established populations (although *Helix pomatia* is believed to be an ancient introduction) and two have occurred only as vagrants. The domestic legislation by which species listed on the Bern appendices may be protected is the Wildlife and Countryside Act, 1981 (WCA) and Schedule 5 of that Act lists "Animals which are protected". Various clauses of sections 9 and 10 of the Act relate to this Schedule and provide protection against killing, injuring, taking, possession, damage to places of shelter, disturbance and sale. Schedule 9 of the WCA list established animals and plants for which release into the wild is prohibited without licence. Three introduced species of crayfish (including *Astacus astacus*) have recently been added to this schedule. Table I lists the species recorded from the United Kingdom and shows the schedules of the WCA under which they are listed together with the status assigned to them by the Invertebrate Site Register project and the number of sites (or 10km squares of the national grid) they are recently (ie. from 1980 onwards) reported from in Britain.

The following sections give further details concerning the native and re-introduced species.

Austropotamobius pallipes **LOCAL**
Atlantic stream crayfish

Bern appendix: III
Domestic legislation: Schedule 5 in respect of taking and sale only.

A widespread species in southern Britain, especially in calcareous streams. A single population is known from a limestone Loch in north-western Scotland. In Northern Ireland it is strongly localised mainly in County Fermanagh, especially in small marl lochs.

Regarded as threatened in Great Britain although it still occurs at a large number of localities. Habitat destruction through river engineering schemes and pollution caused a decline prior to 1970, but the introduction of alien species into crayfish farms since the late 1970s brought with it the fungal disease known as "crayfish plague" which has caused drastic losses of native crayfish. The species most commonly involved, *Pacifastacus leniusculus*, apart from carrying the disease, is also believed to displace the native species by direct competition.

In an attempt to control the spread of the three species of alien crayfish: the signal crayfish *P. leniusculus*; Turkish crayfish *Astacus leptodactylus*; and the noble crayfish *A. astacus*, have very recently (16 March 1992) been added to Schedule 9 of WCA which prohibits release into the wild without a licence. It has been argued that artificially created

ponds within crayfish farms do not constitute "the wild" and, therefore, the provisions of the act do not apply, but this has yet to be resolved.

A "Strategy for the conservation of the native crayfish" has been put forward by Margaret Palmer of the Joint Nature Conservation Committee (JNCC) and is currently undergoing consultation. It makes the following proposals:

1 In order to help prevent further ecological damage, there should be a ban on the import of live crayfish to Great Britain.

2 In order to prevent the further spread of crayfish plague, there should be formal recognition of "no-go" areas, where the keeping of alien crayfish is prohibited.

3 Standards should be laid down for the design of crayfish farms and the effective containment of stock.

4 Quality standards should be drawn up by the National Rivers Authority for the effluent from crayfish holding areas and these standards should be enforced.

5 Sale of alien species as live-bait, for pets or for garden ponds should be prohibited.

6 All open-air holding areas should be recognised as "the wild" for the purposes of the WCA.

7 There should be a presumption that licenses under the WCA for the release of alien crayfish would not be issued for "no-go" areas, and would not be granted for farms lacking effective containment methods or failing to meet effluent standards.

8 A long-term programme should be established to monitor the status and health of the native crayfish population.

9 Protected areas for the native crayfish should be identified and notified as Sites of Special Scientific Interest (SSSI).

10 Crayfish plague should be made a notifiable disease under the Animal Health Act, 1981.

Only a single incident of crayfish plague has been reported in central Ireland, and the disease has not been reported in Northern Ireland. Various licences are needed to establish crayfish farms in the province.

A small project is being funded by the Countryside Council for Wales to determine the success of previous attempts at introducing *A. pallipes* to the wild.

Lucanus cervus **NOTABLE**
Stag beetle

Bern appendix: III
Domestic legislation: Designation of sites as SSSI.

The stag beetle has a restricted range in south-east England running from east Anglia to the Southampton area. A map was recently produced by the Biological Records Centre (BRC) which is included in appendix 1. Within this range it is locally frequent, but it has a very long larval life (at least three and a half years) so it may be abundant in one season and then not seen again for several years. An unusual feature is that it is especially frequent in suburban gardens in some areas. The larvae are associated with very soft, rotten wood in the later stages of decay. They are often found in stumps, but occasionally occur in fence posts and even compost heaps.

The species is not believed to be threatened in Britain. A data-sheet is attached as appendix 1.

Eurodryas aurinia **NOTABLE**
Marsh fritillary

Bern appendix: II
Domestic legislation: Schedule 5 in respect of sale only.

A widespread species in the west of Britain and in Northern Ireland mainly associated with damp, unimproved grassland, although some populations occur on dry calcareous grassland in southern-central England. The larval foodplant is devil's bit-scabious *Succisa pratensis*.

An extensive survey, funded by the World Wide Fund for Nature (WWF), is underway at present to establish the current status of the butterfly and to investigate its management requirements. The contractor is Dr Martin Warren who kindly provided the following details. 437 colonies were definitely present in the UK in 1991, 373 in Britain and 64 in Northern Ireland, although the latter is probably a gross underestimate. The majority of the sites occupied are small with over half being less than two hectares in extent. The species is characterised by a very dynamic population structure with many small populations frequently becoming locally extinct and then recolonising from other populations nearby. The species appears to thrive where there are many small fragments of suitable habitat within an area which facilitate this population turnover. In the east of England, although sites still remain apparently suitable for the species, re-introductions have usually failed (although some have persisted for 10-15 years). This is thought to be due to the isolation of these remaining areas which does not allow their recolonisation after local extinction.

Habitat destruction has been severe in recent decades and the loss rate of colonies in the last 20 years is estimated at 11.5% per decade, although this is probably an underestimate.

The loss of suitable habitat has been even more severe, for example 39% of Culm grasslands in Devon, a stronghold for *E. aurinia*, were lost between 1984 and 1989. In the documented cases of loss, physical destruction of the habitat (eg. ploughing up for agriculture) represented only 10% of losses, the great majority were associated with cessation or change of management. In particular, cessation of cattle grazing is probably the most frequent cause of documented losses, whether cessation was followed by neglect, or by switch to sheep grazing or cutting. The latter fate has happened to a number of nature reserves and losses from SSSIs have been equally frequent as from non-SSSI sites. 44% of the extant colonies in Great Britain are on SSSIs and/or National Nature Reserves.

In Northern Ireland the species is widespread, but under-recorded. Only three populations are known to occur on ASSIs, but it is believed that proper survey will show that it occurs on considerably more than this.

If the SSSI mechanism has not apparently afforded protection, how can the species be protected in future? Dr Warren suggests that the Environmentally Sensitive Area mechanism may be more appropriate for this species in maintaining traditional management in areas of countryside. A new ESA covering the Dorset and Wiltshire Downs is in the process of declaration. This area is a stronghold of the Marsh Fritillary so it is hoped that the effects of the ESA will be monitored.

Coenagrion mercuriale **RARE**
Southern damselfly

Bern appendix: II
Domestic legislation: Designation of sites as SSSI.

A damselfly with a restricted distribution in south-west England and South Wales where it occurs on wet heath. The New Forest and the Pembrokeshire commons are the main strongholds of the species. Its habitat in Britain is characterised by small, vegetated runnels flowing across flat or gently sloping wet heath or mire. Most thriving colonies are in areas subject to moderate to heavy grazing and a major threat to this species appears to be the cessation of grazing which allows the vegetation to become rank. Several losses (eg. St David's Head, Pembroke) can be attributed directly to the cessation of grazing. A detailed summary of the status, biology and management requirements by Fiona Evans, published in 1989, is attached as appendix 2.

The SSSI mechanism would seem to be appropriate to protect this species provided that effective management of the site can be ensured (as will be required under the EC Habitats and Species Directive).

Margaritifera margaritifera **NOTABLE**
Pearl mussel

Bern appendix: III
Domestic legislation: Schedule 5 in respect of killing and injuring only.

The biology and status of the pearl mussel in the United Kingdom has been detailed in a data sheet produced by F.R.Woodward for the European Invertebrate Survey in April 1990 and it seems unnecessary to add to this here.

The species was added to Schedule 5 (in respect of killing and injuring only) of the WCA on 27 March 1991. A survey, funded by the Countryside Council for Wales, is planned to start this year which will concentrate on determining the status of the species in four Welsh rivers, the Conway, Wye, Usk and Cleddau and on developing a suitable monitoring method.

A programme of designation of rivers as SSSIs is underway and the presence of the pearl mussel will be taken into account in assessing the nature conservation interests of candidate rivers.

Hirudo medicinalis **RARE**
Medicinal leech

Bern appendix: III
Domestic legislation: Schedule 5

A very large leech which is typically found in eutrophic lakes or ponds with dense stands of water plants. Adults feed on the blood of vertebrates and at Lydd in Kent water birds and amphibians provide the main hosts and tadpoles were found to be an important food source for young leeches. Quite high water temperatures (19°C or above for growth and breeding) appear to be critical and egg cocoons are laid in warm, shallow water near the edge of water bodies.

The species can be quite difficult to detect and has twice been declared extinct in Britain (in 1910 and 1981). There are recently confirmed population at 14 sites, 8 of which are SSSIs, ranging from the Hebrides to Kent and the population at Lydd, on the Dungeness SSSI, which has been studied most intensively, is thought to number several thousand.

The status and biology of the species is described in detail in a data sheet which is attached as appendix 3.

Lycaena dispar **ENDANGERED**
Large copper

Bern appendix: II
Domestic legislation: Schedule 5

The large copper was always a very scarce insect in Britain and its range was restricted to the fens of Cambridgeshire and Lincolnshire. The larvae feed on great water dock *Rumex hydrolapathum* and native British colonies were of an endemic subspecies *L. dispar dispar*. The species declined following the drainage of the fens which was more or less complete by the end of the 19th century. The last strongholds were in the area of Whitlesey Mere which was drained in the 1850s and the last known capture was around 1865. In 1927 the Dutch subspecies, *L. dispar batavus*, was introduced into a privately owned nature reserve, Woodwalton Fen, now a National Nature Reserve. Numbers fluctuated greatly and it had to be reintroduced in 1969. The species has been maintained at Woodwalton at least partly as a captive population in a greenhouse and additional adults from this colony have been released into the fen. A large release of adults was made in 1987 and the population in the fen has subsequently been monitored by the British Butterfly Conservation Society's (BBCS) Cambridgeshire & Essex branch. A report on this experiment by Dr Ian McLean is attached as appendix 4. In brief, the butterfly declined steadily in 1988 and 1989 and it was predicted that it would disappear by 1990. However it did survive at a very low level and it is possible that after four years the population has reached equilibrium.

In 1991 an unauthorised release of the German subspecies *L. dispar rutilus* took place in the Somerset Levels. This was reported in the newsletter of the Dorset Branch of BBCS. The release took place without consultation or even permission from the landowner of the site involved. About 36 second brood, mainly virgin females, were released between 25 August and 7 September. The source of the stock is unknown, but the adults were bred by local young enthusiasts. Although the release was revealed in a BBCS newsletter, it was stressed that it was conducted by an individual, not by the BBCS branch, although it occurred with their knowledge and BBCS members were present during at least one release of adults. A prosecution of the individuals involved under the WCA was contemplated, but it was decided that this would be counter-productive.

Maculinea arion **ENDANGERED**
Large blue

Bern appendix: II
Domestic legislation: Schedule 5

The large blue once had a restricted range in southern England with its main strongholds in the Cotswolds and along the northern coast of the south-west peninsular. About 30 colonies existed in the 1950s but it underwent a steady decline and it finally became extinct in 1979 at a time when research was revealing why it was disappearing and how it

Table I Species listed on the Bern Convention which are known to have occured in the United Kingdom.

Scientific name	Common name	Dist	App	W&C Act	ISR status	No. of known sites All	SSSI	NNR
Natural range, UK								
Austropotamobius pallipes	Atlantic stream crayfish	UK	II	Sch 5 (taking & sale)	Local	1112	15	4
Lucanus cervus	Stag beetle	E	III	-	Notable	78*	11	0
Eurodryas aurinia	Marsh fritillary	UK	II	Sch 5 (sale)	Notable	373	140	24
Coenagrion mercuriale	Southern damselfly	EW	II	-	Rare	43	31	4
Margaritifera margaritifera	Pearl mussel	UK	III	Sch 5 (killing & injuring)	Notable	49*	3	1
Hirudo medicinalis	Medicinal leech	ESW	III	Sch 5	Rare	14	8	2
Extinct, but re-introduced								
Lycaena dispar	Large copper	E	II	Sch 5 (sale)	Endangered	1	1	1
Maculinea arion	Large blue	E	II	Sch 5	Endangered	2	2	0
Extinct								
Oxygastra curtisii	Orange-spotted emerald	E	II	-	Endangered			
Graphoderus bilineatus	water beetle	E	II	-	Endangered			
Cerambyx cerdo	longhorn beetle	E	II	-	-			
Established alien								
Helix pomatia	Roman snail	E	III	-	Local	49*	?	?
Astacus astacus	Noble crayfish	?	III	Sch 9	-	2	1	0
Vagrants								
Parnassius apollo	Apollo butterfly	E	II	-	-			
Prosperinus prosperina	Curson's sphinx moth	E	II	-	Vagrant			

Explanation

Dist	indicates the distribution within the UK. E = England, W = Wales, S = Scotland.
App	shows in which Bern Convention Appendix the species is listed.
W&C Act	shows the Schedule of the Wildlife and Countryside Act (1981) in which the species is listed.
ISR status	gives the status in Britain assigned by the Invertebrate Site Register. Notable species are believed to occur in 100 or fewer 10km squares of the national grid. Rare and Endangered are Red Data Book categories following those defined by the IUCN.
Known sites	shows the total number of sites (or 10km squares of the national grid indicated by *) the species has been reported from since 1980 in Britain and the number of these which are Sites of Special Scientific Interest (SSSI) or National Nature Reserves (NNR).

might be saved. It was found that the species depends on a single species of red ant *Myrmica sabuleti* which, in turn, needs a hot microclimate. In practice this means that sites must be heavily grazed so that the ground can bake in the sun. Most extinctions of large blue occurred because the ant declined following cessation of grazing.

A re-introduction was made to a site in Devon in 1983 using stock from Sweden. The site is owned by the National Trust, but has been managed by English Nature by clearing scrub and intensive grazing. Following this management, it is predicted that the site's capacity should be 700 adults emerging, compared with a maximum of 250 in the past. The re-introduction proved successful and numbers increased slowly until 1986. By that time it was clear that the Swedish stock was suitable and more were added from the same source to increase genetic diversity. The increase in numbers proceeded in line with predictions to around 200 adults emerging in 1988. Numbers were lower in 1989 and 1990 due to a severe drought in the area. A second site was established near the first in 1990 on another area owned by the National Trust. Although scrub has been cleared and grazing instated, this site had a lack of thyme plants *Thymus drucei*, on the flowers of which the early instar larvae of large blue feed. About 800 thyme plants were transplanted into the site in the winter of 1990/91. Large blues from the first site were transferred to the second in summer 1991. A third site, this time in Gloucestershire, is planned for re-introduction in 1992.

This work was originally funded mainly by NCC/English Nature, with contributions from the National Environment Research Council and WWF. The project is managed by the "Large blue committee" which includes staff from English Nature, the main contractor Dr Jeremy Thomas of the Institute of Terrestrial Ecology, Furzebrook and representatives of various non-governmental organisations. Future funding from English Nature is planned from the "Species Recovery Programme", although no final decision has been made at the time of writing.

N.B. The appendices mentioned in the United Kingdom report can be consulted in the following document (from which this report is extracted):

Species Conservation Branch Report

No 8
Bern Convention Invertebrates
in the United Kingdom

by

Dr S.G. Ball

Joint Nature Conservation Committee

3.12 THE DATA ABOUT OF INVERTEBRATES OF BERN CONVENTION ON THE TERRITORY OF EUROPEAN RUSSIA

KOCHETOVA N.I.

INSTITUTE OF THE NATURE CONSERVATION, MOSCOW

NOW THE COOMON SITUATION IN RUSSIA IS VERY COMPLEX. THERE IS NO THE SOVIET UNION AND IN SPITE OF THAT THE LAW OF THE USSR ABOUT ANIMAL PROTECTION DOES NOT ACT AT PRESENT. DUE TO THAT THE SPECIES INCLUDED IN THE USSR RED DATA BOOK (1984) NOW ARE NOT ANDER PROTECTION. THE FINANCY ON NATURE CONSERVATION IS DECREASED. ZAPOVEDNICS AND OTHER PROTECTIVE TERRITORIES WILL NOT BE ORGANIZED PROBABLY DURING NEAREST 5 YEARS, ESPECIAALY ON INVERTEBRATES PROTECTION.

ON THE EUROPEAN RUSSIA THERE MANY PLACES, WHAT COULD BE PROTECTIVE TERRITORIES ON INVERTEBRATES CONSERVATION: THERE ARE DON RIVER DELTA, SOME PLACES OF BASHKIRIA, KUJBYSHEV REGION, THE PARTS OF WARZUGA RIVER WHERE THE BIGGEST POPULATION OF EUROPEAN PEARL MUSSEL (MARGARITIFERA MARGARITIFERA) IS DISTRIBUTED. WE SHALL TRY TO ORGANIZE SOME PROTESTIVE TERRITORIES FOR INVERTEBRATES BUT WE KNOW THAT IT WILL BE VERY DIFFICULT. THE INFORMATION ABOUT SPECIES OF THE USSR RED DATA BOOK AND RED DATA BOOKS OF ANCIENT SOVIET REPUBLICS WAS PUBLISHED IN DIFFERENT SCIENTIFIC ARTICLES. THE MOST OF THEM WERE COLLECTED IN ONE BOOK PUBLISHED IN 1991, BUT PREPARED IN 1989. IN THIS PAPER WE USE OUR OWN DATA , OTHER DATA OF OUR INSTITUTE AND DATA FROM THIS BOOK (" RARE AND NEEDED IN SPECIAL PROTECTION ANIMALS - MATERIALS FOR RED DATE BOOK, COLLECTION OF ARTICLES" MOSCOW,1989).

MANY SPECIES OF THE RED DATA USSR (ANCIENT) AND RED DATE BOOK OF RUSSIA INCLUDED IN APPENDICES II AND III OF BERN CONVENTION. IN THIS SMALL REPORT WE ARE GOING TO INFORM ABOUT ADDITIONAL DATE (IN COMPARE WITH RED DATA BOOK OF USSR (1984) AND RUSSIAN FEDERATION (1988)) OF SOME SPECIES OF INVERTEBRATES OF BERN CONVENTION. BUT WE GIVE INFORMATION ABOUT SPECIES THAT DONT INCLUDE IN RED DATA BOOKS, BUT ARE IN BERN CONVENTION.

INSECTA

ORTHOPTERA

SAGA PEDO - IS FOUNDED IN DELTA OF DON RIVER (МИНОРАНСКИЙ, ДЕМИН, 1989), MEET VERY RARE; KHOPERSKY ZAPOVEDNIK (VORONEZ REGION) (НЕГРОБОВ, ВОДЯНОВ, ЦУРИКОВ,1989);SOME POINTS OF TSCHECHENO-INGUSHETY (УЖАКОВ, МУРДАЛОВ, 1989). THIS SPECIES HABITS IN SMALL PART OF RUSSIAN EUROPEAN STEPPS, THAT ARE NOW VERY ENDANGERED. INCLUDE IN RED DATA BOOK ANCIENT USSR AND RUSSIA.

COLEOPTERA

DYTISCUS LATISSIMUS - RARE SPECIES, IS FOUND OUT IN VORONEZ REGION (НЕГРОБОВ, ВОДЯНОВ,ЦУРИКОВ, 1989). IT HABITS IN RIVERS AND LARGE LAKES. IT DOES NOT INCLUDE IN RED DATA BOOKS.

OSMODERMA EREMITA - IN COOMON PART OF ITS APEAL IT IS VERY RARE. IT FOUND OUT IN OLD BROADLEAF FORESTS OF VORONEZ REGION (НЕГРОБОВ, ЦУРИКОВ, 1989; ЦУРИКОВ, ТУРЧИН, ВОДЯНОВ, 1989); IN VILLAGE NAGAEVO OF BASHKIRIAN REPUBLIC (СТЕПАНОВА, БОЕВ, 1989) - ONE COULD MEET SINGLE EXEMPLARS; IT DISTRIBUTE WIDE IN KALINIGRAD REGION, BUT IS VERY RARE EVERYWTHERE (САЖНОВ, 1989). INCLUDE IN RED DATA BOOK ANCIENT USSR.

CERAMBYX CERDO - SOME POINTS OF DISTRIBUTION ARE FOUND IN TELLERMAN FOREST OF VORONEZ REGION (НЕГРОБОВ, ЦУРИКОВ, 1989; ЦУРИКОВ,ТУРЧИН, ВОДЯНОВ, 1989), IN CAUCASIAN ZAPOVEDNIK (ТУНИЕВ, 1989). EVERYWHERE SINGLE SPECIMENS. INCLUDE IN RED DATA BOOK ANCIENT USSR, BUT ON THAT TERRITORY IN NEEDED IN SPECIAL PROTECTION SUBSPECIES - CERAMBYX CERDO CERDO. THE MAIN PART OF DISTRIBUTION OF THIS SUBSPECIES SITUATED IN WEST OF UKRAINE. IT IS IN RED DATA BOOK OF ANCIENT USSR.

ROSALIA ALPINA - IT WAS POINTED TWO TIMES IN OAK FORESTS NEAR OSTROGOJSK AND VORONEZ (VORONEZ REGION) (1983) (НЕГРОБОВ, ЦУРИКОВ, 1989). IT WAS KNOWN FOR VORONEZ REGION, BUT THE CONCRETE

POINTS WERE NOT KNOWN. NOW IT DISTRIBUTES IN SOME (TWO OR THREE) POINTS OF BORONEZ REGION. INCLUDE IN RED DATA BOOK OF ANCIENT USSR AND RED DATA BOOK OF RUSSIA.

LEPIDOPTERA

ZERYNTHIA POLYXENA - IS KNOWN SOME POINTS OF ITS DISTRIBUTION: DON RIVER DELTA (МИНОРАНСКИЙ, ДЕМИНА, 1989); SOME POINTS IN VORONEZ REGION (НЕГРОБОВ О.П., ПАНТЕЛЕЕВА, НЕГРОБОВ В.П., 1989). THERE ARE VERY SMALL POINTS OF ITS DISTRIBUTION ON THE TERRITORY OF EUROPEAN RUSSIA. THIS SPECIES IN RED DATA BOOK OF ANCIENT USSR.

PARNASSIUS APOLLO - DUE TO REPORTS OF SOME SPECIALISTS (НЕГРОБОВ О.П., ПАНТЕЛЕЕВА, НЕГРОБОВ В.П.,1989) IT IS DISSAREARED FROM THE TERRRITORY OF VORONEZ REGION. IT IS VERY RARE IN KUJBYSHEV REGION (САЧКОВ,1989), ONE POPULATION IS IN CAUCASIAN ZAPOVEDNIK (UPPER CURRENT RIVER MSYMTA) (ТУНИЕВ, 1989). IT HABIT IN ZYGULEVSKY ZAPOVEDNIK (BIG BAKHYLLOV MOUNTAIN (САЧКОВ,1989).IT SPREADS IN KIROV REGION,ESPECIALLY FREQUENTLY IN GEOLOGO-BOTANICAL RESERVATE "MEDVEDSKY BOR" (NOLIN REGION) (ЕЛЬШИН,1989), WHERE ARE THE MOST NORTH STEPPS SPOTS IN COOMON TAIGA TERRITORY. THIS SPECIES IN RED DATA BOOK AND MAY BE CALLED ENDANGERED ON THE TERRITORY EUROPEAN RUSSIA.

PARNASSIUS MNEMOSYNE - THIS SPECIES IS IN SOME BETTER SITUATION AS COMPARED WITH PREVIOUS. IT IS COMMON IN VORONEZ REGION (НЕГРОБОВ О.П., ПАНТЕЛЕЕВА, НЕГРОБОВ В.П.,1989); ZYGULEVSKY ZAPOVED-NIK (KUJBYSHEV REGION); KIROV REGION (ЕЛЬШИН,1989); CAUCASIAN ZAPOVEDNIK (ТУНИЕВ З.С.), RARE IN BASKIRIA (СТЕПАНОВА,ЗОЕВ,1989). THIS SPECIES IS RARE IN CENTRAL PART OF EUROPEAN RUSSIA. IT IS INCLUDED IN RED DATA BOOKS OF USSR AND RUSSIA.

COENOMYMPHA HERO - HABITS IN SOUTHERN PARTS OF KIROV REGION (NOT EVERY YEAR) (ЕЛЬШИН,1989).IN VORONEZ REGION IT MEETS IN WET PLACES, FORESTS GLADES, FLOOD LANDS OF RIVERS AND STREAMS (НЕГРОБОВ О.П., ПАНТЕЛЕЕВА, В.П.,1989). THIS SPECIES IS IN RED DATA BOOK OF ANCIENT USSR.

MACULINEA ARION - THERE ARE SMALL DATA ABOUT IT DISTRIBUTION IN EUROPEAN RUSSIA. IN 1984 IN BIG AMOUNT WAS IN VILLAGE DIVNOGORSK (VORONEZ REGION) (НЕГРОБОВ, ПАНТЕЛЕЕВА, НЕГРОБОВ, 1989). IT IS RARE IN CENTRAL RUSSIA, BUT MORE COMMON ON OTHER TERRITORY. IT IS NOT IN RED DATA BOOKS.

APPENDIX III

INSECTA

COLEOPTERA

LUCANUS CERVUS - IT IS RARE IN LYPETSKAJA REGION, COMMON IN SOUTH PART VORONEZ REGION (НЕГРОБОВ, ВОДЯНОВ,ЦУРИКОВ, 1989). IT IS VERY RARE IN CENTRAL RUSSIA, MORE COMMON IN SOME PARTS OF SOUTH EUROPEAN RUSSIA. IT IS IN RED DATA BOOK OF ANCIENT USSR.

CRUSTACEA

DECAPODA

ASTACUS ASTACUS - THE NUMBER DECREASED EVERYWHERE, EPECIALLY IN CENTRAL RUSSIA, SOME NUMEROUS IN SOUTH PART. IT IS NESSESARY TO REGULATE OUTPUT.IT IS NOT IN RED DATA BOOK.

MOLLUSCA

GASTROPODA

HELIX POMATIA - IT IS VERY COMMON IN EUROPEAN RUSSIA. THE BIG POPULATION HABITS IN PRIOKSKO-TERRASNY ZAPOVEDNIK MOSCOW REGION. THIS SPECIES DOES NOT NEED IN SPECIAL PROTECTION IN RUSSIA.

BIVALVIA

MARGARITIFERA MARGARITIFERA - THE EXPEDITION ON VARZUGA RIVER WAS IN 1991

BY COWORKERS OF INSTITUTE OF NATURE CONSERVATION. IT WAS FOUND OUT, THAT THE SPECIES IN MORE BAD SITUATION THAN SOME YEARS BEFORE. 10 PARTS OF RIVERS OF VARZUGA BASSIN WERE OBSERVED. IN SOME PLACES WERE FOUND SEPARATE ANIMALS (LESS 10) WITH DISTANCE 5-8 METR. ONE SPOT HAS BIG AMOUNT OF ANIMALS, SIZES: 4 X 20 METR. THERE WERE 100-170 MOLLUSCS PER METR SQUARE AND MORE. IN COMMON THIS SPORT CONTAINS 25000-30000 MOLLUSCS (RIVER INDEL). COMMON NUMBER OF ANIMAL IS VERY DIFFICULT TO ESTIMATE. WE PLAN TO DO IT IN SUMMER 1992.BUT WE SUPPOSE THAT IT IS NOT HIGHER ONE MILLION. THE SPECIES IN RED DATA BOOKS OF ANCIENT USSR AND RUSSIA.

ANNELIDA

HIRUDINEA

HIRUDO MEDICINALIS - WE HAVE NO CONCRETE DATA ABOUT DISTRIBUTION OF THIS SPECIES, BUT IT IS KNOWN PLACES WHERE IT IS NUMEROUS.

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Кожетова

3.13 Overview of progress on conservation of Margaritifera and other European freshwater Unionids (Mollusca : Bivalvia) since April 1990

by Fred R. Woodward
Art Gallery & Museum, Kelvingrove, Glasgow G3 8AG, United Kingdom

As a specialist I trust that the following observations on the progress made since April 1990 with regard to the conservation of **Margaritifera** and other Unionids will be helpful as I fully appreciate the enormous financial and administrative constraints under which Contracting Parties, Institutions and private individuals have to operate in order to produce and enforce formal Conservation Legislation, undertake surveys and carry out research.

Legislation

IRELAND (REPUBLIC OF IRELAND) : Legislation has been passed to provide total protection to all species of Unionids throughout the Republic and came into force from 1 July 1990.

IRELAND (NORTHERN IRELAND) : **Margaritifera margaritifera** is afforded protection under Section 7 of the Wildlife (Northern Ireland) Order 1985, Animals which may not be sold alive or dead at any time.

UNITED KINGDOM : **Margaritifera margaritifera** has been afforded protection under an amendment to Schedule 5 of the Wildlife and Countryside Act 1981. This was announced in January 1991 and passed by Parliament on 27 March 1991. This amendment makes it an offence to injure of kill **Margaritifera.** Traditional Pearl Fishing, a practice which extends back some two thousand years, has been enabled to continue, under licence. The writer is currently producing identification/information sheets for distribution to the relevant Wildlife Liaison Officers in Police Forces throughout the British Isles to enable local police officers to enforce the Act. In addition discussions are under way to set up information displays to bring this new legislation to the attention of the general public. At the last meeting of the Group of Experts on Conservation of Invertebrates, the United Kingdom was requested, under Appendix 7, to regulate pearl fishing as a matter of urgency and this has been achieved in part by the amendment above. Discussions are now under way with Scottish Natural Heritage (formerly NCC Scotland), to determine whether it is practicable for them to administer the licensing of pearl fishers under a section of the Wildlife and Countryside Act.

Surveys

DENMARK, FINLAND, NORWAY & SWEDEN : Messrs. Baage, Koli, Okland, Proschwitz and Valovirta are presently mapping the distribution of large freshwater mussels in North Europe belonging to the Margaritiferidae, Unionidae, and Dreissenidae and are on schedule to present a preliminary report to the 11th International Malącological Congress to be held in Siena in August/September 1992.

FRANCE : No cohesive survey has yet been set up but a limited amount of material has been passed to Glasgow. In addition the species represented in the Loire Basin during the period 1978-1987 have been discussed by Nesemann

and Nagle, 1989. Their record of apparently relatively recent material of the Appendix II species **Margaritifera auricularia** is particularly significant and worthy of further investigation.
The presence of the Asiatic species **Anodonta woodiana** Lea 1838 has been recorded for France by Girardi.

GERMANY : Falkner 1991 (2) updates the present position for Bavarian Unionids and considers **Margaritifera margaritifera** (L.), **Unio crassus** Philipsson and **Pseudanodonta complanata** (Rossmassler) as being threatened with extinction, **Unio tumidus** Philipsson and **Anodonta cygnea** (L.) as seriously endangered whilst **Unio pictorum** (L.) and **Anodonta anatina** (L.) are thought to be also at risk.
Lill 1990 gives information on **Unio crassus** Philipsson in the area of Gottingen and Norheim whilst Nagel and Nesemann 1989 outline Unionid distribution for Schwalm.
The presence of the Asiatic species **Anodonta woodiana** Lea 1838 has been reported to me by a colleague in Hamburg but I have not, as yet, seen any material.

GREECE : A preliminary survey is being set up with Dr Legakis and draft identification keys are in preparation. Some voucher material has been placed in Glasgow.

HOLLAND : No surveys as yet proposed but the previous dubious record of **Margaritifera auricularia** would appear to have been based on examples which had been found in 'fossil' deposits dating some 1900 years ago.

HUNGARY : Some voucher material of Unionids placed in Glasgow and it is hoped a survey may soon be established. **Margaritifera** is recorded as being absent and never recorded for this country.
Szito and Botos 1989 refer to the distribution of **Unio pictorum** (L.) in the River Tisza whilst Ponyi 1990 gives the distribution of Unionids in Lake Balaton.

IRELAND (REPUBLIC OF IRELAND) : The distribution of Unionids and **Margaritifera margaritifera** ss. throughout the Republic is currently being undertaken by E. Moorkens. In response to the specific request under Appendix 7 of the last meeting of the Group of Experts, work is in progress to establish the status of the 'subspecies' **Margaritifera margaritifera durrovensis** by G. Oliver and H. Ross as well as a survey by E. Moorkens to evaluate the present population.

IRELAND (NORTHERN IRELAND) : Work has continued on distribution surveys commissioned by the Department of the Environment for Northern Ireland together with ecological studies by H. Ross as well as those supervised by D. Roberts at Queens University, Belfast.

ITALY : Nagel and Hoffmeister report having obtained three live specimens of **Liguminaia uniopsis** (Lamarck 1819) = **Microcondylaea compressa** (Menke 1829) from the River Torrente Versa near Capriva del Friuli, west of Gorizia in 1984. This Appendix III species is drastically reduced in numbers and it is requested that every effort should be made to protect this important population in addition to determining its current status.

ROMANIA : The Asiatic species **Anodonta woodiana** Lea 1838 is recorded for Mardaska, Romania, by Kroupa as far back as 1985.

SPAIN : Altaba records the presence of living examples of Category 1 species **Margaritifera auricularia** (Spengler 1793) in the lower Ebro river and the adjoining channels in Catalonia. Since the initial discovery the channel populations have been destroyed and those in the river are seriously threatened by pollution, hydro schemes, river diversion and uncontrolled collecting. He also suggests that the host fish for the glochidial stages may be the Western European Sturgeon, **Ancipenser sturio** (Linnaeus 1758) and lists recommendations for the protection of **Margaritifera auricularia** which have been accepted by the administration of the Ebro Delta Natural Park. I would urge that every effort should be made to investigate thoroughly and to protect this apparently last remaining population.
A draft Unionid key for Spanish species has been drawn up and sent to Dr Garcia-Valdecasas for a proposed survey through the Museo National de Ciencias Naturales at Madrid.

SWITZERLAND : Swiss Unionid distributions are included in the project by Dr Turner, et al. on the land and freshwater mollusca of Switzerland. This is mainly based on the Mollusca collections in the Musée d'Histoire Naturelle, Geneva; Musée d'Histoire Naturelle, Neuchâtel; Zoological Museum, Lausanne University; Natural History Museum, Basel; and the Zoological Museum, Zurich University.

UNITED KINGDOM : Records for the Scottish survey continue and in addition more detailed local projects are being undertaken by F. Woodward for the River Kerry, whilst the River Spey has been studied first by Pullen in 1990 and then by an Operation Brightwater team in October 1991.
Recording of Unionids in England and Wales also continues together with more detailed projects, eg A. Jolliffe survey of the River Great Ouse. All recent British records are currently being incorporated by Dr Kerney into a new and enlarged second edition of the Conchological Society of Great Britain & Ireland Non-Marine Census which is scheduled for the Spring of 1993.

USSR: Since the last meeting, contact with colleagues in the former Soviet Union have been consolidated with an increasing exchange of scientific information. As a first step Dr Bogan, Academy of Natural Sciences of Philadelphia, USA, is producing an English translation of Starabogatov's 1970 Unionid classification and Dr Kornushin is preparing a bibliography and summary of recent work on freshwater bivalves in the Soviet Union. In addition discussions are currently in progress to establish a unified conservation strategy as a matter of the utmost urgency.

Research

Work is under way to establish a unified nomenclature throughout Europe (eg Mordan and Woodward 1991), coupled with standardised terminology in English, French and Germany (Woodward, Erard and McMillan).

Discussions have taken place to coordinate activities with colleagues throughout Europe with limited success and members from the Universities of Aberdeen, Belfast, Dublin, Glasgow and Hanover met in Scotland in September 1990. A programme for a pilot project has been drawn up but has not been implemented due to lack of funding.

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APPENDIX 4

PROPOSED CRITERIA FOR INCLUDING INVERTEBRATES IN APPENDIX I

1. All invertebrate* taxa "Endangered" (sensu IUCN Red Data Book categories) within Europe, excluding those that are widespread outside and which only marginally extend into Europe.

Justification: These continue to be the taxa closest to extinction in Europe and they therefore remain top priorities for conservation in the region.

2. A selection of invertebrate taxa which are "vulnerable" within Europe, excluding those that are widespread outside and which only marginally extend into Europe.

Justification: to include all "vulnerable" taxa would make the Appendix unworkable because of its length. A selection, therefore, of "vulnerable" taxa will be made on the basis of one or more of the following sub-criteria.

Sub-criteria:

i) Endemic to Europe or significant proportion of world population present in Europe,
ii) Occurrence in a threatened habitat type(s),
iii) Genetic resource value, eg taxa of medicinal, scientific or other useful value/potential,
iv) High conservation profile, to raise profile of the Appendix as a whole (eg butterflies),
v) Occurrence in a site(s) of high invertebrate endemism and/or diversity (eg invertebrates from caves or from the high Canary mountain in Spain).

3. A small number of additional invertebrate taxa which require complete prohibition of exploitation.

Justification: to conserve those invertebrates suffering from exploitation, commercial or otherwise. If exploitation is sustainable, listing in Appendix III would be preferable, but if commerce or over-collecting risk to endanger the species, listing in Appendix II should be considered (eg some sponges, red coral).

4. Well documented taxonomic groups and taxa:

Justification: the selection of taxa should be based primarily on recent, well documented European studies of individual taxa and taxonomic groups. Such studies may include Europe-wide surveys of threatened taxa (eg butterflies, Odonata, Aculeate Hymenoptera), of specialised biotopes (eg saproxylic faunas) or of general distribution (eg Diplopoda). These studies should enable the preparation of data sheets for candidate species by those carrying out the study or other experts supplying data to the study.

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* For practical reasons microscopic and interstitial soil organisms will be excluded. By invertebrates is understood "terrestrial, marine or freshwater macroinvertebrates".

5. "Extinct" taxa

Justification: If these taxa reappear in the wild, then some conservation provisions should be available to protect them because it is highly probable that their populations will be extremely small and very vulnerable.

6. A small selection of threatened marine invertebrates

Justification: marine invertebrates have tended to be badly neglected by conservationists, probably due to limited knowledge about their conservation status. Documentation, however, is increasing both about their wild populations and their conservation requirements. A small selection of them, therefore, is proposed for inclusion in the Appendices to represent their conservation needs at an international level.

7. Invertebrates listed in the Bern Convention should, as far as practicable, be selected from a wide variety of phyla and classes

Justification: It is valuable to demonstrate that threats such as habitat destruction and pollution can have serious effects on a wide variety of invertebrates.

8. The final selection of invertebrates for listing in the Bern Convention should, if possible, embrace a wide geographical coverage

Justification: One of the strengths of the Convention is that it encourages international cooperation. To utilise this strength fully requires a species list that may include some narrow endemics, but consists mainly of more widespread but nevertheless threatened species.

9. Invertebrate species complexes demonstrating a high degree of taxonomic instability will, in general, be excluded

Justification: Certain groups which are notoriously difficult to work with taxonomically are just as difficult for the conservationist. It is therefore proposed that such groups are excluded, in general, from the Appendices of the Convention because of the difficulties with their identification.

APPENDIX 5

CRITERIA FOR INVERTEBRATES SELECTION AS CANDIDATES FOR INCLUSION IN THE BERN CONVENTION APPENDICES

Statement by the delegate of the Russian Federation

For selecting species for the Bern Convention, the principles of evaluation of the species' condition must be established. It is necessary to evaluate:

1. each species individually

2. to use several estimates (not just one) of not less than three different characteristics.

From my point of view, one could use some groups of estimates:

1. arealogical or territorial (including all areal of species characteristic); as it seems to me to Bern Convention one should not include endemics of separate governments. the species - candidate for the Bern Convention - must habit not less than three governments.

should be included:
a) widespread species;
b) endemic of Europe inhabit not less than three governments;
c) species with arealogical specific (distinctive or broken and etc...)

2. Systematical or taxonomical:

It is necessary to give preference to the single species of high taxa (genera, familia, ordo).

3. Scientific value:

a) relicts (original characteristics)
b) genetic characteristics
c) the species from centres of fauna origin places in Eruope (and flora)

4. Functional specific characteristic (by role in ecosystems):

a) pollinators;
b) biofiltrators or waters;
c) saprophages;
d) etc.

5. From kind, size and form of threat (anthropogenous influences)

a) kind (commercial purposes, medicine, food for people or animals)
b) size (on all areal or only on its definite part)
c) form (taking off, changing of habitats, agriculture)

Succession of species choosing for Bern Convention

1. The specialists (systematics, ecologists) suppose the species with each characteristics by 5 groups of estimation. We should investigate as much as possible groups of invertebrates.

2. The species which may be included in the Bern Convention must fulfil not less than three of five criteria.

3. The Secretariat of the Bern Convention would make up the list of species with evaluation by five estimates for discussion on by the Group of experts on invertebrates conservation.

From my point of view it is not impossible to make up a common list of criteria for all invertebrates and selection of species should be made individually. The reasons for this being:

1. The invertebrates have habitat specification (habitats of air-ecosystems; water (freshwater, seawater) and soil;

2. The biology of different species is distinct;

3. The study is incomplete;

4. there are many species in common;

5. It is very difficult for non-specialists to identify .

Nadejda I. KOCHETOVA

APPENDIX 6 / ANNEXE 6

2èmes Rencontres Scientifiques de la Côte Bleue

COLLOQUE INTERNATIONAL
"LES ESPECES MARINES A PROTEGER EN MEDITERRANEE"
CARRY-LE-ROUET, 18 ET 19 NOVEMBRE 1989

R E C O M M A N D A T I O N S

Compte tenu des propositions des rapporteurs (Claude CHAUVET, Patrice FRANCOUR, Jean-Georges HARMELIN, Jacques LABOREL, Luc LAURENT, Gérard PERGENT, Alfonso RAMOS-ESPLA, Maria Antonia RIBERA, José TEMPLADO, Jean VACELET, Nardo VICENTE, Steven WEINBERG), des communications présentées, des débats et de la Table-Ronde, le Comité Scientifique et le Comité d'Organisation formulent les propositions suivantes :

(1) Spongia officinalis Linnaeus (Spongiaires) ; noms vernaculaires : Eponge fine grecque, Eponge de toilette (Fr), Esponja de baño griega (Es), Esponja de bany (Ct), Spugna de bagno (It), Spuzva prava (Cr), Sfoungari tou baniou (Gr), Banyo süngeri (Tr), Necheff (Tu), Greek bathing sponge (An).

L'espèce est l'objet d'une exploitation commerciale, principalement en Grèce.

On propose de fixer une taille minimale de récolte (10 cm de diamètre) pour les pays suivants : France, Italie, Yougoslavie, Grèce, Turquie, Tunisie et Algérie. Cette réglementation existe déjà en Espagne. On propose d'interdire sa pêche au moyen d'engins traînants (gangave, chalut, drague).

(2) Hippospongia communis (Lamarck) (Spongiaires); noms vernaculaires : Eponge commerciale commune (Fr), Esponja común, Esponja de caballo (Es), Esponja de cavall (Ct), Spugna di cavallo (It), Spuzva divlja (Cr), Honey comb, Horse sponge (An).

L'espèce est l'objet d'une exploitation commerciale, principalement en Tunisie. Sa population est actuellement décimée par une maladie.

On propose de fixer une taille minimale de récolte (10 cm de diamètre) pour les pays suivants (France, Italie, Yougoslavie, Grèce, Turquie, Tunisie et Algérie). Cette règlementation existe déjà en Espagne. On propose d'interdire sa pêche au moyen d'engins traînants (gangave, chalut, drague).

(3) Corallium rubrum (Linnaeus) (Anthozoaires, Octocoralliaires) ; noms vernaculaires : Corail rouge, Corail de Sardaigne (Fr), Coral cerdena, Coral rojo (Es), Corall (Ct), Corallo (It), Koralj crveni (Cr), Kırmızı mercan (Tr), Morjen Alımar (Tu), Sardina coral, Red precious coral (An).

Les stocks sont en déclin rapide dans plusieurs régions du fait de la surexploitation, mais l'espèce elle-même n'est pas menacée.

Pour décourager l'usage de méthodes de récolte qui ne préservent pas les jeunes individus ou qui sont particulièrement destructrices du biotope (et donc pour favoriser la reconstitution des stocks), on recommande l'interdiction des outils pneumatiques pour la récolte et l'interdiction de la fabrication et de la vente de produits à base de poudre de corail ("corail reconstitué") en Espagne, France, Italie, Tunisie, Algérie et Maroc (côtes méditerranéennes). Pour éviter le contournement de cette dernière interdiction par confusion volontaire entre espèces, difficile à contrôler, on interdira également la vente de produits à base de corail reconstitué d'origine indo-pacifique.

(4) Gerardia savaglia (Bert.) (Anthozoaires).

C'est une espèce très rare. Elle est menacée par le ramassage, à des fins décoratives, par les plongeurs.

On propose de l'inscrire sur la liste des espèces protégées (interdiction de ramassage, de transport et de commercialisation) en Italie.

(5) Patella ferruginea Gmelin (Mollusques, Gastropodes) ; noms vernaculaires : Patelle géante, Patelle foncée, Arapède géante (Fr), Patella sumirina, Lappara grossa, Laparedda maiora (Co), Lapa ferrugínea (Es), Ferreous limpet (An).

L'espèce, endémique de la Méditerranée, est menacée de disparition dans la totalité de son aire de répartition. Elle n'est pas l'objet d'une exploitation commerciale. Sa régression est dûe au ramassage amateur pour sa consommation.

On propose de l'inscrire sur la liste des espèces protégées (interdiction de ramassage, de transport, de commercialisation et de consommation) dans les pays suivants : Espagne, France, Italie, Tunisie, Algérie. Sa protection devrait être inscrite au niveau communautaire (CEE).

(6) Patella nigra (Da Costa) (= P. safiana Lamarck) (Mollusques, Gastropodes); noms vernaculaires : Patelle de Safi (Fr), Lapa negra (Es), Black limpet (An).

Très rare en Méditerranée (où elle est en limite d'aire). Elle n'est pas l'objet d'une exploitation commerciale. Sa régression est dûe au ramassage amateur pour sa consommation. Possible à confondre avec P. ferruginea, le couplage de sa protection avec cette dernière espèce est avantageux.

On propose de l'inscrire sur la liste des espèces protégées (interdiction de ramassage, de transport, de commercialisation et de consommation) dans les pays suivants : Espagne, Italie, Algérie.

(7) Pinna nobilis Linnaeus (Mollusques, Bivalves); noms vernaculaires : Grande nacre, Jambonneau hérissé (Fr), Nacar, Nacra (Es), Nacre (Ct), Pinna, Astura, Nacchera (It), Periska (Cr), Pinna (Cr), Pina (Tr), Noble pen shell, Fan mussel (An).

L'espèce est devenue rare en Méditerranée nord-occidentale. Elle n'est pas exploitée à des fins commerciales, mais elle est l'objet d'un ramassage important en plongée sous-marine, à des fins décoratives. Le fait que toute récolte en plongée (scaphandre autonome) soit interdite par la plupart des législations nationales ne la protège pas efficacement, en l'absence d'une forte pression de surveillance. L'espèce est déjà protégée par la loi en Croatie (Yougoslavie).

On propose de l'inscrire sur la liste des espèces protéges (interdiction de ramassage, de transport et de commercialisation) dans les pays suivants : Espagne, France, Italie, Yougoslavie. On propose en outre de recenser les secteurs où subsistent des populations relictuelles importantes et d'y interdire le mouillage. Dans les secteurs où existent des réserves, on recommandera aux pêcheurs qui en remontent accidentellement dans leurs chaluts de les y immerger (dans un herbier de Posidonies), si possible en liaison avec des personnes compétentes (scientifiques, responsable de la Réserve, Associations).

(8) Pinna pernula (Chemnitz) (Mollusques, Bivalves); noms vernaculaires : Jambonneau rude (Fr), Pinna aspera (Es), Rough pen shell (An).

L'espèce est rare en Méditerranée. Elle n'est pas l'objet d'une exploitation commerciale. Possible à confondre avec P. nobilis, le couplage de sa protection avec cette dernière espèce est avantageux.

On propose de l'inscrire sur la liste des espèces protégées (interdiction de ramassage, de transport et de commercialisation) dans les pays suivants : Espagne, France, Italie.

(9) Lithophaga lithophaga (Linnaeus) (= Lithodomus lithophaga (Linnaeus)) (Mollusques, Bivalves); Datte de mer, Datte lithophage (Fr), Dátil de mar (Es), Dàtil de mar (Ct), Dattero marino, Datolo de

pietra, Forapietre (It), Morski datulj (Cr), Solina (Gr), European date mussel, Date shell (An).

L'espèce est l'objet d'une exploitation commerciale intensive en Italie et en Yougoslavie ; une telle exploitation commence en Espagne (Alicante, Murcia, Almeria). Cette exploitation, qui nécessite la destruction de la roche à l'aide d'un marteau-piqueur sous-marin, a des conséquences dramatiques sur l'environnement. L'espèce se raréfie gravement.

On propose de l'inscrire sur la liste des espèces protégées (interdiction de ramassage, de transport, de commercialisation et de consommation) dans les pays suivants: Espagne, France, Italie, Yougoslavie.

(10) Centrostephanus longispinus (Philippi) (Echinodermes, Echinides); noms vernaculaires : Oursin diadème, Oursin rouge à longs piquants (Fr), Puercoespín marino (Es), Eriço de punxes llarges (Ct), Needle-spined urchin (An).

L'espèce est très rare en Méditerranée occidentale; l'alimentation en larves s'y fait peut-être à partir de l'Italie méridionale. L'espèce ne fait pas l'objet d'une exploitation commerciale. Les menaces proviennent du ramassage en plongée à des fins décoratives.

On propose de l'inscrire sur la liste des espèces protégées (interdiction de ramassage, de transport et de commercialisation) dans les pays suivants : Espagne, France, Italie, Tunisie, Algérie, Maroc (côtes méditerranéennes).

(11) Scyllarides latus (Latr.) (Crustacés, Décapodes); noms vernaculaires : Grande cigale (Fr), Cigarra de mar (Es), Sapa, Cigala gran (Ct), Magnosa (It), Kuka (Cr), Lyra (Gr), Büyük ayı istakozu (Tr), Ziz el bahr (Tu), Cape town lobster (An).

L'espèce est l'objet d'une exploitation commerciale; elle est d'ailleurs ramassée par les plongeurs (la plupart des législations nationales interdisent tout ramassage lorsqu'il y a usage d'un scaphandre). Il y a surexploitation.

On propose l'interdiction de la capture et du transport en France continentale et en Italie continentale. On recommande pour tous les pays méditerranéens une politique de reconstitution des stocks : mise en place de refuges artificiels destinés à favoriser le recrutement et détermination de quota de pêche.

(12) Epinephelus guaza (Linnaeus) (= E. gigas (Brünnich) (Poissons); noms vernaculaires : Mérou noir (Fr), Mero (Es), Nero anfos (Ct), Cernia (It), Kirnja (Cr), Rophos (Gr), Orfoz (Tr), Mennaru ahmar (Tu), Al Marra (Al), Dusky grouper (An).

«Les Espèces Marines à Protéger en Méditerranée»
Boudouresque C.F., Avon M. & Gravez V. edit., GIS Posidonie publ., Fr., 1991, x-xx

Patella ferruginea Gmelin, 1791
La patelle géante

STATUT DE *PATELLA FERRUGINEA* GMELIN EN MEDITERRANEE

Françoise LABOREL-DEGUEN & Jacques LABOREL

Laboratoire de Biologie Marine et d'Ecologie du Benthos - LBMEB, Faculté des Sciences de Luminy, 70 route de Luminy, 13288 Marseille Cedex 9, France.

ABSTRACT

Patella ferruginea Gmelin (MOLLUSCA, Gastropoda, Prosobranchia, Archéogastropoda, Patellina, Patellidae) is one of the biggest and most remarkable littoral marine Gastropods of the western Mediterranean rocky shores. It also figures among the most dangerously imperiled Mediterranean marine species at the present time. Its area of distribution has shrunk considerably in recent years. The biology of the species has not completely been worked out, but its seems clear that its biological characteristics do not favor artifical transplantation, even in protected areas. Consequently, this very conspicuous and edible limpet seems to be now on the verge of extinction. Predation by man for food and fun seems to be the main cause of the decline of *Patella ferruginea* , and signs abound that the threat is rapidly growing due to the development of mass tourism and marine leisures. Since no funds may be expected for biological studies in order to obtain a better knowledge of the dynamics of the species, **it seems obvious that the only means of stopping or reversing the trend of extinction lies in a complete ban on collecting.**

RESUME

Patella ferruginea Gmelin (Mollusca, Gastropoda, Prosobranchia, Archéogastropoda, Patellina, Patellidae) est un des plus gros Mollusques Gastéropodes du littoral rocheux ouest-méditerranéen et un de ceux dont l'existence apparaît la plus menacée. La diminution rapide de l'aire de répartition, ainsi que des caractéristiques biologiques encore mal connues dont on sait déjà qu'elles sont peu propices à un repeuplement facile des aires abandonnées font que cette patelle comestible paraît avoir atteint le point de non-retour dans la plus grande partie de son aire alors qu'elle ne peut que difficilement être réimplantée, même en zones protégées. La cause de la disparition de *Patella ferruginea* paraît être la prédation humaine, accélérée par le développement du tourisme. En l'absence de crédits pour des études permettant une meilleure connaissance de la dynamique de l'espèce, **la seule gestion envisageable est l'interdiction absolue de prélèvement en tous lieux et en tous temps.**

Patella ferruginea Gmelin, 1791
La patelle géante

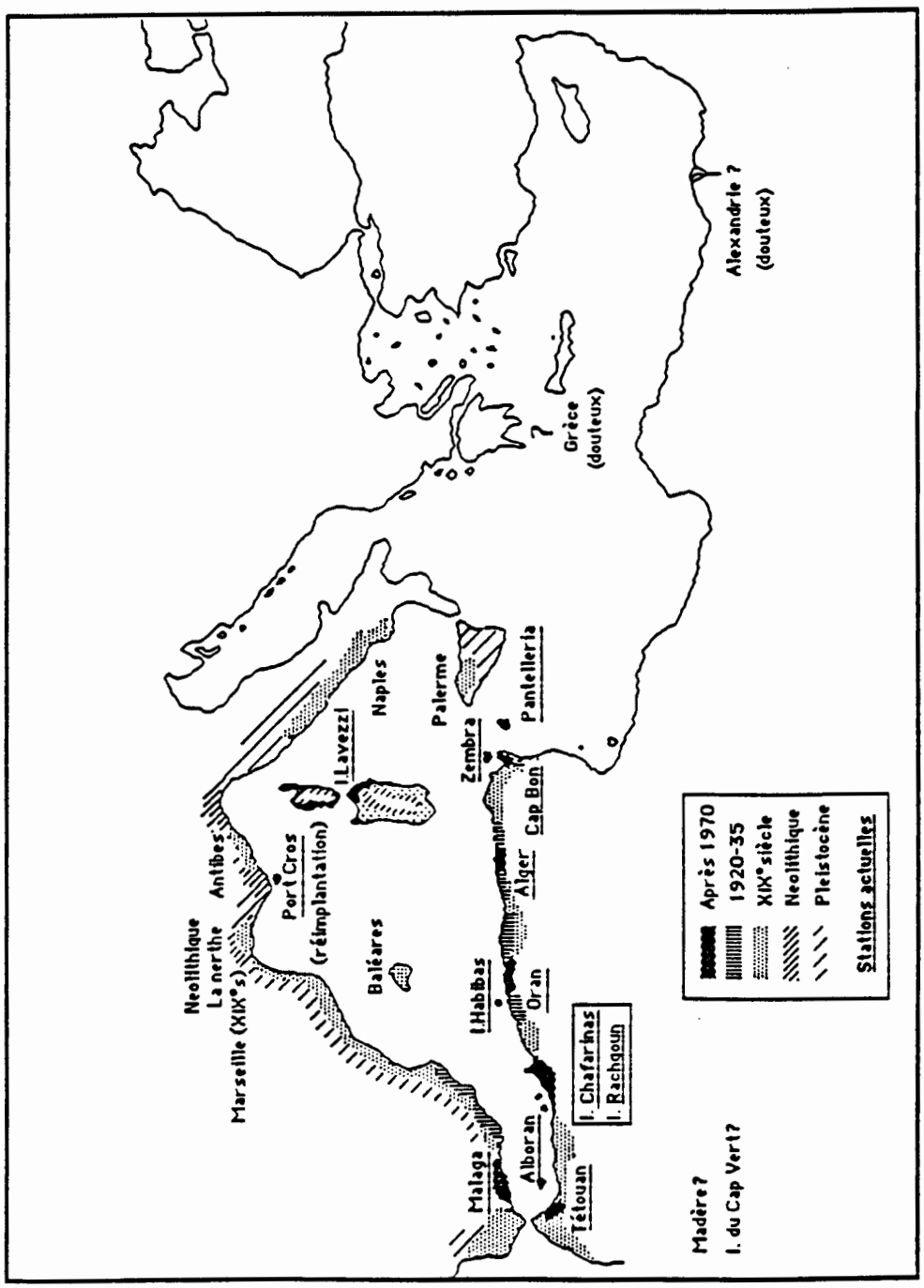

Figure 1 : Répartition de *Patella ferruginea* en méditerranée.

APPENDIX 7 / ANNEXE 7

INVERTEBRATE SPECIES REQUIRING SPECIAL HABITAT CONSERVATION MEASURES/ ESPECES D'INVERTEBRES NECESSITANT DES MESURES SPECIALES DE PROTECTION DE LEUR HABITAT

Arthropods/Arthropodes

INSECTA

Mantodea
- Apteromantis aptera

Odonata
- Calopteryx syriaca
- Sympecma braueri
- Coenagrion freyi
- Coenagrion mercuriale
- Aeshna viridis
- Stylurus (= Gomphus) flavipes
- Gomphus graslinii
- Ophiogomphus cecilia
- Lindenia tetraphylla
- Cordulesgaster trinacriae
- Oxygastra curtisii
- Macromia splendens
- Leucorrhinia albifrons
- Leucorrhinia caudalis
- Leucorrhinia pectoralis

Orthoptera
- Baetica ustulata
- Saga pedo

Coleoptera
- Carabus olympiae
- Dystiscus latissimus
- Graphoderus bilineatus
- Osmoderma eremita
- Buprestis splendens
- Cucujus cinnaberinus
- Cerambyx cerdo
- Rosalia alpina

Lepidoptera
- Parnassius mnemosyne
- Apatura metis
- Fabriciana elisa
- Euphydryas (Eurodryas) aurinia
- Melanargia arge
- Erebia christi
- Coenonympha hero
- Coenonympha oedippus
- Maculinea teleius
- Maculinea nausithous
- Plebicula golgus
- Eriogaster catax
- Hyles hippophaes

Molluscs/Mollusques

GASTROPODA

Stylommatophora
- Leiostyla abbreviata
- Leiostyla cassida
- Leiostyla corneocostata
- Leiostyla gibba
- Leiostyla lamellosa
- Geomalacus maculosus
- Caseolus calculus
- Caseolus commixta
- Caseolus sphaerula
- Discula leacockiana
- Discula tabellata
- Discula testudinalis
- Discula turricula
- Geomitra moniziana
- Helix subplicata
- Discus guerinianus
- Elona quimperiana

BIVALVIA

Unionoida
- Margaritifera auricularia

APPENDIX 8 / ANNEXE 8

RARE COMMUNITIES REQUIRING SPECIAL PROTECTION ON THE TERRITORY OF EUROPEAN RUSSIA

Statement by the delegate of the Russian Federation

Many problems are connected with the need for complex species protection. It is practically impossible to keep good only separate species and Red Data Books must contain the lists of rare communities. On Russian territory the European part is the most endangered.

We attempted to choose some interesting rare communities on the territory of European Russia.

In European Russia must be protected:

1. The natural parts of European steppes:

   a) Saratov region (near Krasnokutsk) (much more 60 species rare Lepidoptera);
   b) Lypetzk region (near Galytchja mountain) (rare Coleoptera, Orthoptera, Lepidoptera);
   c) Belgorod region (Streletzkaja steppe);

2. The natural parts of European oak-tree forests:

   a) Belgorod region (the forest on Vorskla river);
   b) Voronez region (near Tallerman forest);

3. Some interesting in fauna situation places:

   a) Chalk exits with specific Lepidoptera fauna near Chvalynsk (Sarator region);
   b) the habitats of wild bees (Apis mellifera L) in forests of Bashkirian and Tatrian Republics (4-(points);
   c) the habitats of wetlands invertebrates in Karelia);

4. The habitats of freshwater invertebrates:

   a) Dnieprovsko-Bugski estuary (more than 20 species of rare Molluscs: 4 species of genus Caspia, 16 species of Turricaspia, 2 species of Theodoxces);
   b) Lagoon-lake Paleostomi (near port Poti);
   c) 2-3 places on Warsuga river basin, the habitats of Margaritifera margaritifera.

Nadejda I. KOCHETOVA

APPENDIX 9

Prohibited means of killing, capture and other forms of exploitation of Unionids

Proposal by the Group of experts on conservation of invertebrates

1. Handnetting or use of rakes from shore or boat
2. Use of drag lines stretched from riverbank or shore
3. Use of modified marine dredges or the American specialised Crowfoot dredge from shore or boat
4. Collecting by Snorkelling or Sub-Aqua Divers
5. Use of traps
6. Electrical devices capable of killing and stunning
7. Explosives
8. Intentional lowering of water-levels to expose mussel beds
9. Poisons
10. Introduction of deoxygenating substances into the water
11. Removal of mussel beds and substratum by means of mechanical diggers

APPENDIX 10

Convention on the Conservation
of European Wildlife and Natural Habitats

Standing Committee

**Draft Recommendation No. (examined on 4 December 1992)
on taking of the pearl mussel
(*Margaritifera margaritifera*) and on pearl fishing**

The Standing Committee of the Convention on the Conservation of European Wildlife and Natural Habitats, acting under the terms of Article 14 of the convention,

Recalling that Article 2 provides that each Contracting Party shall take requisite measures to maintain the population of wild flora and fauna at, or adapt it to, a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements and the needs of sub-species, varieties or forms at risk locally;

Recalling that *Margaritifera margaritifera* is a protected species included in Appendix III to the convention;

Recalling its Recommendadtion No. 22 (91) on the conservation of the pearl mussel (*Margaritifera margaritifera*) and other freshwater mussels (*Unionoida*);

Noting that the number of *Margaritifera margaritifera* is rapidly decreasing in the territories of most of the states which are Contracting Parties to the convention, mainly as a result of pollution and acidification of watercourses, uncontrolled activities of pearl fishing, alteration of the natural hydrological system of watercourses by hydroelectric schemes, fish farming, drainage schemes and artificial canlisation;

Recommends that Contracting Parties:

Regulate as appropriate the licensing of pearl fishing and the taking of *Margaritifera margaritifera*, establishing in particular:

- a list of authorised methods of pearl fishing,
- a minimum size of pearl mussel,
- a close season,
- prohibition of fishing outside the hours of daylight,
- a code of practice for pearl fishing based on the suggestions made in the appendix to this recommendation.

APPENDIX TO THE RECOMMENDATION

1. The pearl mussel will not be killed, injured or harmed in any way;

2. The adductor muscle will not be over-stretched or torn whilst an inspection is taking place;

3. Only officially approved opening tongs with a maximum opening of 1.0 cm and designed to cause minimum damage to the animal tissue/shell of the mussel will be used, extreme care being exercised to ensure that the mussel is opened slowly. The amount of opening should relate to the size and age of the mussel;

4. Pearl mussels will be returned alive and unharmed to the water at their original site after inspection or removal of pearls. They will not be removed and placed elsewhere;

5. There will be no taking or possessing of pearl mussels under the size of 8 cm;

6. Where practicable mussels from which pearls have been removed will be marked before returning to the river to prevent future unnecessary handling;

7. The following "TRADITIONAL" methods of pearl fishing will be used:-

   a. from the shore, namely by wading, using glass-bottomed viewing device and traditional cleft stick,

   b. from a boat, using a glass-bottomed viewing device and traditional cleft stick;

8. Pearl fishing will be practised during the hours of daylight only;

9. Pearls collected during the season will be disposed of through an officially approved outlet. An annual record of such transactions will be kept and available for inspection by the licensing body to allow for future assessment of the industry;

10. Local regulations and conditions may be imposed in the interests of conservation of *Margaritifera* and other Unionids by the appropriate authority in each counry dependent upon current conditions:- eg pollution, run down stock, re-introduction to improved habitat, official close season etc and it is the licensee's responsibility to be fully conversant with and abide by such regulations pertaining to the area in which he is operating.

APPENDIX 11

Convention on the Conservation
of European Wildlife and Natural Habitats

Standing Committee

**Draft Recommendation No. (examined on 4 December 1992)
on the conservation of some species of invertebrates
listed in Appendix II of the Convention**

The Standing Committee of the Convention on the Conservation of European Wildlife and Natural Habitats, acting under the terms of Article 14 of the convention,

Having regard to the aims of the convention to conserve wild flora and fauna and their natural habitats;

Referring to Recommendation No. R (86) 10 of the Committee of Ministers of the Council of Europe concerning the Charter on invertebrates;

Recalling that Article 1, paragraph 2, of the convention requires that Contracting Parties give particular emphasis to the conservation of vulnerable and endangered species;

Noting that some populations of invertebrate species listed in Appendix II to the Convention are in a critical state and require urgent conservation action;

Recommends that **Austria**, **Belgium**, **France**, **Germany** and **Switzerland**:

1. Locate the remaining populations of *Hypodryas maturna*; carry out research on the biology of the species, including methodology for locating its populations;

Recommends that **Austria** and **Switzerland**:

2. Take appropriate measures to protect the populations of *Coenonymphae oedippus* in the Upper Rhine valley;

Recommends that **France**:

3. Carry out a national survey of *Margaritifera auricularia*;

4. Give adequate legal protection to *Maculinea teleius* and other invertebrate species in Appendix II to the Convention which remain legally unprotected;

Recommends that **France** and **Germany**:

5. Carry out surveys of *Maculinea nausithous* and *Maculinea teleius*, assessing its conservation problems, in particular those related to management practices in their habitats;

Recommends that **Italy**:

6. Survey and take appropriate measures to protect the population of *Microcondylaea compressa* in Torrente Versa, near Capriva del Friuli, west of Gorizia;

7. Carry out a recovery plan for the last population of *Coenonympha oedippus* in the Po valley;

Recommends that **Portugal:**

8. Survey the species *Geomalacus maculosus*;

Recommends that **Spain:**

9. Survey and take the appropriate means to protect the remaining populations of *Margaritifera auricularia* in the Ebro National Park and surrounding areas;

10. Carry out adequate surveys of the populations of *Maculinea nausithous* in Picos de Europa and in the Soria province; monitor very closely - preferably with annual counts - the population in León, assessing the evolution of its size and research its conservation problems.