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T-PVS (2002) 11

CONVENTION RELATIVE A LA CONSERVATION DE LA VIE SAUVAGE
ET DU MILIEU NATUREL DE L'EUROPE

Groupe d'Experts sur les Espèces exotiques envahissantes

Horta (Açores, Portugal), 12 octobre 2002

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Rapport

*Document
établi par
la Direction de la Culture et du Patrimoine culturel et naturel*

1. Election du Président

Le Secrétariat accueille les participants dont la liste se trouve en annexe 1 au présent rapport.

M. Patrick De Wolf (Belgique) est élu président du groupe d'experts.

2. Adoption du projet d'ordre du jour

L'ordre du jour est adopté tel qu'il figure en annexe 2.

3. Introduction par le Secrétariat

[document T-PVS (2001) 10]

Le Secrétariat rappelle que le groupe d'experts s'est réuni une première fois en mars 1993, puis en mai 1995 et en juin 1997 et, sous une forme différente (atelier sur l'éradication), en 1999. Depuis 2000, les travaux relatifs à la Convention ont été mis en phase avec ceux de la Convention relative à la diversité biologique. Après un premier projet de la Convention relative à la diversité biologique (CDB) intitulé «Principes directeurs relatifs aux espèces exotiques envahissantes qui menacent des écosystèmes, des habitats ou des espèces» à Nairobi (2000), le comité technique «SBSTTA» a été chargé de réviser ces principes directeurs. Dans le cadre de la Convention de Berne, un petit groupe de consultants et de représentants du Gouvernement a établi à Bologne (février 2001) certains principes se rapportant à la contribution à une stratégie européenne relative aux espèces exotiques envahissantes [document T-PVS (2001) 12 révisé]. Il s'agit d'une initiative commune avec le groupe de spécialistes de l'UICN sur les espèces exotiques envahissantes. Le document T-PVS (2001) 12 révisé a été analysé dans le cadre d'un événement parallèle lors de la 6^e réunion du SBSTTA, en mars 2001.

Lors de sa 21^e réunion, en novembre 2001, le Comité permanent a demandé que soit élaborée une stratégie européenne sur les espèces exotiques envahissantes, en coordination avec les travaux de la CDB. En mai 2002, la 6^e conférence des Parties à la CDB a officiellement adopté ces principes directeurs: le projet de stratégie européenne sur les espèces exotiques envahissantes.

4. Rapports des gouvernements sur la mise en œuvre des Recommandations n° 57 (1997) et n° 77 (1999) du Comité permanent

Les représentants des Gouvernements suivants présentent leurs rapports (figurant en annexe 3 au présent document): Croatie, Chypre, Danemark, Estonie, Finlande, Allemagne, Grèce, Hongrie, Islande, Pays-Bas, Portugal, Slovaquie, Slovénie, Espagne et Royaume-Uni.

Les rapports écrits de l'Irlande, de l'Italie, de la Suède et de «l'ex-République yougoslave de Macédoine» sont également présentés.

Le Secrétariat fait un résumé des rapports: il est encourageant de constater que de nombreux Etats actualisent leur législation en matière de préservation de la biodiversité en y incorporant des mesures plus strictes destinées à surveiller les espèces exotiques envahissantes. Les Etats candidats à l'adhésion à l'Union européenne, notamment, remanient leur législation de manière à s'adapter à la législation de l'Union européenne et la législation relative aux espèces exotiques envahissantes s'en trouve de fait actualisée. Il est également noté que des progrès importants ont été constatés dans la lutte contre ces espèces et l'éradication des espèces à problème dans de nombreuses régions (particulièrement sur les îles) à travers toute l'Europe. Des exemples concluants d'actions réussies d'éradication, de surveillance ou de confinement ont été exposés lors de l'atelier précédant la réunion du groupe d'experts. Une prise de conscience accrue, une action intensifiée des Gouvernements et un engagement politique renforcé ne doivent pas dissimuler l'aggravation du problème des espèces exotiques envahissantes en Europe. Des données scientifiques montrent que le nombre d'espèces exotiques croît rapidement dans pratiquement toutes les régions d'Europe, que ce soit dans les écosystèmes marins, d'eau douce ou terrestres. L'action de la Convention de Berne et de la CDB en ce domaine est pleinement justifiée.

5. Présentation et discussion sur le projet de “Stratégie européenne sur les Espèces exotiques envahissantes”

[document T-PVS (2002) 8]

Les consultants, M. Piero Genovesi et M^{me} Clare Shine, présentent le premier projet de stratégie européenne relative aux espèces exotiques envahissantes.

Le Secrétariat informe le groupe d’experts que ce document sera communiqué aux Parties contractantes à la Convention de Berne et aux observateurs. Il sera demandé aux Parties des commentaires écrits qui seront pris en compte lors du remaniement du document. La présentation au groupe d’experts et au Comité permanent de la Convention a pour but de recueillir, outre les commentaires qui seront envoyés par écrit, les commentaires directs des experts et du Gouvernement.

Le calendrier des débats relatifs audit document est le suivant:

- 11 octobre 2002: commentaires du groupe d’experts sur les espèces exotiques envahissantes;
- 31 octobre 2002: communication de la stratégie aux Parties contractantes et aux observateurs (date limite de remise des commentaires: fin janvier 2003);
- 2 décembre 2002: commentaires du Comité permanent;
- Fin mars 2003: révision, traduction et diffusion de la stratégie;
- Mai-juin 2003: nouveau débat du groupe d’experts sur la stratégie révisée et modifications idoines;
- Décembre 2003: adoption éventuelle de la stratégie révisée par le Comité permanent.

Le groupe analyse le projet de stratégie chapitre par chapitre. Les points suivants sont soulevés:

- Objectifs, portée et terminologie;
- Sensibilisation et soutien;
- Collecte, gestion et partage de l’information;
- Renforcement des cadres politiques, juridiques et institutionnels;
- Coopération régionale;
- Présentation des introductions indésirables;
- Détection précoce et réponses rapides;
- Limitation des répercussions;
- Réhabilitation.

Les représentants des Gouvernements et les observateurs se livrent à plusieurs observations et proposent des amendements spécifiques au texte. Les commentaires sont trop nombreux et les détails trop abondants pour figurer en intégralité dans ce rapport. Les consultants prennent note de l’ensemble des commentaires présentés. Les considérations générales suivantes sont évoquées:

- ✓ La stratégie européenne doit être parfaitement cohérente avec les principes directeurs de la CDB (décision VI/23 de la 6^e conférence des Parties). Le titre suscite quelques controverses, essentiellement quant à savoir s’il doit être similaire à celui de la décision VI/23 ou de son point 21. Le Secrétariat rappelle que, conformément à la décision VI/23, le terme «espèces exotiques envahissantes» s’applique aux espèces exotiques dont l’introduction et/ou la propagation menacent la diversité biologique et qu’il y a donc cohérence entre les titres actuels de la stratégie européenne, de la décision VI/23 et de son point 21;
- ✓ L’importance du commerce en tant que filière d’introduction d’espèces exotiques doit être soulignée et reconnue. Les règlements de l’OMC doivent être pris en compte et des exceptions justifiées visant les espèces exotiques doivent être incorporées dans les réglementations commerciales. Cela étant, il est important de mentionner que les mesures phytosanitaires sont un

lien possible en matière de surveillance des espèces exotiques. La Convention internationale pour la protection des végétaux doit être associée au remaniement de la stratégie;

- ✓ La stratégie doit traiter séparément les introductions anciennes présentant un intérêt culturel. Certaines variétés peuvent être précieuses au regard de la science, de la culture ou de la biodiversité. Cependant, la date de l'introduction seule ne doit pas être l'unique critère permettant d'écarter une éventuelle éradication. L'élimination de certaines introductions anciennes (tels les lapins) a eu des effets très positifs sur les espèces endémiques menacées sur certaines petites îles;
- ✓ Les animaux sauvages et l'horticulture doivent relever du champ d'action de la stratégie. L'association internationale de la fauconnerie et de la conservation des oiseaux de proie a proposé d'en exclure l'utilisation d'oiseaux pour la fauconnerie, d'instaurer une exception pour les animaux particuliers formés à revenir chez leur dresseur (par exemple en fauconnerie). Les consultants et une délégation ont souligné qu'une telle exception n'entraîne pas dans le cadre de la décision VI/23 de la CDB;
- ✓ Les principes directeurs doivent être souples pour s'adapter aux conditions locales ou nationales et permettre certaines exceptions. L'utilisation d'espèces exotiques dans la lutte contre l'érosion (un problème important dans certaines régions) peut être acceptable dans des pays où aucune espèce autochtone ne peut être utilisée pour les programmes de réhabilitation;
- ✓ Pour ce qui est de l'information et des thèmes de recherche, il a été suggéré d'attribuer un rôle nouveau au Centre d'échanges de la biodiversité, semblable à celui de l'Agence européenne pour l'environnement et de l'Union européenne. Les informations doivent porter sur l'ensemble des espèces reconnues comme envahissantes en dehors de leur domaine naturel. Celles-ci doivent figurer dans des «listes noires», de manière à contrôler leur commercialisation et leur propagation. L'utilisation de «listes blanches» est également recommandée mais uniquement pour des espèces à l'innocuité avérée pour les habitats naturels ou les espèces. Quant aux espèces pour lesquelles nous ne disposons pas de suffisamment de données, il nous faut les considérer, en appliquant l'approche de précaution, comme potentiellement envahissantes. Leur potentiel d'envahissement doit être évalué avant de délivrer une quelconque autorisation;
- ✓ Nous devons souligner qu'il faut donner la priorité à la taxonomie et à l'écologie des espèces envahissantes dans les écosystèmes. Les méthodes d'éradication doivent également être étudiées plus avant. Les aspects sociologiques et économiques de l'introduction d'espèces (pourquoi sont-elles introduites, quel jeu du marché pousse à leur introduction, quels en sont les bénéfices économiques, etc.) doivent être approfondis;
- ✓ L'appréciation du risque doit être la règle préalable à toute autorisation éventuelle pour des espèces mal connues. Elle peut inclure une évaluation de leurs effets possibles sur l'habitat naturel et les espèces;
- ✓ Les lois n'accordant pas une protection appropriée aux espèces exotiques doivent être supprimées ou modifiées;
- ✓ L'éradication des espèces exotiques envahissantes doit être tentée lorsque cela est techniquement et juridiquement possible, mais il convient d'assouplir les textes (par exemple, certains Etats n'ont pas besoin d'une législation spécifique pour éradiquer les espèces exotiques envahissantes).

Les consultants modifieront la stratégie en tenant compte des commentaires formulés et de ceux qui ont été envoyés par écrit au cours du processus de consultation.

6. Propositions présentées au Comité permanent de la Convention de Berne

Le groupe préconise de se réunir à nouveau en 2003 pour arrêter la stratégie définitive pour qu'elle puisse éventuellement être adoptée par le Comité permanent en décembre 2003.

Ceci mis à part, le groupe suggère qu'il serait nécessaire de peaufiner certains instruments techniques visant à faciliter la mise en œuvre de la stratégie, tel par exemple un code des meilleures méthodes de prévention et de surveillance des espèces exotiques envahissantes. Le groupe d'experts pourrait, lors de sa prochaine réunion, proposer des actions précises à développer dans le cadre de la Convention de Berne.

Il a été convenu que le suivi de la mise en œuvre de la stratégie par les Parties pourrait être l'une des nouvelles attributions du groupe d'experts.

7. Autres points

Aucun autre point n'a été soulevé.

Annexe 1

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Annexe 2

Groupe d'Experts de la Convention de Berne sur les Espèces exotiques envahissantes

Horta, Açores, 11 octobre 2002

ORDRE DU JOUR

1. Election du Président
2. Adoption du Projet d'ordre du jour
3. Introduction par le Secrétariat
[document T-PVS (2001) 10]
4. Rapports des gouvernements sur la mise en œuvre des Recommandations n°. 57 (1997) et n° 77 (1999) du Comité permanent
5. Présentation du projet de "Stratégie européenne sur les Espèces exotiques envahissantes" par M. Piero Genovesi et M^{me} Clare Shine
[document T-PVS (2002) 8]
Discussion des différentes parties de la Stratégie européenne sur les Espèces exotiques envahissantes
6. Propositions présentées au Comité permanent de la Convention de Berne
7. Autres points

Annexe 3

**Mise en œuvre des recommandations
sur les Espèces exotiques envahissantes**

-- Rapports nationaux --

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15. United Kingdom / Royaume-Uni

1. CROATIA / CROATIE

Report on the activities related to the implementation of the Recommendations No. 57 (1997) and No. 77 (1999) of the Bern Convention

Republic of Croatia
Ministry of Environmental Protection and Physical Planning
Croatian Natural History Museum, Zagreb

State

Like other European countries, Croatia has many problems with invasive alien species (IAS). As late as the 1910, 11 specimen of small indian mongoose *Herpestes javanicus auropunctatus* were introduced on the island of Mljet, for biological control of poisonous snakes. During 20 years, the introduced animals eliminated all the snakes on the island and started attacking other small wild animals, including migratory birds, as well as domestic animals. Although approx. 100 mongooses are eliminated every year, and some attempts for total eradication were made in the past, these animals still inhabit the island and have a negative impact both on wild and domestic fauna.

At present, the IAS that have the largest negative effect on biological diversity in Croatia are (1) tropical green algae *Caulerpa taxifolia* and *Caulerpa racemosa* in Adriatic sea coastal benthic habitats (2) all allochthonous species of fish (about 15 of them) introduced during the last century into rivers of the Danube and Adriatic catchment areas (in particularly goldfish *Carassius auratus gibelio*, false rasbora *Pseudorasbora parva*, rainbow trout *Oncorhynchus mikiss*, charr *Salvenilus alpinus*, freshwater honting *Coregonus laveratus*, pumpkin-seed sunfish *Lepomis gibbosus*, largemouth black bass *Micropterus salmoides*, Mediterranean toothcarp *Gambusia affinis* ssp. *holbrooki*, silver carp *Hypophthalmichthys molitrix* and grass carp *Ctenopharyngodon idella*). The Adriatic catchment area, rich in endemic fish species, is extremely threatened in this regard. (3) ragweed *Amorpha fruticosa* and several other alien plant species (*Asclepias syriaca*, *Eleusine indica* etc.) on riverine and forest edge-habitats in Pannonian lowland (4) clam *Dreissenia polymorpha*, known as pest in water regulation and hydroelectric power stations, that pose a potential threat to endangered endemic clams, like *Congeria kusceri* (5) the Mediterranean form of black rat *Rattus rattus* and Italian lizard *Podarcis (sicula) campestris* with high negative impact on native island fauna.

Allochthonous game species, introduced deliberately into the hunting grounds, both on islands and mainland, represent a further problem. Fallow deer *Dama dama* and spotted deer *Axis axis* are competitors to local populations of *Cervidae*, but also potential carriers of non-native parasites. For example, uncontrolled introduction of *Cervus canadensis* into former Czechoslovakia resulted with introduction of non-native parasite *Fasciola gigantica*, that was afterwards spread into Hungary and Croatia. Game species like wild-boar *Sus scrofa* and rabbits also pose a threat to local fauna on some islands.

Legal framework

The provisions regulating introduction of non-native species into nature are incorporated into different regulations that govern protection and exploitation of biological and landscape diversity in the Republic of Croatia.

The **Law on Nature Protection** (1994), that constitutes the basis for governing nature protection in Croatia, prohibits introduction of new plant and animal species into nature in the state territory, unless permitted according to special regulations and with approval of the Ministry of Environmental Protection and Physical Planning. Reintroduction of the missing plant and animal species in the state territory may be carried out only upon approval of the mentioned Ministry, preceded by the opinion of the Ministry of Agriculture and Forestry.

The **Law on Hunting** (1999) permits introduction of new wildlife species into hunting grounds upon approval of the Ministry of Agriculture and Forestry, preceded by the opinion of the Ministry of Environmental Protection and Physical Planning.

The *Law on Animal Welfare* (1999) prohibits setting free of pets and introduction of non-native species into nature.

The *Law on Marine Fishery* (1997) prohibits farming of non-native fish and other marine organisms, unless permitted and approved by the above mentioned ministries and preceded by the opinion of authorized scientific institutions for marine research.

The *Law on Freshwater Fishery* (2001) also prohibits farming and introduction of non-native freshwater fish, as well as import and trade of living specimen of these species, unless permitted and approved by competent ministries, based on studies of environment impact assessment.

New Nature Protection Law

The Ministry of Environmental Protection and Physical Planning, as the competent authority for nature protection, has prepared the Draft Proposal of the new Nature Protection Law which defines nature as an overall biological and landscape diversity protected on 100% of the territory of the Republic of Croatia, both in the areas of the conserved and «wild» nature and in the built-up and economically used areas.

In carrying out the provisions of relevant international agreements connected to IAS, this Law prohibits introduction of non-native species in the state territory. It also prohibits introduction of wildlife species on islands or ecosystems for which these species are not native. It is also prohibited to introduce non-native fish species into fresh waters and wetlands. The approval for introduction can be obtained by the Ministry, only based on the results of a study on environment impact assessment, preceded by the opinion of the Ministry of Agriculture and Forestry. The same provisions are valid for reintroduction of wildlife species.

In order to prevent inadvertent~~ly~~ introduction of non-native species (“stowaways”), the Law foresees adoption of certain preventive measures, ~~in~~ particularly regarding water used as ballast in tankers.

Activities

Although the problem of IAS is regulated in accordance with the above mentioned laws and also recognized in the *National Strategy and Action~~s~~ Plan for the protection of Landscape and Biological Diversity – NSAP (1999), no systematic monitoring and control programme was established. Only some sporadic actions exist, like in case of agricultural pests and *Caulerpa taxifolia*.*

According to the recommendations of *Heraclion Workshop on invasive Caulerpa species in the Mediterranean*, organized by UNEP/MAP in 1998, a cooperation was established between oceanographic institutes, NGOs and governmental bodies in the country, as well as with corresponding institutions in other Mediterranean countries. The problem was presented in many seminars and a brochure was published in 2000, calling sea users to indicate the presence of *Caulerpa* and take necessary precautionary measures to avoid its spreading. Surveys, monitoring and cleaning of *Caulerpa taxifolia* colonies are being conducted almost every year on determin~~ed~~ geographical locations.

However, there is a need to organize prevention of unwanted introductions of alien species on the country level, to recognize and valorize the level of their impacts on native biological diversity, and to define and implement actions to reduce these threats. The identification and implementation of these actions require cooperation between different governmental bodies, scientific institutions, NGOs and general public both at the national and international level.

2. CYPRUS / CHYPRE

National Report on the implementation of Recommendation No. 57(1997) and No. 77(1999) of the Bern Convention on Invasive Alien Species

By: Myroula Hadjichristophorou,

Ministry of Agriculture Natural Resources and Environment

Recommendation No. 57 (1997) on the Introduction of Organisms belonging to Non-Native Species into the Environment

Controlling Introductions - Legislation

The introduction of live animals into Cyprus is directly or indirectly controlled by a number of laws. Some relate mainly to welfare and veterinary aspects and though these provide for some degree of control, importation cannot usually be prohibited on the basis of these laws. Other legislation is more direct.

The importation of aquatic species (including aquatic reptiles) on the other hand is controlled by the provisions of the Fisheries Law (CAP 135) and Regulations. The Fisheries Regulations (Reg.273/90) state that no live aquatic animal can be imported into the Republic without a written permit from the Director of the Department of Fisheries and Marine Research. The Director may refuse to grant permits for a number of reasons eg., if there is evidence that the introduction of any species into the island is likely to contravene any Convention or Agreement the country has ratified, or if such an introduction is likely to have adverse effects on the biodiversity of the island. There have been several cases in which the granting of such permits was refused.

A committee on the importation of species listed under CITES already exists and screens import licences under this law. This is chaired by the Environment Service of the Ministry of Agriculture Natural Resources and Environment, which is the Management Authority for CITES.

Within Cyprus, the transfer and release of any aquatic species, in any freshwater body, is prohibited by the Fisheries Legislation, but the enforcement of this provision is problematic as is evidenced by the spread of some species.

A new Law on Nature has been drafted and is now in the final stages of its adoption. Cyprus, is in the accession process to the EU, and this law aims at the introduction of the provisions of the Habitat Directive of the EU (92/43/EEC) and the Bird Directive (79/409/EEC) into the national legislation.

In relation to the importation and management of alien species this law provides for four committees, which will deal with:

1. Aquatic/marine species
2. Terrestrial fauna species
3. Flora
4. Birds

This law provides for *inter alia* for the control of the importation of species into the country and the management of already introduced species. The law includes both aquatic and terrestrial vertebrate and invertebrate species and plants. It includes species, which are protected under a number of Conventions, while at the same time it also includes species or groups of species which could present problems to the indigenous fauna, should they spread to the wild.

The spread of alien plants is being curbed through a variety of measures. The Forestry Department has for many years been following a policy of reforestation with indigenous species wherever possible. The same policy is followed for roadsides planting, and native plants are used as much as possible. There is also increased availability of indigenous plants in Forestry Department nurseries.

The Environmental Impact Assessment law is also being used as much as possible to direct the private sector towards using native plants in landscaping etc.

The present situation

Aquatic species

Freshwater species

Cyprus has no indigenous freshwater fish; it has one temporary pool fish (*Aphanius fasciatus*) and eels (*Anguilla anguilla*). About 20 species of freshwater fish were imported into Cyprus, by the Fisheries Department, mainly in the late 1960s and early 70s. They were used mainly to stock reservoirs for angling purposes. Rainbow trout is used for aquaculture. Brown trout was introduced in 1948 by the then colonial government and was stocked in a number of rivers in the mountains. In some it still survives. *Gambusia affinis*, the Mosquito fish, was also introduced at about that time, to help in the fight against malaria. It is still used today to control mosquitos. These introductions were never questioned as being detrimental to local biodiversity, at least not until recently, when the impact of Largemouth bass on the endangered Grass snake (*Natrix natrix*) was raised. This resulted from the possible impact of this fish on the population of the Marsh frog, *Rana ridibunda*, which is the main food of the Grass snake. No doubt ecological changes have occurred, with the introduction of *Gambusia*, in some cases at least, but these need to be weighed against the use of insecticides

The introduction of the Louisiana crayfish *Procambarus clarkii* on the other hand has been far more problematic and is now out of control. This was initially introduced for cultivation purposes but has spread in most lowland water-bodies and reservoirs.

An end was put to the importation of the Red-eared Terrapin *Trachemys scripta*, and in fact of all terrapins, in 1998, in the midst of some controversy. This import ban was decided on when it became evident that these animals were being released into rivers and dams when they grew too big to be kept in small home aquaria. This endangered the indigenous terrapin, *Mauremys caspica*, which is a protected species. Until 1998 many thousands *T. scripta* were imported into the island every month. All animals found in the wild are collected by the Fisheries Department and the Cyprus Wildlife Society and new homes/owners are found for them. No breeding has yet been noted on the island though conditions for breeding are suitable.

Marine species

Though no marine species have, apparently at least, been deliberately introduced into the waters of Cyprus the issue of alien marine species is of serious concern to Cyprus. This is obviously not always under the powers of the country. A large number of marine species have come into the Cyprus seas as a result of the Lessepsian immigration, i.e., the immigration of Red Sea and Indopacific species through the Suez Canal into the Mediterranean. These Indo-pacific species now form over 12% of the marine fauna of the East Mediterranean. Many species, such as the Red Soldier Fish, *Holocentrum ruber*, and two Rabbit Fish, *Siganus rivulatus* and *S. luridus*, are now common in the commercial fish catches of Cypriot fishermen. Many species of benthic organisms have also colonised the island. Many species, some of them nuisance species (eg., some jellyfish) and some invasive (eg., the alga *Caulerpa racemosa*), are now well established in the east Mediterranean and are spreading west.

A newcomer to the Cyprus coastline can now be found on this Vermetus shelf and lower down on shallow rocky substrates practically anywhere on the island. This is a Stromb shell, *Strombus persicus*, which has colonised the shallow waters of the island during the last couple of decades. It seems to be competing with the Mediterranean Cone Shell (*Conus mediterraneus*), which it seems to have replaced in some areas.

Recent immigrants from the Red Sea that have established themselves in the coastal waters of Cyprus include the algae *Caulerpa racemosa* and *Styopodium shimperi*. Both and especially *Caulerpa racemosa*, have spread, in a very explosive fashion, since about 1990, to cover large areas of seabed around the island. This *Caulerpa* covers the sea bed and especially soft substrates, in a mat a few centimetres thick competing very successfully with species such as *Caulerpa prolifera* and *Cymodocea nodosa* which it replaces. *Caulerpa racemosa*, fortunately, for the time being at least, seems to have "lost vigour" and is apparently proliferating more slowly now. A *Cladophora* species

(*Cladophora patentiramea*?) also has caused problems in some years since 1989 when it first appeared. In peak years it causes serious ecological damage to shallow water algae, especially to *Cystoseira* spp., which break under its massive growth, and is a serious nuisance on tourist beaches where it gets washed up in large quantities.

Terrestrial species

Deer

Fallow deer, *Dama dama* was introduced to Cyprus in the 1970s by the Forestry Department, from Europe. These have bred in captivity, in a large fenced off enclosure at the Stavros tis Psokas Forest Station. There are now 43 animals and they are now becoming a problem for the authorities, which are no longer considering releasing them to the wild, as was the original idea. They were meant to replace *Dama mesopotamica*, a species introduced by early man to the island, which became extinct about 400 years ago. Their fate is now being debated.

Boar

A small number of boars were imported privately (and illegally) and after they bred in captivity several animals escaped or were released into the wild at about 1995-6. They have evidently bred in the wild and are reported to be thriving in some areas in the southern slopes of the Troodos mountains. Attempts at eradicating them by hunting have not been very successful as yet.

Foxes and Rats

It is not very clear as to whether these can be considered as introductions in view of the fact that they have been on the island for a few thousand years (keeping in mind that man came to the island not much earlier – about 10.000 years ago)

Recommendation No.77 (1999) on the eradication of non-native terrestrial vertebrates

The new draft Law on Nature and the provisions of the EU Directives are expected to deal with eradication issues when implemented. Nonetheless eradication of some species has been pursued for sometime.

In addition to what has been mentioned above on deer and boar, there have been ongoing government projects for the eradication of both rats and foxes dating back to colonial times, using or providing free poisoned baits or seeds mainly. There have been problems of non-target species (mainly dogs and vultures but also some birds of prey) being killed either directly by eating the baits or by eating poisoned carcasses. As a result and as a result of changing attitudes towards foxes, the use of poisoned bait for foxes in particular is now no longer pursued by Government Departments and though some farmers still use them they do so with much more prudence. These programmes have generally had a moderate success rate as an eradication mechanism. It should also be pointed out that these efforts were not intended at eradication of these species because they were introduced species but because they are considered as pests, in an economic sense.

The active collection of all Red-eared Terrapins found in the wild, mentioned above, is also relevant.

[Nicosia, October 2002]

3. ESTONIA / ESTONIE

Report of Estonian Government on implementation of Recommendation No. 57(1997) and No. 77(1999) of the Standing Committee

Recommendation No. 57 (1997) of the Standing Committee

1. Prohibit the deliberate introduction within their frontiers or in part of their territory of organisms belonging to non-native species for the purpose of establishing populations of these species in the wild, except in particular circumstances where they have been granted prior authorization by a regulatory authority, and only after an impact assessment and consultation with appropriate experts has taken in place.

1. Estonian environmental legislation contains a provision on prohibition of the deliberate introduction of the non-native species since newly gained independence. The “Act on Protected Natural Objects” in force since 1994 states in its provision 20(4):

“In order to prevent danger to ecosystems, release of non-native species into the nature is prohibited, with the exception of scientifically justified re-introduction upon the approval of the Minister of the Environment.”

2. The draft version of new updated nature conservation legislation (expected to pass the parliament at the end of 2002) incorporates several provisions related to the issues of deliberate and liberate introduction of both non-native and native species:

Provision 38 on the translocation and removal from the wild states:

(1) The introduction of non-native species to the nature is prohibited.

(2) The Minister of the Environment approves the list of non-native species, which are regarded to pose danger to domestic nature and which import for the purpose of keeping in captivity is prohibited.

(3) The regulation (incl. removal) of abundance of non-native species in the wild shall be organised by the county environmental service in agreement with the landowners.

(4) The introduction of native species of non-domestic origin to the nature is prohibited except in the course of scientifically sound re-introduction projects, which are approved by the Minister of the Environment.

(5) The introduction of native species of wild or captive origin shall be permitted only after approval by the environmental service of the county providing the specimens (or the institution maintaining the animals) and the county receiving the specimens for introduction.

(6) The release of local species of captive origin can be conducted only in accordance of the official species action plans, except after the rehabilitation of wild animals rehabilitation centres.

3. The Law on the Protection and Use of Wild Fauna (approved by Parliament on 18 November 1998) states:

“Article 19. Re-inhabiting of Animals

(1) Release of non-native animals into the wild is prohibited, except in cases specified in paragraph 5 of this Article.

(2) The list of animal species that can be imported into Estonia only with import permits, and the procedure for issuing the permits, shall be established by the Minister of the Environment based on the Law on Protected Natural Objects and the Convention on International Trade in Endangered Species of Wild Flora and Fauna. In order to ensure compliance with veterinary requirements, the procedure for issuing import permits shall be co-ordinated with the Minister of Agriculture.

(3) The Government of Estonia shall determine the list of customs stations through which live animals can be imported into and exported from Estonia.

(4) Re-inhabiting of native animals within the borders of Estonia is permitted if it is carried out in accordance with veterinary requirements and approved by the county governors of the site of taking and the site of release.

(5) Re-inhabiting of specimens of alien populations of native species, or re-introduction animals that have become extinct in the territory of Estonia, is permitted with a permit issued by the Minister of the Environment on the basis of an expert analysis, and in concordance with veterinary requirements. For the purpose of this Law, a population means a group of animals that belong to one species and inhabit the same place at the same time.

(6) Release into the wild of captive-bred animals of a native species, except for release of animals that have been kept in captivity with the purpose of curing their injuries or restoring their vitality, shall be carried out only on the basis of special programmes approved by the Minister of the Environment.

(7) Regulation of numbers of non-native animal species that have escaped into the wild shall be subject to the decision of the Minister of the Environment.

Article 26. Supervision and Liability

(1) Supervision of compliance with the requirements of this Law and the legal acts established pursuant to this Law shall be carried out by environmental inspectors in accordance with the procedure established by law.

(2) In the event of breach of this Law or the legal acts established pursuant to this Law, the rules of administrative, criminal or civil liability shall be applied in accordance with procedures established by law.”

2. Endeavour to prevent the accidental introduction of organisms belonging to non-native species into the environment with the potential to establish populations, where they use anthropogenic routes of dispersal.

1. The new draft act on nature conservation includes the provisions on accidental introduction (see above – paragraphs 2 and 3)

2. Keeping both native and non-native animals in captivity is regulated by the Law on the Protection and Use of Wild Fauna” (approved by Parliament on 18 November 1998) in the provision 7 on collection of live animals:

“ (1) Animals in any stage of development and captive-bred offspring of animals may be collected in captivity if:

1) the animals have been brought into Estonia in a legal way;

2) the requirements of this Law, of the Law on Animal Protection (RT 1992, 50, 617; RT I 1996, 49, 953; 1998, 13, 163) and of international treaties are followed in keeping the animals;

3) the animals are not listed as protected species;

4) the keeping conditions exclude the possibility of the animals escaping into the wild.”

Recommendation No. 77(1999) of the Standing Committee

1. Regulate or even prohibit the deliberate introduction and trade in their territory of certain species of non-native terrestrial vertebrates.

The deliberate trade or introduction of non-native species within the country is not directly regulated in Estonian legislation. Because of relatively small size of the country, the incorporation of respective provisions into legislation has not been regarded an urgent issue. However, the Law on the Protection and Use of Wild Fauna and the new Act on Nature Conservation (draft - expected to pass the parliament at the end of 2002) includes the provisions, which regulate the import and captive breeding of non-native species with capacity to settle in the wild in case of deliberate introduction (see above).

3. Monitoring of introduced populations of non-native terrestrial vertebrate species and assess the potential threat to biological diversity.

At present there is no specific monitoring of non-native species going on. However, the status of some non-native animals (like American mink, muskrat) has been surveyed earlier. The monitoring of non-native species in regular bases is expected to reach to the planning phase after completion of the project on preparation provisional database on non-native species (see below – paragraph 7)

4. *Assess the feasibility of eradicating of those populations representing a threat to biological diversity.*

The large-scale feasibility study on the eradication of the non-native species has not been conducted. That is because the eradication of the widespread non-native species is non-feasible due to the obvious new invasion from neighboring territories. Clearly, the plans for removal of widely spread non-native species, if feasible at all, call for tight international cooperation. However, removal of non-native species from isolated areas, like islands, may well appear to be feasible in Estonia.

In 1998 – 2000 the American mink, *Mustela vison*, eradication was conducted in Hiiumaa (1000 km²), the second largest island in Estonia. The purpose of the eradication was to provide opportunity to establish a “safe harbour” for the highly endangered European mink, *Mustela lutreola*. This program, initiated and carried out by private initiative was preceded by series of pilot research about the feasibility of the whole action. The research conducted included the assessment of the number of American mink in the island, spread of suitable habitats and the availability of expertise needed to this type of action.

5. *Eradicate populations for which eradication is deemed feasible in Item 3. Monitor the effect of the eradication on native fauna and flora.*

In December 1998 – April 2000 the American mink was removed from Hiiumaa Island. This operation was conducted by the foundation “LUTREOLA” and Tallinn Zoo in tight cooperation with Oxford University (UK). The operation was mostly funded by U.K. Government Foundation Darwinian Initiative for Biodiversity.

The whole operation was fully supported by Estonian Ministry of Environment and carried out in accordance of the official European mink Action Plan.

6. *Set up the mechanisms for inter-state co-operation, notification and consultation in order to coordinate precautionary and control measures for invasive species;*

In May 2002 the Estonian Ministry of Environment together with Global Invasive Program and Government of the United States organized an international workshop “*Development of Nordic /Baltic Invasive Species Informational Network*”. The workshop resulted in the plan to setup a regional database and information exchange network on the invasive alien species. The network and database will provide a mechanism for inter-state co-operation, notification and consultation. An international working group was established to launch and coordinate the construction of the database and network.

7. *Seek the involvement and co-operation of all interested parties, including organizations and operators who were at the origin of the voluntary release, local and regional authorities, as well as the scientific communities;*

In 2001 the Estonian Ministry of Environment organized a seminar on alien species for Estonian scientific community, NGOs and nature conservation authorities. The purpose of the seminar was to survey the existing knowledge on the non-native species in Estonian nature and to discuss the needs for scientific research on the non-native species. As a result of this seminar short proceedings were published, which provide provisional overview on the non-native species settled in Estonian nature. The proceedings were distributed in schools, among nature conservation areas and various nature conservation authorities. The book serves as the first systematic reference source on the non-native species in Estonia.

In 2002, by the initiative of the Ministry of Environment a project was launched to establish a provisional database of invasive alien species in Estonia.

8. Upon understanding the key beliefs which are most directly linked to attitude, gain public acceptance, if appropriate, through launching of public awareness and education campaign informing the general public of the threat represented by introduced non-native species for the indigenous wildlife and its natural and its natural habitats;

The above-mentioned seminars and on-going European mink recovery project have caught the interest of journalists in the problems of non-native species. Since 2000 the issue of non-native species has been widely reflected mass-media: number of newspaper articles and special TV/ radio programs.

4. FINLAND / FINLANDE

Alien wildlife, isolation and islands in Finland

by

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As a part of northern Fennoscandia, the Finland can be considered at least partly as an evolutionary isolated ecosystem. This is because in evolutionary terms the present Fennoscandia is young: the last glaciation ended only 10 000 years ago, and, moreover, the Baltic sea seems to hinder the spread of e.g. many mammals.

Bearing this in mind we can conclude the following. Two contradictory features may influence the establishment of non-indigenous species in Finland. On one hand, the harsh climate prevents invasion of most southern species. On the other hand, the relatively low number of species in Finnish ecosystems allows new species to establish themselves quite easily – if they are physiologically adapted to northern conditions.

In game introductions made to Finland, a high success rate (85 % of the species introduced have established themselves) has been found. This resembles the 100% success rate of mammal introductions into Ireland and Newfoundland, and reinforces the fact that the success rate can be much higher than the general “tens” rule by Williamson & Fitter. One obvious reason for the success of game introductions in Finland is that the species have been selected on the basis of their natural distribution, hence species adapted to cold climate.

In Finland, true islands are represented by the SW archipelago. Here mink and raccoon dog are affecting indigenous biota. The mink predation can be especially heavy on e.g. black guillemot and razorbill which have not been adapted to this kind of predator. The raccoon dog is suspected to have diminished common frogs in the archipelago since the frogs are so scarce in raccoon dog diet although they should be abundant on the islands.

A mink control program in outer archipelago in SW Finland has further emphasized the importance of mink predation on certain waterfowl. In mink control areas, the tufted duck, velvet scoter and shelduck numbers clearly increased compared to control areas after mink removal.

A control program on alien predators started in 2002 also in urban birds wetlands in the mainland. Mainland control programs has not generally worked well. The wetlands in the ongoing study are partially isolated, however. And, one could hope that the control would be more effective since the wetlands are not so easily recolonized by the predators.

5. GERMANY / ALLEMAGNE

*Implementation of Recommendation No. 57 (1997)
on the Introduction of Organisms Belonging to Non-Native Species into the Environment
in Germany*

About 10% (318 species) of the whole flora of the Federal Republic of Germany (3319 species) have been classified as established alien plant species. Only a small fraction (2 to 3 %) of the total number of introduced plant species (about 12,000) has succeeded, however, in establishing itself permanently in autochthonous ecosystems.

The internet based data bank „www.floraweb.de“ contains a reference to the „Status“ of each single species, alien plant species being labeled „Neophytes“.

The precise number of alien animal species in Germany still remains to be determined; it is presently estimated at about 2.9% (1322 species) of the fauna, of which about 262 species have become established in autochthonous ecosystems. For marine ecosystems the number of alien species introduced with ballast water, tank sediments and on the hull of ships is estimated at 7.4 million organisms daily, or about 86 individuals per second.

The following steps have been taken:

- Examination of legal regulations.
- Inventory: Cataster of alien species.
- Internet hand book: Determination, control, and management measures; management of 30 alien plant species: Research project under way.
- Economic consequences of alien species in Germany: Research project under way.
- Development of methods of risk assessment: Research project under way.
- Public information and exchange of information:

Publications and workshops held by the Federal Environmental Agency and the Federal Agency for Nature Conservation; foundation of NEOBIOTA - German Group of scientists on Biological Invasions in 2000 ¹).

The following steps need to be taken:

- Implementation of a monitoring programme.
- Development of an interactive early warning system via internet.
- Quality control and promotion of autochthone seeds and plants for the protection of native genetic diversity.
- Development of adequate measures, national strategies and action plans to reduce the spreading of alien organisms.
- Public information and exchange of information.

The large numbers of alien organisms introduced into Germany do not generally endanger the biodiversity on a large scale. Anthropogenic dispersal of native species to inadequate sites induces just

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as many ecological problems. Alien species, however, create important small-scale ecosystem changes at some locations. But the possibility of an „ecological disaster“ does exist.

On the intraspecies level genetic diversity needs to be protected effectively against allochthonous introgression („genetic pollution“).

Legal Foundations

The new Federal Nature Conservation Act (*Bundesnaturschutzgesetz*, BNatSchG), which entered into force in April 2002, improves the legal provisions for the release, possession and circulation of specimens of alien wild fauna and flora.

Release and Introduction of Alien Wild Animals and Plants

The provisions of Art. 41 para. 2 of the BNatSchG relate to the introduction and release of alien wild animals and plants. These provisions are more stringent than in previous legislation. The federal states (Länder) have to transform these new framework provisions into binding legal provisions at the Länder level.

Art. 41 para. 2 has the following wording:

In compliance with Article 22 of the Council Directive 92/43/EEC, Article 11 of the Council Directive 79/409/EEC and Article 8 letter h) of the Convention on Biodiversity the federal states shall take appropriate measures in order to preclude any risks of adulterating fauna or flora of the EU-memberstates by the introduction and spread of animals and plants of alien wild species. They regulate in particular that the introduction of animals and plants of alien wild species in the wild shall be subject to permits granted by the competent authority of the federal state concerned. Permits shall not be granted in cases where it is not possible to preclude any risks of adulterating fauna or flora of the EU-memberstates, or of endangering the survival or abundance of species of wild fauna or flora of the EU-memberstates, or of populations of such species. Any such permit shall not be required in the case of

1. crops cultivated within the framework of agriculture and forestry,
2. the introduction of animals
 - a) of non alien species,
 - b) of alien animal species in cases where their introduction requires a permit under the federal Plant Protection Act taking into account the interests of species conservation, for the purpose of biological pest control,
3. the introduction of animals of non-alien species that are subject to provisions of German hunting or fishing law.

The federal states may provide more stringent regulation for the introduction of specimens of wild plant species.

In their current legislation of the federal states stipulate that an administrative offence shall be deemed to be committed by any person who wilfully or by negligence contravenes the provisions governing the introduction of relevant fauna and flora

Possession and Circulation of Alien Species

According to Art. 42 of the BNatSchG it is prohibited

1. to gain possession of, acquire, have in possession or in custody, handle, work or process specimens of designated alien species (**prohibitions on possession**),
2. a) to sell, or to keep, offer or transport for purposes of sale,
 - b) to buy, offer for sale, acquire, display to the public, or use in some other manner, for commercial purposes specimens of designated alien species (**prohibitions on marketing**).

The prohibitions on marketing apply only to alien species designated by ordinance (Rechtsverordnung). Where alien species have been regulated by Council Regulation 338/97/EEC (e.g. the American bull frog) the species concerned are subject to the prohibitions on marketing of this

regulation. Article 8 para. 2 of the regulation prohibits the marketing of illegally acquired specimens, i.e. it is permissible to sell legally acquired specimens (e.g. pre-regulation- or bred in captivity – specimens). This is a loophole and contributes to the spread of alien species through the pathway of trade.

The German law prohibits the marketing of legally acquired specimens, too.

In order to prevent the risk of spread of alien species it is necessary to forbid the **circulation of breeding, cultivating or artificially propagating** specimens of alien animal or plant species. The Federal Ministry for the Environment is authorized to regulate these actions by way of ordinance.

Additional Control Instruments

To facilitate the control and supervision of alien animals and plants by the competent authorities, Art. 49 para. 1 of the BNatSchG obliges persons who hold live specimens of the designated (by way of ordinance) alien plant or animal species to furnish evidence of their right to possess the specimens (**obligation to furnish proof**). Specimens for which the holders cannot produce evidence may be confiscated by the competent authorities of the federal state concerned.

Last but not least Art. 52 para. 7 of the BNatSchG authorizes the Federal Ministry for the Environment to issue regulations providing for the obligation to notify the competent authority of the possession of specimens of alien species in order to facilitate the supervision of prohibitions on possession or marketing (**obligation to notify possession**).

In addition according to Art. 28 para. 3 of the Federal Hunting Act the release and introduction of alien animals requires written licensing by the competent authorities of the federal state concerned.

Besides the species listed by Art. 2 of the Federal Hunting Act the federal states are authorized to relate further animals to hunting legislation. Thus raccoon, raccoon dog and mink, for example, may be hunted in the federal states of Berlin, Brandenburg, Hessen and Mecklenburg-Vorpommern. This provides controlled influence on invasive alien species.

Plant Protection Act

In the sector „plants“, there is an elaborated system in Germany aiming at the prevention of introduction and spread of organisms which are harmful to plants or plant products. In this system, the Plant Protection Act (Pflanzenschutzgesetz) provides on the federal level for the protection of plants, mainly in the areas of agriculture and forestry (cultivated plants) including horticulture and landscaping but also in the area of non-cultivated plants. In its Art. 4, the Plant Protection Act provides measures to protect plants and plant products against the introduction and spread of plant pests (harmful organisms) into Germany as well as from Germany to states within the EU and to other states. Binding measures are laid down in detail in an ordinance („Pflanzenbeschauverordnung“) according to Art. 4 and 38 Plant Protection Act. These measures are harmonised on the EC-level, based on the European Council Directive 2000/29/EC on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community. The „Pflanzenbeschauverordnung“ contains lists of about 300 organisms whose introduction into and spread within Germany is prohibited. Pathways of many of these organisms are subjected to specified conditions. In addition, the ordinance includes specific requirements for the introduction of certain organisms. It requires the introduction via specified points of entry, the official phytosanitary import inspections on plants and plant products, the official registration and regular control of companies importing, producing or trading specified plants or plant products. The occurrence of organisms harmful to plants is monitored by the plant protection services according to Art. 34 of the Plant Protection Act. A reporting and early warning system concerning the contamination of consignments with plant pests and the occurrence of organisms harmful to plants in Germany is established. A license system is established for organisms or products which may be pathways for harmful organisms, which are usually prohibited but may exceptionally be introduced for the purpose of breeding or research. The given licenses are included in the reporting system. Measures for all types of plants or plant products at import or inside Germany could include the refusal of entry or movement under official control, treatment or destruction of plants, plant products or other regulated articles. Plant health certificates required from the exporting countries are used to certify that the plants etc. are conform with the current German phytosanitary requirements. Vice versa, these

certificates are used for the export of plants and plant products to assure that the specific regulations of the importing countries are met and that the consignment is practically free from any other harmful organism (horizontal safeguard). According to Art. 34 of the Plant Protection Act, it is the duty of the National Plant Protection Services to implement the Plant Protection Act and the corresponding ordinances.

Art. 3 of the Plant Protection Act includes comprehensive authorisations for surveillance, control or eradication measures of organisms harmful to plants. For example, measures have recently been taken against the introduction of the pine wood nematode (*Bursaphelenchus xylophilus*), and pines have been monitored in Germany and in the other member states of the EC for infestation with the nematode. According to Art. 5 of the Plant Protection Act and Art. 16 of the EC directive 2000/29/EC, emergency measures can be directed aiming at the immediate protection against the introduction and spread of organisms which risks are probable but not yet finally determined. For example, measures have been taken against the introduction and the spread of *Phytophthora ramorum*, of which the North American strain causes the „sudden oak death“ in California. It is not yet known, if the European strain, which occurs on *Rhododendron* species, is also able to cause these effects. Measures taken at the moment implement the precautionary approach also with regard to environmental effects of this pathogen.

The Plant Protection Act implements in Germany the rights and obligations in the sector „plants“ which are defined by the International Plant Protection Convention (IPPC). The IPPC is not restricted to the protection of cultivated plants and also covers specifically the protection of wild flora. The European Plant Protection Organisation (EPPO), which aim is to prevent the entry and spread of organisms directly or indirectly harmful to plants in the euro-mediterranean area, undertakes its activities in the framework of the IPPC. EPPO Guidelines are not binding for Germany by their nature, but they are usually the model for binding phytosanitary EC-regulations. According to the recent clarification of the scope of the IPPC with regard to effects on biodiversity, EPPO strengthens its capacity to include more specifically the protection of wild plants. The enacted texts of the Plant Protection Act and the EC directive 2000/29/EC are not restricted to cultivated plants, although both are focussing on the protection of plants and plant products in agriculture, horticulture and forestry against direct plant pests (e.g. phytophagous insects, nematodes, pathogens). Nevertheless, there are already regulations and recommendations in place aiming mainly at the protection of biodiversity beyond the cultivated environment; e. g. the import of oak trees and untreated oak wood from North America is prohibited in order to prevent the introduction and spread of the fungus which is causing the North American oak wilt (*Ceratocystis fagacearum*). Two EPPO-Standards, adopted in 2000, are aiming at the protection of plants against the New Zealand flatworm (*Arthurdendyus triangulatus*), which indirectly affects plants by reducing the abundance of earthworms.

According to the recently revised Plant Protection Act (Art. 33 (2) No. 9), the Federal Biological Research Center (BBA) is responsible for the conduction of risk analyses concerning the prevention of introduction and spread of organisms harmful to plants. These risk analyses should be based on the Risk Analysis Standards of the EPPO and the IPPC, which are acknowledged by the WTO. In accordance with the Convention on Biological Diversity, the standards are revised or supplemented in order to provide more detailed guidance on the consideration of organisms indirectly affecting plants and on the analysis of the risks to biodiversity.

Implementation of Recommendation No. 77 (1999)
*on the Eradication of Non-Native Terrestrial Vertebrates
in Germany*

The Federal Nature Conservation Act regulates the impacts of invasive alien species (Art. 41 para. I and Art. 52 para. 4). It provides the possibility of prohibiting possession and marketing of invasive alien species. This ban has already been enacted for American beaver (*Castor canadensis*), snapping turtle (*Chelydra serpentina*), alligator snapping turtle (*Macrolemys temminckii*) and grey squirrel (*Sciurus carolinensis*).

Mink, coypu, raccoon, raccoon dog and sika deer are subject to the hunting legislation, the first four without closed seasons, while sika deer falls under hunting legislation with closed seasons. Detailed information for these species are available in hunting statistics published by the German Hunting Society (Deutscher Jagdschutz-Verband).

Mink, muskrat, coypu, raccoon, raccoon dog and sika deer are naturalized in Germany.

Mink (*Mustela vison*)

Several wild populations of American mink (*Mustela vison*) exist in Germany. The exact distribution of the species, the size of its populations and their impacts upon the local ecosystems are largely unknown. The American mink is suspected of displacing the European (Old World) mink, *Mustela lutreola*.

Mink repeatedly succeeds in escaping from fur farms. The causes are „liberations“ by animal protection activists, and insufficient precautions on the part of the farms (captures of 20 to 50 animals per year in the immediate vicinity of the farms were not unusual).

There is no general monitoring programme for the species. There is also no conclusive evaluation. The hunting statistics of those federal states which permit the hunting of mink may provide one source of data. There is little experience with species-specific control measures.

Muskrat (*Ondatra zibethicus*)

The muskrat is naturalized throughout all of Germany.

The increasing problems in the maintenance of waterways, roads and railways due to damage by muskrats led to the creation of a State Control Service as early as 1933. The State Regulation on Muskrat Control (*Reichsverordnung zur Bekämpfung der Bisamratte*) came into effect on 1 July 1938, based on the Act for the Protection of Cultivated Plants (*Gesetz zum Schutze der Kulturpflanzen*) of 5 May 1937. Its principal provisions remained in effect in post-war Germany.

The responsibility of the district administrations expired on 1 January 2000, and the authorities no longer undertake the capture of muskrats. Only the Directorates of Water Resources and Navigation have retained a responsibility to continue any control measures required for waterway maintenance.

According to Art. 12 para. 2 of the Federal Species Protection Ordinance, it is permitted „to control muskrats with traps, except for cage traps having trap doors, as far as it is necessary for flood protection and to prevent damage to agriculture and fisheries or other important public interests. The traps must be designed and used in a manner that will largely preclude the incidental capture of other wild animals.“

It has been obvious for decades that an extermination of muskrats is no longer possible, not even at considerable effort. A monitoring programme for muskrats is recommended. It should focus on the maximum population density attained in the absence of control measures.

Coypu or Nutria (*Myocastor coypus*)

Coypu repeatedly succeeded in escaping from fur farms. In some cases animals were intentionally released to end unprofitable stocks or to raise populations for hunting.

Newer assessments say that coypu is naturalized and able to survive hard winters.

Additional regulations of this successful reproducing species seems to be necessary if populations increase further.

There is no general monitoring programme for the species. There is also no conclusive evaluation. The hunting statistics of those federal states which permit the hunting of mink may provide one source of data. There is little experience with species-specific control measures.

Grey Squirrel (*Sciurus carolinensis*)

Rare, even in captivity. There are no continuous observations of grey squirrel in the wild. Because of the constant trade it is very likely to find continuous populations soon.

Ruddy Duck (*Oxyura jamaicensis*)

Up to now there was only one evidence of offspring of this species in Germany. Since 1980 single animals are to be found. The origin of those birds could be England.

Sika Deer (*Cervus nippon*)

In Germany sika deer is being managed on a basis of yearly assessments and management plans.

There are five centers of distribution in Germany:

- Hüttener Berge (Schleswig-Holstein),
- Ostangeln / Schwansen (Schleswig-Holstein),
- Weserbergland (Niedersachsen),
- Sauerland (Nordrhein-Westfalen),
- Hochrhein and Südschwarzwald (Baden-Württemberg).

The largest population consists of 600 animals in an area of approximately 3,000 Hektar in the Sauerland. The single populations are not connected. Outside those areas sika deer is rarely found.

The overall population of sika deer in Germany is estimated to consist of 1,500 - 2,000 animals (excluding zoos and parks). There is no spreading of populations.

Raccoon (*Procyon lotor*)

The raccoon is naturalized throughout all of Germany. Up to now there is no conclusive evaluation as a basis for an eradication program. There is no general monitoring programme for the species. The hunting statistics of those federal states which permit the hunting of raccoon may provide one source of data. There is little experience with species-specific control measures.

Raccoon Dog (*Nyctereutes procyonoides*)

With the exception of some alpine regions the raccoon dog is found naturalized in all regions of Germany. The species occurs most frequently in the eastern part of Germany, e.g. Vorpommern. But in the long term all suitable habitats will be settled.

Reduction measures will only slow down this process.

There is no general monitoring programme for the species. There is also no conclusive evaluation. The hunting statistics of those federal states which permit the hunting of raccoon dog may provide one source of data. There is little experience with species-specific control measures.

Canadian Beaver (*Castor canadensis*)

Officially only the Eurasian beaver (*Castor fiber*) was released in Bavaria. However, long before the Canadian beaver (*Castor canadensis*) was released in Finland. There it reproduced faster in the wild than the autochthone subspecies and immigrated into Sweden. So it might be possible that *C. canadensis* was released in Bavaria when reintroducing the Swedish beaver.

This might be one explanation for three *C. canadensis* amongst the dead found beavers of the last ten years in Bavaria. The other reason being escapes from enclosures or neighbouring countries.

Red Eared Terrapin (*Trachemys scripta*)

Red eared terrapin is found throughout Germany as a consequence of people emptying their aquarium into inner-city waters and waters near conurbations. It is able to survive the winters but most likely unable to reproduce.

Bull Frog (*Rana catesbeiana*)

Bull frog is rarely kept in captivity in Germany. Only few evidences of escaped or released animals are known. Only single cases of reproduction are documented (predominantly in Baden-Württemberg) showing however, that this possibility exists. Experience with eradication efforts for already established populations and its effects exist.

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6. HUNGARY / HONGRIE

NATIONAL IMPLEMENTATION OF RECOMMENDATIONS NO. 57 (1997) AND NO. 77 (1999) IN HUNGARY

Biological invasion in Hungary deserves the attention of researchers, decision-makers and the public as well. Public interest focuses mainly on human health impacts of some allergenic and pest species, but the society is also sensitive to the degradation of natural values of protected and urban areas. However, the public awareness and personal responsibility for introduction and spreading of invasive species and their impacts on native species and ecosystems is very low.

Legislation

Two main acts provide legal instruments for the problem of biological invasion in Hungary, one is the **Promulgation of the Convention on Biological Diversity (Act No. LXXXI of 1995)**, and the other is the **Act No. LIII of 1996 on the Conservation of Nature** (hereinafter: Nature Conservation Act). The latter deals with “introduced organism” (meaning any organism which has become part of Hungary’s flora and fauna due to man’s intentional or unintentional introduction) and “harmful introduced species” (meaning any living organisms which does not qualify as native from the phytogeographical or zoogeographical point of view, and which, in case it establishes and adapts itself, may be capable of modifying the natural processes of the Hungarian wildlife communities unfavourably for the native species) (Article 8. (3) and (4)).

According to the Act:

- It shall be prohibited to introduce non-native fish species into natural or semi-natural waters, or to transfer such species from fish farms into any other wetland (Article 14).
- Wherever the habitat conditions make it possible, afforestation shall be exercised primarily with native tree species, in a natural species composition and using nature-friendly techniques (Article 16 (3)).
- In forests situated in “protected natural areas”² reforestation shall be carried out only with indigenous tree species with natural occurrence on the given site and – with the exception provided under paragraph (5) section a) below – only by natural regeneration methods (progressive regeneration or shelterwood felling and selective felling systems (Article 33 (3) b)).
- In forests situated in protected areas, clear-cutting may only be authorised in forest stands unable to naturally regenerate or consisting of non-native species and being of a maximum block size of 3 hectares (Article 33 (5) a)).

In forests situated in protected natural areas, and which consist of non-native tree species, efforts shall be made establish close-to-natural conditions by replacing, complementing, restructuring such forest stands, by changing the tree species and by regulating the species composition, thus eliminating monocultures (Article 33 (7)).

Government Decree No. 67/1998. (IV.3.) on the Restrictions and Prohibitions Pertaining to the Protected and Strictly Protected Wildlife Communities deals also with non-native living organisms or locally alien plant and animal species.

The agricultural administration also has for long developed legal measures against pests, diseases and weeds. A long list of non-native species is included and controlled at the borders and inside by the quarantine service of the Hungarian plant protection system and similarly by the veterinary-service. There is a strict need for integrated control methods against weeds with unfavourable effects to human health (like *Ambrosia artemisiifolia*). **Act No. XXXV of 2000 on Plant Protection** deals with pesticides containing non-native living organisms (natural enemies, biopesticides etc.). The Ministry

² „Protected natural areas” means any area declared to be protected or strictly protected (given high priority nature conservation status) by Nature Conservation Act or any other provision of law (Article (4) g))

of Environment and Water plays a special role in the pesticide regulation process in this case (Article 19. (3)). There are data requirements on the origin and other ecological properties of living organisms in the registration dossiers (**Ministerial Order No. 6/2001 FVM on release of pesticides Annex 1 and 2.**). Quarantine actions are also mentioned (**Ministerial Order No. 7/2001 FVM on the objectives of plant protection quarantine**), but invasive alien species have no specific interest in this law.

There are some more additional regulations dealing with non-native species in the **Act No. LIV of 1996 on Forest and the Protection of Forests**, **Act No. LV of 1996 on the Protection of Game Species, Game Management and Hunting** and **Act No. XLI of 1997 on Fishery and Sport-fishing**.

Invasive plant species

The most dangerous invasive plant species of Hungarian habitats were listed by a scientific symposium in 1998. Researchers and nature conservation experts selected about 35 invasive plant species (Annex I.). The most susceptible habitats in Hungary are mismanaged agricultural and rural areas and water-determined ecosystems. Dry grasslands and semi-natural forests resist better plant invasions, but disturbance can greatly increase the probability of their mass occurrence.

In several cases, invading species do not only degrade the habitat but also outcompete certain valuable, protected species. According to the most recent information about 45 000 hectares of grassland are affected with invasive plants (like *Solidago gigantea*, *S. canadensis*, *Ailanthus altissima*, *Elaeagnus angustifolia* and *Asclepias syriaca*) in nationally designated sites. The state nature conservation organisation has initiated several programmes for the mechanical control of invasive plant species in protected areas with only locally apparent results so far. Plans for mechanical and nature-friendly chemical control are under development, but recent calculations indicate that these projects would cost more than 4.2 million Euro. The government and also non-governmental organisations yearly launch programmes for ragweed (*Ambrosia artemisiifolia*) control, with substantial public participation, but the results are not detectable so far in the pollen levels.

Invasive animal species

Long-standing forestry and agricultural light-trap or other forecasting networks have a potentially important role in the early detection of invasive species (e.g. Scarce bordered straw - *Helicoverpa armigera*, which is a migrating moth species occasionally invasive in gardening cultures).

The horse chestnut leaf-miner (*Cameraria ohridella*) is a member of the Lepidopteran family Gracillariidae and was recorded for the first time from Macedonia in 1985 attacking horse chestnut (*Aesculus hippocastanum*). This moth was described as a new species of the genus *Cameraria* in 1986. Up to now the origin of the moth is totally unknown. There has been some discussion that this species was carried to Macedonia from America, and then it spread. However, nowadays it is quiet certain that the origin is not American. There has been discussion for a long time about the possibility of conveyance by human beings. The effects of global climate change have been mentioned. *C. ohridella* appeared in Austria in 1989, from then on it rapidly spread east and west so that, by 2000, it had colonised major parts of Central and Eastern Europe. First sighting in Hungary was in made in 1993, and serious esthetical damage caused by it has been detected throughout the country since 1994.

A recent American invasive pest on arable land in Europe is the Western Corn Rootworm (WCR, *Diabrotica virgifera virgifera*). It is likely to have arrived in Yugoslavia in the early to mid-1980s. By the end of 2001 it had spread over 182,000 km² in Europe (Bulgaria, Bosnia-Herzegovina, Croatia, Hungary, Romania, Slovakia and Yugoslavia). WCR beetles were trapped in 1998 and 1999 in Italy, near Venice airport and in 2000 in Switzerland, near Lugano. WCR spread in Europe has continued in all directions from the original infestation point. It has become an economic pest of corn in Yugoslavia (yield losses up to 70%). Several research projects focus on the potential of biological control of these pests.

In the last few years a locally problematical mollusc species with invasive tendency called Iberian black slug (*Arion lusitanicus*) has been noted. This species causes remarkable damage in gardens in the south-western part of Hungary, just as in some other parts of Europe.

Some fish species have been introduced for consumption and to limit algae production during the 1960s, like the grass carp (*Ctenopharyngodon idella*) and the silver carp (*Hypophthalmichthys molitrix*) which have become abundant and threaten the native fish fauna despite intensive fishing. *Ctenopharyngodon* threatens locally/occasionally the fresh-water ecosystem (plants), and it is really difficult to fish *Hypophthalmichthys*, so this species could present a problem. A recent invader of watercourses is the bighead goby (*Neogobius kessleri*) that has arrived from the brackish waters of the Danube Delta and feeds on fish fry. We need also mention the black bullhead (*Ictalurus melas*) introduced by mistake and invading south-western Hungarian waters.

The situation of mammals is similar to that of fishes, as the population of game animals and unprotected carnivores is regulated. According to our recent knowledge two introduced species seem to have the potential of becoming invasive, the racoon dog (*Nyctereutes procyonides*) and the racoon (*Procyon lotor*).

Monitoring

Recognising the importance of invasion in the survival of the native biota, the Hungarian Biodiversity Monitoring System (HBMS) has included the repeated survey of invaders in its programme. Invasive plant species are monitored in 124 selected plots of 5x5 km as part of habitat mapping. The HBMS monitors 5 invasive plant species (*Ailanthus altissima*, *Amorpha fruticosa*, *Asclepias syriaca*, *Solidago gigantea*, *Solidago canadensis*) at the landscape, community and population levels since 1998. The first results have described the present conditions and serve as baseline data. Further nature conservation programmes for monitoring invasive terrestrial and aquatic snails and insect species are absolutely necessary and scheduled for the near future.

Most recent activities

The Hungarian Invasive Plant Survey and Control Programme is under development by the Ministry of Environment and Water. The first task is to provide a national assessment of occurrence of the selected 35 invasive species. The objective of the programme is to develop an environmentally friendly control strategy of invasive plants that can be applied at nature reserves.

A landscape protection standard dealing with replantation of derelict and recultivated areas and invasive species is under development.

The Authority for Nature Conservation of the Ministry of Environment and Water has commissioned a basic study for a Hungarian invasive alien plant species strategy. Several scientists are currently working on this programme and the first results of this analysis will be published in the autumn of 2002. Based on this study, a national invasive plant species strategy will be prepared, as well as scientific and educational publications will be produced. The Authority plans to fund a similar study and strategy on animal species, but current information and knowledge on these species is scarcer.

Annex I.

Invasive plant species in Hungarian nature reserves

Adventive species:

1. *Acer negundo*
2. *Ailanthus altissima*
3. *Ambrosia artemisiifolia*
4. *Amorpha fruticosa*
5. *Asclepias syriaca*
6. *Aster* spp.
7. *Celtis occidentalis*
8. *Cenchrus incertus*
9. *Echinocystis lobata*
10. *Eleagnus angustifolia*
11. *Erechtites hieraciifolia*
12. *Erigeron canadensis*
13. *Fraxinus pennsylvanica*
14. *Helianthus decapetalus*
15. *Helianthus tuberosus*
16. *Heracleum mantegazzianum*
17. *Humulus scandens*
18. *Impatiens grandulifera*
19. *Impatiens parviflora*
20. *Padus serotina*
21. *Parthenocissus* spp.
22. *Phytolacca americana*
23. *Reynoutria japonica*
24. *Reynoutria sachalinensis*
25. *Robinia pseudoacacia*
26. *Rudbeckia hirta*
27. *Rudbeckia laciniata*
28. *Solidago canadensis*
29. *Solidago gigantea*
30. *Stenactis annua*
31. *Vitis rupestris*
32. *Vitis vulpina*

Dangerous native species that occur in selected areas of Hungary, but show tendencies to become invasive:

1. *Calamagrostis epigeios*
2. *Phragmites australis*
3. *Rubus fruticosus* agg.

Other HBMS species:

1. *Cleistogenes sertina*
2. *Echinochloa crus galli*

7. ICELAND / ISLANDE

Implementation of Recommendations No. 57 (1997) and No. 77 (1999)

Summary Report

ICELAND

I. Recommendation No 57 (1997) on the Introduction of Organisms belonging to Non-native Species into the Environment.

Introduction/overview

Several national laws include provisions that are relevant for Recommendation 57. These include:

- o Law No. 76/1970 on Atlantic Salmon and Trout Fishing.
- o Law No. 51/1981 on Protection Against Diseases and Pests on Plants.
- o Law No. 54/1990 on Introduction of Animals.
- o Law No. 25/1993 on Animal Diseases and Protection Against Them.
- o Law 64/1994 on the Conservation, Protection and Hunting of Wild Birds and Mammals.
- o Law No. 44/1999 on Nature Conservation.

Historically, the legal and regulatory framework for import and introduction of organisms to Iceland has focused on protecting sectoral interests through e.g. preventing the introduction of pests and disease vectors of life stock, commercial fish, and cultivated plants.

However, with the Law on Introduction of Animals (1990), the Law on Conservation, Protection and Hunting of Wild Birds and Mammals (1994), and the Law on Nature Conservation (1999), the conservation aspect of this issue has been increasingly recognised. The Law on Nature Conservation includes provisions for the Ministry for the Environment to issue regulations on the introduction of plants and animals and to establish an **expert advisory committee** to advise on matters related to introduction, cultivation, and distribution of non-native organisms.

The advisory committee has been established and Regulation No. 583/2000 on the Import, Cultivation, and Dispersal of Foreign Plant Species has been issued. Exempt from the Regulation are non-native plant species intended for greenhouse cultivation. The Regulation specifies the elaboration and publication of two official lists: **List A** of non-native plant species that may not be imported, introduced or cultivated; and **List B** of non-native species that may be imported and cultivated, according to restrictions and guidelines set by the advisory committee. Interested parties can apply for the insertion of a non-native plant species on List B. Such applications must be accompanied by a risk/benefit assessment, which shall be scrutinised by the advisory committee before decision is taken. The committee may further grant permissions for organised research involving non-native plant species, if satisfactory escape preventions measures are taken. Penalty provisions are provided. Currently, the expert advisory committee is elaborating Lists A and B.

Regulation that focuses on ecological and conservation aspects of accidentally or deliberately introduced fauna species, has yet to be issued.

National implementation of Recommendations 1-5

1. Prohibit deliberate introduction of non-native species....

This recommendation is being implemented through the laws and regulations described in the Introduction.

2. *Prevent accidental introduction of non-native species...*

The current legal and regulatory framework focuses on health and economic aspects of accidental introductions. Satisfactory protection is provided against accidental introduction of weeds (Regulation No 310/1995 on the Cultivation and Import of Plant Seed), accidental introduction of plant pests (invertebrates), disease vectors and pathogenic agents (Regulation No. 189/1990 on Import and Export of Plants and Plant Products), accidental introduction and/or escape from captivity of animal species (Regulation No. 499/1997 on Animal-keeping for Economic Purposes). However, there may still be regulatory gaps in terms of control of accidental introduction of *inter alia* invertebrates as well as escape of pets (e.g. rabbits) into nature.

3. *Prepare national list of non-native invasive species....*

The lists A&B, mentioned above, will cover this recommendation with respect to cultivated plants. The Icelandic Institute of Natural History maintains a list of birds and mammals and to some extent invertebrates, and has plans to create a master list of all imported plant species, including invasive ones. No regulatory measures exist to eradicate non-native invasive species, except for vertebrates (see Rec. 77 below), although this issue is currently being discussed by the advisory committee on introduction and cultivation of non-native organisms.

4. *To consider suggested measures in the guidelines accompanying*

These guidelines were consulted *inter alia* during preparation of Regulation No 583/2000, described above, and the expert advisory committee, considers these further in their ongoing work.

5. *Communicate to the Secretariat.*

This report.

II. Recommendation No. 77 on the eradication of non-native terrestrial vertebrates.

Introduction/overview

The American mink (*Mustela vison*) is a non-native terrestrial species that most obviously falls under this recommendation. The mink is a “fugitive” that escaped from fur-farms in the early 1940’s. By the mid 1980’s it had colonised lowland areas of the entire country. Historically, the impact of the feral mink on the country’s biological diversity is poorly documented. However, there is no doubt that it has caused rather dramatic local changes in *inter alia* distribution patterns of breeding waterfowl and some seabird species. Circumstantial evidence further link it with the demise of the Water Rail (*Rallus aquaticus*) in the latter half of the previous century, and the ongoing decline of the native population of Northern Phalarope (*Phalaropus lobatus*). Currently, most experts consider the mink an established part of Icelandic biodiversity, posing diffuse rather than urgent threat.

Of the commensal rodents, Brown rat (*Rattus norvegicus*) and House mouse (*Mus musculus*), have inhabited Iceland during historic times, and the Black rat (*Rattus rattus*) is an occasional visitor. There are historic evidences of rats causing havoc in breeding colonies of e.g. Black Guillemot (*Cepphus grylle*). Currently, however, rats and house mice are mainly confined to towns and villages and kept under strict control. Although they are considered a great nuisance, there are few if any concerns of real damage that they can afflict native biodiversity.

A recurring problem is the establishment of pet rabbits (*Oryctolagus cuniculus*) that have escaped from or been intentionally released into the wild by owners. Currently, most concerns are related to damage to cultivated shrubs and plants in a few urban areas. However, in one locality, Heimaey Island, the rabbits have to some extent invaded puffin colonies, and concerns have been expressed with respect to potential impacts on the puffins.

A feral herd of Reindeer (*Rangifer tarandus*) has inhabited Iceland since mid 18th Century. Currently the population is restricted to the eastern central highlands and surrounding lowland areas and is maintained at 2500-3000 animals. The reindeer is not considered a threat.

Control of non-native terrestrial vertebrates.

The legal framework is provided in Law No. 64/1994 on the Conservation, Protection and Hunting of Wild Birds and Mammals (all 6 species) and in Law No. 7/1998 on Public Health and Pollution Control (rats and mice). According to Law No. 64/1994, the feral mink, rats and house mice are exempt from protection and may be controlled/hunted year-round using any legal method.

In accordance with Regulation No. 437/1995 on Fox and Mink Hunting, the Wildlife Management Institute (WMI) is responsible for control of mink. The WMI, together with the Icelandic Institute of Natural History, is further responsible for applied research and monitoring of mink. Under previous Law No. 52/1957 on Eradication of Arctic Fox and Mink, the intention was to eradicate these species from Icelandic nature. However, this was changed with Law 64/1994 and the current policy is not to eradicate the mink nation-wide, rather to control/eradicate it in areas where it poses threats to sectoral interests and biodiversity (e.g. seabird colonies, eider farms, dense waterfowl breeding areas, freshwater fishing rivers). Local governments are requested by law to administer mink control in areas that are not protected by other means and to hire licensed hunters for that purpose.

In accordance with Regulation No. 149/1989 on Pest Controllers, the Icelandic Food and Environmental Agency oversees control and termination of rats and mice. Local governments hire pest controllers to carry out this task.

Although not mentioned, rabbits are considered to be protected by Law No. 64/1994. However, the Ministry of the Environment can issue exceptions in cases where economic or ecological damage is demonstrated.

The Wildlife Management Institute, together with the East Iceland Environmental Research Institute, oversees management and monitoring of the feral reindeer herd. The herd is managed through licensed hunting. For the last several years, 300-500 hunting licences have been issued annually.

National implementation of Recommendations 1-8

1. Regulate or even prohibit the deliberate introduction.....

This recommendation is being implemented through the laws and regulations described in the Introduction.

2. Monitor introduced populations of non-native terrestrial.....

The Wildlife Management Institute (WMI) maintains hunting statistics for mink and reindeer. The Icelandic Institute of Natural History and the East Iceland Environmental Research Institute assist the WMI with analyses of these data.

3. Assess the feasibility of eradicating.....

No such national feasibility studies have been carried out or are planned.

4. Eradicate populations for which eradication is deemed feasible in Item 3....

Mink and rat is routinely eradicated from isolated localities such as island communities. The Myvatn Lake area represents a large ecosystem, which has been maintained more or less mink and rat free through effective control.

5. Set up mechanism for inter-State cooperation, notification,

No deliberate mechanism exists, but *ad hoc* consultations have taken place with neighbouring countries.

6. Seek the involvement and co-operation of all interested parties,

This recommendation is hardly relevant for Iceland. Control measures for mink and rodents are long since established and not debated.

7. Upon understanding key beliefs which are most directly linked to attitude,...

No such public campaign is planned or considered relevant at the present stage.

8. Communicate to the Secretariat.

This report.

8. IRELAND / IRLANDE

Ireland's report on the implementation of Recommendations No 57 (1997) and No 77 (1999) on Invasive Alien Species

(provided by Mr Bernard Moloney of the Licensing and Species Protection Unit, On behalf of Dúchas the Heritage Service of Ireland)

Ireland is conscious of its obligations to exclude invasive alien species under the Bern Convention, the Convention on Biological Diversity, the EU Habitats and Birds Directives and the CITES Regulations. Measures have been inserted in domestic legislation principally the Wildlife Acts, 1976 and 2000 to guard against the introduction of alien species and to take measures if necessary where they have been introduced. The enforcement of such measures is carried out by the 100 or so conservation rangers employed by Dúchas the Heritage Service of the Irish state. Steps taken to deal with invasive species are described below.

Importation of species

Irish legislation controls the importation of CITES species and also any non CITES animal, bird or flower from outside the EU. CITES has been fully enforced in Ireland since the early 1980s under Council Regulations 338/97 and its predecessor. Ireland formally ratified CITES earlier in 2002. As you know the EU has included a number of

Hazardous species on the Annexes of their regulations. The import of species listed in the CITES Annexes from outside the EU is prohibited without a valid CITES permit/ notification /certificate. Section 53 of the Wildlife Acts, 1976 and 2000 deals with the regulation of trade in wild flora and fauna and CITES regulations. The Minister has designated a number of ports and airports as entry points for CITES specimens and these are staffed by Customs & Excise officers who co-operate with Dúchas the Heritage Service in enforcing CITES at these points.

Section 52 of the Wildlife Acts, 1976 and 2000 prohibits the importation of species into Ireland from outside the EU save under and in accordance with a licence granted by or on behalf of the Minister. In considering an application to import any species we would generally consider the conservation effects of such an importation. We would be conscious of the possibility of a species escaping, particularly species of birds, or being deliberately released later, and the possible impact of this on native species.

Release of species

There are also provisions in place to control introductions and releases of species:

Under Section 52 of the Wildlife Acts, 1976 and 2000 a person without a licence is guilty of an offence who:

- a.* turns loose, wilfully allows or causes to escape any species of wild animal or the spawn of such wild animal or wild bird or the eggs of such wild bird,
- b.* transfers any species of wild animal or the spawn of such a wild animal or wild bird or the eggs of such a wild bird from any place in the State to any other place in the State for the purpose of establishing it in a wild state in such other place,
- c.* plants or otherwise causes to grow in a wild state in any place in the State any species of flora or the flowers, roots, seeds or spores of flora,

In addition under Irish legislation regulations may be introduced to prohibit the possession of or introduction of a wildbird, animal or plant which may be detrimental to native species. Further the Minister may take measures to ensure that such introductions do not pose a hazard to native species. In 2001 the North American Ruddy Duck of which small numbers have been observed in the Republic was included on the list of huntable species as a precautionary measure.

Convention on Biological Diversity

Ireland became a signatory of the Convention on Biological Diversity in 1992 and undertook to promote the conservation and sustainable use of biological diversity. The guiding principles on invasive alien species recently adopted at the Conference of the Parties held in Montreal is viewed as being important and we will seek to ensure that they are put in place.

A National Biodiversity Plan was published in April 2002 and one of the issues it address is invasive alien species. A proposed action in this plan is the preparation of a comprehensive set of guidelines in co-operation with the Northern Ireland authorities (with whom we share a land border) to control introduced species and to prevent or minimise future introductions of alien species which might threaten biodiversity

9. ITALY / ITALIE

Italian actions and strategies regarding invasive species

Eugenio Dupré and Alessandro La Posta

Ministry of Environment – Direzione Conservazione della Natura

Italy, whose territory comprises many small and large islands and is characterised by a rich biological diversity, is particularly vulnerable to the threats posed by alien invasive species. In this regard, the Italian Ministry of Environment has funded several studies and reports to assess the extent of the threats posed by alien invasive species. However, it should be noted that the present legal framework (that does not include specific provisions to deal with invasive alien species) and the scarce funds available severely limit the actions aimed at reducing this threat.

Responding to recommendation n. 57 (1997) of the Bern convention, a report on alien invasive mammals and birds has been produced by the Italian Wildlife Institute, listing all introduced species (including ancient introductions), providing synthetic information on threats posed by each species and management guide lines.

Responding to Recommendation n. 77 (1999) of the Bern convention, the Italian Ministry of Environment also produced, in co-operation with the National Wildlife Institute, guidelines for the control of the introduced American grey squirrel (*Sciurus carolinensis*). The guidelines were circulated to all local competent authorities and at present they are implemented in the Ticino valley, that represents a major expansion corridor of the introduced specie.

In regard to the threats posed by the Coypus (*Myocastor coypus*), now widespread all over the country including the main islands, guidelines for the control and management of this species have also been produced by the National Wildlife Institute, and a report on the costs of the management of the species is at present being prepared.

The black rat (*Rattus rattus*) is the most common introduced mammal species in the Mediterranean islands, is present also in many very small islands and causes sever impacts to several animal species. In Italy, rat eradications have been carried out by the National Wildlife Institute in several islets in the Tuscany archipelago (program co-funded by the Tuscany region and the UE through a LIFE). Successful eradications has lead to significant increases of the reproductive success of the *Calonectris diomedea*.

A study carried out in Sardinia during the last three years has produced a complete inventory of the invasive plants, after an evaluation of the most common or invasive species the study produced also distribution maps and management guide lines.

Guidelines for autochthonous freshwater fishes are in progress, in many cases the main threat is given by alien species and the conservation of autochthonous species strictly depends on reduction of invasive species.

In 2001 Italy hosted a meeting of a joined group of experts of the IUCN and of the Bern convention for the preparation of a contribution to the development of a European strategy on the invasive alien species issue. The draft contribution was then presented at last SBSTTA 6 in Montreal in a side event organised by the Bern convention secretariat, where it was positively commented by all participants; in the final report prepared by the SBSTTA secretariat the document, and in general the efforts of the Bern convention to prepare a European strategy on the issue, were officially welcomed.

10. PORTUGAL / PORTUGAL

Recommendations of the Standing Committee of Bern Convention nr. 57 (1997) and nr. 77 (1999) - follow up of the implementation

This report was elaborated with the collaboration of the following institutions:

- Instituto da Conservação da Natureza (ICN), which co-ordinates
- Direcção-Geral das Florestas (DGF);
- Direcção-Geral de Protecção das Culturas (DGPC);
- Direcção-Geral de Veterinária (DGV);
- Instituto de Investigação das Pescas e do Mar (IPIMAR)
- Direcção Regional do Ambiente e do Ordenamento do Território - Centro (DRAOT - Centro);
- Direcção Regional do Ambiente da Região Autónoma dos Açores (DRA - Açores)
- Parque Natural da Madeira (PNM)

1. Legal and institutional frameworks

In December 1999, Portugal adopted a specific legislation on introduction and detention of invasive alien species. For the context of the diploma, the Decree-Law nr. 565/99 of 21 December, “*introduction*” means “the establishment of a wild population in a non-confined place, through an act of dissemination or release, deliberate or accidental, of one or more specimens from an alien species”. It was elaborated for implementing international obligations under Birds and Habitats Directives, Bern Convention, Bonn Convention and the Convention of Biological Diversity, taking into account the guidelines in the appendix of the Recommendation nr. 57/97 of the Standing Committee of Bern Convention and includes provision on:

a) Intentional or deliberate introduction:

- it prohibits the deliberate release or dissemination in the environment, within their frontiers or in a part of their territory, of organisms belonging to alien species not previously introduced for the purpose of establishing populations of these species in the wild (Article 3), except in particular circumstances and where they have been granted prior authorisation by a regulatory authority, and only after an impact assessment and consultation process with appropriate experts has taken place (Article 4);
- Articles 4, 5 (on the controlled trial) and 6 (on the quarantine) of the diploma are applicable to economic exploitation of alien species in a non-confined space, namely aquaculture and apiculture;

b) Accidental introduction

- it prohibits the dissemination or release of specimens from alien species in the environment, even if accomplished without deliberate will of causing an introduction into nature (Article 7)
- it defines security measures to prevent accidental introduction of species as “stowaways” (Article 6), or “fugitives” (Article 9-15);
- it prohibits the culture, breeding or detention in a confined space as well as the use as ornamental plants or pets of specimens from identified invasive alien species in the annex I of the diploma or those considered as bearing potential serious ecological risk included in the annex III of the diploma; the gift, purchase, sale, the offer to sell and the transport of specimens from identified invasive alien species or those considered as bearing potential serious ecological risk are restricted to specimens or parts of non-living specimens with no viable propagules (Article 8);

- the filling and dumping of ships' ballast waters are subject to the rules defined in the guidelines of the International Marine Organisation and the International Council for the Exploration of the Sea (Article 16).

c) Restocking, control and eradication

- it prohibits to restock with identified invasive alien species (Article 17);
- for the purpose of control or eradication of invasive alien species, it foresees the elaboration of a national action plan, promoted by the Ministry of Environment jointly with the Ministry of Agriculture, to be approved by resolution of the Council of Ministers (Article 18).

It also includes four annexes:

- Annex I - it includes a list of the alien flora and fauna species introduced in the mainland, with the identification, in the case of aquatic species, of the territories where they have set forth and their classification, when appropriate, as invasive species;
- Annex II - it includes a list of alien species with forest interest;
- Annex III - it includes a list of the alien flora and fauna species with a known ecological risk;
- Annex IV - it contains the summary model of the diploma, intended to be posted by the traders of ornamental plants and pets.

It also applies the polluter-pays principle (Article 25, on the restitution of the former situation).

The ICN (the national authority on nature conservation) is the main institution responsible for the implementation of this diploma, sharing with the DGF (General Directorate of Forests, the national authority on forests, hunting and fishing) the technical and scientific competencies related with exceptional authorisations for intentional introduction.

The implementation of the diploma is still very restricted:

- a) few requests were received for activities that could lead to unintentional introductions ;
- b) the foreseen Executive order on the security requirements for the facilities that detain alien species was not yet adopted (Article 11, nr.2);
- c) due to lack of institutional and control capacities, none of the foreseen measures on already existing establishments that detain alien species were applied (Article 9 and Article 12);
- d) the national action plan for control or eradication (Article 18) was still unelaborated, however contacts were established between the Ministry of Environment and the Ministry of Agriculture;
- e) no administrative sanctions were applied (Article 21);

Facts foreseen in the diploma are applicable to the Autonomous Regions of Azores and Madeira, despite further adaptation arising from the structure of the autonomous regional administration, to be introduced through an appropriate regional decree.

Previous to the national diploma, Azores had already adopted the following related legislation:

- Regional Decree nr.3/90/A of 18 January and Regional Decree nr.11/92/A of 15 April – on the entry of live specimens of game species in the territory as a sanitary prevention measures;
- Resolution from the Regional Assembly nr. 13/95/A, of 27 May – on the protection of native vegetation of Azores: it recommends the implementation of control programs for alien species.
- Regional Decree nr.6/98/A of 13 April – for silviculture purposes, it prohibits the introduction of new species.
- Resolution from the Regional Assembly nr. 148/98 of 25 June – on the prevention of accidental introduction of species as “fugitives”;
- Regional Decree nr.13/99/A of 13 September - on the forest protection: it regulates the procedures adopted for the cultivation of alien species;

Previous to the national diploma, Madeira had already adopted the following related legislation:

- Regional Decree nr.27/99/M of 28 August – on the detention, entry and introduction of alien fauna species in the territory of the Autonomous Region of Madeira.

National hunting and fishing regulations protect three species of alien species:

- For *Phasianus colchicus*, hunting is prohibited during the breeding period;
- For *Micropterus salmoides*, fishing is prohibited during the breeding period;
- For *Procambarus clarkii*, it is defined a minimum size for capture.

On the framework of EU phytosanitary Directives (77/93/CEE of 21 December and 2000/29/CE, of 8 May), the introduction of a biological agent requires previous quarantine measures in order to avoid the establishment and dispersion of “stowaways”.

On the framework of sanitary EU provisions, the executive order nr. 575/93 of 4 June has been applied on the veterinary control of animals and their products traded inside the European Community.

On the application of the “European Convention on the Protection of Pet Animals No. 125 of 13 November 1987”, it was adopted the Decree-Law nr. 276/01 of 17 October, which defines the regulations related to the protection of pet animals and establishes a particular regime to the detention of potentially dangerous animals.

2. Intentional introductions

Ameiurus meles was recently introduced in the Tejo, Sado and Guadiana catchments probably by fishermen. Due to the known behaviour of this species in other countries, this constitutes a special concern for native and endemic freshwater species.

Apart from the biological control agents widely used in the EPPO region (included in the EPPO Standard PM 6/3), other intentional legal introductions were not recorded in the last five years.

3. Accidental introductions

In 1999, one small population of *Podarcis sicula* was detected at the EXPO 98 site (in Lisbon), introduced through movements at the Lisbon dock and/or with ornamental exotic plants brought for the gardens of the exhibition. The extermination depends on the total area occupied and on the urgent eradication measures.

In inland waters, there are no licensed new aquacultures for the production of alien species (according to the Annex I of the Law decree nr. 565/99). Only *Onchorrhynchus mykiss* is produced for human consumption on the following river catchments: Minho, Cávado, Ave, Douro and Mondego. Occasionally, some “fugitives” are seen around the enclosed installations but no breeding populations were recorded until now.

From 1991-1998, there were 12 requests for the importation of *Ovis amon* specimens, four of which were denied, due to insufficient data. After 1998, there were no more requests. The aim was hunting in confined space, and security conditions for these captivities were previously defined in order to avoid escapes. However, some animals were already seen in the wild and in consequence of that, inside Protected Areas and proposed NATURA 2000 sites, the ICN is ordering the owners of *Ovis amon* specimens to kill all the remaining animals they have in the confined space, as well as the “fugitives”.

Some projects evolving the exploitation of alien species or other activities that may lead to accidental introductions were evaluated according the Article 11 (on the security requirements) of the Decree-Law nr.565/99. In the framework of this, the technical assessment produced by ICN included suggestions to redesign the activity exclusively with native species.

CITES administrative authority is now working on the inventory of alien fauna specimens included, or absent, in both the annexes I and II of the convention, present in the establishments authorised by the DGV (General Directorate of Veterinary).

Phytosanitary authorities registered the introduction as “stowaways” of seven plant pests species considered by the Directive 2000/29/CE (of 8 May).

4. Restocking

Flora species

In the Mainland, between 1994 and 1999, in the framework of the Reg.[CEE] nr. 2080/92, 319.2 new hectares of *Robinia pseudoacacia* plantations were supported. After the adoption of the Decree-Law nr. 565/99, owners were informed about changes produced in the specific legislation and on the revision of the future agreements.

After the adoption of the Decree-Law nr. 565/99 some forest measures, involving all public and private stakeholders, were taken in order to incorporate the new philosophy of prevention and control of invasive alien species:

- since 2000, incentive measures for forest (*e.g.* Rural Development program) are restricted to alien species listed in the Annex II of the diploma;
- since 2000, there are incentive measures (forest grants scheme) for controlling invasive alien species included in the 3rd Community Support Framework;
- since 2000, in the Mainland, the Ministry of Agriculture has stopped the production and trade of all invasive species of plants listed in the Annex I of the diploma, namely *Robinia pseudoacacia* and *Hackea* sp.

Other species listed in the Annex I of the mentioned diploma have still an economic relevance in the forest sector. A census prepared by DGF showed that, in the wild, there are 522 species of trees in public and private properties. Among that, 78 native species occupy 75% of the forested surface. The invasive species included in this list are 13; many of them are *Acacia* species. In 2001, the following species had an estimated national production (in millions of plants): *Cupressus lusitanica* (3.9); *Cupressus sempervirens* (0.6); *Pinus halepensis* (0.78); *Pinus nigra* (0.19); *Pseudotsuga menziesii* (0.14); *Populus* sp (0.05); *Quercus rubra* (0.11); *Eucalyptus globulus* (12); *Cedrus atlantica* (0.017); *Chamaecyparis lawsoniana* (0.024); *Cupressus macrocarpa* (0.066); *Acer negundo* (0.012); *Cercis siliquastrum* (0.002).

Fauna species

In inland waters, until 2000, for fish restocking, *Cyprinus carpio* and *Micropterus salmoides* were released in the following river catchments: Douro, Vouga, Mondego, Zêzere, Tejo, Guadiana, Ribeiras do Oeste. After this year all production and stocking of these species stopped. Presently stocking only occurs in the artificial mountain lakes of Serra da Estrela (river catchments of Mondego and Zêzere) with *Onchorynchus mykiss*, without viability in the wild.

In the north-west of Portugal (Minho River catchment, Peneda-Gerês National Park), a domestic haplotype *Salmo trutta* was caught.

In which concerns hunting species, only *Phasianus colchicus* is being bred in captivity for release purposes, allowed only outside protected areas and proposed NATURA 2000 sites. In 2001, they were estimated around 57000 specimens (which included 26000 imported from Belgium, France and Spain). In the wild, “fugitives” can survive but no breeding populations are recorded.

In order to preserve the original genetic pattern of the *Alectoris rufa*, and stop the hybridisation namely with *A. graeca* and *A. chukar*, the elimination of the recorded hybrids and specimens of alien species is being taken. Research on the genetic identity of the two sub-species of *Coturnix coturnix* is being followed by control measures of the animals produced in Portugal or imported for restocking. The same procedure is planned for *Oryctolagus cuniculus*.

5. Involvement of all interested parties and co-operation with neighbouring states

The co-operation among different national and regional authorities, and universities is rather confirmed by the involvement taken on research and control measures. Despite that, for preventive measures and regular exchange of information there are not yet sufficient developed mechanisms. Efforts made for the elaboration of this report initiated a joint work in this context, that should be maintained and reinforced.

The 10th EWRS International Symposium on Aquatic Weeds was held in Lisbon, the 21-25 September 1998.

In November 1999, it took place in Peneda-Gerês National Park a meeting promoted by the Sociedade Portuguesa de Ciências Florestais (Portuguese Society for Forest Science) and ADERE - National Park Development Association and organised jointly by the Portuguese and Galician authorities on the Management and Control of Alien Woody Invasive species. This meeting had a strong participation by researchers and technicians and was an opportunity to share knowledge and expertise on this subject.

In February 2000, the Liga para a Protecção da Natureza (a non-governmental environment organisation) organised the First Symposium on Alien Species with presentations from several countries.

Portuguese authorities contacted the regional environmental authority of Castilla – Leon (Spain) in order to discuss how to mitigate the consequences of the introduction of *Pacifastacus leniusculus*. A meeting took place at the ICN headquarters in November 2000. Identified urgent needs for action, namely to control the invasion and to preserve the native species of crayfish (*Austrapotamobius pallipes*), are still waiting for capacity-building and financial support.

APPENDICES

Five appendices of this report were elaborated with additional information. Texts of these appendices will be sent to the interested people (queiroza@icn.pt) and they will be available in www.icn.pt in a near future.

Appendix A – Decree-Law nr. 565/99 of 21st December - original version (including annexes I to IV)

Appendix B - Alien species introduced in Portugal (Mainland, Azores and Madeira)

Appendix C – Additional information on alien species introduced in Portugal

Appendix D – Case-studies

1. Control measures of *Bursaphelenicus xylophilus* (Steiner et Buher) Nickle *et al*) in the Setubal peninsula region (Portugal - mainland)

2. Management and Conservation of seabirds in the Azores. An habitat restoration experience on Ilhéu da Praia.

3. Control of introduced predators and herbivores to protect critical species: the case study of the Freira da Madeira, *Pterodroma madeira*.

Appendix E – Preliminary information on alien species projects (1997-2002) – Research, preventive and control measures (Mainland, Azores and Madeira)

Appendix F - Seminars, participation in congresses and publications (1997-2002).

11. SLOVAKIA / SLOVAQUIE

Implementation of Recommendations No. 57 (1997) and No. 77 (1999) in Slovakia

The current Slovak legislation on nature protection (the Act of the National Council of the Slovak Republic No. 287/1994 on Nature and Landscape Protection) covers alien species issues also. Some paragraphs of this Act are more or less relevant to the Recommendations.

For territorial protection of nature and landscape five levels of protection have been established. The range of protection increases with each level and each level has its own regulations in regard to alien species.

The first level of protection is valid in all territory of Slovakia in areas where no special protection is provided. In these areas the approval of the nature protection body is required for deliberate dissemination of alien species and native species with the origin in different geographical regions, in landscape outside human settlements (except for species described in the approved forest management plans). Comments from nature protection body is required on decision of other state administrative authorities to permit introduction of breed of new fishes or other water animals.

The same approval and comments are required also in the areas where special protection is provided that is in areas with second to fifth level of protection.

Beside this in protected landscape areas (second level of protection) another approval of the nature protection authority is required for intensive breeding of animals, introduction of breeding animals for fur, planting alien plant species and raising of alien animal species outside of human settlements.

In national parks (the third level of protection) the approval is required for planting and breeding of alien species outside confined facilities.

In protected sites (areas with the fourth level of protection) planting, breeding and dissemination of alien species as well as native plant and animal species originating in different geographical region is prohibited. Introduction of alien plant and animal species is also prohibited in the areas with the fifth level of protection, such as nature reserves and nature monuments.

So nature protection bodies in their every day practice can influence introduction of non-native species and contribute to solution of the problem more or less successfully.

Planting of alien plant species as well as breeding of alien animal species in confined facilities is subject of EIA (Environmental Impact Assessment).

National Biodiversity Strategy of Slovakia (adopted in 1997) and Action Plan for the Implementation of National Biodiversity Strategy (approved in 1998) in Goal 2 "Manage threatening processes" underpin in the strategic directions necessity "to prevent the introduction of invasive species and to control and eradicate those alien species which may threaten ecosystems or native species."

Slovakia as a candidate country to the European Union in pre-accession process is being approximating EU legislation to its national legislation. Habitats and Birds Directives have brought some changes into the Act No.247/1994 on Nature and Landscape Protection. Recommendations following other international agreements bring also new measures to be considered. Draft of the Amendment of the Act on Nature and Landscape Protection has been already finished and after it is approved, it will bring stricter regulations in regard to invasive species too.

There is a paragraph (§ 7a) which deals with protection of natural composition of ecosystems . The paragraph covers regulation of deliberate dissemination non-native species beyond the boundaries of human settlements; mapping, monitoring, control and eradication/elimination of non-native species. According to this paragraph it is forbidden to import, keep, plant, breed, trade in invasive species and also their parts which can cause accidental dispersal of the species. Landowner (lessee) is obliged to eliminate invasive species on his/her property (lands). Nature protection body may impose the elimination of invasive species on the owners or lessees on their expenses.

As for the national lists of non- native species, right now national list of non-native species of invertebrates is being compiled (focused mostly on insects and mollusks).

National lists of invasive vascular plants, mammals and fishes have already been finished but they are still subject to change (based on new knowledge): e.g. 28 vascular plants are considered to be invasive in Slovakia, such as *Ambrosia artemisiifolia*, *Fallopia japonica*, *Fallopia x bohemica*, *Heracleum mantegazzianum*, *Impatiens glangulifera*, *Negundo aceroides*, *Solidago canadensis*, *Solidago gigantea* etc.; 14 species of fishes, such as *Pseudorasbora parva*, *Ictalurus melas*, *Neogobius kessleri* etc., and 6 species of mammals, such as *Ondatra zibethicus*, *Rupicapra rupicapra* subsp. *rupicapra* etc., have been listed.

The lists of invasive non-vascular plants, and birds are still missing.

From the list in the Appendix to the Recommendation No.77 where examples of invasive species which threaten biodiversity were given, five species (*Ondatra zibethicus*, *Myocastor coypus*, *Mustela vison*, *Nyctereutes procyonoides*, *Procyon lotor*) have been listed in Slovakian list of invasive mammals. *Ondatra zibethicus* is considered to be naturalized in Slovakia, the other four species do not behave as real invasive species. Only a few places of their occurrence have been recorded so far but they are still subject to mapping and recorded populations are monitored. No activities have been done so far in order to eradicate their populations.

Rupicapra rupicapra subsp. *rupicapra* is another example of a listed non-native species. The species was introduced in the area of Slovensky raj National Park in 1963 (6 individuals). The introduction was “successful” and up to now the population reached number of 90 individuals. According studies done in last few years negative impact of this non-native taxon on plant communities in the national park is significant. After some serious discussions between botanists and zoologists the final decision to eradicate population of the subspecies was made and part of the population will be eliminated till the end of 2002.

As for invasive plant species, much more has been done in Slovakia so far. In 1997 the group of experts dealing with invasive non-native plant species was established. The group co-ordinates mapping of non-native species, e.g. about 700 sites with the occurrence of invasive plant species have been recorded in the areas where no special protection is provided. Special attention is paid to protected areas and their buffer zones where the invasive plant species are not only mapped but they are also eradicated (where it is feasible).

Some activities have been done in order to inform general public of the ecological, economic and health hazards associated with introduced plant species. Invasive plant species are also topics of diploma works or thesis.

In regard to the Recommendations there are still some gaps that should be bridged in the future.

12. SPAIN / ESPAGNE

Meeting of the Bern Convention Group of Experts in Invasive Alien Species

Horta, Azores (Portugal). 11 October 2002

REPORT FROM SPAIN

As in other parts of the world, in Spain a large number of exotic species have been introduced over the last hundred years. The effects of such introductions are not detected until some time after they take place. To put a stop to this problem, several specific actions by the central, regional and local governments have been carried out, in addition to NGO initiatives.

Within the framework of the Bern Convention, the Standing Committee issued two recommendations concerning exotic species:

- Recommendation No.57 (1997) on the introduction into the environment of organisms of non-native species.
- Recommendation No.77 (1999) on the eradication of non-native terrestrial vertebrates.

This report describes the extent to which both recommendations have been implemented on Spanish territory, detailing every aspect of both of them.

LEGISLATION

Spain's institutional framework includes legislation to deal with several aspects of invasive alien species. Article 26.1 of Act 4/89 of 27 March 1989 on the Conservation of Natural Areas and Wild Flora and Fauna states that measures shall be taken to ensure the conservation of species of flora and fauna living in the wild on Spanish territory, with special attention to native species. In more specific terms, Article 27.b states that the introduction and proliferation of species, subspecies and geographical races other than native ones shall be avoided in that they might compete with the latter, alter their genetic purity or alter the ecological equilibrium.

Article 34.e of the same Act states that "the introduction of alien or native species shall be subject to a regime of administrative authorisation so as to ensure that genetic diversity is conserved".

Measures to avoid and minimise the risks posed by the introduction of potentially invasive exotic species, as well as actions carried out to mitigate them are usually more restrictive in the ambit of protected natural areas. To regulate this problem in national parks, the Guide Plan for the National Parks Network (passed by Royal Decree 1803/1999 of 26 November) sets out guidelines for natural and cultural resources, including those governing invasive species:

c) The introduction of allochthonous taxa will not be authorised, and efforts will be made to eliminate existing populations. Only in extraordinary and duly justified cases will an exception be made to eradication for those that already form part of the natural processes and whose disappearance may impair the conservation of other native species.

d) If sufficient proof exists that the spread of a species is significantly harming other species, communities or acknowledged values, control measures shall be applied, which will in no case involve eradication when native species are involved. Said measures, which must be suitably justified, shall be selective, based on scientific data, executed by specialised personnel and overseen by the Administration.

Furthermore, several autonomous communities have their own legislative tools to mitigate the problem of invasive exotic species.

The new **Penal Code (Organic Law 10/1995 of 23 November)** devotes Section 16 of Part 2 to "infringements affecting territorial planning and protection of historical heritage and the Environment". Chapter IV deals with infringements concerning the protection of flora and fauna. Art. 334 describes illicit conduct, acts that contravene the Law or general provisions to protect wild animal species. Art. 333 refers to the penalties for introducing or releasing exotic species.

Moreover, further pieces of Community and international legislation have to be applied, including the following agreements and directives:

The **Bern Convention on the Conservation of European Wildlife and Natural Habitats** itself states in Article 11.2.b that “each Contracting Party is obliged to maintain strict control of the introduction of non-native species”.

The **Convention on Biodiversity** devotes Article 8.h to invasive alien species. Spain fully supports the Decision taken during the 2002 CBD Conference of the Parties, including the Guiding Principles.

Council Directive 92/43/EEC of May 1992 Concerning the Conservation of Natural Habitats and Wild Fauna and Flora states in Article 22.b that Member States shall (b) “ensure that deliberate introduction into the wild of any species which is not native to their territory is regulated so as not to prejudice natural habitats within their natural range or the wild native fauna and flora and, if they consider it necessary, prohibit such introduction”.

Article III 4.c) of the **Bonn Convention on Migratory Species of Wild Animals** states one aim as being “...to prevent, reduce or control factors that are endangering or are likely to further endanger the (threatened migratory) species, including strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species”.

Article 3 of **Council Regulation EC 338/97 on the Protection of Species of Wild Fauna and Flora by Regulating Trade Therein** lays down that Annexe B of the Regulation shall contain “(d) species in relation to which it has been established that the introduction of live specimens into the natural habitat of the Community would constitute an ecological threat to wild species of fauna and flora indigenous to the Community.”

NATIONAL LIST OF INVASIVE EXOTIC SPECIES

As regards the advisability of drafting a national list of non-native species that have become established in the wild, the Invasive Species Group of the Association of Young Researchers for the Study and Conservation of Biodiversity (AYR-Invasoras Group), whose work comes within the Global Invasive Species Programme and is backed by the Invasive Specialist Species Group (ISSG) of the IUCN, is drawing up an Atlas of Invasive Species. The lists of Invasive Flora, Vertebrates and Invertebrates that they are drafting will be useful to the scientific community and institutions as a tool to manage invasive alien species.

RESEARCH

As regards monitoring the effect of invasive species eradication programmes on autochthonous fauna and flora, studies are being conducted by universities and other research bodies devoted to investigating the effects of invasive alien species.

The first Spanish congress on invasive alien species is scheduled for 2003 in León.

AWARENESS-RAISING

As regards preventing the accidental introduction of invasive exotic species, measures to minimise the number of new introductions are under consideration. It is regarded as crucially important to make known the problems that derive from introducing invasive exotic species so as to reduce the number of involuntary introductions. In this regard, a temporary exhibition called “The Invasive Species of the Iberian Peninsula” was mounted in April 2001 in Madrid’s National Natural History Museum. Devised and put together by the AYR-Invasoras Group within the Programme on Invasive Species of the Iberian Peninsula, its basic aims are to inform about the potential consequences of introducing exotic species, the responsibility inherent in having exotic pets, the need for social participation and the advisability of preventing such introductions.

In fact, the “Programme for Study and Raising Awareness of Invasive Species on the Iberian Peninsula” developed by the AYR Group won the Ford Motor Company’s Conservation Award, an awards scheme that has been in operation since 1985. This programme includes publicising and increasing awareness in society about the problem of invasive exotic species.

It foresees the need to understand the sociological keys directly related with attitudes and public acceptance, and if necessary, to launch campaigns to make people aware of the threats that the introduction of exotic species into the wild poses for native species.

Several articles aimed at raising awareness of the problem of invasive exotic species have recently been published in the press. The journalists involved were apprised of the issue by specialists from the Administration, which supports public awareness-raising initiatives on this matter.

The Junta de Extremadura has taken the innovative step of producing an “Environmental Agent Data Collection Manual”, which includes and highlights detection of invasive exotic species.

CONTROL AND ERADICATION MEASURES

As regards controlling the introduced populations of species of exotic terrestrial vertebrates and assessing the potential threats to biological diversity, action is being taken on a few species of terrestrial vertebrates in national, regional and local spheres.

The need to assess the viability of eradicating populations that pose a threat to biodiversity is being taken into account.

The most noteworthy actions as regards prevention, control and eradication of invasive exotic species are as follows:

- **American ruddy duck (*Oxyura jamaicensis*)**

The Directorate-General for Nature Conservation, which depends on the Environment Ministry, is currently running a project on “Controlling the Spread of the American Ruddy Duck”.

The American ruddy duck appeared for the first time in Spain in 1983, increasing considerably from 1988 to 1993, with American ruddy duck x White-headed duck (*Oxyura leucocephala*) hybrids having been recorded since 1991. The first measures, sponsored by the former ICONA, were initiated in 1989 in conjunction with the regional governments.

Since May 1998 eradication and control measures have been carried out on American ruddy duck. Observers recorded ruddy duck behaviour patterns so as to set up stand-by teams to eradicate the invasive species; expert marksmen have helped in the eradication work.

Between October 1998 and May 1999 forty nine (49) American ruddy ducks were spotted in the north-east of the Peninsula, of which 10 were eliminated. In the Peninsular south-west, the 6 birds that were located were eradicated, while in the Levant, 10 were recorded, of which 4 were eradicated.

In 2000, of the 24 *Oxyura jamaicensis* or *Oxyura leucocephala* x *jamaicensis* located, 18 were eradicated.

These actions have managed to keep down the numbers of American ruddy duck and hybrids thereby avoiding competition with White-headed duck and preventing their becoming genetically “watered down” due to hybridisation. The Ministry of the Environment invests an average of 72.120 € per year in this eradication programme.

At regional level, the Valencia Regional Government has embarked on a programme to eradicate *Oxyura jamaicensis* from the wetlands of Alicante. The Regional Government of Andalusia has also taken measures to control *Oxyura jamaicensis*.

- **American mink (*Mustela vison*)**

The Directorate-General of Nature Conservation is carrying out the emergency plan to conserve the European mink (*Mustela lutreola*) in Spain in conjunction with the regional governments of Castilla y León, la Rioja, the Basque Country, Navarre and Catalunya, which are implementing actions within LIFE Projects to conserve the European mink.

In order to prevent feral American mink establishing themselves within the range of the European mink, the former will be eradicated or controlled. A trapping programme for American mink may be required. So far, 25 American mink are known to have been eradicated in Álava (north-eastern Spain).

The European Mink Recovery Plan is a particularly important legislative instrument. Approved by a decree of the La Rioja Regional Government, it includes actions to control *Mustela vison*.

- ***Trachemis scripta***

The regional governments of Madrid, Valencia and La Rioja have passed measures to control this species of freshwater turtle.

- **Monk Parakeet (*Myopsitta monachus*)**

Madrid City Council removes monk parakeet nests as these birds are invading some parts of the city. Likewise, the Generalitat de Catalunya (Regional Government) has allowed controlled hunting of the species and has presented a study for the eradication and control of some parakeet species.

- **Zebra mussel (*Dreissena polymorpha*)**

The project “Breakdown of the Situation of the Zebra Mussel (*Dreissena polymorpha*)”, involving funding of 12.020 € in one year, is relevant to managing invasive species. In mid-July 2001, *Dreissena polymorpha* was found in several sections of the River Ebro, stuck to the visible parts of rocks along the river bed, as well as to non-visible parts, in spaces between rocks and to native naiads.

A system to monitor its dispersal and population dynamics has been set up on the Ebro. Research is also being undertaken into possible ways of eradicating it.

Given that the passage of infested vessels is the greatest cause of the spread of zebra mussels, the Confederación Hidrográfica del Ebro (Water Authority) recently signed agreements with the Agencia Catalana del Agua to install vessel disinfection areas in order to prevent the mollusc spreading upriver. Regulations on treating fishing vessels and leisure craft are due to be published.

ACTION ON ISLANDS

At the sixth meeting of the Council for the Biodiversity Strategy and Pan-European Territory it was pointed out that “subnational” policies may be implemented for island territories, such as Spain, which has the Balearic and Canary Islands.

Both the Canary Island and Balearic Island regional governments have regional measures pertaining to this matter.

The Canary Island Government has been implementing a series of measures on the subject of invasive species, especially with regard to terrestrial vertebrate species that threaten the diversity of the islands’ native flora. The species that need to be eradicated are:

Argali sheep or mouflon (*Ovis ammon musimon*)

Barbary sheep (*Ammotragus lervia*)

Goat (*Capra hircus*)

Cat (*Felis catus*)

Rabbit (*Oryctolagus cuniculus*)

Barbary ground squirrel (*Atlantoxerus getulus*)

Rats (*Ratus rattus* and *R. norvegicus*)

Egyptian fruit bat (*Rousettus aegyptiacus*)

Common myna (*Acridotheres tristis*)

The variety of tools to eradicate those species include hunting plans and orders, vermin control schemes, LIFE-Nature projects and Use and Management Guide Plans for various national parks.

In the Balearic Islands, actions have mainly focused on eradicating and controlling the invasive alga *Caulerpa taxifolia*, which is threatening the equilibrium of marine ecosystems, and on protecting areas with threatened flora, which mainly involves the eradication of *Carpobrotus edulis*.

These measures come within the LIFE-Nature Projects “Protection of Posidonia Meadows in Balearic Island SCIs”, which began on 1 October 2001 and will last until 30 September 2005, and “Conservation of Areas with Threatened Flora on the Island of Menorca”, which is being conducted by the Consell Insular de Menorca (Island Government).

13. SWEDEN/SUEDE



Sweden's implementation of The Bern Convention's Recommendations No. 57 (1997) and No. 77 (1999)

In compliance with the Convention on the Conservation of European Wildlife and Natural Habitats Recommendations No. 57(1997) on the introduction of organisms belonging to non-native species into the Environment and No. 77 (1999) on the eradication of non-native terrestrial vertebrates, Sweden has initiated the following measures for the prevention of introduction, control and eradication of alien species that threaten ecosystems, habitats, native species and populations.

In order to prevent the intentional introduction of non-native organisms for the purpose of establishing populations of these species in the wild, Sweden has taken the following measures.

1. The research project Aquatic Alien Species – where and why they pose a threat to the ecosystems functions and economy (AQUALIENS) has been initiated and funded through the Swedish Environmental Agency's Environmental Research Council and will receive Euro 3,500,000 from 2002-2007. AQUALIENS will increase knowledge on assessing risks posed by introduced aquatic species and their impact on ecosystems and economy. AQUALIENS will result in recommendations for evaluating risks on the ecosystem level, and for identifying the ecosystems that are most vulnerable to introduction and which organisms pose the greatest threat, as well as provide tools for risk analyses and economic analysis of efficient risk management.
2. The Swedish National Board of Fisheries has adopted a policy and more stringent regulations for the spread of alien fish species in natural waters. The spread of non-native fish species, with the exception of rainbow trout *Oncorhynchus mykiss*, is no longer permitted to new waters where non-native species are not previously present.
3. The Swedish Environmental Protection Agency has developed a policy for the introduction and spread of alien organisms with the objectives of not allowing intentional introductions that damage biological diversity or have any other adverse impact on human health or the environment. Non-native species and populations will be permitted to be imported into Sweden, moved within the country and/or introduced into the environment following examination of an application and regulations must be based on risk assessments which comprehensively elucidate the risks of damage to biological diversity or to other aspects of the external environment, within or outside the intended area of introduction, or to humans health.
4. The Swedish Environmental Protection Agency has initiated a research project “Environmental Monitoring of alien species in the aquatic environment” to provide recommendations for environmental monitoring programs.
5. The National Board of Fisheries, the Swedish Environmental Protection Agency and the Center for Biological Diversity in cooperation are studying the ecological effects of intentional introductions of alien fish species and will produce recommendations for minimizing the risks to biological diversity.

In order to prevent the unintentional or accidental introduction of organisms belonging to non-native species Sweden has taken the following measures.

6. Sweden has established a Clearing House Mechanism with the address <http://smn.environ.se/cbd/eng/intr-art/> for the exchange of information with stakeholders and the general public. This information is directed at increasing awareness of the threat alien species are to

biological diversity. This increased awareness will result in reducing illegal or unauthorised introductions and spread of alien species to and within the country.

7. Sweden is actively engaged in the development of a regional network, the Nordic/Baltic Invasive Species Informational Network, for the exchange of information concerning alien invasive species and coordination of control and eradication measures.

8. Sweden is actively participating in the development of measures for preventing introductions through ballast water and hull fouling within the framework of the International Maritime Organisation.

9. Sweden is actively participating in the work with developing measures for preventing the introduction of invasive alien species through the International Plant Protection Convention.

10. The Swedish Environmental Protection Agency has adopted a policy with the objectives of preventing the unintentional introduction and spread of non-native species and genes, in order to avoid damage to biological diversity and other adverse impacts on human health or the environment.

In compliance with the recommendations to draw up national list of non-native species established in the wild, the following measures have been taken.

11. Reports on the status and ecological effects of alien species on biological diversity in Sweden including lists of alien species have been published. These reports are:

- Berg, L & Nilsson, T. 1996. Introduction of alien species in the Swedish terrestrial environment. *Swedish Environmental Protection Agency Report 4658*. In Swedish with English summary
- Jansson, K. 1994. Alien species in the marine environment. Introductions to the Baltic and Swedish West Coast. *Swedish Environmental Protection Agency Report 4357*. In English
- Josefsson, M. 1999. The introduction of alien species in Swedish rivers and lakes. The extent and consequences. *Swedish Environmental Protection Agency Report 4941*. In Swedish with English summary.

12. National lists of alien species present in Sweden have been made available on the Internet at the following addresses:

- Alien species in the land environment
<http://www.naturvardsverket.se/dokument/natur/migrera/tartlist.pdf>
- Alien species in the freshwater environment
<http://www.naturvardsverket.se/dokument/natur/migrera/tartlist.pdf>
- Alien species in the marine environment
<http://www.naturvardsverket.se/dokument/natur/migrera/tartlist.pdf>

13. Sweden has contributed to the Nordic report and lists of alien species in the Nordic countries published in Weidema, I. (Ed.) 2000. *Introduced Species in the Nordic Countries*. Nord Environment 2000:13. Copenhagen. The lists are also available at <http://www.sns.dk/natur/nnis/>.

In addition to the measures mentioned above the following measures have been adopted to comply with Recommendation No.77 on the eradication of non-native terrestrial vertebrates.

14. Projects have been initiated for the eradication of the American mink *Mustela vison* in archipelago areas with ground nesting birds sensitive to the predation of the American mink.

15. Sweden has adopted hunting regulations which permit hunting of the Canada goose *Branta canadensis* year round so as to limit their population growth.

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14. “FYRO MACEDONIA” / “ERY MACEDOINE”

Invasive alien species of the natural ecosystems in Macedonia

by

A. Nastov, M.Sc., Head of Biodiversity Department

R. Brajanoska, M.Sc., Councilor

Regarding your letter from 29.05.2002 related to the obligations of each member for data provision on the condition with the distribution of invasive alien species in the natural ecosystems, the Agency of Environment within the Ministry of Environment and Physical Planning has conducted expert insight of the aquatic natural ecosystem Ohrid Lake and its basin area. Mr. Aleksandar Nastov, M.Sc. and Mrs. Robertina Brajanoska, M.Sc. from the Biodiversity Department, conducted the insight on 21 and 22 June 2002.

They had conversations in the Hydrobiological Institute - Ohrid with Mr. Zoran Spirkovski, M.Sc., Mr. Trajce Talevski, M.Sc., Mrs. Marina Talevska, M.Sc., and Mrs. Sonja Trajanovska, biologist.

Mrs. Talevska and Mrs. Trajanovska (from the Laboratory of Biobotanics) presented the data on the occurrence and distribution of the invasive plant species elodea (*Elodea canadensis* L.) in the Ohrid Lake, together with the river Crn Drim and springs Sveti Naum. Based on the recent researches, it was concluded that this aquatic Mediterranean species has been accidentally entered/spread into the lake through the channel Studencista (1957), and later into the waters of the river Crn Drim and springs Sveti Naum - by the birds. Namely, Dr Gjorgji Kozarov has been making experimental laboratory researches with the elodea, and after the researches have been terminated, the sample with the remains of the liquid in the test-tube have been poured in the channel Studencista by the person maintaining the hygiene in the premises. Having in mind that it is a very invasive harmful species, the experts from the HBI - Ohrid continuously monitor the condition of the *elodea* spreading in the Ohrid ecosystem in 36 measuring stations/points.

In the first half of the nineties the elodea has been widely disseminated in the accumulation of the spawning place Sum in Struga, while in the last three years it has been registered only in 6-7 localities. In 2001 it has been widely disseminated in the springs Sveti Naum, while in the first part of this year it has suddenly withdrawn. The cause is still not cleared from a scientific aspect. Although there haven't been done any detail researches on the *elodea* impact assessment on the ecosystem, it is generally known that it is a very harmful species, because its mass development takes the space for development of the other submerge species of macrophytic vegetation, and thus change the natural appearance/homeostasis of the ecosystem. The experts from the Hydrobiological Institute have presented the research data on the *elodea* dissemination in the Ohrid Lake on international gatherings, and they were published in a Book of Abstracts from the *Conference on Water Protection* (held in 2001 and 2002 in SR Yugoslavia).

Mr. Spirkovski (Head of the Division for salmonides, Practical Fishery and Aquaculture) presented data on the occurrence of the Californian trout (*Onchorinchus mykiss* L. Californian). It has for the first time been caught in the lake in 1973 near the village Radozda, and been directly entered through the water current passing besides a fish pond for Californian trout built on the Albanian side (v. Piskupati). After a break of three decades, the fishermen on the Ohrid part of the lake have caught two species of this type of alien fish again this spring. M. Talevski discussed the occurrence of 7 cyprinide (carp-like) species of invasive fish, which have been entered into the lake directly or through the tributaries in the basin:

- *Gambusia* (*Gambusia affinis*), entered by health experts before World War II (in the late 30s) for a combat against the malaria, because it feeds on the malarial mosquito larvae. The *Gambusia* has been entered in muddy terrain, especially in Strusko Blato, from where it directly came into the Ohrid Lake. It occurs sporadic and has a negative impact on the ecosystem homeostasis;

- *Kubla* (*Alosa fallax nilotika*), entered into the lake in the 50s. It has come directly from the Skadar Lake;

- Karas (*Carassius auratus*), entered into the lake at the beginning of the 80s. It is still present, and occurs in big populations and in the basin area;

- Naked carp (*Cuprinus carpio*). Earlier, it occurred in 1992, and hasn't been registered since than. Entered into the lake with inconsideration when pouring the material for fishponds stocking with carp progeny;

- Parva (*Pseudorasbora parva*), entered directly into the lake in the second half of the 90s. Still present, but with small population;

- Soncarka (*Lepomis gibbosus*) entered into the lake in 1995 and still present. The population is especially big in the river Crn Drim;

- Platica (*Rhodeus sericeus amarus*) entered into the lake in 1994. Still present, but with small population.

All the mentioned invasive alien fish species have negative impact on the Ohrid ecosystem.

We have also visited the spawning place "Sum" in the village Sum, Struga, and had conversation with Mr. Dimitar Talevski, outside expert associate and Mr. Boro Jovevski, biologist, Head of production. Only Ohrid trout (*Salmo trutta ohridana*) is being spawn in the spawning place, and the progeny is used for fish stocking of the Struga part of the lake. It was concluded that in the accumulation, on certain isolated places/areas, there are still several species of the elodea (*Elodea canadensis*).

Regarding the occurrence of alien aquatic fauna/animal species, Mr. Talevski and Mr. Jovevski have informed that on the Struga part - near the downtown bridge on the river Crn Drim in 1986 a sample of the American sheatfish (*Ameirus nebulosis*) was caught, and two and a half decades later (on 5 June 2002) another sample of this type of invasive fish was caught. It was suggested that the Ministry of environment and Physical Planning should initiate mutual expert insight on both sides (Macedonian and Albanian), not only on the lake, but also on the localities where fishponds for Californian trout breeding are located.

Insights were made on the localities where in 1999, 2000 and 2001 the *elodea* distribution was registered, and its occurrence was confirmed only in the upper part near the springs Sveti Naum (the peninsula near the church Sv. Bogorodica). Elodea samples were taken and conserved/preserved.

Prof. D-r Mirce Naumovski, Dean of the Faculty of Agriculture in Skopje, obtained data on the presence of two invasive alien fish species in the Prespa Lake waters:

- soncarka (*Lepomis gibbosus*) entered into the lake in 1998, still present, and

- sheatfish (*Silurus glanis*) entered into the lake in 1998.

The invasive alien fish species acerina (*Acerina cernula*), described as a new type of ichtiofauna for Macedonia, was for the first time caught in the waters of the river Crna Reka and the Tikvesh Lake in 2002.

More detail expert insights of the Prespa and Doyran Lake, and the Vardar and Strumica basin will be made in July, under the leadership of Prof. D-r M. Naumovski, ichthyologist, and Prof. D-r V. Matevski, florist.

Dr Svetozar Petkovski, Head of the Vertebrata Department of the Museum of Natural Sciences, and Mr. Jovica Ristovski, B.Sc. Eng., Head of the Hunting Department of the Ministry of Agriculture, Forestry and Water Economy, have stressed that the Hunting Association of Macedonia in 1991 proposed a project for introducing samples of the alien bird species Keklik Trakii (*Alectoris graeca ciparicus*), but the proposal was rejected by the scientific institutions and the responsible state bodies.

15. UNITED KINGDOM / ROYAUME-UNI

United Kingdom National Report on Implementation of Recommendation No. 57 (adopted on 5 December 1997) on the Introduction of Organisms belonging to Non-Native Species into the Environment

1. The United Kingdom recognises that the problems caused by non-native species can be serious by transforming ecosystems, causing economic damage, altering natural habitats and threatening native species.

Prohibition of deliberate introductions

2. The primary legislation regulating the release of non-native species in Great Britain is section 14 of the Wildlife and Countryside Act 1981. The Wildlife (Northern Ireland) Order 1985 provides equivalent controls in Northern Ireland. Under this legislation, there is a general prohibition on the introduction of all non-native animal species into the wild, including specified non-native animal species that are already present in the UK, and on introduction of specified plant species.

3. Under the 1981 Act, licences can be granted giving exemptions from section 14. Proposals for intentional introductions are therefore subject to proper consideration of the issues, assessment of impact, consultation with scientific advisers and specific consent by means of licensing. Guidance issued by the UK Government states, that in addition to releases into the open environment, releases into the "wild" should be taken to include semi-confined situations, such as greenhouses, because animals can and often will escape from such situations, which should therefore be subject to licence applications.

4. The penalties available to the courts in England and Wales for offences of releasing non-native species have been recently increased to include custodial sentences of up to two years. Other UK legislation, such as the Import of Live Fish Act 1980, The Destructive Imported Animals Act 1932, and European Union legislation, such as the EC Wildlife Trade Regulations, also has relevance in addressing aspects of the non-native species issue.

Accidental introductions

5. The 1981 Act makes releases an offence, whether intentional or not, unless a defendant can show that all reasonable steps were taken and all due diligence exercised to avoid committing an offence. The legislation is therefore intended to address both intentional and unintentional releases.

Established non-native species

6. Schedule 9 to the Wildlife and Countryside Act 1981 lists invasive non-native species which are established in the wild and have been identified as undesirable, as a result of impacts on native wildlife or other reasons such as preserving public health and preventing economic damage. The listed species are specifically prohibited from further introduction into the wild.

Further measures

7. The UK Government recognises that further measures are required and that these problems need to be addressed in a co-ordinated way. For this reason the Government announced in 2000 that it would undertake a review of its policies concerning non-native species and consider the causes of, and problems arising from the introduction and spread of non-native species.

8. The Review of Non-native Species Policy (hereafter referred to as "the Review") commenced in June 2001 and the Review working group's report to Government will be submitted in the autumn of 2002. The membership of the Review's working group was drawn widely from central government, statutory conservation agencies and other government agencies, commercial and trade interests, conservation organisations and animal welfare organisations.

9. The objectives of the Review are to:

- Evaluate the effectiveness of current statutory or non-statutory procedures for dealing with the introduction and establishment of non-native species and identify examples of current best practice within the United Kingdom and abroad;
- Identify the main vectors for the introduction and spread of non-native species;
- Put forward practical and proportionate costed proposals for improving measures to limit the ecological and economic impact of non-native species in Great Britain and recommend measures to limit the impact of the introduction of native species beyond their natural range. These could include proposals for statutory or non-statutory measures in areas of research and monitoring, trade, and control of non-native species;
- Identify appropriate organisations to take forward any measures recommended.

10. The scope of the Review is to:

- Be carried out on a Great Britain basis for terrestrial, freshwater and marine environments;
- Cover all species of fauna and flora except agricultural crops and genetically modified organisms;
- Take account of the appropriate International and European Agreements relating to the introduction of non-native species;
- Involve all appropriate stakeholders.

11. Due to the specialist nature of much of the Review's work, smaller expert sub-groups were convened to consider specific elements of the work programme in detail. The sub-groups comprised some members of the main working group and also further members with relevant expertise. Expert sub-groups were set up to consider the following areas in detail:

- Prevention;
- Monitoring and risk assessment;
- Remedy and control.

12. The Review working group has evaluated the UK's current arrangements for dealing with non-native species and identified the main pathways for introduction of non-native species. The context provided by the various relevant international agreements was taken into account and the Review working group is drawing up a detailed series of recommendations for measures to improve the UK's regulatory and policy framework. The Review working group report is not completed at the time of writing (August 2002) but will be communicated to the Bern Convention Secretariat as soon as it is published. The UK Government will consider the Review's findings carefully, and may need to adjust its policy approach and research programme in the light of its conclusions and recommendations.

United Kingdom National Report on Implementation of Recommendation No. 77 of the Standing Committee (adopted on 3 December 1999) on the eradication of non-native terrestrial vertebrates

Regulation of introduction and trade in non-native species

1. There is a general prohibition on deliberate introductions of non-native terrestrial vertebrates into the United Kingdom under the Wildlife and Countryside Act 1981 and the Wildlife (Northern Ireland) Order 1985. The EC Wildlife Trade Regulations make provision for import and trade controls to be imposed, at European Union level, in respect of species that pose an ecological threat to native wildlife. Currently this provision is used in respect of two species; red-eared terrapin and American bullfrog, both of which are listed in the Appendix to Recommendation No. 77 as examples of invasive species which have proved to be a threat to biological diversity. The UK understands that the European Commission is currently considering how these Regulations may be best used in future to address non-native species issues.

Monitoring and assessing potential threat of invasive non-native species

2. A considerable amount of wildlife monitoring and surveillance is undertaken in Great Britain although there are no UK-wide monitoring arrangements specifically aimed at non-native species. There are however a number of existing national and local monitoring and surveillance schemes which provide information about non-native species, for example, the Wetland Bird Survey which provides information on ruddy ducks and the developing multi-species mammal monitoring programme. These issues are being considered in detail by the UK Government's Review of Non-native Species Policy which will be making its recommendations in autumn 2002.

Assessing the feasibility of eradicating invasive non-native species

3. The UK has investigated feasibility of eradication programmes in respect of several invasive non-native species, including some listed on the Appendix to Recommendation No. 77. Details of the several projects are below.

4. Case 1: The ruddy duck. The ruddy duck, originally an unintentional introduction to the UK escaped from private collections in the 1950s, the UK population now numbers approximately 6000, thought to be spreading across Europe. The ruddy duck hybridises with the globally threatened white-headed duck. This hybridisation poses one of the greatest threats to the survival of the white-headed duck as a distinct species. Ruddy duck populations have been monitored in the UK by the Wetland Bird Survey. The UK liaises closely to exchange records of Ruddy duck and White-headed ducks occurring in Spain.

5. The regional Ruddy Duck Control Trial was established to determine the feasibility, costs and access requirements necessary to reduce the U.K. ruddy duck population to less than 175 birds in ten years. This figure was chosen as representing a 95% reduction in the estimated population of 3,500 at the time of the decision to proceed with regional trials. It was decided at that time that data from regional trials would not provide sufficient information on the population dynamics of ruddy ducks at very low densities to allow any determination of the feasibility, costs and access requirements for complete eradication. The control trial concluded on 30 June 2002 and the modelling suggests that the UK ruddy duck population can be reduced to fewer than 175 individuals using year-round control in between four and six years if access is available to the principal wintering sites. The likely cost of this reduction is up to £5.4m. The UK Government is currently considering the results of the trial and taking further scientific advice. No final decision has yet been taken on whether to proceed to an eradication strategy.

6. Case 2. American mink. Mink is a non-native species which has become established throughout much of Britain following escapes or releases from mink farms. Mink have been present on Harris and Lewis in the Western Isles since the 1960s. More recently they have spread to North Uist and Benbecula. Mink are almost certainly having a serious adverse effect on the native biodiversity of the Western Isles, and pose a particular threat to the many internationally important populations of ground-nesting birds. In their continuous search for food they will readily take eggs, chicks and adult birds. They also impact on economic activities such as aquaculture, river fisheries,

game shooting, poultry farming and, indirectly, tourism, industries which contribute almost £50M p.a. (22%) to the Isles economy.

7. The recent spread of mink into Hebridean islands threatens the continued existence of many bird populations, particularly in the European Special Protection Areas on several Hebridean islands. The principal species considered to be at serious risk are Arctic tern, common tern, little tern, black-throated diver, red-throated diver, corncrake, dunlin and ringed plover. The Hebridean Mink Project has been set up to address this issue. Its overall objective is to prevent significant disturbance and losses to internationally important populations of ground-nesting bird species, prioritised under the EC Wild Birds Directive, and regularly occurring migratory species within designated Special Protection Areas.

8. The five-year project, commenced in 2001, aims to:

- protect vulnerable ground-nesting bird populations on North Uist, Benbecula and South Uist by the removal of mink from these islands.
- reduce mink populations on South Harris to the extent that the risk of recolonisation of North Uist is minimised
- collect data on effective control methods
- assess the effects of mink removal on the status of protected bird species.
- promote an awareness of bird conservation issues and the international importance of the Western Isles, including the risks posed by mink to island populations, and to disseminate the findings amongst other European countries facing similar problems.

9. Eradication of mink from the UK entirely is unlikely to be feasible. However, the UK Biodiversity Action Plan for water vole also notes the threat posed by mink to that species and proposes appropriate mink control as a conservation tool to protect large breeding water vole populations where necessary.

10. Case 3. American bullfrog. The American bullfrog is a non-native species which poses a serious conservation threat to a number of indigenous species. This bullfrog is an extremely voracious feeder, preying on other amphibian species, and on invertebrates, small birds and mammals. During the tadpole phase, its toxicity ensures that it is distasteful to other predators. Bullfrog tadpoles spend 2-3 years in the breeding pond before metamorphosing, so there is great potential to depress growth rates, and consequently survival, of other frog, toad or newt larvae. Juvenile and adult bullfrogs can travel 5km over land. Adult females lay up to 30,000 eggs in a single spawning. There are reports of bullfrogs harbouring various diseases, for which it is likely that native amphibians have no immunity. These factors make it a highly invasive species capable of causing considerable harm to native species. Following the discovery of the first breeding population in England in 1999, a control programme was undertaken to remove the population.

11. Further to these cases, the United Kingdom has previously also undertaken a number of successful eradication programmes. Management of other invasive non-native species takes place by various organisations and land managers on a local basis. A programme to eradicate muskrats was started in 1932 and concluded in 1939 and one to eradicate coypus was started in 1981 and concluded in 1989. A trapping campaign was also carried out during the 1980's to successfully remove a small population of porcupines (*Hystrix brachyura*).

Setting up mechanisms for co-operation, seeking involvement of all interested parties and public awareness.

12. The UK is aware of the need for mechanisms for co-operation and information sharing on invasive non-native species and also of the need to engage relevant all stakeholders. Public acceptability of control programmes is an important element if eradication or management programmes are to be successful, perhaps especially in the case of terrestrial vertebrate species. These issues are being considered in detail by the UK Government's Review of Non-native Species Policy which will be making its recommendations in autumn 2002.

13. An example of stakeholder input and co-operation occurred when the White-headed Duck task force and subsequent Ruddy duck Control Trial Advisory Committee were established. Publicity material was produced to explain the reasons for the ruddy duck control trial to the general public.
14. The UK is keen to communicate with the Secretariat on any relevant results achieved as well as any information available on the outcome of the measures adopted