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

Groupe d'experts sur les espèces exotiques envahissantes

7e réunion
Reykjavik (Islande), 22-24 mai 2007

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Rapport

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

Le Groupe d'experts sur les espèces exotiques envahissantes (EEE) s'est réuni à Reykjavik (Islande) du 22 au 24 mai 2007. Il se réunit tous les deux ans pour faire le point des progrès réalisés par les Etats et les organisations internationales en matière d'EEE, et pour proposer de nouvelles activités dans ce domaine. Les travaux de ce groupe constituent à la fois une contribution européenne à la mise en oeuvre des lignes directrices de la CDB adoptées à la 6e réunion de sa Conférence des Parties (COP) et à la Résolution de Kiev sur la diversité biologique, adoptée par la Conférence ministérielle « Un environnement pour l'Europe ».

Le Comité permanent est invité:

- à prendre acte du rapport de la réunion;
- à remercier le gouvernement de l'Islande et l'Institut islandais pour la Conservation de la nature pour la préparation extrêmement efficace de la réunion et pour leur excellente hospitalité;
- à examiner et, le cas échéant, à adopter les projets de recommandation ci-après proposés par le Groupe:
  - ✓ Projet de recommandation pour limiter la dissémination de l'écureuil gris (*Sciurus carolinensis*) en Italie (annexe 4),
  - ✓ Projet de recommandation sur les progrès accomplis dans l'éradication de l'érismature rousse (*Oxyura jamaicensis*) (annexe 5),
  - ✓ Projet de recommandation sur les voies commerciales des espèces exotiques envahissantes et potentiellement envahissantes en Europe (annexe 6),
  - ✓ Projet de recommandation sur les espèces prioritaires pour l'éradication telles qu'identifiées par l'Organisation pour la protection des plantes (annexe 7);
- à prendre note des activités proposées par le Groupe, pour examen dans le cadre de son programme d'activités pour 2008 et 2009.

BIENVENUE

La ministre de l'Environnement et de la coopération nordique, M[me] Jónína Bjartmarz, souhaite la bienvenue aux participants et explique que la sauvegarde de la diversité biologique et la lutte contre les espèces envahissantes sont des priorités de son gouvernement.

Les participants sont informés des problèmes d'EEE de la région dans le cadre de trois exposés:

- les espèces exotiques envahissantes en Islande, par le Dr Sigurdur H. Magnusson;
- la mise en place d'un programme pilote d'éradication du vison sauvage en Islande, par le Dr Pall Hersteinsson;
- le Réseau nordique et baltique de lutte contre les espèces exotiques envahissantes (NOBANIS).

M[me] Lynette Jackson, Directrice du Programme mondial sur les espèces envahissantes (GISP), présente les principaux objectifs, défis et réalisations du programme mondial commun sur les EEE et ses synergies avec l'OACI, l'OMI, la CIPV, la CDB et les organismes et Conventions régionaux tels que la Convention de Berne. Il découvre de nombreuses lacunes et incohérences dans les cadres juridiques, et formule des propositions correspondantes pour y remédier. Le GISP élabore également des indicateurs mondiaux pour les objectifs de diversité biologique de 2010. Le GISP est prêt à envisager une collaboration plus étroite avec la Convention de Berne.

1. OUVERTURE DE LA REUNION

La réunion est ouverte par le Président, M. Joan Mayol (Espagne). Il souhaite la bienvenue aux participants (dont la liste figure en annexe 1 au rapport) et constate les nombreuses actions et le grand intérêt pour les problèmes d'EEE depuis la réunion de Majorque, deux ans plus tôt. L'Espagne organise chaque année un important congrès scientifique sur les EEE. Il s'y ajoute les travaux menés sur les eaux de ballast et les espèces exotiques dans les ports. Il rappelle que le 300[e] Anniversaire de la naissance de Carl von Linné tombera pendant la réunion, et rend hommage à ce grand botaniste et taxinomiste.

2. ADOPTION DU PROJET D'ORDRE DU JOUR

L'ordre du jour, tel qu'il figure en annexe 2 au présent rapport, est adopté.

3. INTRODUCTION PAR LE SECRETARIAT: AVANCEMENT DES TRAVAUX SUR LES ESPECES EXOTIQUES ENVAHISSANTES DANS LE CADRE DE LA CONVENTION

Le Secrétariat informe le Groupe des progrès réalisés depuis la dernière réunion, tenue à Majorque (Espagne) en juin 2005. La Stratégie européenne relative aux espèces exotiques envahissantes encourage les Etats à élaborer et à mettre en oeuvre des stratégies nationales de lutte contre les EEE, et des priorités ont donc été fixées dans le cadre de la Convention pour soutenir les initiatives nationales prises en ce sens. Les rapports sur les ateliers nationaux organisés en 2006 en Croatie et en Ukraine seront présentés plus tard. Un autre atelier devrait être organisé en Bulgarie en 2007.

Deux rapports ont été commandés en 2006 et en 2007 sur les thèmes des EEE et du commerce et sur l'avancement de l'élaboration de listes "grises" et "noires" d'espèces potentiellement nuisibles.

Une autre activité menée dans le cadre de la Convention et qui concerne ses travaux sur les EEE est celle du nouveau Groupe d'experts sur la biodiversité et le changement climatique, car ce nouveau risque majeur pour la diversité biologique augmentera vraisemblablement le nombre et le caractère envahissant des espèces non endémiques arrivant naturellement ou introduites accidentellement. Les recherches sur ce sujet seront présentées plus avant dans le cours de la réunion.

Le Secrétariat informe le Comité des synergies avec Planta Europa et l'OEPP sur la question des plantes exotiques envahissantes. Plusieurs projets communs sont en cours, y compris une révision de la Stratégie européenne de conservation des plantes (dont le chapitre sur les EEE sera fortement amélioré) et d'autres points qui pourront être discutés à la fin de la réunion.

4. PRESENTATION DE DEUX ATELIERS NATIONAUX SUR LES ESPECES EXOTIQUES ENVAHISSANTES

[Documents T-PVS (2006) 9 et T-PVS (2006) 18]

Les représentants de la Croatie, M^{me} Andrea Stefan, et de l'Ukraine, M. Volodymyr Domashlinets, présentent les rapports sur les ateliers organisés dans leur pays.

Ces deux ateliers ont permis de mieux appréhender les problèmes d'EEE et leur statut, et ont abouti à l'élaboration de lignes directrices et de stratégies de gestion des EEE.

5. MISE EN OEUVRE PAR LES ETATS DE LA STRATEGIE EUROPEENNE SUR LES EEE

5.1 Rapports nationaux

Les rapports nationaux de l'Arménie, de la Belgique, de la Bulgarie, de la Croatie, de la République tchèque, de l'Estonie, de la Commission européenne, de l'Allemagne, de la Hongrie, de l'Italie, du Liechtenstein, de Malte, de la Moldova, du Portugal, de la Slovaquie, de l'Espagne, de la Suède, des Pays-Bas et du Royaume-Uni sont présentés. Une synthèse de ces présentations figure en annexe 3 au présent rapport.

Les présentations des Etats démontrent que plusieurs pays ont accompli des progrès substantiels sur le plan des procédures légales et des stratégies nationales de lutte contre les EEE, même si certains Etats ne se sont pas encore dotés d'une législation spécifique contre l'importation d'espèces exotiques connues pour leur caractère envahissant. Nombre de pays se sont fortement inspirés de la Stratégie européenne sur les EEE dans l'élaboration de leurs plans et mesures. En matière d'informations sur les EEE, des progrès significatifs ont été réalisés ces deux dernières années dans plusieurs Etats ainsi qu'au niveau européen. Les recherches sur les EEE et les plans avancent, mais beaucoup de travail reste à faire dans ce domaine, surtout dans le contrôle des voies de contamination (beaucoup d'EEE continuent d'être importés sans aucune restriction dans un certain nombre de pays). Les efforts d'éradication appellent encore de grandes améliorations.

Dans l'ensemble, le groupe a l'impression qu'en la matière, la Convention de Berne a accompli un travail à la fois de pionnière, utile et bien reconnu, mais que des mesures législatives et des actions plus strictes s'imposent afin de limiter l'impact des EEE sur la diversité biologique indigène.

5.2 Mise en oeuvre par l'Italie de la Recommandation n° 114 (2005) sur le contrôle de l'écureuil gris et d'autres espèces exotiques d'écureuils en Europe

Le délégué de l'Italie indique au Comité que le projet d'éradication de la population très localisée de l'écureuil gris dans la vallée du Tessin vise à retarder (d'environ 100 ans) l'arrivée de l'écureuil gris dans les Alpes orientales et la Suisse. L'éradication doit être réalisée sur une zone relativement réduite de 3 000 hectares, tandis qu'un programme de surveillance sera mis en place dans les zones environnantes.

La méthode technique mise au point (qui prévoit la capture de ces animaux avec des pièges) bénéficie de l'appui sans réserve des autorités nationales et de l'accord des autorités régionales responsables des opérations. Le gouvernement régional n'a toutefois encore pris aucune mesure à cause de l'opposition des organisations de défense des animaux, et affirme qu'il faudrait d'abord mettre un terme au commerce actuel d'écureuils gris qui se poursuit dans la région. L'importation et le commerce de cette espèce ne sont pas interdits.

Le Groupe estime que l'Italie ne s'est pas conformée à la recommandation et que l'importation licite de l'espèce est contraire à l'obligation que lui impose la Convention de "*contrôler strictement l'introduction des espèces non indigènes*". Les instruments juridiques appropriés semblent manquer, et l'inaction est imputable à un manque de volonté politique au niveau régional. Le Groupe prépare un projet de recommandation pour examen et adoption éventuelle par le Comité permanent (voir annexe 4).

5.3 Mise en oeuvre par l'Italie de la Recommandation n° 61 (1997) sur la conservation de l'érismature à tête blanche

Le délégué de l'Espagne annonce la réussite du programme de lutte dans son pays. Plusieurs régions ont organisé des groupes spécifiques de lutte qui abattent les érismatures rousses et les hybrides dès que les ornithologues les signalent, ce qui limite autant que possible la présence de l'érismature rousse en Espagne.

En Belgique, un couple qui nidifiait a été abattu dès sa découverte. En Islande, les érismatures rousses font l'objet d'un abattage systématique qui s'avère efficace.

Au Royaume-Uni, le programme d'éradication est une grande réussite. En très peu de temps, la population estimée d'érismatures rousses est passée d'environ 4 400 à 800-1 200, et 3 394 de ces oiseaux ont été abattus. De nombreuses difficultés subsistent (notamment parce que certains propriétaires fonciers refusent l'accès à leurs terres) mais l'on a bon espoir que, si le programme se poursuit avec la même énergie, l'espèce deviendra bien moins abondante, laissant ainsi espérer une éradication à l'avenir.

Le Groupe salue l'engagement sérieux et les excellents résultats du programme du Royaume-Uni et espère que d'autres Etats prendront des mesures similaires. La présentation de l'expérience menée au Royaume-Uni au sein de la commission ORNIS pourrait faire réagir d'autres pays.

Il est proposé de mettre à jour le plan d'éradication de 1989 de la Convention de Berne si les moyens nécessaires sont disponibles. L'Accord sur la Conservation des oiseaux d'eaux migrateurs d'Afrique-Eurasie et la Convention sur la conservation des espèces migratrices appartenant à la faune sauvage pourraient être invitées à s'associer à ce projet et à travailler en synergie avec la Convention de Berne,

Le Groupe décide de proposer un nouveau projet de recommandation à l'attention du Comité permanent (voir l'annexe 5 au présent rapport).

5.4 Moule zébrée en Espagne

Le délégué de l'Espagne communique des informations sur la dissémination rapide de la moule zébrée dans le bassin de l'Ebre, où cette espèce a probablement été introduite par des bateaux de plaisance dans le cadre de la pèche à d'autres EEE (silures). L'espèce se propage très vite, malgré la réglementation plus stricte mise en place par l'administration pour la navigation, le contrôle de l'accès des bateaux, etc.; une stratégie nationale de lutte contre cette espèce a été mise en place, principalement afin d'éviter, si possible, la contamination d'autres bassins versants. Cette espèce provoque déjà des dommages considérables à l'économie et à l'environnement. Une espèce gravement menacée d'extinction qui se trouve victime de cette invasion est *Margaritifera auricularia*, une des rares espèces d'invertébrés pour lesquelles la Convention de Berne a adopté un plan d'action.

6. LES ESPECES EXOTIQUES ENVAHISSANTES ET LE COMMERCE
[Document T-PVS/Inf (2006) 8]

6.1 Bilan des mécanismes internationaux et régionaux existants visant à interdire ou à limiter le commerce, informations sur les activités de l'OEPP sur les EEE, et analyse du risque phytosanitaire

La consultante, M^{me} Clare Shine, présente un rapport très complet sur la réglementation relative aux EEE dans le commerce international, en indiquant de quelles manières le commerce augmente la dissémination d'espèces potentiellement envahissantes et comment un grand nombre de ces espèces échappent au cadre de la réglementation internationale (qui insiste fortement sur les contrôles vétérinaires et phytosanitaires et sur les espèces menacées par le commerce dans le cadre de CITES).

Son exposé est suivi de celui de M^{me} Sarah Brunel, responsable des EEE à l'Organisation européenne et méditerranéenne pour la protection des plantes (OEPP), qui explique les activités de l'OEPP et notamment le mécanisme bien rodé d'analyse du risque phytosanitaire qui aboutit à des recommandations d'interdiction du commerce de certaines EEE.

Le Groupe a ensuite une discussion animée sur le sujet, qui fait ressortir à quel point il est difficile de faire adopter des lois strictes interdisant l'importation et le commerce de certaines EEE, principalement à cause du sentiment qu'il est difficile de s'opposer aux accords commerciaux qui libéralisent le transport de marchandises, même pour les espèces dont le caractère envahissant est connu (c'est ainsi que l'Italie autorise l'importation et la vente d'écureuils gris).

Le Groupe examine un projet de recommandation sur les EEE et les voies de contamination commerciales et, en raison des difficultés liées au traitement d'une question aussi complexe et du peu de temps disponible, charge un petit groupe de travail de proposer un nouveau projet sous la direction de la Présidente.

Le Groupe a également le sentiment qu'une recommandation sur le commerce devrait comporter en annexe un projet de "métaliste" d'espèces dont le commerce devrait, le cas échéant, être interdit,

Les conclusions des travaux de ce groupe de travail sont reprises sous la forme d'un projet de recommandation (annexe 6 au présent rapport).

7. RAPPORTS D'ORGANISATIONS INTERNATIONALES

7.1 Travaux de la Commission européenne sur les espèces exotiques envahissantes + base de données DAISIE
7.2 Conclusions de la conférence NEOBIOTA
7.3 Rapports de la 18e réunion du panel sur les espèces exotiques envahissantes de l'OEPP (Zürich, 8-11.5.2007) + Atelier international sur *Solanum elaeagnifolium (Sousse,* 29-31.5.2006) [*document T-PVS/Inf (2006) 11*]
7.4 Travaux européens sur l'élaboration d'un indicateur de tendances pour les espèces exotiques envahissantes
7.5 Travaux menés sur les EEE dans le cadre de la CDB

Des résumés des rapports des différentes organisations internationales sont repris en annexe 3.

Les rapports des organisations internationales révèlent une activité et un engagement beaucoup plus importants contre les EEE qu'il y a à peine deux ans. La Commission européenne accorde notamment une priorité nettement plus forte à ce problème, et son projet de Stratégie de l'UE relative aux EEE est vivement salué, tout comme l'intéressant travail d'information réalisé par l'Agence européenne de l'environnement sur les indicateurs, un point très important pour mesurer la rapidité de nouvelles invasions. La communauté scientifique est très attentive, comme le démontrent la forte participation à la 4e conférence Neobiota et la richesse des exposés qui y ont été présentés. En matière de plantes, les participants observent que les travaux de l'OEPP sur les EEE se sont fortement intensifiés au cours des deux dernières années, et le Groupe salue à la fois les progrès accomplis dans l'identification des plantes exotiques envahissantes appelant une attention prioritaire et les bonnes synergies mises en place avec la Convention de Berne.

Les principaux membres des réseaux de l'OEPP étant les ministères de l'Agriculture, le Groupe considère qu'il importe que les ministères de l'Environnement partagent les conclusions du processus de l'OEPP afin de privilégier les actions contre les plantes exotiques envahissantes, et propose donc un projet de recommandation en ce sens, relatif à une liste établissant les espèces dont l'éradication doit être prioritaire (voir l'annexe 7).

8. ETABLISSEMENT DE LISTES D'ESPECES EXOTIQUES ENVAHISSANTES, ET EN PARTICULIER CELLES A RISQUE

[Document T-PVS/Inf (2007) 2]

Le consultant, M. Piero Genovesi, présente un rapport couvrant un certain nombre d'initiatives dressant la liste d'espèces clés qui devraient figurer sur une éventuelle "liste noire" aux fins de la prévention. Les organisations participantes qui ont contribué au projet original sont soit hautement considérées dans leur domaine, soit gouvernementales (OEPP, AEE, NOBANIS, UE-DAISIE et CITES). La "métaliste" qu'ils ont établie peut être considérée comme un avant-projet de liste européenne des EEE dont le commerce est à éviter. Même si à peine un petit pourcentage de ces espèces a fait l'objet d'une "évaluation de risque" appropriée (par l'OEPP), les principaux

inconvénients de la métaliste sont qu'elle n'est pas exhaustive et que les critères de sélection varient d'une organisation à l'autre. Cette métaliste offre malgré tout une bonne couverture taxinomique et repose sur les meilleures informations disponibles. Elle pourrait par conséquent constituer une "liste noire" crédible pour l'Europe (au moins en tant que premier jet destiné à être amélioré par la suite).

Le Groupe convient avec le consultant que cette métaliste est un instrument utile pour la prévention des invasions biologiques liées aux voies commerciales en Europe, et suggère qu'elle devrait être annexée au projet de recommandation sur le commerce en précisant qu'il s'agit d'un "1er projet de métaliste d'exemples d'espèces dont le commerce doit être évité". Le Comité permanent souhaitera sans doute décider d'une procédure de mise à jour de cette liste.

9. EEE ET CHANGEMENT CLIMATIQUE

Le Groupe estime qu'il s'agit d'un thème essentiel qui mérite que l'on y consacre une attention supplémentaire à l'avenir, car il est vraisemblable que le changement climatique induise une augmentation du nombre de nouvelles espèces exotiques arrivant en Europe, dont certaines pourraient être envahissantes, et qu'il rende envahissantes certaines espèces exotiques déjà présentes sur le continent mais qui ne le sont pas encore. Certains experts estiment que l'expansion signalée de certaines espèces (l'algue *Caulerpa taxifolia* ou la perruche *Psittacula Krameri*) pourrait être attribuée à ce réchauffement associé à une adaptation.

Mme Christelle Otto, de l'Agence fédérale pour la Protection de la nature (Allemagne), présente un projet (voir synthèse en annexe 3) de "réalisation d'un système d'évaluation du caractère envahissant et d'alerte précoce pour les EEE en Allemagne et en Autriche" qui vise à définir des critères de mesure du caractère envahissant des espèces, de modélisation des impacts du changement climatique sur la diversité biologique et de mise en place d'un système d'alerte précoce international confié à une équipe d'experts. Ce projet vient de débuter et devrait se terminer en mars 2009.

Le Groupe salue ce projet et estime que la Convention de Berne et lui-même pourraient jouer un rôle dans un tel système international d'alerte précoce.

Le secrétariat informe le Groupe du fait que la Convention de Berne vient de créer un groupe de réflexion sur la diversité biologique et les changements climatiques pour donner aux gouvernements des informations et orientations facilitant la compréhension des impacts et des menaces du changement climatique pour la diversité biologique ainsi que des outils et une assistance pour l'élaboration de mesures appropriées d'adaptation des politiques nationales relatives aux espèces et aux habitats protégés par la Convention.

10. PROPOSITIONS AU COMITE PERMANENT DE LA CONVENTION DE BERNE

Le Groupe identifie plusieurs domaines dans lesquels des travaux complémentaires sur les EEE seraient utiles au plan européen:

- manuel de bonnes pratiques sur les EEE, couvrant la lutte et l'alerte précoce ou les lois et réglementations;
- codes de déontologie (pour l'horticulture et les aquariums);
- lignes directrices pour l'éradication des plantes envahissantes;
- révision du plan d'éradication de l'érismature rousse que la Convention a adopté en 1999 [document T-PVS/Birds (99) 9];
- étude sur l'utilisation de plantes exotiques envahissantes dans les nouvelles cultures destinées à la production de biocarburants.

Le Groupe encourage également le Comité à soutenir:

- ✓ l'organisation d'une manifestation en marge de la SBSTTA (Rome, février 2008) sur la mise en oeuvre de la Stratégie européenne relative aux EEE;
- ✓ la publication de la Stratégie européenne relative aux espèces exotiques envahissantes avec une présentation plus attrayante;
- ✓ des ateliers nationaux sur la mise en oeuvre de la Stratégie européenne.

11. ELECTION DU PRESIDENT / DE LA PRESIDENTE ET DU VICE-PRESIDENT / DE LA VICE-PRESIDENTE

Le Groupe réélit M. Joan Mayol (Espagne) comme Président et élit M^me^ Andrea Stefan (Croatie) comme Vice-Présidente.

12. QUESTIONS DIVERSES

Néant.

Annexes

1. Liste des participants
2. Ordre du jour
3. Rapports nationaux
4. Projet de recommandation sur la limitation d'une propagation de l'écureuil gris (*Sciurus carolinensis*) en Italie
5. Projet de recommandation sur les progrès réalisés dans l'éradication de l'érismature rousse (*Oxyura jamaicensis*)
6. Projet de recommandation sur le commerce des espèces exotiques envahissantes et potentiellement envahissantes en Europe
7. Projet de recommandation sur l'éradication de certaines espèces de plantes exotiques envahissantes

Annexe 1

Liste des participants

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I. CONTRACTING PARTIES / PARTIES CONTRACTANTES

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Annexe 2

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

7e réunion
Reykjavik (Islande), 22-24 mai 2007

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ORDRE DU JOUR

Introduction – Présentations:

- Les Espèces exotiques envahissantes en Islande
  par Dr. Sigurdur H. Magnusson
- La mise en œuvre du programme pilote pour l'éradication du Vison d'Amérique en Islande
  par Dr. Pall Hersteinsson

Autres présentations

- *North European and Baltic Network on Invasive Alien Species* (NOBANIS)
  par M. Hans Erik Svart
- Statut des activités menées sur les EEE par la CDB
  par Mme Lynn Jackson (GISP)

1. Ouverture de la réunion par le Président, M. Joan Mayol (Espagne)

2. Adoption du Projet d'ordre du jour

3. Introduction par le Secrétariat : évolution sur les Espèces exotiques envahissantes au regard de la convention *[document T-PVS …]*

4. Présentation des deux ateliers nationaux sur les Espèces exotiques envahissantes::

- Croatie: par Mme Andrea Stefan *[document T-PVS (2006) 9]*
- Ukraine: par M. Volodymyr Domashlinets *[document T-PVS (2006) 18]*

5. Mise en œuvre par les Etats de la Stratégie européenne sur les EEE (1re partie)

5.1 Rapports nationaux (quelques cas à présenter) : Belgique, Allemagne, Hongrie, Liechtenstein, Malte, Moldova, Pays-Bas, Portugal, Espagne, Suède, Suisse, Royaume-Uni)
5.2 Mise en œuvre par l'Italie de la Recommandation n° 114 (2005) sur le contrôle de l'Ecureuil gris et d'autres écureuils exotiques
5.3 Mise en œuvre de la Recommandation n° 61 (1997) sur la conservation de l'Erismature à tête blanche
5.4 Moule zébrée en Espagne

6. Espèces exotiques envahissantes et commerce. Analyse des risques

6.1 Aperçu sur les mécanismes internationaux / régionaux existants pour interdire ou réduire le commerce et Information sur les activités de l'OPPO sur les EEE et Analyse des risques de peste

7. Rapports des organisations internationales

7.1 Activités de la Commission européenne sur les Espèces exotiques
Base de données DAISIE
7.2 Résultats de la Conférence NEOBIOTA
7.3 Rapports de la 18e réunion du groupe d'experts de l'EPPO sur les Espèces exotiques envahissantes (Zürich, 8-11.5.2007) + Atelier international sur *Solanum elaeagnifolium* (Sousse, 29-31.5.2006) [*document T-PVS/Inf (2006) 11*]
7.4 Activités au niveau européen sur le développement d'un indicateur de tendance pour les Espèces exotiques envahissantes
7.5 Activités au sein de la CDB
7.6 Activités sur les EEE au sein de la CMS

8. Liste des Espèces exotiques envahissantes, notamment des Espèces exotiques envahissantes à risque
[document T-PVS/Inf (2007) 2]

9. **Les EEE et les changements climatiques**

10. Propositions au Comité permanent de la Convention de Berne:

11. Election du/de la Président(e) et du/de la Vice-Président(e)

12. Questions diverses

Annexe 3

Mise en œuvre des recommandations sur les Espèces exotiques envahissantes

- RAPPORTS NATIONAUX

ET RAPPORTS DES ORGANISATIONS INTERNATIONALES ET AUTRES FORA

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20. Convention on Biological Diversity (CBD) / Convention sur la Siversité biologique (CDB)
21. Convention on the Conservation of Migratory Species of Wild Animals (CMS) / Convention sur la Conservation des espèces sauvages migratrices (CMS)
22. European Environment Agency (EEA) / Agence européenne pour l'Environnement (AEE)
23. European and Mediterranean Plant Protection Organisation (EPPO) / Organisation européenne et médidterranéenne pour la Protection des Plantes (OEPP)
24. Global Invasive Species Programme (GISP)
25. Neobiota

1. ARMENIA / ARMENIE

INVASIVE PLANTS IN ARMENIA: THE PRESENT CONDITION

Abstract

The level of scrutiny of invasive and expansive species of Armenia has been estimated. Authors show that the investigation of this problem in Armenia is just being started. There is a list of 67 species shown that require special attention and additional investigation of their spread and potential threat for natural ecosystems in particular.

I. General background

Armenia is a South Caucasian republic, bordering with Georgia, Azerbaijan, Turkey, and Iran. It is a landlocked country with a total area of 29,740 km^2, at a distance of about 145 km from the Black Sea, 175 km from the Caspian Sea, and 750 km from the Mediterranean Sea. It lies between 38°50' and 41°18' of northern latitude and between 43°27' and 46°37' eastern longitude, and measures 400 km along its main axis (north-west to south-east). Armenia is generally a mountainous country, having its lowest point at 375 m above sea level and culminating at 4095 m, with an average altitude of 1850 m. Variations in altitude have important effects on the climatic and landscape zones, and consequently on the vegetation of the country.

Phytogeographically, Armenia is situated at the junction of two floristic provinces - Caucasian and Armeno-Iranian (Takhtajan 1986). The peculiarity of each, enhanced by vertical zonation, is the cause of the great variety of the country's vascular flora and vegetation. About 3500 vascular plant species occur on its territory, slightly more than the average figure for Mediterranean countries - a remarkable amount of biodiversity. One reason - beside mosaic conditions, relief variation, diverse geological history, etc. - is that Armenia is situated between two very distinct phytogeographical domains: the Boreal and Ancient Mediterranean Subkingdoms of Takhtadzhjan (1986).

II. Invasive and Expansive plant species in Armenia

Until present time the problem of invasive species was practically not in the focus of attention in Armenia. Within last 50 years segetal flora and vegetation of the republic was investigated more or less in details. What about alien, invasive plant species – there were no special investigations carried out. New species detected on the territory of Armenia, herbarium sample of it was stored in the herbarium of the Institute of Botany of the RA (ERE). The most interesting cases were published in articles about new findings in the flora of the republic. Species that were specially introduced and used for town and settlement greenery or artificial afforestation and further penetrated to natural ecosystems were totally out of attention. The first national report on Armenia biodiversity (1999) had a small section dedicated to alien invasive species. Here a small list of species was introduced, which is now almost totally revised by us. In that list were included both several really alien species and also indigenous, expansive species.

A little bit more attention was paid to indigenous, expansive species. During geobotanical investigations of forage lands of Armenia investigators marked species composition, level of infestation of natural hayfields and pastures; influence of pasture on the spread of separate species of weed plants; also different measures of fighting against them were suggested.

The main reason of lack of studies of invasive plant species of Armenia is probably underestimation of this problem importance from scientific community and governmental structures. It was considered that due to the mountainous and indented landscape of the country and absence of big plain territories invasive species could not harm greatly natural flora and vegetation of the republic.

Thanks to our efforts the attitude towards the problem of invasive species of Armenia has changed a little. In year 2005 a scientific research topic was approved with governmental funding, that included the spread of main invasive and expansive species in the territory of Republic. For full up to date

investigation this funding is of course insufficient, but the first step is done and in the spring of this year we started field investigations.

According to results of preparatory work (literature and herbarium materials review), as well as by results of preliminary fields investigations we created a list of species that require immediate attention (table 1). This list contains both species known as invasive in other regions of the world and new recently revealed in the republic plant species, and registered indigenous expansive species. During field work of 2005 we started data collection on the spread of those species, their ecological peculiarities, and level of penetration in natural ecosystems. All these data will be placed in appropriately designed DAISIE computer database. The analysis of preliminary data will be carried out in the nearest future and species that are most threatening for natural ecosystems and correspondingly require immediate investigation will be separated.

According to results of preliminary investigations following conclusion can be made. The most concern is causing at the present time one of the really alien species *Ailanthus altissima*, which is spreading in natural ecosystems of the north and south of Armenia. Other introduced species (*Gleditschia triacanthos, Helianthus tuberosus, Robinia pseudoacacia*) are met in natural ecosystems relatively rarely yet. But taking into consideration their high invasion potential the control of their spread is necessary. Species that occasionally penetrated republic territory (*Ambrosia artemisiifolia, Galinsoga parviflora, Galinsoga ciliata, Sphaerophysa salsula*) are also requiring constant control of their spread. The most attention and deep investigation require indigenous expansive species, especially those, which are growing plentifully in abandoned fields, create a reserve of seeds and penetrate into natural ecosystems.

Table 1 - Invasive and expansive species of plants that are a potential threat for natural ecosystems of Armenia

Species	Introduction	Status	Threat
Acer ibericum	Aborigine	Expansive species	Intensively spreading in arid and semi-arid communities
Acer negundo	Introduced	Potentially invasive species	Independently spreading in towns and settlements, more rarely in the disturbed habitats
Acroptilon repens	Aborigine	Expansive species	Plentiful on disturbed habitats, abandoned fields
Ailanthus altissima	Introduced	Invasive species	Intensively penetrates natural ecosystems
Alliaria petiolata	Aborigine	Potentially expansive species	Widespread in Armenian forests, but not plentiful and do not of an immediate threat
Ambrosia artemisiifolia	Accidentally introduced	Potentially invasive species	Revealed at first in the north of Armenia in1983 (Gabrielian & Tamanyan 1985, Avetisyan 1995), currently is spreading in Erevan city and Ararat valley
Anemone fasciculata	Aborigine	Expansive species	Intensively spreading in sub-alpine meadows
Anthemis cotula, Anthemis triumfettii	Aborigine	Expansive species	Intensively spreading in meadows, abandoned fields and edges of forests
Arctium palladinii	Aborigine	Expansive species	Intensively spreading on disturbed habitats, especially on forest glades
Artemisia vulgaris	Aborigine	Expansive species	Intensively spreading on disturbed habitats
Caltha palustris	Aborigine	Expansive species	Intensively spreading on wetlands in middle and upper mountain belts
Cardaria boissieri, Cardaria draba	Aborigine	Potentially invasive species	Intensively spreading on disturbed habitats, abandoned fields
Carduus hamulosus, Carduus nutans	Aborigine	Expansive species	Intensively spreading on disturbed habitats
Centaurea behen	Aborigine	Expansive species	Intensively spreading in steppe communities

Centaurea iberica	Aborigine	Expansive species	Intensively spreading in disturbed habitats in arid and semi-arid zones
Centaurea solstitialis	Aborigine	Potentially invasive species	Widespread in disturbed habitats
Chondrilla juncea	Aborigine	Potentially invasive species	Widespread in disturbed habitats
Circaea lutetiana	Aborigine	Expansive and potentially invasive species	Intensively spreading in disturbed forest habitats
Cirsium anatolicum, Cirsium arvense, Cirsium congestum, Cirsium incanum, Cirsium vulgare	Aborigine	Expansive and potentially invasive species	Intensively spreading in disturbed habitats, especially on abandoned fields
Clematis orientalis	Aborigine	Expansive species	Intensively spreading along rivers of Ararat valley
Conium maculatum	Aborigine	Expansive species	Intensively spreading in disturbed habitats, the spread in sub-alpine communities is registered
Consolida orientalis	Aborigine	Expansive species	Intensively spreading in steppes, semi-deserts, very plentiful in abandoned fields
Erodium cicutarium	Aborigine	Expansive species	Intensively spreading in disturbed habitats in arid and semi-arid zones
Euclidium syriacum	Aborigine	Expansive species	Intensively spreading in disturbed habitats in arid and semi-arid zones
Euphorbia seguieriana	Aborigine	Expansive species	Intensively spreading in steppe pastures by first signs of overgrazing
Galinsoga ciliata, Galinsoga parviflora	Accidentally introduced	Potentially invasive species	Widespread in towns, settlements; not registered yet in natural ecosystems
Geranium tuberosum	Aborigine	Expansive species	Intensively spreading in abandoned fields
Glechoma hederacea	Aborigine	Expansive species	Intensively spreading in disturbed forest habitats
Gleditschia triacanthos	Introduced	Potentially invasive species	Spreading along irrigation channels in Ararat valley
Helianthus tuberosus	Introduced	Potentially invasive species	Are cultivated on small squares, rarely met on ruderal and disturbed habitats
Heracleum antasiaticum, Heracleum schelkovnikovii, Heracleum trachyloma	Aborigine	Expansive species	Spreading in disturbed habitats in humid and semi-humid zones
Lepidium latifolium, Lepidium ruderale	Aborigine	Expansive species	Spreading in disturbed habitats
Leucanthemum vulgare	Aborigine	Expansive species	Intensively spreading in abandoned fields, penetrates meadow and steppe communities
Lythrum salicaria	Aborigine	Potentially invasive species	Widespread on wetlands
Onopordum acanthium	Aborigine	Potentially invasive species	Spreading in disturbed habitats
Papaver macrostomum	Aborigine	Expansive species	Intensively spreading in steppe and meadow communities
Peganum harmala	Aborigine	Expansive species	Spreading in disturbed habitats
Polygonum alpinum	Aborigine	Expansive species	Intensively spreading in sub-alpine communities
Rhynchocorys orientalis	Aborigine	Expansive species	Intensively spreading in meadows
Robinia pseudoacacia	Introduced	Potentially invasive species	Rarely met in natural communities, do not of a threat yet
Salix caprea	Aborigine	Expansive species	Intensively spread in disturbed forest habitats

Sanicula europaea	Aborigine	Expansive and potentially invasive species	Intensively spread in disturbed forest habitats
Scandix stellata	Aborigine	Expansive species	Intensively spread in abandoned fields, penetrates meadow and steppe communities
Silybum marianum	Aborigine	Expansive species	Enlarged a lot its area in Southern Armenia within last years. Not plentiful yet
Solidago virgaurea	Aborigine	Potentially invasive species	Widespread in forest and meadow communities
Sphaerophysa salsula	Accidentally introduced	Invasive species	Revealed first in Armenia in 1990 (Zakharian & Fayvush 1991); within those years is spread in Ararat valley
Tribulus terrestris	Aborigine	Expansive species	Intensively spreading in disturbed habitats in arid and semi-arid zones
Tripleurospermum caucasicum, Tripleurospermum transcaucasicum	Aborigine	Expansive species	Intensively spreading in meadow and steppe communities, especially during overgrazing
Veratrum album	Aborigine	Expansive species	Intensively spreading in meadow associations during overgrazing
Verbascum georgicum, Verbascum laxum	Aborigine	Expansive species	Intensively spreading in abandoned fields and disturbed habitats
Xanthium italicum, Xanthium spinosum, Xanthium strumarium	Aborigine	Potentially invasive species	Widespread in disturbed habitats
Xeranthemum squarrosum	Aborigine	Expansive species	Intensively spread in steppes and semi-deserts, especially in disturbed habitats

2. BELGIUM / BELGIQUE

ACTIONS TAKEN IN BELGIUM IN RESPONSE TO THE THREATS OF INVASIVE ALIEN SPECIES

PLANIFICATION

The National Biodiversity Strategy (adopted in October 2006 by the Interministerial Conference Environment) identify the following strategic and operational objectives directly related to IAS:

Strategic objective n°3: Maintain or rehabilitate biodiversity in Belgium to a favourable conservation status (operational objective n°3.7.: "*Avoid the introduction and mitigate the impact of invasive alien species on biodiversity")*

Strategic objective n°5: Improve the integration of biodiversity concerns into all social and economic sectoral policies (operational objective n°5.7.: "*Consider the potential impact on biodiversity, and in particular the invasiveness of species, in making import and export decisions").*

The 2nd federal plan on sustainable development foresees in action 19 the elaboration of action plans in order to integrate biodiversity in key federal sectors. One proposed actions for the integration of biodiversity concern in the sector transport is the creation of a national early warningsystem for the introduction of IAS.

PREVENTION

1. Legislation

Federal :

Measures related to importation, exportation and transit of non indigenous wild bird species are taken (excepted if the birds were bred in captivity) (26/10/2001. - Arrêté royal portant des mesures relatives à l'importation, à l'exportation et au transit de certaines espèces d'oiseaux sauvages non indigènes. : Art. 3. § 1). (Transposition of BD)

Law of 28/07/1981 related to CITES (interdiction of detention, sale, etc..of species listed in annex 1 of CITES).

Measures related to commercialisation of species listed in annex A (excepted for specimens bred in captivity, with CITES certificate), (Arrêté royal du 9 avril 2003 relatif à la protection des espèces de faune et de flore sauvages par le contrôle de leur commerce (abrogeant l'Arrêté du 20/12/1983)).

Royal Decree of 19 November 1987 concerning measures against organisms harmful to plants and plant products (measures for brown rat, muskrat and grey squirrel).

In 2006, DG Environment has commissioned a study to analyse the federal legislation in order to identify gaps to regulate the introduction of IAS in Belgium. The DG is currently working on the development of a legislative instrument to forbid importation/exportation/transit of IAS (black list)

North sea:

The deliberate introduction of alien species in the marine environment is forbidden (Royal Decree on the protection of species in the marine waters under Belgian jurisdiction, 2001).

The Belgian law of 20 January 1999 on the protection of the marine environment in marine areas under Belgian jurisdiction (MMM law) forbids the intentional introduction of non indigenous species in the marine environment without special license (Art. 11, §1). This provision mirrors those included in international instruments like the CBD.

The unintentional introduction of non indigenous species via ballast water of ships can be prohibited by royal decree (Art. 11, §2). Belgium takes part to related IMO discussions/instruments (like the convention on ballast water) dealing with the issue of non indigenous species in ballast water

of ships. For the protection of the marine biota, measures can be taken (by royal decree and after scientific consultation) for the extermination of non indigenous nuisance species (Art. 11, §3).

The new law also prohibits the intentional introduction of genetically modified organisms into marine areas (Art. 11, §4).

Flanders:

In both public forests and forest preserves, it is prohibited to introduce animals and plants without a permit. (13/06/1990. - Bosdecreet.(modified by 1999-05-18/65) : Art. 20. […] in de openbare bossen verboden […] 4. dieren en planten te introduceren zonder machtiging; Art. 30. […] is het in de bosreservaten verboden […] 4. dieren en planten te introduceren zonder machtiging.)

A decision prohibits the introduction of non-native animal species in nature in Flanders, and is also the legal base for measures to control and eradicate these animal species. (24/04/93. – Besluit van de Vlaamse Regering betreffende de introductie in de natuur van niet-inheemse soorten).

The Flemish government can take measures to control or prohibit the introduction of animal and plant species or other organisms, as far as these are a threat to nature, the natural environment. Measures can also be taken to control or prohibit the transport of animal species and their carcasses. (21/10/1997. - Decreet betreffende het natuurbehoud en het natuurlijk milieu.: Art.51.3.).

A decision describes what species of fish can be used as bait fish ; only native fish species are allowed to be used. (17/10/2003. - Besluit van de Vlaamse Regering tot wijziging van het besluit van de Vlaamse regering van 20 mei 1992 tot uitvoering van de wet van 1 juli 1954 op de riviervisserij.)

Brussels:

It is forbidden to introduce non indigenous species of birds into the wild. (25/10/1990. - Arrêté de l'Exécutif de la Région de Bruxelles-Capitale relatif à la protection des oiseaux. : Art. 6.).

The intentional introduction of non indigenous species is regulated in order to insure that no damage is caused to natural habitats and indigenous flora and fauna, otherwise the introduction is forbidden. (26/10/2000. - Arrêté du Gouvernement de la Région de Bruxelles-Capitale relatif à la conservation des habitats naturels ainsi que de la faune et de la flore sauvages, Art. 14.)

Wallonia:

The introduction of non indigenous species or indigenous species of non indigenous origin in nature is forbidden excepted for species used for agriculture and forestry (Décret relatif à la conservation des sites Natura 2000 ainsi que de la faune et de la flore sauvage (published on 22 January 2002).

REPARATION

2. Population control measures

- Population control of musk rats *(Ondatra zibethicus L.)* :

There is active eradication for the muskrat (*Ondatra zibethicus*) in the three regions of Belgium because this species is known to provoke serious harm to waterways.

There is an interreg III project « Lutanuis » for Transboundary cooperation between France, Flanders and Wallonia (01/01/03 - 30/06/07– renewing is ongoing) against harmful species on :

- how to control the muskrat,
- to define infestation norms
- to put the results on the internet to enhance exchange of information with other countries who encounter problems with the Ondatra.

http://mrw.wallonie.be/dgrne/de/dcenn/lutanuis/index.htm

- There is active eradications of the Black cherry (*Prunus serotina*) in some parts of Flanders, leading to good results *inter alia* in the Kempen.

- In Flanders, there is a program to control the presence of Floating Pennywort *(Hydrocotyle ranunculoides),* largeflower primrose willow *(Ludwigia grandifolia) and* parrot feather *(Myriophyllum aquaticum)* in waterways.
- Population control of the Asiatic ground squirrel is ongoing in Flanders.
- There are punctual eradication of *Fallopia japonica* and *Heracleum mantegaziannum* in Nature reserves and some public green spaces in Brussels.
- There is a program testing management methods for *Fallopia* sp., *Heracleum mantegazzianum* and *Impatiens glandulifera* along rivers in the Walloon Region. This program aims to evaluate success and costs of methods by field experiments to publish a technical note and provide a monitoring methodology for managers.
- The Flemish Region plans to work out a project to actively control the Ruddy Duck (*Oxyura jamaicensis)*.

SUPPORTING MEASURES

3. Communication, Education and Public awareness

- Belgian Forum on Invasive Alien Species BFIS (http://www.biodiversity.be/bbpf/) :

This scientific forum acts as the Belgian node of the IUCN Invasive Species Specialist Group (ISSG). It aims to provide and gather scientific knowledge about invasive alien species in order to reduce threats to natural ecosystems and to build action plans for preventing or controlling these organisms.

This forum works in close relation with the expert contact groups on alien species depending from the CCIEP nature and biodiversity steering committees, in order to ensure a scientific background to political decisions and to provide an adequate feedback from the international decision-making scene to the scientific community. The steering committees focus on administrative and political aspects in order to prepare Belgian positions for international meetings, to write thematic reports and elaborate programs related to Belgian international obligations.

On the website, we can find:

- The discussion list: Messages about scientific aspects related to invasive alien species are regularly exchanged on the discussion list of the forum.
- Hot topics about invasive alien species: Priority topics related to the management of invasive alien species in Belgium and abroad are discussed within the forum. In addition to exciting idea exchange, the forum produces synthesis documents that can be downloaded from this website.
- Members: The forum is open to any people interested by scientific aspects linked to invasive alien species. It gathers 59 people, mainly from Belgian universities and research centers.
- Activities: In addition to the debates animated on the discussion list, workshops are organized by the forum at regular time intervals. These aims at improving the Belgian expertise in specific fields through scientific communications and roundtable discussions gathering the different stakeholders concerned by biological invasions.
- Species: A table lists invasive alien species that are known to live in Belgium, are in strong geographical and/or can produce a detrimental impact on environment sensu lato. This list is not exhaustive and will be progressively completed. Species profiles including description, habitat preferences, detrimental impact and management information are currently in development. This table includes: Species name, its origin, its arrival date in the country, its habitat, its range, its progression and its Impact type. The species groups are: Mosses and ferns, Higher plants, Annelid, Mollusks, Crustaceans, Insects, Fishes, Amphibians and reptiles, Birds, Mammals

For each species, the objective is to develop an information sheet including taxonomy, description, the origin and distribution, the ecology and life history traits, the detrimental impacts, the population control and some references and Internet links (the information sheet on *Heracleum mantegazzianum* is in appendix).

Publications

- The Nature department of the Walloon Region published a brochure « Les Plantes Exotiques Invasives »: This publication focuses on 4 invasive alien plants *Fallopia japonica, Heracleum mantegazzianum, Impatiens glandulifera* and *Senecio inaequidens*; For these species, the brochure gives a description, the origin and distribution in Europe (and a distribution map for Wallonia), ways to identify the plant, the biology and life history traits, the detrimental impacts, and population control measures. This publication also includes many pictures illustrating the plants.
- The Nature department of the Walloon Region published in 2002 an information folder on the fight against the muskrat. The publication is intended for the general public. Such publication was also produced within the framework of the INTERREG project 'Lutanuis'.
- The Walloon Region foresees the publication of a manual on harmful animal in waterways.
- The Walloon Agriculture research center published the following brochures:
  - « Les rongeurs de Belgique: 17 planches en couleur et notices explicative », J. Bernard et Jean NICOLAS
  - « Les rongeurs commensaux, les rongeurs des champs, le rat musqué et la taupe: biologie et lutte » ; Guy LATTEUR
  - « Les animaux nuisibles inféodés aux cours d'eau en RW – guide pratique pour les gestionnaires des cours d'eau » ; Pol COLLET et Antoine MICHOTTE RENIER
- A brochure on Japanese knotweed (*Fallopia japonica*) was published by the Brussels Capital Region.
- The Flemish Region published a brochure directed to the general public on *Prunus serotina*, *Eutamias sibiricus*, *Rana catasbeiana*, *Trachemys scripta elegans*, *Hydrocotyle ranunculoides*, and rhododendrons at the end of 2000.
- The Flemish Region has published a brochure about the control of 3 species of rodents, namely the Black Rat, the Brown Rat and the Muskrat. The brochure is called "Ratten in de val", and was published by the Water Division of the Ministry of the Flemish Community, in November 2002.
- For the Flemish Region, a report was published on the status and management of non-native species of waterfowl. This report, called "Beheer van verwilderde watervogels in Vlaanderen" was published in 2002, by the Institute of Nature Conservation, a scientific institute of the Flemish Community.
- For the Flemish Region, a chapter on exotic species, among which IAS, was included in the Nature Report 2003 and 2005, published by the Institute for Nature Conservation (a scientific institute of the Flemish Community). Natuurrapport 2003 and Natuurrapport 2005: "Toestand van de natuur in Vlaanderen : cijfers voor het beleid. Mededeling van het Instituut voor Natuurbehoud nr. 21, Brussel".
- Articles inter alia on alien amphibian species were published in periodicals of nature organisations.
- The Brussels Region published a brochure on animals in the city, focused on presence of exotic species and their problems "Vivre avec eux en ville". This brochure is intended for the large public
- The Brussels Region published a folder on Harmonia Axyridis. The tool was developed by Brussels Environment, in cooperation with the CG Coccinula and the ULB.
- « Belgian Fauna and Alien Species » : Proceedings of the symposium held in Brussels in 2001. Bulletin of the Royal Belgian Institute of Natural Sciences, Biology, vol. 72, suppl. Royal Belgian Institute of Natural Sciences, Brussels, 297 pp.

- "Apparition et développement d'espèces animales en Europe occidentale: causes et conséquences sur les équilibres écologiques existants", Proceedings of the symposium held in Saint Hubert in 2002.
- Publication of a folder (fan) on IAS, integrating games and information on biodiversity, developed by the Belgian Biodiversity Platform and National Focal Point, with financial support of the Federal Environment Directorate General.
- The Namur city published an analyze of the invasives plants distribution along roads network in 2005
- For the Brussels Region, two reports were made concerning two species of invasive alien birds: the Egyptian goose (Vangeluwe & Roggeman, 2000 – KBIN) and Rose-ringed Parakeet (Weiserbs et al. 2002 – AVES).

Workshops

- " Status and trends of the Belgian fauna with a particular emphasis on alien species", Brussels, 2002 (Proceedings of the symposium held in Brussels available).
- " Apparition et développement d'espèces animales en Europe occidentale: causes et conséquences sur les équilibres écologiques existants", Saint Hubert, 2002 (Proceedings of the symposium available).
- Workshop on Ladybirds and biological control in Belgium, with a special focus on Harmonia axyridis (Brussels, Instituut voor Natuurbehoud, 2003); This workshop was dedicated to the use of native and exotic ladybird beetles in biological control of aphid populations. Potential problems raised by biological control introductions were discussed as well as the need to develop a regulation framework and a risk assessment procedure before intentional release of exotic predators and parasitoids. *Harmonia axyridis* was used as a case study.
- Workshop SOS invasions in 2006: general overview of current scientific knowledge on invasive alien species in Belgium, field experiences, analysis of possible tools to prevent and control biological invasions, exchange of views and recommendations to decision makers, concept of grey and black list of invasive alien species.

4. Research

- Inplanbel Project " Invasive plants in Belgium: patterns, processes and monitoring"

(Project website: http://www.fsagx.ac.be/ec/inplanbel/): The project provides a multifunctional and multi-scale analysis of alien plant invasion in Belgium. The general aim is to give a framework for the evaluation of the threat, for the development of policies and management strategy and for the elaboration of further research programs. This project is the first multidisciplinary approach dealing with invasive plants topic in Belgium (*Fallopia japonica,Heracleum mantegazzianum, Impatiens glandulifera*, *Impatiens parviflora, Prunus serotina*, *Rosa rugosa*, *Senecio inaequidens*, *Solidago gigantea*).The specific aims are :

(1) to provide a synthesis on plant invasion in Belgium in the form of a structured list of exotic species ;

(2) identify universally valid principles of biological invasion through a combined analysis of ecophysiological species and community traits ;

(3) provide a detailed analysis of the spreading of a set of invasive species at the landscape level linked to their dispersal capacities ;

(4) analyze the consequences of a set of invasive species on ecosystems.

- Alien crustacean and mollusks species in Belgium, ongoing, Royal Belgian Institute Natural Science 1996- (RBINS)
- Freshwater macrozoobenthos biodiversity and assessment of the biological quality of watercourses in Wallonia, 1990-, Nature, Forest and Woods Research Center (CRNFB)

- The Nature, Forest and Woods Research Center is currently monitoring invasive species in the Walloon watercourses.
- Alien species are identified through inventories of species for some groups (e.g. mosses and liverworts, vascular plants, crustaceans, birds, mammals) in Wallonia.
- The Asiatic ground squirrel (*Eutamias sibiricus*) and the coypu (*Myocastor coypus*) are studied in Flanders to investigate the necessity of monitoring.
- There is a program in which rare, colonial and introduced breeding bird species are being monitored in Flanders. Among them, alien breeding bird species as the lesser white-fronted goose (*Anser erythropus*), the Canada goose (*Branta canadensis*), the barnacle goose (*Branta leucopsis*), the Nile (Egyptian) goose (*Alopochen aegyptiacus*), the mandarin duck (*Aix galericulata*), the ring-necked parakeet (*Psittacula krameri*) and the monk parakeet (*Myiopsitta monachus*) are being monitored. This program is called the 'Bijzondere Broedvogels Vlaanderen Project' (Flemish Special Breeding Bird Project).
- In Flanders, counts of wintering waterfowl are conducted 6 times every winter ; during these counts, non-native waterfowl species, including IAS, are also counted. These counts are organized by the Institute for Nature Conservation. The international coordination of these counts is in the hands of Wetlands International.
- In Flanders, the Institute of Nature Conservation conducts a research project on the distribution and numbers of Canada geese. This includes holding counts of wintering birds and catching a number of birds to mark them in order to be able to track their movements.
- Through the monitoring and inventory of fish occurring in the Flemish inland waters, alien fish species are also being monitored.
- Invasive bryophytes, their spread in Belgium and impact on the indigenous bryophytes , 1990-2010, National Botanical Garden of Belgium.
- Gathering of data on the current introduction and spread of alien species (e.g. C4-grasses (e.g. *Setaria macrocarpa, S. verticilliformis, Panicum dichotomiflorum*)), especially in and along maize fields in the area between Ghent and Bruges is being done by the National Botanical Garden of Belgium.
- Marine invertebrate fauna of W-Europe, especially Cirripedia and Mollusks; alien species, 1973, RBINS-MUMM
- The alien species issue (invasion mechanism understanding, impact assessment methods, etc.) is part of the research priorities of the Second Plan for a Sustainable Research Programme (2000-2004) of the Federal Office for Scientific, Technical and Cultural Affairs, both on terrestrial ecosystems (one project: 'invasion and biodiversity in grasslands and field borders'; 2000-2005, University of Antwerp) and on marine and freshwater ecosystems. URL: www.belspo.be
- Phylogeography, population and eco-genetics of European marine and terrestrial mollusks, ongoing, University of Antwerp
- Taxonomy and ecology of weeds, especially *Polygonum aviculare* (Polygonaceae), 1987, University of Brussels
- Dispersion of several IAS populations encountered in Brussels is monitored in the framework of a study on the Brussels biodiversity.
- In Brussels Capital Region, special attention is given to exotic species in the monitoring program on flora and fauna. Particular interest is given and several detailed studies have been made on some exotic birds (*Alopochen aegyptiacus*, *Branta canadensis, Psittacula krameri, Myiopsitta monachus*), exotic herpetofauna species (*Rana ridibunda*), some mammals (*Eutamias sibericus*). Also the extension of exotic plant species is particularly followed.
- Federal Public Service Health, Food Chain Safety and Environment - DG animals, plants and foodstuffs: launch of a 2 year contractual research project 'Pest Risk Analysis (PRA) for harmful

organisms (harmful alien plants included) in the plant sector'. The project includes 3 invasive alien species (Ambrosia artemisiifolia, Fallopia japonica and Heracleum mantegazzianum).

- A study is currently ongoing in the Walloon Region on how to manage invasive alien plant species along waterways: how to prevent their expansion, how to control them, and on the different possibilities for the administration to implement these tasks and to communicate the information to local and regional administrations.
- The next Walloon environment evaluation (Etat de l'Environnement Wallon) will have a chapter on the follow up of invasive alien species.
- *Senecio inaequidens* dispersion capacities, FUSAGx, 2004-2005.
- Impacts of global warming on *Senecio inaequidens* life history traits, FUSAGx, 2006-2010.
- Study of the dynamics of the populations of the invasive alien species *Fallopia* Adans. Polygonaceae. FUSAGx, 2002-2007.
- Evolutionary implications of hybridization in the invasive polyploid complex *Fallopia*, FUSAGx, 2006-2009.
- *Perinbel*: Public PERception of INvasive species in BELgium (Belspo cluster 2005-2007) FUSAGX - Research Analysis. This cluster aims: 1) at providing a framework for the evaluation of public perception of the invasive species problem in Belgium, 2) at identifying sociological constraints on the establishment of management strategies for invasive plant species including, 3) increasing communication skills of scientists and managers towards broad public on the matter of invasive species. Two target groups are considered: nature reserve managers and plant nurseries.
- Alien impact: Biodiversity impacts of highly invasive alien plants: mechanisms, enhancing factors and risk assessment. Belspo "Science for a sustainable development" research program 2007-2009.
- Walloon region : DGRNE/DCNN : "Rongeurs et autres nuisibles inféodés aux cours d'eau: évaluation des nuisances et perspectives de lutte (01/05/04 - 30/11/06) » (renewing is ongoing)
- "Study on the ecology and environmental impact of the Asian multicoloured lady beetle Harmonia axyridis in Flanders, Ghent University, 2006-2009"

5. Web sites:

http://www.mumm.ac.be/FR/Management/Nature/ExoticSpecies/index.php
http://mrw.wallonie.be/dgrne/sibw/especes/exotiques/oiseaux.html
http://www.biodiversity.be/bbpf/forum/invasion/invforum.html
http://www.ibgebim.be/francais/contenu/content.asp?ref=882
http://www.fsagx.ac.be/ec/inplanbel/
http://www.lutanuis.euro.st/
http://www.cra.wallonie.be

3. BULGARIA / BULGARIE

LAWS AND POLICIES ON INVASIVE ALIEN SPECIES IN BULGARIA

A. LEGISLATION

Biological Diversity Act

The legal matter, connected with the Invasive alien species in the Bulgarian legislation is established by the **Biological Diversity Act** pursuant to Article 2, item 4 and Section IX. Articles 67-69 (See Annex). The Biological Diversity Act is in compliance with the Biological Diversity Convention and the Bern Convention in regard to the non-native plant and animal species.

The Biological Diversity Act imposes the strict requirement that the introduction into the wild, as well as import, breeding and raising of non-native animal and plant species shall be only admitted provided that this is not detrimental to any natural habitats or to any native species of wild flora and fauna or to any populations thereof. These activities are possible only after a positive scientific expertise, positive decision of the National Biodiversity Counsel and written authorization granted by:

1. the Head of the National Forestry Board - in respect of any tree, bush and game species;
2. the Minister of Environment and Water - in respect of all other species.

The particular terms for granting of permits are established by the relevant Regulations of the above mentioned authorities as follows: *Regulation No.4 on the conditions and order for issuance of permits for introduction of non-native or reintroduction of native animal and plant species into the nature, SG 65/2003; Regulation No.14 on the conditions and order for issuance of permits for introduction of non-native or reintroduction of native tree, bush and game species and giving of the public opinion, SG 88/2005.*

With preventive aim, the Minister of Environment and Water and the Head of the National Forestry Board are granted right to ban the aforementioned activities towards some specific species by their orders. Such interdictions are still not imposed, but the preparation of lists with the most threatening invasive species is being processed.

In compliance with the general principles, the **Fishing and Aquacultures Act** also grants competence to the Minister of Environment and Water pursuant to the Biological Diversity Act in regard to the control on the biodiversity protection of the fish resources and the introduction of non-native fish species and other aquatic organisms.

Plant Protection Act

The phyto-sanitarian conditions of Republic of Bulgaria for import of plants, vegetative and other products are regulated by the **Plant Protection Act**. The law specifies frontier stations, carrying out phyto-sanitarian control at import and export. The Ministry of Agriculture and Forestry is the authority which is in charge to ban or to limit the import of plants and vegetative products being of great risk.

The legal regulations of EC Directives 77/93, 92/90, 92/105 are introduced by the *Regulation № 1/1998, SG No 82/1998, actualized No 91/1999, No 8/2002, No 18/2003, No 7/2006*. The phyto-sanitarian control at import, export, transit, production and transfer in the country of plants, vegetative and other products are regulated by the aforementioned act.

- The import and spreading in the country of pests on plants, vegetative and other products listed in the said regulation are banned.
- The import and spreading of pests in some protected zones on plants, vegetative and other products listed in the said regulation are banned.
- The import and spreading in the country of plants, vegetative and other products listed in the regulation are banned.

- The import and spreading in some protected zones of plants, vegetative and other products listed in the regulation are banned.
- Conditions towards plants, vegetative and other products intended for the protected zones or for the whole country are specified.
- Special requirements towards plants, vegetative and other products listed in the regulation are specified.

B. STRATEGIC DOCUMENTS

Republic of Bulgaria has a National Biodiversity Conservation Strategy (1998) and National Biodiversity Conservation Action Plan (2006-2010). The Strategy considers the invasive and introductive species as one of the main threat for the biodiversity in the country. The aquatic eco-systems are considered as the most sensitive and endangered. A development of Strategy and Action Plan for Management of the Alien Species for the Bulgarian fauna, flora and mycota and for limiting of their impact on the natural eco-systems in compliance with the European Invasive Species Strategy is forthcoming in 2007.

C. PRACTICAL MECHANISMS

The Biological Diversity Act entrusts the Ministry of Environment and Water with the organization and the management of the activities on the removal of the introduced in the country non-native species which could threaten the natural habitats or the native species. The results from the assessment of the non-native species in Bulgaria will determine also the trends and the future strategy on this domain.

At present the activities concerning the alien invasive species are concentrated to increasing of the public information, building of scientific capacity and preparation for completion of the legislative measures and elaboration of strategic document concerning the policy toward the invasive species. At the same time some special measures are implemented mainly towards invasive species with detrimental economical consequences. They are connected with a research of the biology and the ecology of the species, their natural enemies and the methods and the means for diminution of their populations as well as reducing of their harmful impact on the technological processes. It can be indicated as examples *Dreisena polymorpha, Rapana tomasiana, Cameraria ochridella* etc.

The introduction of non-native and non-typical for the corresponding region species is banned in the protected natural territories – national and nature parks, reserves and protected sites. It is envisaged in the management plans of some protected areas a limiting and reducing of the spreading of invasive plant species such as *Amorpha fruticosa, Fallopia japonica* etc. Such kind of measures are implemented in some sensitive territories along Danube river and the Black see coast.

Results from the Estimation of the non-native species in the Bulgarian nature

A scientific examination commissioned by the Ministry of Environment and Water has been completed in 2007 in order to determine the distribution of the non-native plant and animal species into the Bulgarian nature and their impact on the eco-systems and the native species.

- ***Plants and Fungi***

One hundred sixty of vascular plant species and 20 of fungus species has been investigated, almost exceptionally neo-biotes. It has been ascertained that during the last 10 years around 20 alien plant species settled in natural habitats have been registered. According their invasive status, the species are divided as it follows: invasive – 20 %, potentially invasive – 12%, noninvasive – 68%. All investigated fungus species are parasitic and classified as invasive. Most of the alien species have an origin from North America, followed by those from Asia, South America and Mediterranean.

The most vulnerable habitats in Bulgaria, in which invasive species has settled, are riverside habitats, damaged habitats around country roads, railways, abandoned agricultural lands, urbanized locations, dunghills.

More than half of the species, imported mainly as decorative plants or for food have been intentionally introduced by the human, the introduction of 44 % has been unintentionally and for 2 % of the species the reasons for the introduction are unknown.

- ***Animals***

The alien animal species have been assessed in the Black see along the Bulgarian coast, in the fresh water basins, in the forest and agro-eco-systems (mainly insects), as well as alien bird and mammal species.

The most endangered habitats are the aquatic-habitats, where the distribution of the alien species is relative easy and the threads for the native species are the highest. It has been realized 3-fold increment of the introduced in the Black see species in the period 1990-2002 in comparison with the previous 10 years. The main ways for invasion of the alien species in the Black see are by shipping and ballast waters, but also by unintentionally imported by the human species for cultivation in maricultures (around 1/3 of the acclimatized earlier species).

Attention must be paid to the insects as real and potentially invasive species. They conquer easy new territories, they are flexible and their impact on the native species some times is significant. Finally, it should be noticed also the thread coming from species breeded as pets.

D. MEETINGS

Carrying out of two meetings on invasive alien species is envisaged in 2007 in Bulgaria:

- Scientific Conference “Alien Artropods in South East Europe – crossroad of three continents” - 19-21 September, Sofia
- National seminar “Alien Species in Bulgaria” – in October 2007 – as a part of the preparation for elaboration of the National strategy for invasive species.

CONCLUSION

The assessment on the alien and invasive species in Bulgaria has shown, that their impact on the natural ecosystems is in the frames of the realized influence typical for the continental regions of Europe.

The future activities should be concentrated on increasing of the prevention, reducing of the detrimental impact of some species on the technological processes, insect pest control and reducing of some plants harming the natural habitats as well as such as potentially dangerous for the public health, carrying out of monitoring and control on the most probable ways for penetration of the alien species.

4. CROATIA / CROATIE

FOLLOW-UP REPORT ON THE ACTIVITIES RELATED TO THE IMPLEMENTATION OF THE RECOMMENDATIONS NO. 57 (1997) AND NO. 77 (1999) OF THE BERN CONVENTION TO THE BERN CONVENTION

Legal framework

Introduction of alien wild taxa into nature is regulated through provisions of the *Nature Protection Act (OG 70/05)*. This Act defines nature as an overall biological and landscape diversity protected on the whole territory of the Republic of Croatia, both in the areas of conserved and «wild» nature and in the built-up and economically used areas.

Introduction of alien wild taxa into nature on the territory of the Republic of Croatia (RC) is forbidden, but exceptionally it can be authorized by the competent authority (Ministry of Culture, Nature protection Directorate) if scientifically and technically founded and acceptable from the standpoint of nature protection and sustainable management. The permit shall be issued on grounds of a study on the assessment of the risk of introduction into nature, but it is a subject to prior approval from the minister competent for agriculture, forestry and water management.

Import of live specimens of alien taxa is regulated in more details within the *Ordinance on transboundary movement and trade of protected wild species (OG 34/06)*.

Ministerial ordinance on the method of producing and conducting the study on risk assessment related to introduction alien wild taxa and reintroduction of wild taxa into nature is not jet in force.

Breeding of the alien wild taxa in controlled environment which impede the inhabiting of natural environment is not deemed as introduction. The import permit shall be issued if introduction of alien taxa into nature of the RC is already permitted or breeding in controlled environment which impede the inhabiting of natural environment, is permitted. In other cases, the request for import has to be considered in a more detailed way taking into account the opinion of the relevant scientific authority, especially in relation to possible adverse impact of that alien species on native fauna and flora.

In the case of incidental introduction of alien taxa, or if there is a grounded suspicion that such introduction is to occur, the Minister shall prescribe the measures for proceeding with the scope of destroying, eradicating or preventing further propagation of introduced alien species.

The provisions regulating the introduction of non-native/alien species into nature are also incorporated into different regulations of different sectors:

- the *Law on Hunting* (OG 140/05) permits introduction of new wildlife species into hunting grounds (preceded by the approval of the minister competent for nature protection)
- the *Law on Islands* (OG NN 34/99, 149/99, 32/02 i 33/06) prohibits introduction and breeding of non-native game species on islands, except in controlled hunting grounds
- the *Law on Animal Welfare* (OG 135/06) prohibits setting free of pets and introduction of non-native species into nature
- the *Law on Marine Fishery* (OG 46/97, 48/05) prohibits farming of non-native fish and other marine organisms, unless permitted and approved by the competent authority and preceded by the opinion of authorized scientific institutions for marine research
- the *Law on Freshwater Fishery* (OG 49/05) 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 authorities, based on studies of environmental impact assessment
- Low on Forrestry (OG 140/05)

Present state

Invasive alien species are one of the main threat to biodiversity, cause a loss of biodiversity, they are threat for human health and there are some inications of damaging economical growth and development.

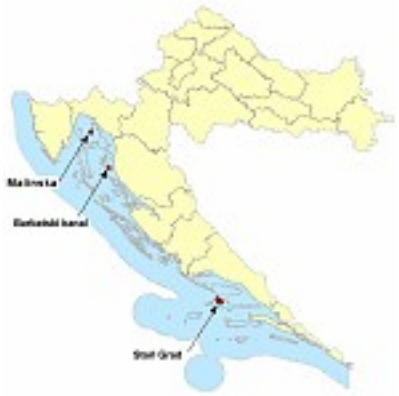
Problems with IAS are known from the year 1910 (11 specimens of *Herpestes javanicus auropunctatus* introduced at island Mljet). Introduction of alien species in the Adriatic Sea has probable started even earlier, but the biggest problems appeared in second part of 20th ct. One part of alien species reached Adriatic by sea currents, what was provoked by changing of current system (circulation) in the Mediterranean Sea

Some of IAS makes huge negative impact on Croatian biodiversity; first of all it is alochtonous green algae in the Adriatic - *Caulerpa taxifolia* and *Caulerpa racemosa*.

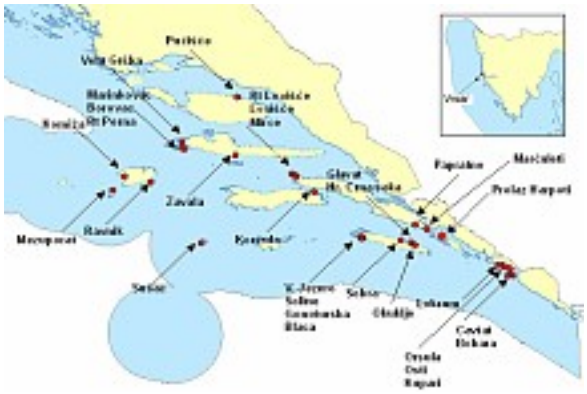
Caulerpa taxifolia was observed at 3 location: Starogradski zaljev (Stari Grad Bay) and Malinska in 1994, Barbatski kanal (Barbat Channel) in 1996 (Map 1).

Stari Grad Bay (1994) - expanding population (two remote sites and main site of 70 ha) in spite of occasional removing/eradication activities with aim of complete eradication of remote sites and control of main site. Malinska - decreasing due to low winter temperature and eradication (size of site cca.1 m^2). Barbat channel - eradicated.

Also invasive, green algae *Caulerpa racemosa* was first found in autumn 2000 near Pakleni Islands. By the end of 2005, algae were observed at 43 locations from Cavtat to Vis including one near Vrsar (Istria) (Map 2). The latest discovered in Sedlasti bok Bay in National Park Kornati in November 2006. Eradication of *Caulerpa racemosa* is difficult and less effective than *Caulerpa taxifolia*.



Map 1 - Distribution of *Caulerpa taxifolia* in Adriatic Sea. (Source: Institute for Oceanography and Fisheries in Split)



Map 2 - Distribution of *Caulerpa racemosa* in Adriatic Sea. (Source: Institute for Oceanography and Fisheries in Split

Some other marine alien species, more or less invasive: seaslug *Bursatella leachi*, *Melibe fimbriata*, limpetlike snail *Siphonaria pectinata*, red alga *Asparagopsis armata*, *Asparagopsis taxiformis*, *Womersleyella setacea,* etc.

At least 35 new species became new elements of the Adriatic ichthyofauna in last 8 years, representing 22 families (8 are new for the Adriatic: *Hemiramphidae, Leiognathidae, Haemulidae, Siganiidae, Ipnopidae, Zoarcidae, Monacanthidae, Cylopteridae*).

During the last century at least 16 allochthonous species of freshwater fish were introduced into rivers of the Danube and Adriatic catchments areas (Table 1). The Adriatic catchments area, rich in endemic fish species, is extremely threatened in this regard.

Table 1 – freshwater fish introduced in Croatia

Oncorhynchus mykiss
Carrasius gibelio
Lepomis gibbosus
Carassius auratus
Hypophthalmichthys molitrix
Hypophthalmichthys nobilis
Ctenopharyngodon idella
Pseudorasbora parva
Ameiurus nebulosus
Salvelinus alpinus
Salvelinus fontinalis
Micropterus salmoides
Ameiurus melas
Coregonus peled
Coregonus lavaretus
Gambusia affinis

There are more freshwater invasives, such as clam Dreissenia polymorpha, spinycheek crayfish Orconectes limosus, Chinese mittencrab Eriocheir sinensis, etc.

Special threats to islands biodiversity represent species like Mediterranean form of black rat *Rattus rattus* and Italian lizard *Podarcis (sicula) campestris*, game species (fallow deer *Dama dama*, spotted deer *Axis axis*, wild-boar *Sus scrofa*, mouflon *Ovis aries musimon* and *Ovis orientalis,* Barbary sheep *Ammotragus lervia*) and others.

Alien invasive plants are considered the greatest threat to biodiversity flora and its conservation, present state and status of Croatian flora are of vital importance for planning activities connected with invasive alien plants. Since 2006, there was no organized efforts in plant invaders inventory, monitoring or appropriate actions in Croatia. National botanical community has been collected diverse botanical data (about distribution, taxonomy, vegetation, biology, etc.) for centuries. Recently, within the frames of the Department of Botany (Faculty of Science, University of Zagreb) and the Croatian Botanical Society, botanical basis and the majority of international standards are developed for all botanical activities, including alien plants researches and monitoring.

In 2006 the first national project about invasive Croatian flora started (*Croatian botanical standards for IAS prevention and monitoring*, financed by State Institute of Nature Protection, Ministry of Culture) and suggests strategy (next steps) for invasive alien plants treatment:

1) adoption of the national criteria and standards for terminology and categories for alochthonous flora by experts
2) forming the list of alien invasive plant species in Croatia
3) developing of database and taxon sheet for all invasive alien plants in Croatia
4) exploration and documentation of the treats posed by specific and most important invasive plant species

5) multidisciplinary researches on national level - suggestion for possible management options in IAS control

Results so far:

1) The proposal for national standards, terminology and criteria, for both native and non-native flora treatment is finished. Terminology recommended is particularly harmonized with European standards for alien flora treatment

2) The preliminary list of plant IAS in Croatia was prepared and accessible (62 taxa; http://hirc.botanic.hr/fcd/InvazivneVrste/Search.aspx);

3) Preparations of the special part of the Flora Croatica Database for data entry about IAS are complete (http://hirc.botanic.hr/fcd/InvazivneVrste/Search.aspx), criteria for status of plant species potentially invasive in Croatia for each taxa from preliminary list was produced, preparations for automatic generation of maps for invasive species in Croatia are done.

Most alien plants in Croatia originated from North and South America (cca 55%) and Asia (cca 26%), and much less from Mediterranean region (cca 10%), Africa (cca 7%), Australia (cca 1%) and Eurasia (cca 1%). Some alien plants in Croatia occupy continental habitats others prefer Mediterranean region, while some, invade both continental and Mediterranean region. Some of them are more aggressive such as *Ailanthus altissima*, *Ambrosia artemisiifolia* and *Amorpha fruticosa* and cause fast change of the native ecosystem character, but also affect human health.

Activities

Project *Monitoring of invasive Caulerpa*

Ministry of Culture continues to finance efforts on control of expansion and eradication in 5 marine protected areas (Brijuni, Kornati, Telašćica, Mljet and Lastovo), although eradication is possible only for small colonies and is recommended only in National Parks and areas of high biological or cultural values. Eradication is conducted at Channel Soline and Grate Lake in National Park Mljet (corral reef).

Project *Croatian botanical standards for IAS prevention and monitoring*

Preliminary list of invasive alien plants in Croatia, as well as standards and criteria for their treatment should be a good basis for future exploration and documentation of the threat posed by specific invasive plant species and provides the background information on the problem of invasive species for the general public, government structures, land managers, researchers and others. Through national projects and external funding we could implemented more intensive research in plant invasions and offer possible management options in the control of such invasion (http://hirc.botanic.hr/fcd/InvazivneVrste/Search.as).

Acknowledging the need of coordinate activities, recognising the importance of potential and actual impacts of IAS on biodiversity, health and economy; Ministry of Culture, Nature Protection Directorate with great support of Councile of Europe, organised *National Workshop on Invasive Alien Species*, held in Zagreb, 22-23 May 2006. Stekeholders from different authorities, expert institutions, scientific community, non-governmental organisations and other participants agreed on workshop conclusions and recommendations. Some of then are done and some of them should be done in due time.

State Institute for Nature Protection prepared a project proposal for PHARE programme and within the framework of the proposed “Implementation of NATURA 2000 in Croatia” project, assessment on the state of invasive alien species in Croatia is foreseen, as well as eradication programme for two most problematic invasive species should be conducted.

There is a need to organize prevention of unwanted introductions of alien species on the national level, to recognize and valorise the level of IAS impacts on native biological and landscape diversity. The identification and implementation of needed actions still require cooperation between different governmental bodies, scientific institutions, NGOs and general public both at the national and international level.

5. CZECH REPUBLIC / REPUBLIQUE TCHEQUE

ACTIVITIES ON INVASIVE ALIEN SPECIES CARRIED OUT BY VARIOUS STAKEHOLDERS IN THE CZECH REPUBLIC IN 2005 – 2007

By Jan Plesník, Agency for Nature Conservation and Landscape Protection of the Czech Republic, Prague

Introduction

Since the last report on activities on invasive alien species carried out by various stakeholders in the Czech Republic was submitted in a written form to the 6th meeting of the Bern Convention Group of Experts on Invasive Alien Species (Palma de Mallorca, Spain, 9 – 11 June 2005, LONČÁKOVÁ 2005), the report presented here summarizes the above activities in the period July 2005 – April 2007.

The terminology in the report follows that used in the Convention on Biological Diversity (CBD, SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY 2002) and the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, GENOVESI & SHINE 2004).

Recently, special attention has been paid to invasive alien species which threat other species, habitats or even the whole ecosystems. At the present, 1,378 plant species (of them, 184 are hybrids or hybridogenic taxa) are considered to be non-native in the Czech Republic which is one third of the whole flora of the country: 90 of them have been classified as invasive alien species that often irreversibly damage the communities into which they penetrate: up to date, 817 of them have been temporarily introduced, while 444 have become naturalized, i.e. they have established viable populations in the wild and reproduce without human assistance there (PYŠEK et al. 2002b, BROŽOVÁ 2004, PYŠEK 2005). The most important invasive alien plant species include the Giant Hogweed (*Heracleum mantegazzianum*), Knotweed (*Reynoutria* spp., 3 species) and North American aster species (*Astra* spp. – PYŠEK & SÁDLO 2004). Among invasive alien animal species, the American Mink (*Mustela vison*), Stone Maroko (*Pseudophora parva*), Signal Crayfish (*Pacifastacus leniusculus*) and the Horse-chesnut Leaf Miner (*Cameraria ohridella*) should be mentioned (PLESNÍK 2004). The patterns of biological invasions, in particular in plants, have been studied not only in Specially Protected Areas, but also in the non-protected, non-reserved landscape (e.g., PYŠEK et al. 2002a, 2003a, 2003b).

Although no special strategy on invasive alien species has been elaborated and adopted in the Czech Republic yet, the National Biodiversity Strategy of the Czech Republic (MINISTRY OF THE ENVIRONMENT OF THE CZECH REPUBLIC 2005) describes current status in plant invasions and in distribution and spreading of non-native animal species, summarises activities to date to reduce the negative impacts of biological invasions incl. legal instruments, activities of the State Administration and other governmental bodies and those of NGOs. More importantly, it correctly lists main issues related to the topic and sets reasonable and realistic objectives for the future. The Strategy emphasizes the precautionary approach as the main approach towards the management, control and eradication of the above organisms. It also is pointed out that it is important to inform the stakeholders and the general public of the risks, possessed by biological invasions. It is supposed that by May 25, 2008, a special action plan on invasive alien species shall be prepared by the Ministry of the Environment in close co-operation with the Ministry of Agriculture and consequently adopted. Its main aim shall be to further elaborate priorities dealing with invasive alien species which have been set within the National Biodiversity Strategy of the Czech Republic and which shall be implemented by various sectors, NGOs, regional (*sensu* provincial) and local authorities and other stakeholders.

Activities related to invasive alien species implemented in the Czech Republic in mid-2005 to early 2007

In 2004 – 2006, the comprehensive project No. VaV/SM/6/37/04 entitled *Non-native fauna and flora species in the Czech republic: Status assessment, future development with special attention to the possible risks possessed by long-term affects for biodiversity, research and setting-up management strategies (in Specially Protected Areas, the Natura 2000 network and in the non-protected landscape*) was implemented by the largest nature conservation and environmental protection NGO in the country, the Czech Union for Nature Conservation (CUNC). The project was funded by the Council of the Government of the Czech Republic for Research and Development through the Ministry of the Environment and its technical supervisor was the National Museum Prague. It has three main goals:

1. unification of the terminology used in Czech
2. review of current knowledge of non-naive species in the Czech Republic
3. assessment of non-native species affects on nature incl. proposed general provisions.

On 8 – 9 December 2006, the national conference on invasive species was held within the project in Trutnov (East Bohemia). The event was organized by the CUNC and summarized the outputs of the above project. New information on bionomic and ecology of invasive species and their assemblages/communities was presented. The important part of the conference was based on exchange of the field information on invasive species distribution mapping, control and eradication: it was put to more holistic, i.e. landscape approach. The special session was devoted to the communication, education and public awareness of the topic. The participants also reviewed the possible financial sources from the state budget and European Community funds which can be used for invasive species management, control and eradication. The outputs of the conference include i.a. the proposal for the CUNC´s project *Invasive plant species* which should be carried out in 2007.

The main output of the project is the publication *Non-native fauna and flora species in the Czech Republic* (MLÍKOVSKÝ & STÝBLO 2006). In the first part of the book, terminology on the topic in Czech is clearly presented, based on that used internationally (CBD, Bern Convention, IUCN - The World Conservation Union). The main part includes information on non-native wildlife species (lower plants, higher plants, invertebrates, vertebrates) formatted in a fact-sheet (Latin name, common name in Czech, taxonomic classification, description of the species, distribution worldwide, distribution in the Czech Republic shown in a map, habitat requirements, features of the population inhabiting the Czech Republic, interaction with native species, risk analysis and references).

The Institute of Botany of the Academy of Sciences of the Czech Republic Průhonice near Prague has been involved in some research projects funded from the 6th Framework Programme of the European Community for research, technological development and demonstration activities, contributing to the creation of the European Research Area and to innovation, e.g. ALARM (Assessing Large scale Environmental Risks for biodiversity with tested Methods, 2004 – 2009, http://wwww.alarmproject.net) or DAISIE (Delivering Alien Invasive Species Inventories for Europe, 2004 – 2007, http:/www.europe-aliens.org).

In addition to the check-list of invasive plant species (PYŠEK et al. 2002b), a catalogue of those among wild animal taxa occurring on the territory of the Czech Republic was also published (ŠEFROVÁ & LAŠTŮVKA 2005).

In 2007, the Agency for Nature Conservation and Landscape Protection of the Czech Republic started to develop background for the first draft of the National Strategy of the Czech Republic on Invasive Alien Species.

In the course of the preparation of the new *State Nature Conservation and Landscape Protection Programme of the Czech Republic*, the issue of invasive alien species has been included among its priorities.

Within the project *Streamlining European 2010 Biodiversity Indicators* (*SEBI 2010*) coordinated by the European Environment Agency Copenhagen, Czech experts (D. Vačkář as in 2004 the delegate of the Agency for Nature Conservation and Landscape Protection of the Czech Republic Prague and

currently M. Křivánek from the Institute of Botany of the Academy of Sciences in the town of Průhonice) have been involved in the Expert Group 5 – Invasive Species.

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6. ESTONIA / ESTONIE

OVERVIEW OF THE IAS TO THE GROUP OF EXPERTS ON THE INVASIVE ALIEN SPECIES OF BERN CONVENTION

ESTONIA

Legislation:

According to the Nature Conservation Act (amended in 2007), no alien species may be released into the wild without special permission1. An Invasive Alien Species Regulation was passed in 2004 (Official Journal RTL, 19.10.2004, 134, 2076). This contains a list of species that may not be imported into Estonia: 2 plant species and 19 animal species (see box below).

In 2007, several new species were added into this list – 11 plant species and 11 fish species. Not all of those species have been found in Estonia yet, some of them have been added into this list as precautionary measure as those species have been reported being invasive in neighbouring countries.

The Environmental Register Act (2003, amended 2005) contains an obligation to create a national environmental database of natural resources and protected natural objects, including alien species and genetically modified organisms. The common database is under construction. Compilation of the relevant data existing in different databases and formats is needed.

The Fisheries Law 1995 provides that introduction of non-native fish species or species of other aquatic organisms is allowed only by written permission from the Minister of Environment. There is also a law in relation to environmental surveillance (Environmental Surveillance Law 2004) for organisms potentially harmful to human health or the environment.

Species prohibited for import into Estonia (Invasive Alien Species Regulation)

Plants:

1) Heracleum mantegazzianum
2) Heracleum sosnkowskyi
3) Acroptilon repens
4) Ambrosia spp.
5) Bidens frondosa
6) Impatiens glandulifera
7) Solidago canadensis
8) Solidago gigantea
9) Reynoutria japonica (sy. Fallopia japonica, Polygonum cuspidatum)
10) Reynoutria sachalinensis (syn. Fallopia sachalinensis, Polygonum sachalinense)
11) Reynoutria x bohemica
12) Egeria densa
13) Elodea nuttallii

Animals (vertebrates):

1) Castor canadensis
2) Cervus nippon
3) Dama dama
4) Lutra canadensis
5) Mustela vison
6) Nyctereutes procyonoides
7) Odocoileus virginianus

1 An English translation of the Act is available at:
http://www.legaltext.ee/et/andmebaas/ava.asp?tyyp=SITE_ALL&ptyyp=I&m=000&query=looduskaitse

8) Ondatra zibethicus
9) Oryctolagus cuniculus
10) Ovis ammon
11) Sciurus carolinensis
12) Oxyura jamaicensis
13) Umbra pygmaea
14) P*seudorasbora parva*
15) *Opsariichthys uncirostris*
16) *Ameiurus nebulosus*
17) *Ameiurus melas*
18) *Lepomis auritus*
19) *Lepomis gibbosus*
20) *Lepomis macrochirus*
21) *Perccottus glenii*
22) *Neogobius fluviatilis*
23) Neogobius gymnotrachelus

Invertebrates:

1) Astacus leptodactylus;
2) Orconectes limosus;
3) Pacifascatus leniusculus;
4) Globodera rostochiensis (Wollenweber) Behrens;
5) Bursaphelenchus xylopilus (Steiner ja Buhrer);
6) Hyphantria cunea Drury;
7) Megachile rotundata (Fabricius) (syn. Apis pacifica Panzer).

Exceptions can be made to *Mustela vison* and *Nyctereutes procyonoides* whose specimens can be brought into Estonia only for gene pool refreshment in farms only! Otherwise it is forbidden to bring them to Estonia.

Research: Estonia participates in the Nordic/Baltic Network on Invasive Alien Species (NOBANIS) project. There is no specific programme for monitoring of all IAS in Estonia, but some species are monitored, eg the populations of *Heracleum sosnowskyi,* and some bird species (*Branta canadensis*, *Columba livia*).

IAS have been identified in different groups of organisms (plants, vertebrates, terrestrial and water invertebrates) and the vectors identified. Estonia has published a review of the current situation regarding invasive species (available on the Internet at www.envir.ee).

A database for alien species is available in address eelis.ic.envir.ee/voorliigid (available also in English – add: /eng to the address).

Estonia is also part of EPPO (European Plant protection Organization) Alien Species panel and participate in working out of pest risk analysis of plant pests.

Eradication/control: There is a national strategy in place to eradicate poisonous hogweeds. Starting from 2005, eradication works have been carried out all over the country. Before that, works were carried out only at local level. Existing strategy is for years 2005-2010; action plan is revised yearly according to new data.

There is a special regulation being drafted for keeping raccoon dog and American mink in farms, in order to avoid release into nature.

Limitations/challenges: Better cooperation between different ministries is needed.

There is no agreed strategy of IAS in Estonia. The topic in not yet seen as high priority issue. There are not enough resources allocated for collecting data or eradication works. However, it is planned to start working out IAS strategy in 2007, either as part of Biodiversity Strategy or as stand alone Strategy.

7. EUROPEAN COMMISSION / COMMISSION EUROPEENNE

ACTIVITIES ON INVASIVE ALIEN SPECIES IN EUROPEAN COMMUNITIES

Prepared by
Nature and Biodiversity Unit, DG Environment, European Commission

Policy and legal framework

Invasive Alien Species (IAS) represent a serious threat to biodiversity which needs to be addressed if the EU is to attain its goal "to halt the decline of biodiversity by 2010"[2]. The 6th Environmental Action Programme[3] and the recent Communication from the Commission on Halting the Loss of Biodiversity by 2010 and Beyond[4] highlights action on IAS as a priority objective. The Action Plan[5], associated to the Communication, requires following actions on IAS to be taken:

1. "Assess, at EU level, gaps in the current legal, policy and economic framework to prevent, control and eradicate IAS and mitigate their impacts on biodiversity and develop a community strategy to address IAS including, where necessary and appropriate, measures to fill gaps [by 2007].
2. Encourage Member States to develop national strategies on invasive alien species [by 2007] and to implement them fully [by 2010].
3. Encourage ratification and implementation by Member States of the International Convention for the Control and Management of Ship's Ballast Water and Sediments under the International Maritime Organisation [2006 onwards].
4. Establish early warning system for the prompt exchange of information between neighbouring countries on the emergence of IAS and cooperation on control measures across national boundaries [by 2008]."

The Environmental Council of Ministers supported the above mentioned Communication[6] and in its conclusions concerning IAS "calls upon the Commission to assess gaps in the current legal, policy and economic framework for the prevention of introduction and for the control and eradication of invasive alien species; invites the Commission, in cooperation with the Member States, to prepare an EU strategy and an effective early warning system, taking into account biogeographical regions, on the basis of the CBD Guiding Principles on Invasive Alien Species, taking into account the Bern Convention European Strategy on Invasive Alien Species and recognizing the efforts made by relevant Conventions and Organisations such as the IPPC and the EPPO"[7].

The European Parliament urges the development of a comprehensive Community response to the problem of IAS, including an early warning system, and filling gaps in the legislative framework, including the development of an EU Strategy on IAS[8].

The Committee of the Regions[9] and the Economic and Social Committee[10] also supported the Communication and its priorities.

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[2] Presidency Conclusions, Goteborg European Council, 15-16 June 2001
[3] Decision no 1600/2002/EC
[4] COM(2006)216
[5] SEC(2006) 621
[6] COM(2006)216
[7] Council conclusions on Halting the Loss of Biodiversity (COM(2006)216), 18 December 2006
[8] Report on Halting the Loss of Biodiversity by 2010, the Committee on the Environment, Public Health and Food Safety (Rapporteur: Adamos Adamou), European Parliament, 28.3.2007
[9] Opinion of the Committee of the Regions of 6 December 2006 on the Communication from the Commission: Halting the loss of biodiversity by 2010 – and beyond (COM(2006) 216 final), CdR 159/2006 fin
[10] Opinion of the European Economic and Social Committee of 15 February 2007 on the Communication from the Commission on Halting the loss of biodiversity by 2010 - and beyond (COM(2006) 216 final), NAT/334 - CESE 205/2007 fin DE/Ho/hn

At the EU level a legal framework to control/manage IAS exists for limited categories of potential IAS and pathways:

- robust and well established systems exist to regulate trade with animal diseases, plant pests and GMOs;
- 4 invasive animal species are currently listed under the Wildlife Trade Regulations and cannot be introduced into EU territory (the red eared slider (*Trachemys scripta elegans*), the American bullfrog (*Rana catesbeiana*), the painted turtle *(Chrysemys picta)* and the American ruddy duck *(Oxyura jamaicensis*);
- EC nature protection legislation, the Habitats Directive (92/43/EEC) and the Birds Directive (79/409/EEC), contains provisions on regulation of non-native species introduction, which could harm protected species and habitats;
- for aquaculture organisms, the new proposed "Regulation for use of alien and locally absent species in aquaculture"[11] would establish a new system for assessment and management of the risks associated with the introduction of new organisms for aquaculture. The proposal is being discussed by the Council and the Parliament, i.e. has not been approved yet.

Research

The EU is funding research projects on IAS:

- under the 5th Framework Programme: project "Giant Hogweed" (2002-2005) focused on developing a sustainable strategy for alien invasive plant management in Europe.
- under 6th Framework Programme:
  - project DASIE (Delivering Alien Invasive Species Inventories for Europe). DAISIE should deliver an European one-stop-shop for information on biological invasions in Europe. It should bring together: The European Alien Species Expertise Registry, European Alien Species Database (including all known established alien species in Europe), European Invasive Alien Species Accounts (description of all established alien species known to be invasive in Europe), Species Distribution Maps and Spatial Analysis (Distribution maps of all invasive alien species in Europe known or suspected of having environmental or economic impacts). End of project: February 2008. Contact: http://www.daisie.ceh.ac.uk/.
  - project ALARM. Project whose main objectives are to develop an integrated large scale risk assessment to biodiversity in terrestrial and freshwater ecosystems, focusing on risks consequent on climate change, environmental chemicals, loss of pollinators and biological invasions. Contact: http://www.alarmproject.net/alarm/.

Projects

- The European Commission (EC) financed a study "Scope options for EU action on invasive alien species"[12] in 2006, which identified gaps in the current legislative and policy system, and provided recommendations for an action at the EU level. One of the main results of the study was the recognition that most areas for action are issues of shared competence between the Community and the Member States. In the study it was among others recommended to develop an EU strategy on IAS.
- More that 100 projects on IAS has been funded under EU programme LIFE during 1992-2002. Financing of IAS projects should be available under LIFE+ programme in 2007-2013.
- Project SEBI 2010 (Streamlining European 2010 Biodiversity Indicators) is developing set of biodiversity indicators, including indicators concerning IAS (cumulative number of alien species established in Europe, list of worst IAS, indicator on costs of IAS).

[11] (COM(2006)154)
[12] http://ec.europa.eu/environment/nature/pdf/ias_final.pdf, plus Annexes

Way forward

The European Commission intend to develop an EU strategy on IAS in accordance with policy recommendations of the Communication and of the EU institutions (e.g. Council, EP). As a first step a Green Paper to initiate broad stakeholder's discussion would be developed.

At the same time the European Commission would continue in supporting ongoing activities on IAS.

8. GERMANY / ALLEMAGNE

OVERVIEW ON IAS WORK IN GERMANY

CONTRIBUTION TO THE MEETING OF THE GROUP OF EXPERTS ON IAS IN REYKJAVIK (ICELAND), MAY 2007

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1. IAS in Germany: facts and figures

To quantify the dimension of the IAS-problem for conservation in Germany, several research projects were conduced on the federal level. Result show that 1149 alien animal species occur, 264 of them being established (Geiter et al. 2002).

591 of the 3384 established vascular plant species in Germany are of alien origin (226 archaeophytes and 383 neophytes). Other 624 neophytes are at least locally established or occur casually (Wisskirchen & Haeupler 1998).

43 of all 851 red listed plant species are threatened by IAS (Korneck et al. 1998). Of the 1007 neophytes occuring in Germany, only about 30 are invasive, four important species being *Heracleum mategazzianum*, *Impatiens glandulifera*, *Fallopia spec*., *Solidago gigantea*, and *S. canadensis*. Only 23% of all control measures that are taken are successful. These measures cost at least 1.5 Mio. € per year (Schepker 2004). Concerning the economic costs aused by IAS, only 20 species cause 156 Mio. € per year (Reinhardt et al. 2003). A handbook with general information on IAS in Germany (legal framework etc.) and fact sheets with information on biology and management of 40 invasive plant species is freely available on the internet (www.neophyten.de).

Half of the established alien plant species have been introduced deliberately, 50% of them for ornamental purposes (Klotz et al. 2002). The proportion of deliberately introduced alien species is even bigger for animals: 70 % of Germany's alien animal species were introduced deliberately.

2. Legal framework

The current legal framework (the main instrument being the Federal Nature Conservation Act) does not cover all obligations of the CBD. Missing aspects include: suitable definitions of 'alien' and 'invasive', the three-stage approach, provisions for unintended introductions, on early warning and rapid measures, and on control.

After a research project (Hubo et al. 2004) had analysed the administrative and legal framework for all sectors involved in the introduction and management of IAS and provided the basis for a national strategy, the results were used in recent efforts to improve IAS regulations in the Federal Nature Conservation Act. The amended Federal Nature Conservation Act is expected for 2009.

3. Strategy

There is no explicit national IAS Strategy in Germany, but a species conservation committee of the federal states (Bundesländer) has provided a position paper, representing *de facto* an IAS Action Plan with concrete measures, also regarding regulatory listing of IAS. The BfN has been intensely involved in its development.

A research project is now developing a criteria-based listing system for IAS in Germany and Austria. Other national listing systems that are consulted as examples are the Belgian and the Swiss approach. Furthermore, the project will model future invasions in the framework of current climate change scenarios in Germany and Austria, considering the present and the future distribution of invasive plants and fish. A transnational early-warning system for these groups shall be established. (*The project will be presented at the meeting*).

4. Others

An issue Germany has recently focused efforts on is 'alien proveniences of native species'. In order to protect intraspecific genetic diversity, we try to promote the use of regional seed and plant material in plant measures in the free landscape. They are more and more requested in public tenders, and some tree nurseries have joined forces and provide regionally produced plant material. The Ministry for the Environment invited some stakeholders to a discussion on the topic in February 2007 (Otto 2007). As a result of this meeting, guidelines on good tender practice will be developed.

In the context of COP 9 of the CBD, Germany intends to raise the issue of genetic diversity.

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Appendix

NATIONAL POLICIES AND MEASURES ON IAS: IMPLEMENTATION OF THE EUROPEAN STRATEGY FOR INVASIVE ALIEN SPECIES

PLEASE PROVIDE THE FOLLOWING DETAILS ON THE ORIGIN OF THIS REPORT

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TERMINOLOGY

Has your country included the terminology used in the European Strategy on Invasive Alien Species in the national legislation?		
&Yes	&No	**X Partly**
Has any definition been excluded or modified?		
&Yes	&No	
If the answer is yes, which one?		

COLLECTING, MANAGING AND SHARING INFORMATION

Species inventories

Has your country identified introduced alien species?		
& No	& Only major species of concern	**X Yes**
Has your country developed a list system (black list, white list, grey list) of alien species?		
& No	& It is being developed now	& Yes

Note: A black/white/grey list system is not developed, but the Federal Agency for Nature Conservation is maintaining a list of 32 invasive plant species on the internet (www.neophyten.de) which contains important information on IAS of plants for Germany. For IAS relevant for plants the German Plant Quarantine Order lists about 300 pests of plants, most of them can pose a threat to Biodiversity in Germany or in Europe. The list is based on the Annexes of the EU Council Directive 2000/29/EC and is related to measures which are legally binding. The following answers refer to these lists.

Who is developing the list/s?		
Federal Agency of Nature Conservation, AG NEOBIOTA (science driven working group), Technical University of Berlin **European Kommission DG SANCO E1 and responsible bodies of EU member states**		
What kind of information is included in the lists?		
X Name of the species	**X Date of introduction**	**X Entry pathway**
X Vector	**X Biology of the species**	**X Distribution**
X Impact	**X Management information**	**X Other**

Who is responsible for the updating of the list/s?	How often are the lists updated?
Federal Agency of Nature Conservation, AG NEOBIOTA, European Kommission DG SANCO E1, and responsible bodies of EU member states (including EU working group of Annexes of Directive 2000/29/EC)	**regularly if needed**

Is/are the list/s published in an alien species page in the National Clearing House Mechanism or equivalent?		
&No	X Yes	Where? **National Clearing house of the CBD; Federal Law Gazette, Official Journal of the European Union**

Are the national data on IAS integrated or linked to other databases (e.g. Global Invasive Species database, EPPO, etc.)?		
&No	**X Yes**	Details: **national plant information system, EPPO Alert list of IAS, EPPO A1 and A2 lists, EPPO reporting service, Quarantine Pests of Europe, EPPO Plant Quarantine Data Retrieval System (PQR), other web based information systems**

As a prevention tool for new introduction of IAS, what is the importance level that your country gives to a list system?			
X High	& Medium	& Low	& Unknown

Has your country developed a list of experts and/or institutions that can advise on taxonomy and other technical IAS issues?	
&No	**X Yes**
Comments: **Expert list will be published on the web within the NOBANIS-project (http://www.sns.dk/nobanis/), plant quarantine diagnosis list (internal database of German experts for identifying quarantine pests/IAS relevant for plants)**	

Has your country set up mechanisms to actively promote the updating of information related to IAS?	
&No	**X Yes**
Comments: **national plant information system is updated by voluntary records on the distribution of (alien) plant species; list of 32 invasive plant species on the internet is updated if necessary. Information on IAS relevant for plants are updated via a EU harmonised notification system on occurrence of organisms in consignments and within countries and via EPPO information services on harmful organisms**	

Building awareness and support

Has your country developed any IAS awareness campaigns?	
&Yes	**X No**
Comments:	
Which sectors (e.g. fishermen, hunters, schools, etc.) have been targeted?	

Who carried out the awareness campaigns?	
Has the IAS matter been incorporated into existing education programmes?	
&Yes	**X No**
Comments:	
Which sectors (e.g. schools, universities, etc.) have been targeted?	
Did any national conference or seminar on IAS take place in your country?	
X Yes	&No
If the answer is yes, what conclusions were reached?	
Many (not to answer in a questionnaire), some have been published or put on the web, e.g. **Unger, J.-G., Schrader, G. (2003): Abschlussdiskussion zum Symposium „Bedrohung der biologischen Vielfalt durch invasive gebietsfremde Arten: Erfassung, Monitoring, Risikoanalyse“, Schriftenreihe des BMVEL "Angewandte Wissenschaft": 498: 276 - 281;** **BfN - Bundesamt für Naturschutz [Hrsg.]: Neophyten – Ergebnisse eines Erfahrungsaustausches zur Vernetzung von Bund, Ländern und Kreisen. - BfN-Skripten 108, 135 S.**	

Research and monitoring

Is your country fomenting research programmes on IAS?		
&No	**X Yes**	
Which research areas have been targeted?		
X Basic research	**X Pathways and vectors**	
X Early detection techniques	**X Patterns of spread**	
X Mitigation techniques	**X Impact assessment (environmental, economic and sanitary)**	
X Other: economic impact, policy and legislation, genetic aspects		
What kinds of institutions are involved?		
X Universities	**X Other national research centres**	&Private centres
&NGOs	**X Other: governmental authorities**	

LEGAL AND INSTITUTIONAL FRAMEWORKS

Leadership and coordination

Which agencies/departments have authority in matters of species introduction and IAS?
national conservation authority **regional conservation authorities (“Bundesländer”)** **national plant protection services of the "Bundesländer"** **Federal Biological Research Centre of Agriculture and Forestry** **Federal Ministry of Consumer Protection, Food and Agriculture** **regional hunting authorities (“Bundesländer”)** **regional fishing authorities (“Bundesländer”)**
Does your country have a national authority or an equivalent network to lead and coordinate the responsible agencies dealing with IAS?
No

If the answer is no, what level of coordination exists between the responsible agencies?
Technical cooperation between Federal Agencies and Research Centers, irregular meetings on information exchange between involved ministries
If the answer is yes, could you describe its/their competences?
Has your country undertaken a review process of the existing legal framework?
Yes
Does your country count on an advisory group of experts on IAS in the decision making processes and in the development of policies and actions related to IAS?
X No &Yes
Comments:

Policy and legal review and development

Has your country developed national policies for addressing issues related to alien invasive species?		
&No	&Yes, as part of a national biodiversity strategy (please, give details below)	**X Yes**, as a separate strategy (please, give details below)
Comments: **Germany will start the discussion process on a National Strategy on IAS on the basis of a project finished in August 2004 A national policy exists separately for IAS relevant for plants/plant protection, though it does not cover invasive alien plants up to now. EU harmonised inclusion of invasive plants is in progress.**		
Who leads or coordinate the action?		
National Strategy: will be lead by Federal Ministry for Environment, Conservation and Nuclear Safety. Plant protection part: lead by Federal Ministry of Consumer Protection, Food and Agriculture		
Who is developing it?		
Federal Ministry for Environment, Conservation and Nuclear Safety **Federal Ministry for Consumer Protection, Food and Agriculture** **Federal Agency for Nature Conservation** **Federal Biological Research Centre for Agriculture and Forestry** **others**		
Could you describe the main points tackled in the strategy/action plan?		
No, too extensive		

Has your country developed national legislation on IAS?	
&No	X Yes

Has your country carried out a review of existing measures and legal procedures related to IAS or potential IAS?		
X Yes	&No	&Partly

Which matters have been tackled?		
X Trade	**X Movement**	**X Holding**
X Introduction into the environment	**X Establishment**	**X Mitigation**
Others:		

Has your country adapted or introduced any measures after the review process?
in development

Has your country developed national legislation and policies to control introductions of invasive alien species within States to new ecological regions?			
& Unknown	&No	& It is being developed now	X Yes
Comments:			
Are the existing licensing rules for containment facilities holding potential IAS like botanic gardens, greenhouses, zoos, farms, research institutes, etc., specifically adapted to IAS?			
& Unknown	& No	& We are adapting it	**X Yes**
Comments: Within the plant protection system Licensing system and containment facilities are required for listed organisms (Council Directive 2000/29/EC and Federal Plant Quarantine Order)			
Has your country established any criminal/administrative sanctions and appropriate penalties for illegal introductions, movement or holding of IAS?			
Partly (as far as one of the four species of EU-directive 338/97 are concerned and in plant protection, penalties include prison up to five years for spread of pests of plants (§ 39 Plant Protection Act) and a list of fines (§ 40 Plant Protection Act)			
How are the costs of rapid response, mitigation or biodiversity restoration allocated in the case of introductions in breach of national laws?			
Not allocated, ad hoc on regional level, e.g. for eradication of the Asian Longhorned Beetle			
Is the precautionary approach applied in the decision making processes?			
Yes			

REGIONAL COOPERATION AND RESPONSIBILITY

Cooperation between Bern Convention Parties

Is your country contributing to the interchange and notification of IAS and potential IAS with key regional and global institutions (e.g. EPPO, OIE, etc.)?			
&No	**X Yes**	Key institutions: **EPPO**	
Is your country actively interchanging information on IAS and potential IAS with other countries, in particular with bordering countries?			
&No	**X Yes**	Countries: EU and EPPO member states (EU harmonised notification system, EPPO lists and reporting service)	
Does your country notify to other countries and, in particular, to bordering countries the intentional introduction into your national territory of an alien species or its transfer within it?			
&Unknown	X No (as far as introductions under the conservation legislation is concerned)	**X Yes (as far as the listed organisms in plant protection are concerned)**	
Comments:			
Do you provide information on your specific import requirements for alien species to other countries and relevant stakeholders and sectors?			
&Unknown	&No	X Yes	
In affirmative case, how do you provide them?			
in plant protection: written publications (official plant quarantine requirements), via Internet and on request			
Are known alien invasive species in your country also a problem in neighbouring countries?			
& Unknown	& No	X Yes	
Comments:			

Is your country collaborating in the development of policies and programmes to harmonise measures for prevention and mitigation of alien invasive species at regional, subregional or international level?			
& Little or no action	& Discussion on potential collaboration underway	**X Development of collaborative approaches for a limited number of species**	& Consistent approach and strategy used for all common problems
Comments:			

Subregional cooperation

Is your country developing and/or implementing subregional strategies, action plans or initiatives on IAS in collaboration with bordering countries or countries belonging to the same biogeographical area?	
X No	&Yes
Comments:	

MANAGEMENT

Prevention

Does your country (as a point of export) have measures to avoid the exit of species to other countries together with the export goods?			
& Unknown	& No	& Yes, but insufficient	**X Yes**
Comments:			
If the answer is yes, which ones? Do you consider that they are effective?			
Comments: **Plant protection: Inspection of plants and plant products, pest free production areas etc. for certain species, issuance of phytosanitary certificates, provision of information of import requirements of other states**			
If the answer is no, what importance does your country give to a future establishment of them?			
& High	& Medium	& Low	& Unknown

Does your country (as a point of import) have border control and quarantine measures to minimise unintentional or unauthorised introductions of alien species?		
& No	X Yes	**X Are effective in plant protection for the listed organisms** &Is necessary to review them &We have lack of technical and/or resource **X Is necessary to implement training and capacity-building programmes for border officials**

Intentional introductions: Are the proposed introductions assessed through a screening system based on risk analysis?			
& No	X No, but	**X We'll take measures to prohibit first-time intentional introductions of AS in preparation** X We'll develop an appropriate evaluation process &We need more information about risk analysis	& Yes
Comments:			
Is the release of non-native biocontrol agents used in your country? If this is the case, do you take into account the IPPC Code of Conduct for the Import and Release of Exotic Biological Control Agents and relevant EPPO standards?			

& No	& Yes, but we don't take into account the IPPC Code and EPPO standards	X Yes
Comments: can be improved. National legislation in preparation		
Unintentional introductions resulting from sectorial activities: Are the risks related to species introductions due to these activities identified?		
& No	**X Yes**	**X Agriculture X Forestry X Horticulture X Pet and animal retailers X Aquaculture X Mariculture X Hunting XFishing** & Others:
If this is the case, does your country have appropriate measures to minimise unintentional introductions resulting from sectoral activities?		
& No	**X Yes**	**X Agriculture, X Forestry X Horticulture** & Pet and animal retailers & Aquaculture & Mariculture & Hunting &Fishing & Others:
Comments: review of requirements is necessary with particular reference to threat to biodiversity		

Has your country developed any actions with the most relevant stakeholders and sectors to raise awareness and develop codes of best practices to avoid unwanted introductions?	
X No	&Yes
Comments:	

Does your country comply to IPPC Guidelines for Regulating Wood Packaging Material in International Trade y la IMO International Convention for the Control and Management of Ship's Ballast Water and Sediments?				
& No	**X IPPC**	**X IMO**	& Both	& Unknown

Have the containment facilities holding potential IAS (like botanic gardens, greenhouses, zoos, farms, research institutes, etc.) control systems to avoid the escape or release of the species to the environment?			
& Unknown	**& No**	&Yes, but inadequate	**X Yes**
Comments: Yes, in plant protection for listed organisms, see question "Are the existing licensing rules for containment facilities holding potential IAS like botanic gardens, greenhouses, zoos, farms, research institutes, etc., specifically adapted to IAS?"			

Has your country developed measures to prevent or minimise the introduction and spread of potential IAS into the isolated and vulnerable ecosystems like lakes, islands, river basins, gorges, etc.?			
& Unknown	X No	&Yes, but insufficient	& Yes
Comments:			

Are relevant stakeholders involved in the development or revision of guidelines for risk analysis and problem solving?		
Always	&Never	**X Occasionally**

Early detection and rapid response

Does your country have security systems to identify the new arrival of exotic species? If this is the case, are effective?			
No	&No, we need more information about them	**X Yes, but not effective**	&Yes
Comments: effective in plant quarantine for regulated pests of plants			
If this is the case, who are carrying it out?			
plant protection services of the "Bundesländer"			
Are contingency plans developed, for invasive species just arrived into your country? If this is the case, for which			

species?		
X No	**X In some cases**:	&Yes
Comments:		

Mitigation of impacts

Has your country developed legal procedures specific for IAS that threaten native biodiversity? If this is the case, which are the target species?		
&Unknown	X No	&Yes
Target species:		

Has your country developed contention or control programmes for invasive alien species which threaten native biodiversity? If this is the case, for which species?			
&Unknown	**& No**	&No, we need more information about it	**X Yes**
Comments: e.g. Asian Longhorned Beetle, Phytophthora ramorum			

Has your country developed programmes to eradicate invasive alien species which threaten native biodiversity?	
& No	**X Yes - Target species: Lysichiton americanus (program has been developed by a university integrating regional NGOs, conservation and forestry administrations), Asian Longhorned Beetle, Phytophthora ramorum (within the plant protection system)**

Restoration of native biodiversity

Does your country have species, natural habitats and/or ecosystems that have been affected by biological invasions?		
&Unknown	& No	X Yes
Comments:		

Has your country carried out any restoration measures?		
&Unknown	& No	X Yes
Comments: **On a local and regional level, not in the framework of a national action plan or comparable**		

9. HUNGARY / HONGRIE

SHORT REPORT ON INVASIVE ALIEN SPECIES IN HUNGARY

1. Legal and administrative background

Issue of invasive alien species from the nature conservation aspects is generally incorporated into the Act No. LIII. of 1996 on nature conservation, details are drawn up in National Nature Conservation Master Plan (as part of National Environmental Programme (NEP) for 2003-2008 approved by the Parliament of the Republic of Hungary) and also in the National Biodiversity Strategy and Action Plan 2004-2010 (adopted by the Ministry of Environment and Water).

Chapter 5.4.1.2.5 of the NEP said: *"Suppressing the non-native, invasive species of the flora and the fauna that represent a danger to natural biocenoses is a highlighted task. Connected to this, research, survey and strategy-making, and later, legislative tasks are to be performed. It is justified to suppress non-native species in the areas which are the most exposed to this danger as soon as possible."*

Act No. XXXV. of 2000 on Plant Protection include activities aim at preventing introduction or spread of pests. Several specific measures have to be mentioned in the field of forestry. The Act No. LIV. of 1996 on Forests and Protection of Forests emphasizes that the native species should be favored during reforestation. The 71/2007 (IV.14.) Gov. Decree on the Establishment of Energy Plantation of Woody Species determine that invasive species (e.g. *Robinia pseudoacacia*) must not be planted on protected and/or Natura 2000 sites. The Act No. XLI of 1997 on Fishery and Sport Fishery regulates or binds to permission the release of non-indigenous animals into nature.

Hungarian Climate Change Strategy and Sustainable Development Strategies are under preparation. Both of them imply the task of management of invasive species.

In case of invasive plant species Ministry of Environment and Water has a good and close collaboration with the Botanical and Ecological Institute of the Hungarian Academy of Sciences and the Ministry of Agriculture and Rural Development (Central Service for Plant Protection and Soil Conservation). The responsibilities are not properly defined on the institutional level. Interministerial cooperation was launched this year.

2. Management plans/case studies

The development of management plans concerning the major invasive plant species was launched in 2002. Studies were compiled about the most important invasive plant species. The potentially invasive plant species were also determined. These were the base documentation of a two-volume book, which was published in 2004 and 2006.

These two volumes give a very comprehensive overview of biological invasion, and contain detailed description of 30 species (or taxa). Information on taxonomy, morphological characterisation, origin and distribution, life-cycle, habitats, biotic interactions, economic and nature conservation aspects, management experiences (e.g. eradication methods), bibliography of species or genus are presented.

Volume I.: *Fraxinus pennsylvanica, Ailanthus altissima, Impatiens glandulifera, Amorpha fruticosa, Fallpia sectio, Heracleum mantegazzianum, Prunus serotina, Solidago gigantea, S. canadensis, Asclepias syriaca, Ambrosia artemisiifolia, Acer negundo,*

Volume II. *Azolla mexicana, A.filiculoides, Cabomba caroliana, Ribes aureum, Robinia pseudoacacia, Elaeagnus angustifolia, Impatiens parviflora, Vitis hibrids, Parthenocissus spp., Echinocystis lobata, Aster novi-belgii agg., Xanthium strumarium subsp. italicum, Helianthus spp., Phytolacca americana, P. esculenta, Humulus japonicus, Celtis occidentalis, Elodea canadensis, E. nuttallii, Cenchrus incertus)*

Proposals for management plans of seven invasive mammal species (*Sciurus carolinensis, Rattus norvegicus, Ondatra zibethicus, Nyctereutes procyonoides, Canis aureus, Procyon lotor, Felis catus*)

and eight fish species (*Pseudorasbora parva, Carassius gibelio, Ameiurus melas, Perccottus glenni, Neogobius fluviatilis, Neogobius kessleri, Neogobius melanostomus, Proteroorhinus marmoratus*) have been completed. The paper is under expert consultation process. Our knowledge on other animals (e.g. insects) is fewer. In this case a close collaboration with the plant protection institutes are essential.

3. Research, Monitoring

- **Hungarian Biodiversity Monitoring System:** The landscape-level habitat mapping was started in 1998 within the framework of HBMS, 125 sample areas of 5X5 km were designed. The HBMS provides distribution data concerning invasive species from selected sampling quadrates. Mapping of 5 selected invasive species *(Ailanthus altissima, Aclepias syriaca, Amorpha fruticosa, Solidago canadensis, S. gigantea)* are carried out parallel with habitat mapping in every 10 years. Some possibilities of data analyses in reference to IAS were published as a study in the first volume of Results of HBMS series in 2006.

- The data collected in the frame of Landscape Ecological Vegetation Mapping Project of Hungary (META) and in the Flora Mapping Program(FLORA) can give an overview about the situation of habitats concerning the degree of colonisation with invasive species, and about the distribution of invasive species.

  - **FLORA project** (every invasive species; in 5x6 km qrid)

  - **META project** (the invasive alien species threatening the particular habitat, type and the degree of invasion, in 5x6 km qrid)

  http://www.novenyzetiterkep.hu/meta/en/index.shtml

- **Climate change** predictions highlights that due to the geographical position of Hungary one of the main threats to the natural ecosystems will be the spreading of new IAS in the future. Therefore, the topic of invasive species was included to the tasks of an **ongoing research project** regarding the effects of climate change on biological diversity.

4. Public awareness, publications

Biological Invasions in Hungary: Invasive Plants I.*(book, in Hungarian)*
MIHÁLY, B. – BOTTA-DUKÁT, Z. (2004) (edit.):
Biológiai inváziók Magyarországon: Özönnövények I.
http://www.termeszetvedelem.hu/_user/downloads/invazios_fajok/ozonnovenyek.pdf

Biological Invasions in Hungary: Invasive Plants II. *(book, in Hungarian)*
BOTTA-DUKÁT, Z – MIHÁLY, B. (2006) (edit.):
Biológiai inváziók Magyarországon: Özönnövények II

Invasive Alien Species in Hungary *(booklet)*
http://www.termeszetvedelem.hu/_user/downloads/invazios_fajok/invazivfajok.pdf

Invasive plant species in Hungary: Özönnövények Magyarországon *(poster, in Hungarian)*
http://www.termeszetvedelem.hu/_user/downloads/invazios_fajok/plakat2.pdf

Homepage http://www.termeszetvedelem.hu/

The Hungarian translation of the European Strategy on Invasive Alien Species will be published till the end of this year. It will be available at Green Point Offices and at National Park Directorates.

The European Strategy on Invasive Alien Species has to be incorporated in the European and national legislation in order to make it legally binding and enforceable.

5. Management and control measures

From scientific point of view several assessments and studies have been carried out regarding the control and eradication of those alien species which threaten ecosystems, habitats or species. This issue is addressed in the protected species conservation action plans and in the management plans of protected natural areas. Concrete control measures against some invasive species (e.g. *Ailanthus altissima*, *Elaeagnus angustifolia*, *Solidago gigantea*, etc.) are in place in protected areas in order to protect the habitats of (strictly) protected species. Lack of financial and human capacities should be mentioned.

Hungary has developed the New Hungary Development Plan (NHDP) the Strategic Reference Framework for the use of EU Cohesion Fund and Structural Funds for the oncoming EU budget period (2007-2013). One of the sector programmes of the NHDP is the Environment and Energy Operational Programme (EEOP), which contains a priority action for nature conservation (Wise management of natural assets Priority Action). The main objectives of the Priority Action are to promote halting the loss of biodiversity and to improve the nature conservational status of protected and Natura 2000 sites, species and habitats of community importance. The Priority Action, as to achieve these goals, contains measures on halting the spread of invasive alien species as well.

6. Other activities

Developments have started due to the public and governmental concerns raised by the serious effects of common ragweed (*Ambrosia artemisiifolia*) on human health. Since 2004 an interministerial committee deals with the legal and financial background of the issue concerning *Ambrosia artemisiifolia*. Action plans have been yearly elaborated to join forces of different sectors against ragweed.

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10. ITALY / ITALIE

IMPLEMENTATION BY ITALY OF THE RECOMMENDATION NO. 114 (2005) ON THE CONTROL OF THE GREY SQUIRREL AND OTHER ALIEN SQUIRRELS

Document established by Italian Government

Following we provide a synthesis of the state of the art in regard to the invasion of the Grey squirrel (*Sciurus carolinensis*) in the Ticino valley, and on the follow up of the actions undertaken by Italian authorities in response to the Recommendation n. 114 (2005).

State of the art

The grey squirrel is present in Italy with three distinct populations, all located in the North West of the country. The population of the Ticino valley likely originated from the intentional introduction of three pairs carried out in 1994 by the municipality of Trecate for ornamental purposes. From the data gathered by a monitoring program carried on by the Regional Park of the Ticino Valley, the population appears to be still very localised, but expanding along the river valley in direction of the Alps. A research carried out by the University of Turn in cooperation with the University of Newcastle with the financial support of the European Squirrel Initiative, showed that the forest belt of the Alps is an optimal habitat for the grey squirrel, and that an invasion of the North Western portion of the Alps is a probable scenario in the next decades. The study confirmed the risks for the conservation of the native species caused by the ongoing expansion of the alien squirrel. In this respect, a model jointly developed by the two research groups demonstrates that an eradication of the grey squirrel population of the Ticino valley would likely delay the invasion of Switzerland of about one century.

Actions carried on by the Italian competent authorities

In response to the draft recommendation discussed at the 6th meeting of the Group of Experts on Invasive Alien Species (Palma de Majorca 9-11 June 2005) and subsequently adopted by the Standing Committee of the Bern Convention, a technical meeting was organised by the Italian Ministry of Environment on 27 October 2005 at the Regional Park of the Ticino Valley with the aim to discuss the eradication of the grey squirrel in the area. Officers of the Ministry of Environment, the Director and President of the Park, representatives of the competent administrations at the local level (Lombardia region, several Provinces), the INFS (Italian Wildlife Institute), and the University of Varese attended the meeting. In the meeting it was agreed that an eradication of the grey squirrel was urgently needed.

In order to address the concerns on the basis for an eradication under the Italian legal framework, the Italian Ministry of Environment produced a note analysing the legal aspects of the eradication and circulated it on 13 January 2006 to the Regions of Piemonte and Lombardia, and to the Regional Park.

In June 15th 2006, the Lombardia Region and the Ministry of Environment organised a technical meeting aimed at discussing the threats posed to the Red squirrel by the alien species and the possible alternatives for addressing these threats. The seminar was held on at the Head Quarters of the Lombardia region in Milan and was attended by representatives of all the involved authorities, leading scientific experts, and representatives of French and Swiss governments. The organisers invited representatives of the different animal right organisations, to discuss possible technical alternatives to implement the eradication. The INFS and the University of Varese illustrated the eradication program they developed and provided details on the methods and costs of the program. At the end of the meeting the responsible Regional council member concluded that the eradication was clearly needed and ensured that the Region was committed to realise it.

On September 25th 2006 the Ministry Environment sent a letter to the Lombardia Region asking to be informed on the progresses toward the eradication and the expected time terms. With a note of December 22nd 2006 the Regional authority responded that the start of the eradication was conditioned to a national ban of trade of the grey squirrel.

In order to discuss the issue, the Ministry of Environment organised a meeting in Rome, that was attended by representatives of the Regional government but no formal decision was taken in that occasion.

In conclusion, on the basis of the available information the eradication of the grey squirrel in the Ticino valley appears a feasible alternative that could delay the invasion of the Central Alps of about 100 years. Despite the efforts carried on by the competent national institutions, no actual action has yet been undertaken by the competent local authorities, with particular reference to the Lombardia Region.

11. LIECHTENSTEIN / LIECHTENSTEIN

NEOBIOTA IN LIECHTENSTEIN

Summary and Synthesis

Introduction

The present state of knowledge with regard to the situation with Neophyta, Neozoa, and Neomyceta in Liechtenstein has been presented in a number of articles and contributions. What can be clearly identified is that the increasing globalisation of economy and society is also having an effect on the animal and plant worlds, and therefore on the introduction of neobiota. There are a number of types which cause economic damage, impair human health, or the propagation of which runs contrary to the goals of protection of nature. In these cases, countermeasures in the sense of precautions are indicated and justified. As a basis, a differentiated consideration of the current initial situation is called for, which now exists for a number of different species groups.

Result of considerations up to now

Plants

There is widespread growth of the Canadian and late-blooming golden rod (*Solidago canandensis, S. gigantea*), the daisy fleabane (*Erigeron annuus*) and the butterfly bush buddleia (*Buddleja davidii*). Less widespread are the giant hogweed (*Heracleum mantegazzianum*), the touch-me-not (*Impatiens glandulifera*), and the Japanese knotweed (*Reynoutria japonica*). These types exhibit in particular punctual appearance. The annual ragweed (*Ambrosia artemisiifolia*) occurs only sporadically.

Conflicts occur at present in particular due to the extent of growth of golden rod in the nature priority protection areas and the potential health hazards posed. The appropriate countermeasures are called for here.

In the middle term, the Japanese knotweed (*Reynoutria japonica*) may well cause problems due to its high propagation capacity and vitality, in particular along the bodies of water. Further types are to be anticipated in the middle term for Liechtenstein or may spread still further.

Vertebrates

Mammals

Among the mammals, only two new immigrants are known, the common raccoon (*Procyon lotor*) and the muskrat (*Ondantra zibethicus*). Due to the low population size, there is at present no identifiable conflict potential with regard to the raccoon. The muskrat is more problematic, with its undermining activities possibly causing problems to protective dykes or bankside slopes of bodies of water. As well as this, at high densities the selective feeding may also influence the composition of bankside vegetation.

Birds

Among the birds, there are three species known as established Neozoa, the mute swan (*Cygnus olor*), the pheasant (*Phasanius colchicus*), and the domestic pigeon (*Columba livia domestica*). Conflicts arise in particular with the pigeon due to the dirt contamination of buildings by its droppings. In particular, attention is to be paid to potential new immigrant species such as the mandarin duck (*Aix galericulata*) or the ruddy shelduck (*Tadorna ferruinea*). There is a potential for displacement with these species in relation to native species.

Reptiles and Amphibians

The common wall lizard (*Podarcis muralis*) has proliferated in the country. There is a certain degree of displacement potential here in relation to the native sand lizard (*Lacerta agilis*). There are more substantial problems emerging at present with the explosive spread of the marsh or lake frog (*Rana ridibunda*). Due to the displacement of the native species of amphibians and the crossing with the pool frog or little water frog (*Rana lessonae*), it is creating a substantial influence in the

communities in bodies of water hosting amphibians. Measures for controlling the population are urgently called for.

Fish

There are two Neozoa established in Liechtenstein in the form of the rainbow trout (*Oncorrhynchus mykiss*) and the goldfish (*Carassius auratus*). Problems arise with the displaced species, as the example of goldfish in various bodies of water shows. Points of reference for improvements are, in particular, to be sought in the enhancement of the bodies of water which offer adequate niches and quality of habitat for the indigenous species.

Invertebrates

One particular example of how one species can be displaced unnoticed by another is provided by the externally practically indistinguishable large red slug or common slug (*Arion rugus, A vulgaris*). Nowadays, it is almost exclusively the newly immigrant common slug (*A. vulgaris*) which is to be encountered.

Among many arthropods it is above all those types with a destructive effect which have received our particular attention in the past, and their re-emergence has been specifically identified.

Fungi

The difficulty in assessing propagation applies to numerous types of fungi. Among the large types there are only a few with a restricted propagation potential, by contrast with microscopically small fungi, with regard to which, inasmuch as the types are known at all, the increasing globalisation of trade has meant that propagation and dissemination can scarcely be monitored at all.

International co-ordination

Due to the size of Liechtenstein, it is not a sensible approach to consider the country in isolation, and a co-ordinated approach with neighbouring countries is called for. In this context, widespread principles with regard to the problem situations with the neobiota are being worked out, which in large part also apply to Liechtenstein and allow for co-ordinated interaction.

Legal situation on an international level

Liechtenstein has entered into a large number of international agreements regarding the protection of nature and the environment. From some of these, responsibilities arise with regard to the neobiota in Liechtenstein.

Rio Declaration (Convention on Biological Diversity)

Berne Convention

Ramsar Convention (Washington)

Alpine Convention

Legal situation in Liechtenstein

On a national level, the Law for the Protection of Nature and the Landscape of 23 May 1996 provides the essential basis. As well as an obligation to maintain the habitats and the native species (Purpose Article), there is an explicit prohibition in Article 26 on the seeding of plants alien to the locality or the introduction and establishment of non-indigenous animals into the wild.

For Quotation:
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12. MALTA / MALTE

SHORT WRITTEN CONTRIBUTION ON IAS WORK BY MALTA

Measures carried out by the Nature Protection Unit of the Malta Environment and Planning Authority with regards to Alien Species

Legal Framework

Malta has recently enacted the Flora, Fauna and Natural Habitats Protection Regulations, 2006 (L.N. 311 of 2006 repealing L.N. 49 of 1993, L.N. 161 of 1999, L.N. 167 of 2002 and L.N. 257 of 2003) under the auspices of the Environment Protection Act (CAP. 435) and the Development Protection Act (CAP. 356).

This new subsidiary legislation (L.N. 311 of 2006) lays down additional provisions, which previously were not included in domestic law, with respect to measures required for addressing alien species. It does this via provisions under Article 28 on the control of alien species. This article states the following:

28. *(1) Without prejudice to regulation 6(1) and (2) of the Trade in Species of Fauna and Flora Regulations, 2004, the Competent Authority may prohibit the importation and, or keeping of any species of flora and fauna, if in its opinion, this importation and, or keeping can harm or lead to the endangering of biodiversity of Malta, or for other reasons in the national interest.*

(2) Without prejudice to the Conservation of Wild Birds Regulations, 2006, the Competent Authority may take all necessary measures to prevent, control, and monitor the introduction of organisms belonging to alien species with the potential to establish populations into the environment and, or prejudice the local flora and fauna.

(3) Without prejudice to sub-regulations (1) and (2) of this regulation, and in order to implement further sub-regulations (1) and (2) of this regulation, the Competent Authority shall compile and publish a list of those species that are invasive or deemed to be invasive to Malta.

(4) No person shall import and, or keep any species in the list mentioned in sub-regulation (3) hereof.

(5) Without prejudice to regulation 43, no person shall deliberately release or attempt to release, maintain and, or in any way intentionally assist the establishment or potential establishment, of a species included in the list referred to in sub-regulation (3) hereof, into natural habitats without prior authorisation by the Competent Authority, or, allow the escape of such species into natural habitats as a result of negligence.

(6) The Competent Authority may develop eradication or control plans and related programmes aimed at monitoring, preventing and controlling the introduction of established alien species, invasive species and those alien species with the potential to establish populations and become invasive into the environment.

(7) The Competent Authority may issue guidelines on the keeping, monitoring, prevention, control, and eradication measures of established alien species.

Other subsidiary legislation, which, by way of specific provisions, also calls for the implementation of measures to address alien species deemed harmful to local biodiversity, includes:

- with respect to the control of alien trees – the Trees and Woodland Protection Regulations, 2001 (L.N. 12 of 2001 – Art. 10 and 14), and
- with respect to trade – the Trade in Fauna and Flora Regulations, 2004 (L.N. 236 of 2004 – Art. 6[1] and 6[2]).

Strategy and Action Plans

The drafting of the national strategy on alien species is still ongoing. Short guidelines on the removal of alien plants are also being drafted for incorporation into the supplementary guidance document entitled 'Guidelines on Trees, Shrubs and Plants and Landscaping in the Maltese Islands', as part of its revision/update.

Collecting, Managing and Sharing Information

i) Commissioned Studies

Information extracted from data gathered through the commissioned study on the 'Setting up of a list of Alien Plant Species in the Maltese Islands' has helped in prioritising alien plants for management, according to their invasive ability, based on categories adapted from Cronk and Fuller (1995, 2001). Those species identified as plants 'whose invasion threatens other species of plants or animals with extinction' include: *Carpobrotus edulis*, *Opuntia ficus-indica* and *Oxalis pes-caprae*. Whereas species such as *Aptenia cordifolia*, *Aster squamatus*, *Paspalum distichum* and *Ricinus communis*, although falling within other categories deemed as less harmful, could, with the progression of time, fall within the same category as the afore-mentioned species. Other plant species that featured as serious and widespread invaders included: *Acacia* spp. (particularly *A. saligna* and *A. karroo*), *Agave* spp. (particularly *A. americana* and *A. sisalana*), *Ailanthus altissima*, *Leucaena leucocephala*, *Tropaeolum majus* and *Vitis* spp. (particularly New World Vines).

The commissioned study also revealed that the major sources of alien plant introduction into the Maltese Islands, over the years, are horticulture followed by agriculture. Apart from this, the source of introduction for a considerable proportion of alien plants is however not known. Information extracted from this study is also currently being inputted into a database on Maltese Alien Flora, which has been designed for the purpose of presenting information in an easily accessible and organised fashion.

A second commissioned study, which on the other hand deals with alien fauna, is still ongoing.

ii) Contributing to the implementation of projects by way of transfer of information

Information on the worst invasive alien plants found in the Maltese Islands in the form of a questionnaire has been submitted as an initial contribution towards the project on 'Delivering Alien Invasive Species Inventories for Europe' - DAISIE project, in which Malta features as one of the DAISIE collaborators.

iii) Participation at regional conferences

A poster presentation documenting a preliminary study entitled 'Major Plant Invaders within Natural and Man-made Settings: The Maltese Scenario' was displayed at the 4th European Conference of the working group NEOBIOTA on Biological Invasions (27th -29th September 2006 Vienna, Austria).

Action to combat the adverse effects of Alien Species

Since the last national report on alien species (vide T-PVS (2005) 9 – App. 3 on national Reports - Malta) a series of activities have been undertaken to control the spread of alien plants. Such endeavours included *inter alia*:

- Control of spread of *Carpobrotus edulis* from *Little Armier* (2005);
- Eradication of *C. edulis* from *Ramla ta' l-Armier* (2006);
- Continued post-eradication monitoring in connection with *C. edulis* from *Ramla* (ongoing) and *Ramla tat-Torri*;
- Eradication of *Lavatera arborea* from *Ramla tat-Torri* (2006);
- Control of spread of *Vitis vinifera* and management of encroachment of *Arundo donax* at *Ramla* (2007). Ongoing control of *Opuntia ficus-indica* and *Ficus carica*.

A project is also being implemented by MEPA and funded by HSBC on the management of the St. Paul's Islands (*Gżejjer ta' San Pawl*/*Selmunett* – located along the North-Eastern part of mainland Malta). Part of the project involves the eradication of *Rattus norvegicus* from the islands. These islands harbour the only population of the endemic *Podarcis filfolensis kieselbachi* – a subspecies of the Pelago-Maltese endemic Maltese Wall Lizard, *Podarcis filfolensis*. The rat eradication was carried out as part of the lizard's recovery programme. The method chosen for rat eradication involved the use of two types of poison baits containing a second generation anticoagulant, which acts within 24 hours. Although the method adopted for rat eradication proved to be costly, it yielded positive results as evidenced by the ongoing post-eradication monitoring.

13. MOLDOVA / MOLDOVA

NATIONAL REPORTS ON IAS OF THE REPUBLIC OF MOLDOVA

The visible increase of anthropogenic pressing upon flora species in the Republic of Moldova has provoked essential changes in the structure of the vegetal cover. The invasion of synanthropic species into degraded natural species stop the processes of restoring the natural biocenoses and affects their functioning.

The synanthropic flora consists of three main groups: ruderal, vegetal and adventitious. Their species diversity consists of about 460 species, which form 43 communities from *Festuceta, Brometa, Secalineta* and *Chenopodieta* classes. The weeds with aggressive nature constitute 114 species, of which 11 quarantine species. The representatives of these species damage mostly natural ecosystems of degraded pastures and agricultural ecosystems. *Acer negundo* represents a considerable danger to forest ecosystems.

The inventory of invasive adventitious species is carried out annually. The methods of reproduction, migration ways, progression and regression of species spreading areas are investigated. Once a new species appeared, it is included into a special list by pointing out the time of penetration and place of growing. Every year, when silviculture activities are managed in State forest fund are established the growing areas of invasive adventitious species (in special *Acer negundo*) and this species are eliminated in harvesting process. However was elaborated the Programme of Forest regeneration, according to it, are intended to substitute the invasive species with native one. According to this programme in the last years are substituted the areas of Populus americium with native species (Quercus, Fagus etc.).

In the last years were elaborated put into force the legal measures for native species protection and reducing planting of invasive adventitious species. In this scope during the period of 2003-2006 were modified and completed some articles on Law on Animal Kingdom No. 439-XII from April 27 1995. the Article 19 will have the following content:

Transfer of animals in new habitats, the acclimatization of some species, new for the state fauna, as well as crossing of animals are permitted through the decision of central authority in charge of managing natural resources and protecting environment.".

Recently were elaborated the project of LAW ON VEGETAL KINGDOM (the law is currently examined by Government). The Article 25 will have the following content:

(1) Transfer of some species of plants to places where they were not growing before (introduction), acclimatization of new species of plants to the flora of the Republic of Moldova is performed by individuals and legal entities having certificates of the state competent body, administrating the natural resources and environment protection, issued according to the recommendation of the Academy of Sciences of Moldova and the notification of the State Service for Plants Quarantine.

(2) The requirements concerning the introduction and acclimatization of spontaneous plants are settled by the regulations regarding plants introduction and acclimatization, elaborated and approved by the State competent body administrating the natural resources and environment protection issued in accordance with the Academy of Sciences of Moldova and State Service for Plants Quarantine."

Institute of Botany and Institute of Zoology from Science Academy of Moldova have Scientific Programs, and according to them the invasive species are counted and establish the damage of this species to rare, vulnerable and endangered species in wild flora and fauna.

The Republic of Moldova has elaborated the project documents and received a GEF Grant "Ecological Network Development in Middle Prut River". The eradication of ***Acer negundo*** will be realized as the basis for the case study of IAS from the natural ecosystems of the Scientific Reserve "King Forest". Estimated starting date of the project is JUNE, 04, 2007, for the period of 4 years.

14. PORTUGAL / PORTUGAL

1. BUILDING AWARENESS AND SUPPORT

The Institute of Nature Conservation (ICN) promotes environmental education activities with the young public in several protected areas. The invasive alien species (IAS) issue is raised through local examples of invasion and control measures (see Table 1, Figure 1). An educative game on invasive alien species was been developed for supporting field discovery activities and a leaflet was recently been edited – "O problema das espécies invasoras" (Appendix 1).

The Portuguese representation of the Foundation for Environmental Education (Fee) -"Associação Bandeira Azul" (ABAE) — implements four educational programs that also address the problem of invasive alien species:

- Blue Flag Campaign – to have the blue flag the local authorities have to implement at least 5 environmental activities. The ICN produced a support text with information and activities about alien species available on-line (http://www.icn.pt/downloads/ICNBandeiraAzulBiodiv.pdf).
- Eco-schools (http://www.abae.pt/eco-escolas.php**)** – The Portuguese guide for the teachers involved in this program have a chapter about biodiversity in which the main concepts about the IAS issue are presented as also suggestions for educational activities (*e.g.* remotion of invasive plant species in schoolyards and replacement by native species). Every year the ABAE organise a seminar for teachers and in several occasions the ICN representative raises the problem. As an output, several schools are making projects to control the alien species and to disseminate information about this problem.
- Young Reporters for the Environment (http://www.abae.pt/jra.php) – the role of ICN is similar in this program as the one above.
- ECOXXI (http://www.abae.pt/eco21/eco21.php) – the target of this pilot program are the municipalities. This program evaluates the environmental performance using indicators. One of them is related to alien species (fauna and flora).

Table 1 – Examples of the environmental education initiatives with the young public promoted by the ICN in 2005 -2007.

Protected Areas	Target species
Reserva Natural da Serra da Malcata (RNSM)	Not identified
Parque Natural de Sintra-Cascais (PNSC)	*Carpobrotus edulis*
Parque Natural do Litoral Norte (PNLN)	*Carpobrotus edulis* *Acacia* spp.
Área de Paisagem Protegida da Serra do Açor (APPSA)	*Acacia dealbata*
Parque Natural do Vale do Guadiana (PNVG)	Freshwater fishes
Reserva Natural do Paul do Boquilobo (RNPB)	*Eichornia crassipes*

The joint team with researchers on Invasive Alien Species of Escola Superior Agrária de Coimbra (ESAC) and University of Coimbra (UC) is promoting several actions that aim to raise public awareness and environmental education, in the framework of the following projects:

A - Project Invader II – "Invasion processes, control and restoration of coastal ecosystems invaded by *Acacia longifolia*"(POCI/AMB/61387/2004) (2005-2008):

- Training staff that deal with exotic species (namely technicians in areas of conservation relevance, greenhouse workers, municipality gardeners) in essential aspects such as species identification, regulation and planning of early detection, prevention of new introductions, control methodologies, etc.;
- Publishing and maintenance of a webpage (www.uc.pt/invasoras), particularly creating Portuguese IAS profiles that are essential to public awareness of the species;

- Development of a series of inquiries (targeting forestry associations, municipalities, greenhouse industries, conservation areas, research and teaching institutions) aiming to evaluate the level of utilisation/detention of exotic plant species and to test knowledge of the Portuguese legislation related to the theme.

B - Project Ciência Viva "Divulgação sobre Espécies de Plantas Invasoras em Portugal" (2006-127/107) (2007-2008) aims to increase public awareness, through:

- Organisation of scientific workshops in the field that involve control of IAS, lectures on biological invasion and scientific experiments;
- Large spectrum public awareness campaign with development of specific materials: posters, brochures, and an exotic plant species field guide, which will be distributed in protected areas, schools and greenhouses.

C – Project ROBIN – Rhizosphere Organisms as Determinants of Biological Invasion by Exotic Plant Species (POCI/BIA-BDE/56941/2004) (2005-2008) comprises a general 'raising public awareness' task, in which research posters produced are handed over to the RNDSJ /ICN group for public display.

In the scope of the Regional Plan for the Eradication and Control of Flora Invasive Species in Sensitive Areas (PREFECIAS), started in 2004 there is a "Promotion" objective to advertise to the danger of the invasive plants and the introduction of new alien species in the Azores archipelago.

Several campaigns to control evasive species are organised and promoted through the coordination of Direcção Regional do Ambiente dos Açores with educational purposes aiming specially at schools and NGO, in the scope of Faial Botanical Garden and Environmental Educational Centres plans of educational activities, trying to engage people actively in the eradication actions:

- April 2006 – Control of *Hydrangea macrophylla* in the Caldeira Nature Reserve and Natura 2000 site in Faial Island;
- April 2006 – Control of *Arundo donax* in Monte da Guia Protected Landscape and Natura 2000 site in Faial Island;
- November 2006 – Control of *Carpobrothus edulis* in Pico Vineyard World Heritage Site.

On a different level, dissemination of information regarding the implementation of measures by Direcção Regional do Ambiente of Azores has taken place in scientific meetings:

- Oral communication: Pitta Groz, M., Bettencourt, M., Melo, J. & Almeida, M. (2006) Management of invasive alien species in the Azores Autonomous Region: challenges and opportunities;
- Poster: Bettencourt, M., Melo, J., Veríssimo, E. & Pimentel, P. "Regional plan of eradication and control of invasive alien species in sensible areas" no International Symposium Intractable Weeds & Plants Invaders 17 - 21 de July de 2006 – Ponta Delgada;
- Poster: Botelho, R. "Wild ginger (*Hedychium gardneranum)* an Indian-shot (*Canna indica)* eradication in Corvo Island – Azores western group" at the International Symposium Intractable Weeds & Plants Invaders 17 - 21 de July de 2006 – Ponta Delgada.

2. COLLECTING, MANAGING AND SHARING INFORMATION

Species inventories

An effort to update information on the species introduced is been developed by several institutions in their current projects of research and monitoring. It comprises the elaboration of inventories and the evaluation of species invasive status:

- preliminary lists of coastal and marine alien species for the mainland and Azores;
- aquatic and terrestrial plant species;
- aquatic and terrestrial fauna species.

In the scope of project INTERREG IIIB (2000-2006) ATLÂNTICO, promoted by Direcção Regional do Ambiente of Azores in partnership with the University of Azores, a thorough yet flexible geographical data-base was created with all available information regarding recorded biodiversity of the Azores archipelago using the software ATLANTIS Tierra 2.0. As a result of that project *A list of the terrestrial fauna and flora from the Azores* was also edited by Borges, P.A.V., Cunha, R., Gabriel, R. Martins, A. F., Silva, L. and Vieira, V. (eds.) 2005.

Research and monitoring

Marine and coastal species

Since 2006, in the framework of a protocol between the ICN and the "Centro de Ciências do Mar do Algarve" (CCMAR), the distribution and the abundance of *Sargassum muticum* in the Ria Formosa (Algarve) is been evaluated. In the near future, the CCMAR will also assess the risks posed by the *Sargassum muticum* to the ecosystems, habitats or native species of this wetland and starts removal essays using mechanical methods.

Resulting from the collaboration between the Institute of Oceanography (IO) and the ICN, the project INSPECT – "Introduced marine alien species in Portuguese estuaries and coastal areas: patterns of distribution and abundance, vectors and invading potential" is waiting for acceptance by the National Foundation for Science and Technology (FCT). It comprises 6 tasks, entitled as follows:

1. Literature review and data compilation
2. Taxonomic quality check
3. Invertebrate and macroalgae species
4. Plankton assemblages
5. Data integration and assessment of patterns of introduction of alien species
6. Dissemination of information and building awareness

Plant species

A - Project Invader II Invasion processes, control and restoration of coastal ecosystems invaded by *Acacia longifolia* (POCI/AMB/61387/2004) (2005-2008) aims to carry on studies on the processes underlying both the invasion and the recovery of the system. The specific objectives are:

- To evaluate long-term rehabilitation of invaded systems at floristic and soil level
- To evaluate seed persistence and spatial patterns of *A.longifolia* seed dispersal;
- To assess feedbacks between soil and *A.longifolia*;
- To study the genetic variation within *A.longifolia* populations, regarding the biological control agent acceptability.
- To develop methodologies to control *A.longifolia,* specifically biological control: this will be achieved through a series of tests to evaluate the safety and efficiency of *Trichilogaster acaciaelongifoliae* as a biocontrol agent of *A.longifolia*.

B - Protocol with ICN – APPSA (Mata da Margaraça), for implementing the project entitled "Improvement of infrastructures and management of Habitats in the Área de Paisagem Protegida da Serra do Açor" (POCI/BIA-BDE/56941/2004), focus on:

- Preliminary analyses of *A.dealbata* seed bank & primary dispersal;
- Monitoring of vegetation recovery after the removal of the invasive species;
- Impact evaluation at soil level, namely through analyses of soil chemical properties and microbial biomass.

C – Project ROBIN –Rhizosphere Organisms as Determinants of Biological Invasion by Exotic Plant Species (POCI/BIA-BDE/56941/2004) (2005-2008) focuses on the importance of

belowground communities of rhizosphere organisms for the processes of invasion of RNDSJ by *Acacia longifolia*, by comparing those communities and their impacts on the invasive and native plant species. Specifically, this project aims at:

- Surveying the rhizosphere of *A. longifolia* and *Ulex europaeus* for natural mutualistic (rhizobia and mycorrhiza) and antagonistic (plant-parasitic nematodes and pathogenic fungi) organisms and evaluating the differences in the rhizosphere community associated to the two plant species;
- Investigating the existence and outcome of soil feedback mechanisms to these plants, including in transplant experiments;
- Assessing the potential role of each group of organisms and their interactions in the invasion process of *A. longifolia* in controlled conditions.

The following recent papers results from research on plant species:

Aguiar, F.C., Ferreira, M.T., Albuquerque, A. & Moreira, I. *in press*. Alien and endemic flora at reference and non-reference sites in Mediterranean-type streams in Portugal. *Aquatic conservation: Marine and freshwater ecosystems*.

Aguiar, F.C., Ferreira, M.T. & Albuquerque, A. 2006. Patterns of exotic and native plant species richness and cover along a semi-arid Iberian river and across its floodplain. *Plant Ecology* 184, 189-202.

Aguiar, F.C., Ferreira, T., Albuquerque, A. & Bernez, I. 2005. Invasibility patterns of knotgrass (*Paspalum distichum*) in Portuguese Riparian Habitats. *Weed Technology* 19, 509-516.

Almeida, J.D. & Freitas, H. 2006. Exotic naturalized flora of continental Portugal – a reassessment. *Botanica Complutensis* 30, 117-130.

Trends in amphibian, reptile and bird species distribution

New atlas for amphibians and reptiles (Loureiro et al. *in press*) and birds (ICN *in prep*.) are been prepared. Results for these comprehensive surveys facilitate a comparative analysis with the previous distribution maps, for determining the stability, decrease or increase of the following alien species distribution area:

- Amphibians and reptiles: *Trachemys scripta*, *Podarcis sicula*, *Xenopus laevis*
- Birds: *Lonchura malacca, Estrild astrild, Amandava amandava, Euplectes afer, Ploceus melanocephalus, Psittacula krameri* and *Acridotheres cristatellus*

Trends in mammal species

No comprehensive data exists for evaluating trends in mammal species. However, occasional information compiled from 1996 to 2006 (ICN and Francisco Álvares) confirm that *Mustela vison* is expanded its distribution area (Figure 2). The species also seems locally abundant in some areas, namely in the Cávado estuary (Esposende): minks are being regularly observed since 2000, in daylight activities, foraging in the inland waters. The species reproduces there, and an offspring of 4 pups was found in June 2006 (Figure 3). One fur farm is still labouring in the Northwest of Portugal, which are potential focus for new escapes.

LIFE Priolo project

In the scope of LIFE Project "Restoration of the Azores bullfinch habitat in "Pico da Vara/Ribeira do Guilherme" SPA co-ordinated by SPEA (BirdLife Portugal), in partnership with regional government departments (Direcção Regional do Ambiente, Direcção Regional dos Recursos Florestais), local farmers, municipality of Nordeste, Azores University, IMAR –Coimbra University and RSPB (BirdLife UK), research on control methods and monitoring of the expansion of flora invasive species (*Clethra arborea*, *Hedychium gardnerarum*, *Pittosporum undulatum*, *Gunnera tinctoria*) is taking place since October 2003.

2.3 Regional exchange of information

In the framework of the Project DAISIE (Delivering Alien Invasive Species Inventories for Europe) there is a collaboration between the Portuguese team (ESAC) and the Spanish team (CREAF) providing data of IAS (plant species only) present in Portugal; specifically information regarding: taxonomy, habitat, species status, species distribution and introduction pathways.

3. STRENGTHENING NATIONAL POLICY, LEGAL AND INSTITUTIONAL FRAMEWORKS

Legal framework

The national legislation on invasive alien species is been revised.

An interdisciplinary team is preparing changes in the procedures more in accordance with the "European Strategy of Invasive Alien Species" (Council of Europe) and the "Guiding principles for prevention, introduction and mitigation of alien species that threaten ecosystems, habitats or species" (CBD, decision VI/23) . Updated new appendices with species lists are been prepared.

A proposal of Regional Decree to implement the regulation on the introduction of alien species in the Azores Autonomous Region, regarding all taxonomic groups, in the scope of the European Strategy on Invasive Alien Species under the Bern Convention, is complete at technical level and will now follow an extensive consultation process among relevant authorities and institutions before being sent for approval and publication at the Azores Regional Assembly.

Strategies and action plans

In February 2007, a National Plan for the control of the water-hyacinth *Eichornia crassipes* was sent for possible adoption to the Environment Secretary of State.

The Azores Regional Government has published a Regional Plan for the Eradication and Control of Flora Invasive Species in Sensitive Areas (Resolution nº 110/2004, 29th July). The plan is being implemented since 2004 and foresees the eradication and control of 16 species of flora invasive species in sensitive areas in every islands of the Azores archipelago (*Pittosporum undulatum*, *Hedychium gardnerarum*, *Hydrangea macrophylla*, *Arundo donax*, *Gunnera tinctoria*, *Clethra arborea*, *Carpobrothus edulis*, *Lantana camara*, *Ailanthus altíssima*, *Polygonum capitatum*, *Drosanthemum floribundum*, *Acacia melenoxylon*, *Ulex europaeus*, *Ipomoea indica*, *Rubus ulmifolius*, *Pteridium aquilinum*).

4. REGIONAL CO-OPERATION AND RESPONSABILITY

No relevant actions are been taken.

5. PREVENTION

Intentional introduction

Along 2005 and 2006, the Institute for Nature Conservation and the Forest Authority received requests to the intentional introduction of one bacteria species (*Ralstonia solanacearum*) and 3 plant species (*Vetiveria zizanioides, Erigeron karvinskianus and Arundo donax)*. An aquaculture with *Oreochromis spp.*was also proposed.

Table 2 show more information about these requests and the decisions taken.

Table 2 – List of requests to the intentional introduction analysed in 2005-2006

Species	Group	Purpose	Decision taken
Ralstonia solanacearum	Bacteria	Mechanical and chemical cleaning of *Solanum dulcamara*	Allowed only for mechanical cleaning
Vetiveria zizanioides	Plant Graminae Poaceae	Strengthening infrastures	Denied

Erigeron karvinskianus	Plant Compositae	Ornamental	Denied
Arundo donax	Plant Graminae Poaceae	Bioenergy	Denied
Oreochromis spp.	Fish Perciformes Cichlidae	Aquaculture	Denied

Unintentional introductions

The porcupine *Histrix cristata* was detected in the south of Portugal (Alentejo), probably escaped from a pet shop or a zoological garden.

7. MITIGATION OF IMPACTS

Control and eradication

Control of invasive plant specie in Berlenga island

Conducted by ICN staff and some volunteers on the Berlengas Nature Reserve, two control projects to curb invasion by alien plant species were developed on Berlenga island (78 ha). This protected area is an oceanic archipelago with its surrounding waters and is relevant to nature conservation purposes mainly as a breeding site for seabirds, as habitat for two local reptile populations and also due to its native plants, specially *Armeria berlengensis*, *Herniaria berlengiana* and *Pulicaria microcephala*, but also as habitat for local forms of *Echium rosulatum*, *Angelica pachycarpa* and *Scrophularia sublyrata*.

1. In 2001, a small patch with *Oxalis pes-caprea* was detected around housing on Berlenga island. This species was new to the flora of the archipelago and its arrival is to be feared because of well recorded invasive behaviour on the adjacent mainland areas. In 2002 and 2003, all plants found within the "invasion hotspot" were systematically removed. The subsurface soil was dug and carefully sieved for even the very small bulbs that are so efficient to help propagate this species. This area was then covered with dark plastic sheeting, to avoid subsequent sprouting or germination. From 2004 to 2006, no plants of this species were observed in the area, but in February 2007 a few individuals were observed again, and these will be eliminated soon.
2. Following a few decades of uncontrolled expansion since it was first introduced to the island as a decorative species, up to 9 hectares of Berlenga were covered with *Carpobrotus edulis* in 2001. Systematic measures to control this invasive species were carried out from 2002 to 2005, coordinated by the local ICN staff. The area occupied by this species has been reduced to 6 hectares and will be reduced even more in 2007 (Figure 4). No effort is being made towards complete eradication however, and all the management actions that are now under way aim to contain the species within a well-defined area around housing facilities on Berlenga and to avoid any further expansion of this species on the island.

Control of *Acacia dealbata*

The National Park of Peneda-Geres has been implementing control and eradication measures for *Acacia dealbata* since 1989. Several projects were performed over this time period, including INTERREG, LIFE and POA projects. The most used method was chemical control with the application of glifosate in individual stems after cutting the stems. For small individuals, the removal by physical methods have also been employed. However, the success of controlling this species has been only partial, and the best results occurred in small *Acacia* patches (< 1ha). Also, it has been difficult to find the long-term constant financial support that this kind of control measures requires.

In the last three years, in the framework of a project untitled "Improvement of infrastructures and management of habitats in the Área de Paisagem Protegida da Serra do Açor" (POCI/BIA-BDE/56941/2004), the protected area developed the control of the invasion by the specie *Acacia dealbata* in an area of approximately 12 hectares. The control actions that took place were: mechanic control of the acacia trees; application of a systemic herbicide on the stump; monitoring the regeneration of native vegetation and the regrowth of acacia after control; periodic control of acacia sprouts. All this action occurred in a partnership with the ESAC and the UC.

Prefecias

The implementation of the Regional Plan for the Eradication and Control of Flora Invasive Species in Sensitive Areas (PREFECIAS), already mentioned above, started in 2004 and will take place until the end of 2009. The plan consists of 4 steps (Inventory, Eradication, Recovery, Promotion and Monitoring) and the main goals are:

- To improve the conservation of natural habitats and priority species population;
- To minimize adverse impacts of invasive plants;
- To create an alien plants list indicating the invasive and potential invasive ones;
- To advertise to the danger of the invasive plants and the introduction of new alien species in the Azores archipelago.

During the **Inventory** target species (*Pittosporum undulatum*, *Hedychium gardneranum*, *Hydrangea macrophylla*, *Gunnera tinctoria* and *Carpobrothus edulis*) and sites for intervention were identified in every island of the Azores archipelago (see Table 3).

Table 3 – Inventory target species: extent and number of sites identified for intervention

Island	Extent of intervention (ha)	Number of sites
Santa Maria	150	1
São Miguel	80	8
Terceira	130	9
São Jorge	2	3
Pico	15	7
Faial	140	6
Graciosa	11	3
Flores	197	10
Corvo	<1	2
TOTAL	**723**	**49**

Regarding eradication, recovery and monitoring, several actions were developed between 2004 and 2006:

Corvo Island

- In 2004, the total eradication of *Hedychium gardneranum* and *Canna indica* from the island was accomplished;
- In 2004, removal of 2000 plants of *Criptomeria japonica* in Natura 2000 site;
- In 2005 and 2006 monitoring and control when re-infestation occurred in intervention sites and local authority was involved contributing with staff and equipment;

Flores Island

- In 2005 control of *Hedychium gardneranum* in Natura 2000 site;
- In 2006 control of *Hedychium gardneranum*, *Pittosporum undulatum* e *Acacia melanoxylon* followed by re-introduction of *Juniperius brevifolia, Vaccinium cylindraceum, Laurus azorica, Angelica lignescens, Myrsine retusa, Erica azorica, Calluna vulgaris, Picconia azorica, Leontodon sp. e Tolpis azorica* in Natura 2000 site;

Pico Island

- In 2005 and 2006 experimental fields are being set up to test eradication methods for *Pittosporum undulatum* as well as a nursery to produce native plants in large scale;
- In 2005 control of *Pittosporum* undulatum and Metrosidero *excelsa* in a Natura 2000 site;
- In 2005 and 2006 monitoring and control when re-infestation occurred in intervention sites;
- In 2006, control of *Carpobrothus edulis* in Pico Vineyard World Heritage Site, accomplished in close cooperation between local authorities (city hall, technical school, NGO and environmental education centre).

São Miguel Island

- In 2005, near Lagoa Azul in Sete Cidades, 40 tons of *Eichornia crassipes* were collected and destroyed in a control action;

Santa Maria Island

- In 2005 erradication of *Ulex europaeus e Pittosporum undulatum* in Barreiro da Faneca Protected Landscape.

8. RESTORATION OF NATIVE BIODIVERSITY

LIFE Priolo project

In the scope of LIFE Priolo Project "Restoration of the Azores bullfinch habitat in "Pico da Vara/Ribeira do Guilherme" SPA co-ordinated by SPEA (BirdLife Portugal), in partnership with regional government departments (Direcção Regional do Ambiente, Direcção Regional dos Recursos Florestais), local farmers, municipality of Nordeste, Azores University, IMAR –Coimbra University and RSPB (BirdLife UK), restoration of native biodiversity through the re-introduction of flora native species is taking place since October 2003:

- Annual production of nearby 50.000 plants in the nurseries at the Forest Services of Nordeste (*Erica azorica, Vaccinium cylindraceum, Juniperus brevifolia, Viburnum tinus ssp subcordatum, Frangula azorica, Prunnus lusitanica ssp azorica e Picconia azorica*);
- Plantation of more than 30.000 native plants in the area of action of the LIFE Priolo Project;
- Nearby 10 Km. of open or recovered paths in all the area of action;
- Plantation of more than 2 hectares of traditional fruit species;
- More that 70 hectares have already been cleared from exotics in the main area of live of the Azores bullfinch through the eradication of exotic species and the plantation of native species.

Prefecias

In the scope of the Regional Plan for the Eradication and Control of Flora Invasive Species in Sensitive Areas, namely in the actions mentioned above, the Eradication actions are always coupled with Recovery actions, and for those purposes infra-structures such as nurseries are being built in order to make large scale actions possible.

The Table 4 makes an assessment of the needs of native plans for the recovery actions that will follow the eradication actions, according to the interventions targeted during the Inventory, already presented above.

Table 4 - Assessment of the needs of native plans for the recovery actions

	Sta. Maria	S. Miguel	Terceira	Graciosa	S. Jorge	Pico	Faial	Flores	Corvo	Total
Laurus azorica	250	250	5000	250	250	250	250	250	250	**7000**
Erica azorica	250	250	5000	250	250	250	6000	250	250	**12750**
Viburnus subcordatum	250	250	250		250	10000	250	250	250	**11750**
Myrica faya	250	250	5000	250	250	250	6000	250	250	**12750**
Picconia azorica	250	250	250		250	250	1500	250	250	**3250**
Juniperus brevifolia	250	250	250		250	250	1000	1000	250	**3500**
Ilex pazorica	250	250	250		250	250	1500	1500	250	**4500**
Frangula azorica	250	250	250		250	250	250	250	250	**2000**
Vaccynium cilindraceum	250	250	250		250	250	250	500	250	**250**
Prunus azorica			250			250	250			**750**
TOTAL	**2000**	**2250**	**16750**	**750**	**2250**	**12250**	**17250**	**4500**	**2250**	**58500**

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15. SLOVAKIA / SLOVAQUIE

IMPLEMENTATION OF THE RECOMMENDATION NO. 99 (2003) ON THE EUROPEAN STRATEGY ON INVASIVE ALIEN SPECIES IN SLOVAKIA (2005 – 2006)

European Strategy/National Strategy

In 2004 the European Strategy on Invasive Alien Species (hereinafter as European Strategy) was translated into the Slovak language. Ministry of Environment of the SR sent both versions (English and Slovak) to the relevant stakeholders (all ministries and other selected relevant organizations with the recommendation to take the European Strategy into account while organizing activities within their responsibilities. Ministry of Environment also informed the relevant stakeholders about its intention to work out National Strategy on Invasive Alien Species (hereinafter as National Strategy) as a comprehensive (cross-sectoral) document and asked them to prepare their proposals for key actions which should be included into the National Strategy.

State Nature Conservancy of the SR in Banská Bystrica as the technical organization to the Ministry of Environment in the issues of nature and landscape protection prepared a draft of the National Strategy from the point of view of nature and landscape protection. The draft was presented at the 5th international conference *Invasions and Invasive Organisms* organized by the Slovak Agricultural University in Nitra in October 2004. Later, in 2005 Ministry of Environment sent the draft of the National Strategy to the relevant stakeholders not only for comments but also for their proposals of key actions. The positive fact was that the 12 ministries sent their comments and some suggestions for key actions. However, some of the comments required additional negotiations but in 2006 the work on drawing up the National Strategy was postponed and the issue was opened at the beginning of the year 2007.

Nevertheless, quite a lot of key activities proposed in the European Strategy/National Strategy (the draft) are being implemented. Following information gives some examples of what was implemented in Slovakia in the period 2005 – 2006 (up to the beginning of 2007 respectively).

1. Building awareness and support

As the work with the Slovak media (TV, radio broadcasting; national, regional and local newspaper and magazines) plays an important role in building awareness and support, contributions on invasive alien species (hereinafter as IAS) issues appear in the media. The contributions are prepared by various institutions, e.g. the State Nature Conservancy of the SR, Botanical Institute of Slovak Academy of Sciences, Slovak Agricultural University in Nitra, East Slovakian Museum in Košice etc.

The State Nature Conservancy of the SR published series of leaflets Invasive Alien Plant Species in Slovakia No.1- 5. As the whole series appeared quite interesting, practical, and helpful, second edition of the series was published and leaflet No. 6 is prepared for publishing.

East Slovakian Museum in Košice prepared an exhibition "*Unwanted invaders – invasive alien plant species around us*"in 2005. The exhibition is still very popular; it has been installed in many places all over Eastern Slovakia so far.

2. Collecting, managing and sharing information

The national lists of alien species of non-vascular plants (lichens and bryophytes) and fishes are prepared for publishing. The lists are results of work of Botanical Institute of Slovak Academy of Sciences and Faculty of Natural Sciences of Comenius University in Bratislava.

Quite intensive research has been focused on the distribution and impacts of Red-eared slider (*Trachemys scripta elegans*) on biodiversity of wetland habitats and on populations of protected species *Emys orbicularis*.

Some of the Slovak research institutions participate in European projects dealing with IAS, e.g. Institute of Landscape Ecology of Slovak Academy of Sciences is one of the partners in the

ALTERnet project (*Threat to biodiversity through invasive non-native species – a long-term monitoring network*).

State Nature Conservancy of SR participates in the project SEBI 2010 (*Streamlining European 2010 biodiversity indicators*.)

3. Strengthening national policy, legal and institutional frameworks

There is no special national legislation on IAS. Since 2002 the Act on Nature and Landscape Protection No. 543/2002 Coll. has been covering the issue partly. Some of its regulations also provide protection for ecosystems composed of natural species, including elimination of invasive alien species. According to the Order of the Ministry of Environment No. 24/2003 Coll. obligation to eliminate invasive alien species applies only to the seven most problematic plant species.

However, the national policy on IAS was strengthened:

- in February 2005 by the Order of the Ministry of Environment No. 110/2005 Coll. as some of its provisions prohibit possession of alien birds of pray (*Falconiformes*) and owls (*Strigiformes*), and Red-eared slider (*Trachemys scripta elegans*);
- in January 2007 by the Order of the Slovak Government No. 81/2007 Coll. as one of the conditions for direct subsidies in agriculture requires elimination of invasive alien plant species.

Besides the Slovak Ramsar Committee has prepared the draft of the Management Programme for Wetlands in Slovakia for 2008 – 2014 and its Action Plan. The issue of IAS has been incorporated in the Action Plan in the Goal 1 and Task 1.6 *Prepare guidelines and develops activities for the prevention of introduction of IAS control and/or eradication of IAS in wetland ecosystems*. It is planned that these documents should be discussed at the government level in June 2007.

4. Regional cooperation and responsibility

Traditionally, there is quite good cooperation between neighbouring countries: Czech Republic, Poland, Hungary, and Austria. Good example is on-going project "*Development of the net of biological monitoring for the support of effective management of protected sites*" between Hungary (National Park Aggtelek) and Slovakia (East Slovakian Museum in Košice with the cooperation of National Park Slovenský kras) within ITERREG III. Programme. IAS is one of the issues covered by the project. The planned project outcomes *inter alia* are coordinated transboundary activities on:

- building awareness and support (bilingual leaflets, brochures, lectures etc.)
- control of the most problematic invasive alien plant species in that region, e. g.: Tree-of-heaven (*Ailanthus altissima*) threatening habitats with the occurrence of endemic plant species *Onosma tornensis*, Goldenrod (*Solidago canadensis*), Late goldenrod (*Solidago gigantea*), Japanese knotweed (*Fallopia japonica*) threatening grasslands and wetlands.

5. Mitigation of impacts

Most of the management activities (eradication, containment, control of IAS) are still coordinated by State Nature Conservancy of SR and they are concentrated in protected areas. Areas, where no special protection is provided but invasive alien species have been recorded there, are also subject to management measures.

6. Restoration of native biodiversity

No special management activities for mitigation of impacts of IAS and/or for restoration of native biodiversity have been applied yet. However, there are some habitat types which are influenced by IAS, such as wetlands, grasslands, forests, and some species. In many cases assessment of the impact of some non-native species on various habitat types and on populations of native species is missing subject of many studies.

First studies from late 1990s proved significant negative impact of non-native *Rupicapra rupicapra* subsp. *rupicapra* on plant communities in the Slovenský raj National Park (Slovak Paradise) where for the first time the species was introduced in 1963. The studies also recommended eradication/control of its population. Distribution of introduced *Rupicapra rupicapra* subsp.

rupicapra in Slovakia and its impact on the populations of native subspecies *Rupicapra rupicapra* subsp. *tatrica* will be one of the tasks of the updated recovery programme for *Rupicapra rupicapra* subsp. *tatrica*.

Recommendation No. 61 (1997) on the conservation of the White-headed duck

White headed duck (*Oxyura leucocephala*) is listed as a protected species in Slovakia. Occurrence of the species is more accidental, so the size of its population is not known and there are no records confirming nesting of the species in Slovakia. As for Ruddy duck (*Oxyura jamaicensis*), there is no record confirming occurrence of the species in Slovakia.

Recommendation No. 114 (2006) on the control of the Grey squirrel and other alien squirrels

Occurrence of the grey squirrel (*Sciurus carolinensis*) and other alien squirrels has not been confirmed in Slovakia yet. The native species Eurasian red squirrel (*Sciurus vulgaris*) is listed as a protected and threatened species (category LR:lc – Lower Risk: Least Concern).

April 2007
Ministry of Environment of SR
State Nature Conservancy of SR
(Report prepared by Ema Gojdičová)

16. SPAIN / ESPAGNE

REPORT
ON THE ACTIVITIES ON INVASIVE ALIEN SPECIES (IAS) IN SPAIN

DIRECCIÓN GENERAL PARA
LA BIODIVERSIDAD

SUBDIRECCIÓN GENERAL DE VIDA SILVESTRE

INTRODUCTION

Invasive Alien Species (IAS) represents one of the most important threats to biodiversity on the world. Their effects can be viewed not only on the environment but on the economy and also on human health. Many international organizations had included the control of IAS between its priorities. In this way must be mentioned the International guidelines elaborated by the Convention on Biological Diversity for the elaboration of National Action Plans. In the field of international coordination it must be underline the European Strategy on Invasive Alien Species elaborated by the Bern Convention, and regarding European Union, the document of the Commission (COM 2006 (216) final), that include the proposition for preparing an EU strategy on IAS taking into account the Bern Convention European Strategy.

LEGAL FRAMEWORK

The main problem is the absence of a legal support focusing on the global aspects of IAS. This needed have already been exposed in former meetings. International character of the problematic and its implications not only on nature conservation, but on health, economy, international trade and many aspects of the human activity, seems to have needed a global legislation. In this context a European legal framework, by a Directive or other legislative proposition could be a great support for the development of national legislation and the control of IAS in Europe in a global perspective.

In Spain the next modification of the main legal body on nature preservation, the Law on the Conservation of the Natural Areas and Wildlife, foresee the creation of an "National Catalogue of Invasive Alien Species" dependent of the Ministry of Environment. This National Catalogue will include all species or subspecies of IAS that represent any serious threat for native species, habitats, agriculture or economy. Inclusion of any species in this National Catalogue will mean the prohibition of private possession, transport, traffic and trade, including foreign trade. The elaboration and approval of national strategies for control or eradication of species especially dangerous is also due.

SPANISH NATIONAL STRATEGY ON IAS

The Spanish Ministry of Environment, through the Direction General for Biodiversity (DGB), has promoted the elaboration of an Action Plan on Invasive Alien Species at national level. This Action Plan has been published on 2006 with the title: "*Especies Exóticas Invasoras: Diagnóstico y bases para su prevención y manejo*". This publication includes the analysis of the current situation of IAS in Spain and its ecological and economical problematic, making an risk analysis and suggesting prevention measures.

The Action Plan identifies the most dangerous species and proposed a preliminary list of IAS established in Spain, a black list of IAS in Spain whit 77 animal species, 8 fungi species and more than 130 plant species. There are also lists of species of urgent eradication, for example *Oxyura jamaicensis, Alectorix graeca, Coturnix japonica, Ammotragus lervia, Mustela vison, Myocastor coipus, Gambusia holbrooki, Esox lucius, Silurus glanis, Trachemys scripta or Dreissena polymorpha* between the animals or *Caulerpa taxifolia, Cortaderia selloana, Pennisetum setaceum, Carpobrotus*

edulis, Robinia pseudoacacia, Nicotiana glauca and Azolla filiculoides on plants species. Eradication of other species as feral dogs and cats, rabbits or rats is also recommended in some particular situations.

The Ministry of Environment had announced the creation of a Working Group whit the Autonomous Communities for elaboration the **National Strategy on Invasive Alien Species,** taking into account the Action Plan and the International Guidelines on the subject. Probably this National Strategy could be approved in 2008.

In last year one specific strategy, **The National Strategy for the Control of Zebra Mussel**, has been elaborated and coordinated by the Ministry and approved for the National Commission for Nature Protection.

In this time several regional governments have been elaborated or developed their own strategies on IAS. Most of the Autonomous Communities have also programmed programs of control or eradication of the most problematic species of IAS.

INFORMATION

The **Second National Congress on Invasive Alien Species, EEI 2006,** took place in the city of León, between 19th and 21th of September 2006, organised by the GEIB (Grupo Especialista en Invasiones Biológicas). The Congress concluded that biological invasions are one of the major threats to biological biodiversity and human well-being and express their concern for the impact in Spanish biodiversity, public health and the economy. They were exposed more than 80 communications.

In 2004 have been edited, by the Ministry of Environment, the book: "Atlas de las Plantas Alóctonas Invasoras en España", that contain the most rigorous information about invasive plant species in Spain. More than 200 alien invasive species are now naturalized in our country.

PREVENTION AND CONTROL

The Ministry of Environment had continued the programs the programs of control or eradication under its responsibility. Many other activities are developed by Autonomous Communities, local authorities and NGO.

In the National Park Network, the Ministry had continue whit the main AIS programs as the control of rats, cats and dogs that threatened the coastal birds in Timanfaya National Park (island of Lanzarote, Canary Island) or laurel pigeons in Garajonay NP (island of La Gomera, Canary Is). Also there are in National Parks of Canary Island programs for eradicate the species that affect the indigenous plants, for example *Ammotragus lervia* in Caldera de Taburiente NP (La Palma) or rabbits and wild sheep in Teide NP (Tenerife). Other example is the control of *Azolla* and *Carpobrotus* in Doñana.

Ministry also supports some programs in public domains (rivers and coasts) as the eradication of *Eichhoria crassipes* in Guadiana river and rats and rabbits in Chafarinas Islands.

In coordination whit the regional or local authorities, the Ministry continue whit important national or local projects. The most important of these programs are:

- National control of Ruddy duck (*Oxyura jamaicensis*). This species is the most important threat for the global endangered and native White headed duck.
- Control of American mink (*Mustela vison*) in areas where the European mink, one of the most endangered carnivore species on the world, exists.
- Control of feral cats and rats for conservation of Giant lizard of la Gomera, and critically endangered species endemic of that island.

17. SWEDEN / SUEDE

Sweden has continued the work with halting the loss of biodiversity caused by invasive alien species, using the Convention on Biological Diversity's *Guiding Principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystem, habitats or species* and the Bern Convention's *European Strategy on Invasive Alien Species* as a foundation. The most important step taken in implementing these decisions is that work on developing a national strategy and action plan on IAS in Sweden is now underway and will be completed by July 2008. Other measures include the following.

Building awareness and support

An Internet gateway on alien species in Swedish waters (www.frammandearter.se) aimed at the general public, journalists and environmental authorities was developed in cooperation between the Swedish Environment (SEPA), the three regional Information Offices along the Swedish coast (Stockholm, Göteborg and Umeå) and the *AquAliens* research program. This gateway offers general information on alien species in the marine and brackish water environments, their effects on biodiversity, human health and socio-economic values and fact sheets on about 50 alien species in Swedish. The species list and a number of fact sheets are being translated to English.

SEPA and researchers from the *AquAliens* research project have contributed to a number of articles in newspapers and have participated in several lengthy interviews on nature programs. *AquAliens* researchers have cooperated with the Universeum Science Center in Göteborg in developing an interactive exhibition of IAS opening in June 2007.

The increasing popularity of constructing water gardens/garden ponds has lead to an increased risk that alien plants and fish will be spread to natural waters. To meet this growing threat, the Swedish National Board of Fisheries and SEPA are together with experts preparing a pamphlet informing of the risks, aimed at nurseries and aquarium stores that sell garden plants and fish for ponds, as well as to consumers.

Collecting, managing and sharing information

The Nordic Council of Ministers has continued to fund the NOBANIS (North European and Baltic Countries Network on Invasive Alien Species) project. The Danish Forest and Nature Agency together with SEPA continue to coordinate the work of the 11 participating countries in developing the NOBANIS gateway (www.nobanis.org). Fact sheets have been prepared for 50 of the worst invasive alien species in the region and are now available on the web site. This gateway enables exchange of information and encourages cooperation among the participating countries in the region (Denmark (including Greenland and the Faroe Islands), Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, the European part of Russia and Sweden). All of the participating countries have put considerable effort and time into updating and improving their national lists on alien species as well as preparing the fact sheets.

The *AquAliens* research project (Aquatic Alien Species – where and how will they pose a threat to ecosystem functions and economy), funded by SEPA, is now completing its final year (2003-2007). Research within *AquAliens* (http://www.aqualiens.tmbl.gu.se/) is focused on studying the ecological effects of invasive alien species and particularly developing methods for risk assessment and quantifying the socio-economic effects of IAS. Results from research within *AquAliens* are being disseminated to environmental authorities and students through workshops and courses, as well as being published in the scientific literature.

Sweden continues its participation in the EU FP6 research program DAISIE (Delivering Alien Invasive Species Inventories for Europe) as the representative for the Nordic Countries and Latvia.

Strengthening national policy, legal and institutional frameworks

As mentioned above, work on developing a national strategy and action plan on invasive alien species is now in progress and will be completed by July 2008. An overview of gaps and inconsistencies in Swedish laws, regulation, and routine from 2005 and four other earlier reports are the basis for the continuing work with a national strategy. A consortium of six sectorial authorities is actively participating in the development of the strategy. As work with the strategy progresses, more environmental authorities at the different levels will be invited to join the work, as will stakeholders and organizations.

A workshop on the *The Ecological Effects of the Spread of Genetically Alien Populations* was organized in October 2006 as a part of the work in developing a national strategy. Over 60 people from authorities, organizations and stakeholders affected in some way by the practices of spreading alien populations, through stocking of fish, planting of forest trees, release of captive bred birds for hunting, participated. The workshop produced a list of recommendations which will be published in a SEPA report.

Other reports that have been produced to form a basis for work with the national strategy include: an overview of national strategies and their content, an analysis of the information flow regarding IAS and the need for improvement, an analysis of the early warning system for invading alien species with a case study of incursions of the raccoon dog from Finland.

The Swedish Board of Fisheries' *Policy on the introduction and transfer of fish* continues to be implemented with promising results. The strategy provides guidelines for the spread and use of hatchery reared fish in the wild, which aims at protecting the genetic integrity of indigenous fish populations.

Regional cooperation and responsibility

Sweden continues its commitment to developing regional cooperation through its work in the NOBANIS and DAISIE projects (see above). Sweden has also contributed considerable time in the European Environmental Agency SEBI2010 work with developing indicators for the loss of biodiversity by IAS. Sweden is also actively engaged in work within HELCOM and OSPAR with implementing the International Maritime Organization's Ballast Water Convention.

Prevention and Early Detection and Rapid Response

National legislature regarding hunting enables the Swedish government to prevent the establishment of invasive alien species. Sweden also implements CITES rules to control the spread of three species which are a threat to Europe's biodiversity.

Unfortunately, Sweden has not been successful in preventing the introduction of new alien species, nor has been effective in early detection and rapid response. The macroalgae *Gracilaria vermiculophylla* was discovered in Bohuslän in 2003, but had already achieved such a distribution that it was not considered possible to eradicate. Efforts have been directed towards documenting its further spread. Several pairs of ruddy duck has been observed nesting in Central Sweden, but have not been eradicated due to administrative problems. Raccoon dogs (*Nyctereutes procyonoides*) were detected in the Haparanda National Park, after their recent spread from Finland. In this case, due to the personal engagement of an enthusiastic researcher, the raccoon dogs were eradicated. These cases highlight the need for a improving environmental monitoring programs so that introductions of invasive alien species are detected at an early stage developing a rapid response system for dealing with introductions.

Mitigation of impacts

Control programs for the containment of some invasive species have been established by local environmental authorities and organizations. Mink is being controlled through hunting in a number of counties throughout Sweden. A program for removing the Japanese rose (*Rosa rugosa*) from national parks and other protected coastal areas is being carried out in Skåne, Southern Sweden. Local authorities have programs for the removal of the Giant hogweed (*Heracleum mantegazzianum*) and Parkslide (*Fallopia japonica*) in Southern and Central Sweden.

The Swedish Board of Fisheries has together with the local environmental authorities implemented a program for conservation of the indigenous noble crayfish (*Astacus astacus*) which involves limiting the spread of the alien Signal crayfish (*Pacifastacus leniusculus*).

Restoration of native biodiversity

The removal of invasive alien species is the only measure that is taken at present to restore native biodiversity in Sweden which has been affected by invasive alien species.

Melanie Josefsson
Swedish Environmental Protection Agency

18. THE NETHERLANDS / PAYS-BAS

REPORT ON ACTIVITIES OF THE NETHERLANDS ON INVASIVE ALIEN SPECIES

1. General

The Netherlands is a small country with many borders (also in harbours and airports) and a lot of international transport movements. Therefore it is vulnerable to the entry of species via land, sea or rivers. International cooperation to stop undesired introduction of invasive alien species is important to control this.

For the Netherlands the most important international frameworks for dealing with the threat of invasisve species are:

- Convention on Biological Diversity
- Bern Convention
- International Plant Protection Convention
- Phytosanitary Directive EU
- Draft Convention on Ballast water

2. National approach

The national government primarily aims at prevention of introduction of invasive species in the Netherlands, by undertaking action as soon as possible after new species have been noticed and identified as harmful. For that purpose sufficient knowledge about the effects of certain invasions, a well-functioning alert system, measures to prevent unwanted imports and adequate information of key actors is needed.

Once an invasive alien specie has definitely established itself in the country and cannot be fully eradicated any more, the primary responsibility is with land managers to control the specie.

A national policy paper for IAS is presently under preparation.

The policy paper will elaborate the following set of measures:

- **Prevention:** communication about potentially harmful species, halting intentional introductions, effective implementation of existing legislation, cooperation with relevant partners (importer firms, transport sector)
- **Elimination:** quick reaction when an invasive alien specie is starting to establish a population, advise on best measures to eradicate and by whom
- **Management:** if specie has permanently established itself, role of landowners, assistance by government (local, regional, national) , water authorities, hunting associations etc.
- **Information and monitoring**: adequate information to enhance prevention, capacity-building with relevant actors, international exchange

This IAS paper will not incorporate alien species related to agricultural diseases, as this is already adequately covered in existing programmes and measures.

3. Coordination

The Ministry of Agriculture, Nature and Food Quality is responsible for IAS matters. An Advisory Committee on IAS assists the Ministry. This independent committee consists of representatives from research institutes, the business sector, NGO's and nature area managers.

The actual work of implementing the national policy will be put in the hands of a Coordinating Body, led by the National Agency for Phytosanitary Issues. This agency has much experience with the problems of harmful species, although particularly with regard to agricultural pests. Other institutes and experts will be involved where needed.

The Coordinating Body will focus on tasks with regard to prevention, monitoring, risk analysis and eradication.

19. UNITED *KINGDOM / ROYAUME-UNI*

NOTE OF PROGRESS IN THE UNITED KINGDOM.

1. Bio-geographic basis for action

1.1. The issue of Invasive Alien Species (IAS) is being addressed in the United Kingdom (UK) on the basis of two bio-geographic approaches. Northern Ireland authorities are working with Irish counterparts on an all-Ireland basis whilst England, Scotland and Wales are adopting a co-ordinated approach on a Great Britain (GB) basis.

2. The GB Mechanism

2.1. Recognising the need for better policy co-ordination at a strategic level, the overall approach to tackling IAS in GB is collectively described as the GB Mechanism and comprises the following elements:

- the GB Programme Board - to oversee and guide policy development on IAS at the strategic level. This will also be the key operational decision-making body on implementation of the GB strategy;
- the GB Non-Native Species Secretariat - to provide administrative and operational support to the Programme Board; act as the main day to day link between the Programme Board, the other components of the mechanism, the all-Ireland process and wider stakeholders; and to play a pivotal role in delivery of actions instigated by the Programme Board;
- the GB Non-Native Species Risk Analysis Panel (RAP) – to over see risk assessment and horizon scanning functions that will support the Programme Board's strategic function;
- Working Groups - to be established to examine specific issues or deliver specified outcomes;
- The GB Stakeholder Sounding Board – a small but representative core of a range of stakeholders to facilitate timely interaction and preliminary advice on appropriate issues, for example, on implementation of the measures set out in the GB strategy;
- the GB Non-Native Species Stakeholder Forum - held annually as an opportunity for a stock-take on progress and emerging issues with all interested stakeholders.

3. Developing the strategic approach

3.1. Following a wide ranging GB policy review on IAS, the GB Programme Board has decided to develop a GB Invasive Non-Native Species Framework Strategy.

3.2. The draft GB strategy and other information about the GB approach can be found at the new GB Non-native Species Secretariat website at: http://www.nonnativespecies.org/

4. GB Invasive Non-native Species Framework Strategy

4.1. Noting the various international commitments and targets concerning IAS, the GB strategy notes the Bern Convention's European IAS strategy and the CBD guiding principles, and is built around the prevention, early detection/rapid action and longer term management approach. It has been developed with significant stakeholder involvement.

4.2. With regard to implementation by 2010, we are developing an implementation plan and making other preparatory arrangements. For example: the Risk Analysis Panel has already started work, we have identified key responsibilities within Government departments and related bodies and we are currently examining the practicalities and technical issues for establishing a central data capture mechanism on IAS to support surveillance, monitoring and early detection/action.

5. The all-Ireland approach

5.1. Following on from the "Invasive Species in Ireland" report in 2004 the 'Invasive Species in Ireland' project is a three year contract managed jointly by EHS and National Parks and Wildlife

Service (NPWS) to begin the implementation of the recommendations.

5.2. Outputs to date include risk assessment work; listing of non-native species known to be present in Ireland, and invasive species likely to invade Ireland and pose a risk; ranking of species according to risk, a review of best practice in education and awareness programmes; convening the first annual Invasive Species in Ireland Forum and work to develop exclusion and management strategies.

6. Control/management and other action

6.1. Through various plans and programmes, control/management and other action continues in relation to a range of invasive non-native species. For example:

- the LIFE co-funded Ruddy Duck (*Oxyura jamaicensis*) Eradication Programme will run until 2010. Between September 2005 when the programme began, and 15 January 2007, a total of 2,689 ruddy ducks have been shot in the UK;
- management of deer populations continues under relevant action plans and policies;
- in January 2006, we published a grey squirrel (*Sciurus carolinensis*) action plan and policy document for England and the Red Alert North England project unveiled a proposed £1 million conservation scheme, including 16 red squirrel reserves, to save the species from encroaching grey squirrels. Forestry Commission England has also launched new funding streams in support of this work, targeting these areas and surrounding buffer zones through its English Woodland Grants Scheme;
- the Environment Agency for England and Wales produced a revised code for developers on tackling Japanese Knotweed (*Fallopia japonica*); we are progressing research into a bio-control agent for this plant and recently the Government has instigated public consultation on proposals to allow land remediation tax relief for responsible re-habilitation of land contaminated with Japanese knotweed;
- research has been undertaken in Scotland into the threat of hybridisation between our native bluebell species (*Hyacinthoides non-scripta*) and the imported Spanish bluebell (*Hyacinthoides hispanica*);
- we have undertaken research to develop and peer review a generic risk assessment methodology for IAS purposes involving experts within UK and abroad; and
- we have instigated early action to eradicate invasive alien species of water primrose (*Ludwigia spp*) before the plant becomes widely established. We are using the new GB Secretariat website to encourage reporting of further any populations. We have also undertaken early control of bullfrog (*Rana catesbeiana*) at two locations, and approximately 70 escaped chipmunks (*Tamia sibericus*).

6.2. Recent legislation in GB has included powers to prohibit the sale of certain IAS and to enable ministers to officially approve appropriate codes of practice regarding IAS – the content of such approved codes will be taken into account in enforcement proceedings thus giving their content more weight.

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20. CONVENTION ON BIOLOGICAL DIVERSITY / CONVENTION SUR LA DIVERSITÉ BIOLOGIQUE

CBD

Secretariat of the Convention on Biological Diversity

WORK ON INVASIVE ALIEN SPECIES UNDER THE CONVENTION ON BIOLOGICAL DIVERSITY

Decisions on IAS

Article 8(h) of the Convention on Biological Diversity (CBD) states that "Each contracting Party shall, as far as possible and as appropriate, prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species". The Conference of the Parties (COP) has acknowledged the urgent need to address the threat of invasive alien species (IAS) at its fourth meeting (decision IV/1), in 1998. The COP has addressed IAS most notably in decisions V/8, VI/23, VII/13 and VIII/27.

The decision of COP-6[13] (2002) included adoption of Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that Threaten Ecosystems, Habitats or Species. The Guiding Principles are: 1: Precautionary approach; 2: Three-stage hierarchical approach; 3: Ecosystem approach; 4: The role of States; 5: Research and monitoring; 6: Education and public awareness; 7: Border control and quarantine measures; 8: Exchange of information; 9: Cooperation, including capacity-building; 10: Intentional introduction; 11: Unintentional introduction; 12: Mitigation of impacts; 13: Eradication; 14: Containment and 15: Control.

At COP-7 (2004), it was noted that "specific gaps in the international regulatory frameworks at global, regional and national levels persist, notably in relation to species that are invasive, but do not qualify as plant pests under the regulations of international agreements", with regard to the following pathways:

(a) The use of non-native organisms in aquaculture and the restocking of marine and inland water systems for commercial and recreational fisheries taking into account contributions of national codes, and voluntary international efforts such as Codes of Practice on the Introductions and Transfers of Marine Organisms developed by the International Council for the Exploration of the Seas and the FAO Code of Conduct on Responsible Fisheries;

(b) Unintentional or opportunistic introductions (e.g., "hitchhiker organisms"), including through hull-fouling, packaging material, import consignments, vehicular transport and other means;

(c) Unintentional introductions of invasive alien species through international assistance and humanitarian programmes, tourism, military, scientific research, cultural and other activities;

(d) Intentional introductions of alien species for non-food purposes, including certain aspects of horticulture and trade in pets and aquarium species;

(e) Intentional introduction of alien species, as biocontrol agents for control or eradication of invasive alien species, pests or weeds;

(f) Transnational and national ex situ breeding projects with alien species as sources for intentional or unintentional introduction;

[13] One representative entered a formal objection during the process leading to the adoption of this decision and underlined that he did not believe that the Conference of the Parties could legitimately adopt a motion or a text with a formal objection in place. A few representatives expressed reservations regarding the procedure leading to the adoption of this decision (see UNEP/CBD/COP/6/20, paras. 294-324).

(g) Intentional introduction of invasive alien species through international assistance programmes, including conservation and development projects and other activities;

(h) Intentional introduction of potentially invasive alien species through international incentives schemes;

(i) Introduction of alien species through aquaculture escapes, bait and pet releases, water transfer schemes.

The decision of COP-8 (2006) identified measures by which Parties, other governments, relevant organizations and the Executive Secretary should address identified pathways for invasive alien species. Decision VIII/27 requests the Executive Secretary to prepare a report for the in-depth review at COP-9, 2008, which includes the analysis of the third national reports.

Consideration of IAS in CBD programmes of work

IAS occur in and affect all major taxonomic groups and ecosystems and is considered cross-cutting issue applicable to all work of the Convention. IAS has been addressed to varying degrees under the thematic work programmes (Agricultural biodiversity, forest biodiversity, inland waters biodiversity, marine and coastal biodiversity, mountain biodiversity, island biodiversity, dry and sub-humid lands) and other cross-cutting issues (e.g. taxonomy, ecosystem approach, indicators, impact assessment etc…)

For more information, consult the pages on COP decisions and CBD documents at www.biodiv.org.

Partners for implementation of work on IAS

The CBD collaborates with a wide range of partners on the implementation of Article 8(h) of the Convention and associated decisions of the Conference of the Parties, including the following:

CAB International, Convention on International Trade in Endangered Species, Food and Agriculture Organization of the United Nations, Global Invasive Species Information Network, International Civil Aviation Organization, International Maritime Organization, International Plant Protection Convention, IUCN (The World Conservation Union) – Invasive Species Specialist Group, OIE - The World Organization for Animal Health, Ramsar Convention on Wetlands, The Nature Conservancy, United Nations Environment Programme, World Trade Organization.

Overall Assessment of Progress-3rd National Report

The Secretariat of the CBD has analysed 3rd national reports submitted by 101 Parties, which contain 12 questions (45-56) on Article 8 (h) of the Convention on Biological Diversity.

Areas where 50% of Parties or more report positively in their questions on work on IAS include: regional and/or subregional cooperation; and the use of the ecosystem, precautionary and biogeographical approaches. Compared to results in the 2nd National Report, percentage participation by Party for regional cooperation has increased slightly. Overall, more of the developed country Parties reported on undertaking regional cooperation and the use of the ecosystem, precautionary and biogeographical approaches, compared to developing country Parties and countries with economies in transition. Although more than half of Parties are undertaking work in the ecosystem and precautionary approach, few have considered the biogeographical approach, and more work needs to be done in this area.

Areas where less than 50% of Parties report positively (although many Parties may have activities under development) in their questions include: creating mechanisms for international cooperation and multilateral cooperation; identifying IAS species with a tracking system in place; identifying needs and priorities for the implementation of the Guiding Principles; creating mechanisms for cooperation between sectors; collaborating with trading partners and neighbouring countries to address threats of IAS; and developing financial measures, policies and tools to promote activities to reduce threats of IAS. A slightly higher percentage of Parties had a tracking system in place in 3rd National Reports than in 2nd National Reports.

Areas where only a few Parties answered positively (although many may have activities under development) to questions included: assessing risks posed to ecosystems, habitats or species by most IAS (most Parties have for some IAS); undertaking comprehensive measures to prevent the introduction of, control or eradicate IAS (most Parties have some measures); establishing mechanisms to coordinate national programmes for applying the Guiding Principles; reviewing, adjusting and developing policies, legislation and institutions in the light of the Guiding Principles; and developing capacity to use risk assessment to address threats of IAS and incorporating methods into environmental impact assessment (EIA) and Strategic Environmental Assessment (SEA).

Many countries have conducted risk assessments for some or most IAS and have some measures or comprehensive measures in place to prevent the introduction of IAS. Development and review of policies, legislation and institutions was particularly evident in developed country Parties. They are also more likely to have mechanisms under development to coordinate national programmes, compared to developing countries or those with economies in transition. There is an apparent need for partnerships and support for the development of capacity for risk assessment.

The obstacles to prevention, management, control and eradication of IAS that were cited most often by Parties were: the lack of a comprehensive IAS strategy; insufficiency of funding; scattered information and lack of knowledge; and lack of capacity. Without significant investment, the rate of IAS introductions and their costs may continue to increase.

Indicators as part of the framework for assessing progress towards the 2010 Biodiversity Target

In decision VI/26 the COP adopted the Strategic Plan for the Convention on Biological Diversity towards a more effective and coherent implementation of the three objectives of the Convention. Its mission is to "achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth".

In decision VII/30 the COP adopted a framework to "facilitate the assessment of progress towards 2010 and communication of this assessment, to promote coherence among the programmes of work of the Convention and to provide a flexible framework within which national and regional targets may be set, and indicators identified". The framework in decisions VII/30 and VIII/15 contains seven focal areas, which include "threats to biodiversity". Provisional indicators identified under this focal area were "numbers and cost of alien invasions". Work is underway to further develop IAS indicators with GISP, IUCN – The World Conservation Union, SEBI2010 and others to develop the specific indicators (with the help of the 2010 Biodiversity Indicators Partnership).

Options for a global indicator on trends in Invasive Alien Species – Report commissioned by the Secretariat to the CBD (2007)

"Trends in Invasive Alien Species" has been selected as one of about 20 global headline indicators to measure progress towards the 2010 target. The CBD had originally suggested numbers and cost of IAS as potential indicators (decision VII/30), however a more robust indicator should be developed by 2010 specifically addressing the two targets (decision VII/30): "pathways for major potential alien invasive species controlled" and "management plans in place for major alien species that threaten ecosystems, habitats or species".

The CBD Secretariat therefore commissioned the Species Survival Commission of IUCN-World Conservation Union, through the Indicators and Assessment Unit, Institute of Zoology, Zoological Society of London to carry out a study on Options for a global indicator on "Trends in Invasive Alien Species". This study was conducted to assess the availability of data, assessment processes and feasibility of these data and processes to develop a global indicator of trends for 2010 and a long-term scaleable indicator. A survey of online databases and other sources of information were undertaken and other IAS data surveys and proposed indicators were evaluated. The main findings on IAS data were: patchy and uneven quantity and quality of data across countries and regions; taxonomic and geographic biases; no central data access; inaccessible data; terminology and conceptual issues not standardized; and inconsistent methodology, scale and reporting frequency. Given these limitations, the following indicators were suggested: number of alien species per country, number of IAS per

country, spread of worst IAS across nations, regions; abundance of selected IAS populations, control of major introduction pathways, management plans in place to control IAS; trends in populations of species threatened by IAS; changes in the threat status of species threatened by IAS; trends in the number of species threatened by IAS.

It was suggested that an *ad hoc* expert meeting of IAS data holders and users be organized to review this study and discuss the next steps.

Ad hoc meeting of IAS data provider and user groups to develop the 2010 IAS indicator (Imperial College, London, 22-23 January 2007)

This workshop was organized as a follow-up to the report "Options for a global indicator on trends in Invasive Alien Species", to develop a plan for IAS indicator development and implementation under the Biodiversity Indicators Partnership (BIP). The IAS data providers, data users and indicators experts evaluated availability of data, feasibility of indicators for measuring trends in IAS by 2010, at national, regional and global levels. A framework was also developed on how to transform these recommendations into practical indicators.

The complete list of IAS indicators under consideration is in the table from the report on this meeting, which is pasted below. Meeting participants considered and reviewed each indicator in working groups. They also assessed whether the indicator could be delivered by 2010, and which could be delivered over a longer term. Each potential indicator was scored high (H) medium (M) or low (L), for 1) Relevance (to policy and understanding of threat to biodiversity from IAS; 2) Rigour (i.e. scientific validity; and, 3) Representativeness (geographic) (i.e how well the measure could be developed to reflect a broad range of nations and regions).

Table: Assessment of possible indicators. Each indicator is reviewed for 2010 and beyond. The scores are (H)igh, (M)edium and (L)ow for Relevance, Rigour and Representativeness. The selected indicators are asterisked (*)

PROSPECTS FOR 2010	LONGER TERM PROSPECTS	SCORE		
I Measures of number				
I.i No. of alien and naturalised species. This is measured at the country scale, so alien indicates out of country. The measure would assess the effectiveness of management of invasions ans spread				
At country level - achievable only for a limited number of countries. 50 countries have lists of alien /invasive species. 10-15% of which have date of introduction for some species (approx. 5-20 countries overall could have a trend. No global measure, European bias). With some research into global distribution of aliens this baseline list could be improved (using date of introduction, not date species became invasive) to create trends but for a limited set of countries only. Could use past dates of introduction to back track to 1980 /1990 baseline. Outstanding issue of cryptogenic species?	Could be developed by encouraging countries to record aliens in surveys and expeditions more consistently, using data standards proposed by GISIN. In the future this measure may become more useful and fit well with other measures. Important to distinguish between 'alien' and 'naturalised' in this category.	M-M	L-M	L-H
* I.ii **No of invasive alien species** This is subset of the measure above and more relevant. Need an operational definition of invasive for this dataset and discussions with data owners (to define date of intro/ invasiveness). Many country lists use a variety of terms (e.g. exotic) and many include alien invasives disproportionately to aliens, but do not denote them as such.				
Feasible at country level for limited no. of countries. Many have date of introduction (but not the date the species became 'invasive'). Could, with effort produce trend for 2010 for limited set of countries – though likely to be biased to temperate and European countries.	Preferred measure for longer term development. Need to identify a subset of countries across regions and habitats with limited data to create improved lists of countries for more global dataset.	H-H	L-M	L-H
I.iii No. of invasive species – in this case invasive species are counted regardless of whether they are alien or not. Especially important for large, heterogeneous countries where native species can become invasive.				
Not possible anywhere at present. Needs to be gathered at site / sub-country / country level.	Something that was considered useful. Needs to be defined much more clearly and have data collected. Site and sp level data sets could contribute new info.	-	-	-
II Measures of Spread				

PROSPECTS FOR 2010	LONGER TERM PROSPECTS	SCORE		
II.i Spread of "worst" IAS. This is a subset of spread of IAS below				
Using ISSG list of the worst IAS it would be possible to obtain trends but would need date of introduction, which will be possible for many countries. Most useful at country level - global measure would be of limited use.		H-H	L-L	L-L
II.i Spread of IAS.				
Only country/ regional level state assessments exist. Trends for limited species in certain countries would be possible. Some detailed geographic baselines available (S Africa, NZ, Australia), DAISIE (Europe in 2008) (plants generally, some mammals). Outstanding issues = Time scale of change.	More regional specific trends may become available. May have some better mapping of habitats that are impacted by invasives (mangroves, etc) in the future but there will be a large resolution issue (Landsat, IKONOS). Good to combine with population / density / impact of invasives. Land surface area free from invasion as a potential measure.	.-H	.-M	.-M
III Measures of Abundance				
* III.i **Population trends / abundance** (of transformer species). This would be based on databases of population trends accumulated across species, populations and sites, such as the Living Planet Index				
Could have a global trend for 2010, measured as rate of change of populations of alien species from 1970-2010 at biogeographical scale globally. Problems are taxonomic bias to vertebrates, lack of data for certain countries and ecosystems (same as no. of alien species, above). Better measure could be number of invasive populations in state of rapid increase. Requires investment in data gathering and testing for best analysis.	Would be good in the future if there are good population data for more taxa; could be adapted as a measure of management effectiveness. Encourage national targeted data gathering to include IAS.	M-M	M-M	M-H
IV Measures of Control				
* IV.i **No. of countries that are party to relevant international agreements**, i.e. where there are articles or obligations regarding IAS				
This is a country level measure but can aggregate to produce global scores. Trends for 2010 can be produced by checking listed conventions for each country. Has the country ratified conventions? Are there legal operations in place nationally?. Baseline possible, trend possible as can backtrack. Needs to be coordinated with CBD reporting. Illustrative conventions: 1. Convention on Biological Diversity 2. Cartagena Protocol on Biosafety 3. International Plant Protection Convention (IPPC) 4. Convention on Migratory Species (CMS / Bonn Convention) 5. Convention on International Trade in Endangered Species (CITES) 6. Ramsar Convention on Wetlands (Ramsar) 7. Ballast Water Convention 8. Sanitary and Phytosanitary agreement 9. OIE (Organisation International d' Epizoologie) 10. Convention on International Civil Aviation (the Chicago Convention) 11. International Postal Union 12. IAS identified as an issue in National Biodiversity strategies 13. IAS identified as an issue in National Biodiversity Action plans e.g. Number of countries scoring < 5	Measure management effectiveness in the future. Quality evaluation / validation is an issue.	H-H	H-H	H-H
***IV.ii No. of countries with operational management of introduction pathways**				
Needs to be established with minimum criteria, e.g existence of management regulation / plan, some evidence of implementation of above. Relevant pathways to score: waterways: marine, waterways: freshwater, postal, air, within translocation, road /rail. Needs to be coordinated with CBD reporting. Could create baseline/ status for a good sample of countries.	Measure management effectiveness (effort) in the future. Adopted international system of standards relevant to IAS (under SPS agreement / ISO /IPPC). Precision may improve over time to be quality assessment rather than simple yes/no.	H-H	L-M	M-H

PROSPECTS FOR 2010	LONGER TERM PROSPECTS	SCORE		
Baseline for 2010 (will profile the problem), no trend data.				
*** IV.iii No. of IAS management plans in place**. Can just be whether the country has a management plan for IAS, could have criteria, e.g. management plan should include components of management, eradication / control and prevention.				
Data to be gathered at country level, but could be accumulated for global measures. Good for profiling the problem (if know where the IAS are etc). Ecosystem / regional / site optional. No trend data but should be able to create a status for some countries. Limited data available for status assessment.	Expand to include more in depth definition of management plan (Has country adopted international system of standards relevant to IAS (under SPS agreement / ISO /IPPC)), effectiveness of plans (surveillance >> management against re-invasion). Requires lots of effort. Good measure in the long run. Co-relating level of management in place with level of threat?	H-H	L-M	L-M
V Measures of Cost				
*** V.i Economic impacts** (cost and benefit) (economic cost of invasives, total – includes economic, livelihoods, biodiversity, control, etc).				
At present only case studies are available. We are still way off gathering biodiversity economic data usefully. Maybe possible to estimate single impact cost estimates for certain countries (including pests). Requires research into current projects underway (watersheds, climate change, country based etc). No information likely for 2010 beyond case studies.	Possibility of broadened approach based around case studies. Very effective measure if possible. Also possible to look at predictions of costs of IAS with climate change etc. Modellers and economists needed.	H-H	L-L	.-H
VI Measures of Impacts				
*** VI.i Change in threat status of species driven by invasives** This can be gathered from the IUCN Red List database, which records threats and status for threatened species. The Red List Index (RLI) records trends in threatened species, and this could be estimated only for those threatened by IAS.				
Global measure (for certain groups). Trends in threat status possible for birds, mammals, amphibians, cycads, conifers and sample of all vertebrates (sampled Red List Index) plus baseline data for other groups. By 2008 will be able to ID to invasive species. Can't disaggregate to scale of small countries, unless evaluate extinction risk at national scale. Only for globally assessed groups or sampled groups for RLI.	Global level for other groups in time, sampled RLI.	H-H	M-M	H-H
VI.ii Number of species threatened by IAS				
Baseline data only. Need to record reasons for change against changes.	Possible. Record impacts of IAS on ecosystems (or ecosystem function) in a more systematic way.	H-H	M-M	H-H
***VI.iii Population trends of species threatened by IAS**. As in III.i, this would be based around aggregated population trend data, such as used for the LPI. Could only be done for species whose main threat is IAS, and data gathering to record the type and impact of threat is needed				
With effort could be coarse status information, maybe trends, for 2010.	Could be further developed; complex methodological issues concerning species facing multiple threats whose relative impact is changing over time.	H-H	M-M	M-H
VI.iv Measure of ecosystem health				
No available data	Desirable but huge problems as difficult to aggregate & compare across ecosystems. Encourage ecosystem health community to consider IAS.	.-H	.-L	.-L
***VI.v Emerging disease outbreaks** (number of outbreaks over time). Explore case studies for 1 or 2 select ed diseases? E.g. whirling disease, chronic wasting disease, rinderpest, chytridomycosis, malaria (by invasive mosquitoes), Nile virus, exotic Newcastle disease). Issue of how to define an emerging disease, but potentially a good measure. Requires research into what currently available.				
Spread of disease outbreaks over countries possible. Probably no more than a limited case studies available for 2010.	Maybe	H-H	M-M	L-L
***VI.vi Number or % areas important for biodiversity (e.g. key biodiversity areas /IBAs, some Protected Areas,**				

PROSPECTS FOR 2010	LONGER TERM PROSPECTS	SCORE		
Ramsar Sites etc) threatened by invasives (where invasives are one of the most important threats).				
Probably achievable, but not completely global. Status measure possible. Some data with trends for countries (or ecosystems / sites).	Global coverage desired. Needs some further development. IBA coverage soon complete, KBA some way off global coverage. Could look at Protected Areas also, but data patchy and possibly biased, plus PA may be set up for one purpose (e.g. not for biodiversity), with invasives impacting species within the PA	H-H	L-M	M-H

Prioritized list of recommended IAS indicators with data requirements

The process above resulted in the following 9 measures being short listed as promising. These cut across many areas with only spread being ruled out for consideration for 2010. Most will not be possible before 2010.

1. No. of invasive alien species
2. Population trends / abundance
3. No. of countries that are party to relevant international agreements
4. No. of countries with operational management of introduction pathways
5. No. of IAS management plans in place
6. Economic impacts
7. Change in threat status of species driven by invasives
8. Population trends of species threatened by IAS
9. Emerging disease outbreaks
10. Number or % areas important for biodiversity threatened by invasives

21. Convention on the Conservation of Migratory Species of Wild Animals (CMS)

«INVASIVE ALIEN SPECIES AND MIGRATORY SPECIES»

A study undertaken by Ms. Laura Cerasi

under contract to the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (CMS)

INTRODUCTION

The Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) is undertaking a study to assess the adverse effects of invasive alien species on the conservation of migratory species. The study is financed by a grant from the Government of Italy (Ministry of Environment, Direction General of Nature Conservation).

CMS identifies threats caused by invasive alien species as an issue that needs special attention:

Article III (4) of CMS Convention Text declares:

- *Parties that are Range States of a migratory species listed in Appendix 1 shall endeavour: …(c) to the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger the species, including strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species.*

Article V (5) of CMS Convention Text declares:

- *where appropriate and feasible, each agreement should provide for, but not be limited to: …(e) conservation and, where required and feasible, restoration of the habitats of importance in maintaining a favourable conservation status, to protection of such habitats from disturbances, including strict control of the introduction of, or control of already introduced, exotic species detrimental to the migratory species.*

The study is expected to contribute to the attainment of two targets of the CMS Strategic Plan 2006-2011, in particular:

***Target 1.4*:**

- Reviews of major threats to migratory species and obstacles to migration completed at regular intervals and guidelines for appropriate actions developed.

And Target 2.6:

- Actions to mitigate the most serious threats to migratory species and obstacles to animal migration initiated or carried out, in particular relating to wind turbines, power lines, by-catch, oil pollution, climate change, disease, invasive species, illegal take.

Although the CMS is the principal driver for this review, the findings might be relevant to other Conventions and Organisations, with which CMS cooperates and coordinates activities connected to this and other priority issues of concern.

In this regard, the project is expected to take into account studies on invasive alien species undertaken by other organisations and programmes, in order to prevent duplication of efforts and improve synergies.

The main output of the study will be a publication whose main purpose will be to provide policy makers and technical advisers with the means to direct international and domestic conservation efforts as well as guide future research priorities in this area.

OBJECTIVES

The study aims at (i) identifying which migratory species are, or are most likely to be, affected by IAS; (ii) reviewing the types of impact (direct and indirect) made by IAS on migratory species, including the possible cumulative effects of invasive alien species and other factors; (iii) reviewing measures adopted or proposed to tackle impacts of IAS and comments on their respective merits.

In particular, these arguments will be developed to understand whether and how migratory species behave and react differently in comparison to sedentary species to impacts caused by invasive alien species. An overview of the interlinkages among global factors, migratory species and invasive alien species behaviour will be developed. Insofar as possible, the project will have a focus on marine migratory species threatened by IAS within the Mediterranean basin, migratory species acting as invaders and migratory species acting as vectors of infections posed by IAS.

The Secretariat invited CMS Parties to contribute to this study by providing case studies and information on impacts made by IAS on migratory species, for which they are Range States, and possible remedial action to address such impacts. The collection of these data is ongoing at the time this note is being produced.

The Secretariat is in contact with IUCN Invasive Species Specialist Group which has already provided relevant data on impacts caused by invasive alien species on migratory birds, protected areas and wetlands.

The Secretariat would be grateful if the members of the Bern Convention Group of Experts on IAS could participate in the project by contributing with information on specific case studies, if possible no later than June 2007, as the study is expected to be finalised approximately in November 2007.

PRELIMINARY RESULTS

The study has already produced some preliminary results, based on the examination of impacts caused by invasive alien species on migratory species included in Appendix I and II of CMS.

Information concerning IAS threats has been searched in the first instance through the original proposals for the inclusion of species on the Appendices, submitted by Parties to meetings of the Conference of the Parties. For all species for which a IAS-related threat was indicated in the proposals for listing, as well as for species included in the original Appendices of the Convention (1979) the following other information sources have been consulted: IUCN Red List of Threatened Species database, GROMS (Global Register of Migratory Species) and IMS (CMS Information Management System).

The information obtained has been compiled and analyzed to determine categories of threats caused by IAS affecting migratory species and relate them to migratory species' habitats. This preliminary analysis identified 33 migratory taxa, approximately 19% of the individual species, subspecies and/or specific populations of migratory species currently included in CMS Appendices, which are or have been affected by invasive alien species.

Preliminary results of this assessment show that most species affected by invasive alien species are birds; significantly lower percentages have been observed for mammals and fish.

IAS's threats predominantly occur in small islands and most of them have effects on the breeding success of native population through direct predation on adults, chicks and/or eggs. Other impacts such as competition with native species, destruction or modification of native habitats, diseases by pathogens and parasites introduced along with IAS and hybridization with the native species, have been observed.

The analysis also identifies a few cases of individual migratory species subjected to multiple threats from a range of IAS in different colonies/areas within its distribution range as well as from one invader within the same habitat.

22. EUROPEAN ENVIRONMENT AGENCY / AGENCE EUROPEENNE DE L'ENVIRONNEMENT

CUMULATIVE NUMBER OF ALIEN MARINE/ESTUARINE SPECIES IN EUROPE SINCE 1900

The indicator 'Cumulative number of alien species in Europe since 1900.' gives a good information on the rate of increase of the threat. The time period 'since 1900' seems well suited to show the development of the threat due to the presently most important driving forces (and to assess progress towards the 2010 target.). This is the most immediately available information that indeed highlights the (potential) pressure from alien species. Presently data is available for all of the European marine areas.

The criteria for inclusion of *alien* species are:

1. Only the first record in the wild of a particular alien species for the different regions in Europe is included (i.e. no multiple records).
2. Only verified (by experts) records are included.
3. Synonyms are checked

Although all alien species do not become invasive, the number of alien species introduced to an environment has a direct correlation with the number of species which may become invasive at a later date. The lag time from when an alien species is introduced until it may become invasive may be considerable. Casual records after 1920 are included since today's alien species may become tomorrow's invasive alien species.

The date of the establishment of the first population is of significance when we come to study the patterns and processes of invasion. However, in many, if not most cases, comprehending the patterns of spread is hampered by our ignorance of the species' arrival date. Often reports of new records depend upon intensity of research effort, whether by international expeditions, governmental agencies seeking to exploit marine resources, or by enthusiastic individuals. Consequently, it is commonly agreed that the date of collection (or, when missing, the date of publication) of the earliest specimens provides an upper bound date of entry.

For the purpose of this contribution, the following sources of introduced species in coastal/estuarine waters were considered: national datasets (e.g. Germany, Denmark, UK) released in the internet; review papers (e.g. Netherlands, Turkey); NEMO database for the Baltic; Black Sea database; HCMR data base for the Mediterranean; project reports (e.g. ALIENS) . Other key publications are a book dealing with aquatic invaders in Europe (Leppδkoski et al. 2002), contributions of experts for France, Spain, Russia (eg. S. Gollasch for the North Sea). Data has been verified/agreed in a dedicated SEBI2010 WG5 workshop (carried out in Athens, June 2006) supported by the EEA and updated by Argyro Zenetos (HCMR) until April 2007.

Data cover all European countries with sea borders plus North African and Middle Eastern countries surrounding the Mediterranean Sea. Compilation of species was made per Large Marine Ecosystem (LME) for eight LMEs designated in European Waters (http:/www.edc.uri.edu/lme) namely: the Baltic, North, Caspian, Iberian shelf, Celtic-Biscay, Mediterranean, Norwegian Shelf, and Black Sea. No doubt the precise delineation of the LMEs is, as with all classification systems, subject to expert judgement.

According to April 2007 update, more than 1200 alien marine and estuarine species have been introduced to European coastal waters, the majority in the last century. In the last 100 years, approximately 766, 203, 149, 135, 50, 46, 34 and 25 species have been introduced to the Mediterranean, Black, Celtic-Biscay, North, Iberian shelf, Caspian, Baltic and Norwegian respectively. The rate of invasive alien species introductions peaked in the 1980-90s period and continues at a steady rate today. For example, since the year 2000, 117 new species have been reported in the Mediterranean. When calculating the number of new invaders per time unit, every 9

weeks a new species is found. It should be noted that this value is regionally very different and, in Europe, there are indications that a new species was found every 3 weeks over the time period 1998–2000 (ICES WGITMO 2004).

At Pan_European level including Barents Sea, Iceland Shelf and Faroe Plateau, information is broken down by selected taxonomic groups: vertebrates, invertebrates, and primary producers (vascular plants and algae). Invertebrates are by far the dominant group with bottom dwelling animals (Zoobenthos) prevailing among them. Most of the newcomers belong to the phylum of Mollusca.

Number of marine aliens

	Dec 2006	**Apr 2007**	New records
Vertebrates	154	155	1 fish
Invertebrates	713+28unk	724+ 39unk	6 mollusca, 3 echinoderm, 1 jellyfish, 1 parasite
Primary producers	293+11unk	294+11ukn	1 microalgae
Total	1199	1223	

The list is doubtlessly an underestimation due to lack of knowledge concerning some taxa, the presence of cryptogenic species and lack of concerted efforts to survey port environments for alien biota. A Pan-European targeted effort to survey the presence and abundance of alien species is necessary as most of the records stem from accidental finds. A new instrument, part of the developing European early warning system on aquatic invasive species, is a rapid on-line journal focusing on biological invasions in European inland and coastal waters entitled *Aquatic Invasions*. In 2006, 55 research articles and short communications, included information on the recent range expansion and first records of aquatic alien species in European coastal and inland waters (more than 800 geo-referenced records including 55 new records in 2006).

Species are introduced unintentionally (e.g. with ships) or intentionally (e.g. for aquaculture purposes and re-stocking efforts). In shipping, the prime vectors for species transportation are ballast water and in the hull fouling of vessels. In February 2004, the International Maritime Organisation (IMO) adopted the International Convention for the Control and Management of Ship's Ballast Water and Sediments. The Convention will in the short term require ships to exchange their ballast water in the open sea. Later, ballast water quality standards will come into force. Ratification is unfortunately only proceeding slowly and it seems unlikely that the Convention will come into force in the near future.

Further, a considerable number of alien species migrates through man-made canals. Examples are the inner-European waterways connecting the Ponto-Caspian region and the Baltic Sea. Also, the Suez Canal "opened the door" for Red Sea species migrations into the Mediterranean Sea and vice versa.

When addressing marine bioinvasions, international cooperation is essential, as species spread across political boundaries. Further development during 2007 of regional databases (*i.e.* NOBANIS databases) for alien species will enable a thorough coverage of the Pan-European region.

23. European and Mediterranean Plant Protection Organisation (EPPO) / Organisation européenne et méditerranéenne pour la Protection des Plantes (OEPP)

EPPO'S ACTIVITIES ON INVASIVE ALIEN PLANTS

EPPO protects plants in agriculture, forestry and the uncultivated environment. For over 50 years, EPPO has sought to prevent the **introduction and spread of organisms** which are harmful to plants in the European and Mediterranean region. As an intergovernmental organization, it has developed **agreed standards and recommendations** for plant protection in its member countries. Traditionally, EPPO has given priority to pests of cultivated plants, i.e. insects, nematodes, fungi, bacteria, viruses, but has also been concerned with weeds, which harm crops by their competition.

With today's new emphasis on the protection of biodiversity, plant protection apply also to plants in the uncultivated environment. Wild plants are also threatened by the introduction and spread of pests, and notably by "invasive alien plants" which can seriously disturb and destroy natural plant communities. EPPO has the **international structures** to develop a cooperative European strategy for the protection of Europe against invasive alien species.

Protection against introduction and spread

Plants have to be protected against harmful organisms which are already present in their environment. Farmers and growers apply the necessary measures, without any need for international action. EPPO is concerned with the special international threat from pests which occur in other continents and may be introduced into the EPPO region by international trade. Many years of experience with such "alien" pests has shown that they can be very damaging and difficult to control when introduced into a new environment. We call these "A1" pests. Some of these pests have already been introduced into parts of the EPPO region, and it is important to prevent their further spread. We call these "A2 pests".

EPPO Panel on Invasive Alien Species

In 2002, a special international Panel of experts on Invasive Alien Species has been established. It meets twice a year and has the following aims:

- To provide information on invasive alien species for the EPPO region, particularly plants
- To pilote studies on risk analysis of specific invasive alien species,
- To recommend measures to prevent their introduction and spread
- To recommend measures to eradicate, suppress and contain invasiev alien species already introduced

The members of this Panel come from 14 European and Mediterranean countries: Austria, Belarus, Czech Republic, Estonia, France, Germany, Hungary, Israel, Latvia, Lithuania, Netherlands, Norway, Switzerland and UK.

Current achievements of the Panel

EPPO List of Invasive Alien Plants

The Panel established the **EPPO List of Invasive Alien Plants**. EPPO recommends countries endangered by these species to consider measures to prevent their introduction and spread or to manage unwanted populations. Among the 34 species of this list, 5 are now recommended for regulation and are included in the EPPO A2 List.

Standard on the management of invasive and potentially invasive alien plants

The EPPO Standard on '**Guidelines for the management of invasive alien plants or potentially invasive alien plants which are intended for import or have been intentionally imported**' was approved in 2006. This Standard provides guidance on internal management measures such as publicity, surveillance, restrictions and/or codes of conducts on import, sale, holding, transport, etc.

Contacts and partnerships

Mutual exchange of information and the building of a synergy in the respective activities of EPPO and of structures working on the topic of invasive alien plants is being developed with the following partners:

- the expert group on Invasive Alien Species of the Bern Convention of the Council of Europe (www.coe.int)
- the Planta Europa network (www.plantaeuropa.org)
- the International Association of Horticultural Producers (AIPH, www.aiph.org)
- the Invasive Species Specialist Group (www.issg.org)
- the European Environment Agency and its expert group on invasive alien species (www.eea.europa.eu/)
- the DAISIE (www.daisie.se) and ALARM (www.alarmproject.net/alarm/) projects
- NOBANIS (www.nobanis.org/).

Prioritization process

The number of plants that can be considered as potential pest species is huge and there is a need to determine priorities. The Panel agreed that EPPO's recommendations should be focused on species which are not widely distributed or absent from the region and for which efficient actions of prevention, eradication or containment can be undertaken. Consequently , the Panel is elaborating a prioritization processConsequently, the Panel is elaborating a prioritization process for all known or potential invasive alien plants in the EPPO region.

Pest Risk Analysis

PRA has been recognized by National Plant Protection Organizations as a key activity for EPPO. Expert Working Groups have been established to perform PRA. For invasive alien plants, the Panel on IAS has been given the task of performing PRA.

Reporting Service on Invasive Alien Plants

Since 2006, the **EPPO Reporting Service** includes a specific section on invasive plants.

16. GLOBAL INVASIVE SPECIES PROGRAMME (GISP)

INVASIVE ALIEN SPECIES: GLOBAL INITIATIVES

By Ms Lynn Jackson
Director: Global Invasive Species Programme

The Global Invasive Species Programme: An update

The Global Invasive Species Programme (GISP) was set up in 1997 to tackle the problem of invasive species at the global level. Initially GISP was a small, mainly voluntary partnership programme, founded by the IUCN – the World Conservation Union, CAB International, and the UN's Scientific Committee on Problems of the Environment (SCOPE). It was supported with GEF and other funds, and was based at Stanford University and then the Smithsonian. However, subsequent funding from the World Bank required the Secretariat to move to a developing country, with the move to South Africa taking place in mid-2003. In early 2005, GISP was constituted as a legal entity with Founding Members including IUCN, CAB International, The Nature Conservancy, and the South African National Biodiversity Institute. In July, 2007 the Secretariat will move to Nairobi, Kenya, where both IUCN and CABI have large regional offices.

The GISP Mission is: To conserve biodiversity and sustain human livelihoods by minimising the spread and deleterious impacts of invasive alien species (IAS).

The main focus of GISP is to promote global co-operation in invasive species prevention and management. It has a mandate under the Convention on Biological Diversity, and a specific interest in fostering cross-sectoral collaboration between relevant international and regional instruments and organisations.

Some Current Initiatives

a. Development of a Joint Global Work Programme on Invasive Species

Decision VI/23 paragraph 26(e), of the Conference of the Parties to the CBD, requested the Executive Secretary, in co-operation with the Global Invasive Species Programme (GISP), to develop a joint programme of work among the relevant bodies. In response to this decision, the GISP Secretariat, in collaboration with the CBD Secretariat and other organizations, initiated a process which culminated in two workshops held in Montreal during 2005.

The first of these – in June, 2005 - was done in partnership with the UNEP Regional Seas Programme, and focused on the development of a Joint Global Work Plan on Marine Invasive Species. The second, which focused on freshwater and terrestrial invasives, was held in November, 2005. The draft Action Plans are now being further discussed with relevant players, with some components already being implemented. For example, the UNEP Regional Seas Programme has funded various activities including training, a needs analysis, and an awareness-raising brochure.

b. Development of the Invasive Species Indicator for the 2010 Biodiversity Target

In April, 2002, the CBD COP adopted the 2010 Biodiversity Target, namely "to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth" (decision VII/26). In 2004 COP adopted a framework for assessing progress towards the achievement of the 2010 Target. The framework includes seven Focal Areas, each with a number of Goals and Targets, and proposes a number of possible global indicators against which progress towards those Goals and Targets could be measured. SBSTTA 10 then identified GISP as the organisation to coordinate delivery of the global invasive species indicator.

GISP subsequently became a partner in the UNEP-WCMC-led GEF Biodiversity Indicators Partnership Project which was expected to start in early 2007. In the interim, the CBD sponsored:

i) an initial review of relevant databases with a view to assessing their potential to provide information on which to base an IAS Indicator; and

ii) a workshop to discuss the outcomes of this review and plan the way forward under the project.

GISP has also approached a number of countries – and the SEBI 2010 initiative – with a view to collaborating on this project, and is in the process of establishing a Working Group to oversee and coordinate these activities.

c. Preparations for COP 9

Invasive species will be the subject of an in-depth review at COP 9 in 2008. This affords the biodiversity community with an opportunity to raise awareness of invasive species issues, and to secure political support for improving their prevention and management. GISP has therefore established a Working Group to plan and coordinate a series of activities over the intervening period, and at COP 9 itself, and would welcome partners in this initiative.

d. Capacity building

Over the past few years, GISP has made a significant contribution to the development of IAS management capacity in a number of developing countries and regions through the development and delivery of 3 training courses: An Introduction to IAS Management; Management of Marine and Coastal Invasive Species; and Strategies and Tools for the Prevention of Invasive Species. A GEF-funded project "Raising Awareness and Building Capacity for IAS Prevention and Management" is currently in the PDF B phase.

e. Economic impacts of invasive species

In collaboration with the World Bank, GISP has produced a variety of reports looking at the social and economic impacts of invasive species, and in particular, their linkages to poverty. While the methods used for such assessments are highly variable, GISP believes that this information is crucial for garnering political support for the issue.

25. NEOBIOTA

BIOLOGICAL INVASIONS NEED A STRONG LEGAL FRAMEWORK AT EUROPEAN LEVEL!

Resolution adopted by the participants of the "4th European Conference on Biological Invasions" of the working group NEOBIOTA

(27-28 September 2006, Vienna)

Biological invasions matter!

Biological invasions are a serious threat to biodiversity, human health, and economy alike. In Germany for example, the economic losses caused by only 20 analysed alien species are esstimated to reach 156 million € annually. Invasive alien species (IAS) continue to arrive in Europe, casual Species become established, and species already present expand their range. As a consequence, the impact of IAS is increasing within Europe. This trend is exacerbated by land use change, pollution, autrophication, climate warming, and the increasing global exchange of goods, which is one of the major pathways of invasions. The transboundary character of biological invasions must be dealt with at a supra-national level, especially owing to the significant role of trade where measures cannot be taken at national level.

Act now, not (too)) late!

It is wise and cost-efficient to prevent biological invasions or to deal with them at an early stage of invasion, as costs for management of IAS that are already wide-spread are often prohibitive. Thus, the guiding principles on IAS of the CBD, adopted by COP-6, urge all member states to "pay particular attention to the prevention of the impacts of IAS". This precautionary approach, agreed by the EC and by its member states, needs to be addressed at a European level to become reality. This is also recognised by the EC and its member states. Accordingly, IAS are identified as key pressure and as priority for action in the recent Biodiversity Communication of the EC, the Millenium Ecosystem Assessment, and the recently finished report "Scope options for EU-action on IAS", funded by the EC. Existing EU and European activities and legislation already address single habitats, organismic groups or pathways, but more ambitious activities are needed to reach the "2010 target" to halt the loss of biodiversity in Europe.

Meanwhile, scientifically sound knowledge of the impacts of IAS and management options for regulation of IAS are increasingly becoming available. Notably, EC-funded projects like DAISIE and ALARM and networks like NOBANIS, ERNAIS, and EPPO are delivering data on which policy and stakeholders should base their judgments. Thus, the time is ripe for a concise operational structure, addresing IAS at a European scale!

Tackle the problem of IAS at European level!

To substantially reduce the impact of IAS on European ecosystems and biodiversity and to reach the 2010 target, the partgicipants of the 4th European Conference on Biological Invasions, representing 340 experts in the field of biological invasions, coming from 45 countries, strongly encourage policy, administration, and legislation in Europe and the EC to:

Complement existing European activities to close gaps in pathways, habitats, and taxonomic groups in order to build a cooperative legal framework and to address IAS at the appropriate level;

Rapidly implement the recommendations of the report "Scope options for EU-action on IAS", to close gaps in management and legislation of IAS;

Establish an effective early-warning system for IAS at a pan-European level to allow implementation of the precautionary approach and other relevant provisions of the CBD.

The European working group NEOBIOTA as a European network of scientists and experts for biological invasions offers support and advice to science-based decisions and measures for European stakeholders.

Vienna, 28th September 2006

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www.biodiv.org/meetings/cop-06.asp
http://ec.europa.eu/environment/nature/biodiversity/current_biodiversity_policy/biodiversity_com_2006/index_en.htm
http://www.maweb.org/en/About.Overview.asps
http://ec.europa.eu/environment/nature/home.htm
www.daisie.se
www.alarmproject.net
www.nobanis.org
www.zin.ru/rbic/projects/ernais
www.eppo.org

Annexe 4

Convention relative à la conservation de la vie sauvage
et du milieu naturel de l'Europe

Comité permanent

Projet de recommandation n° … (2007), examiné le … novembre 2007, sur la limitation d'une propagation de l'écureuil gris (*Sciurus carolinensis*) en Italie

Le Comité permanent de la Convention relative à la conservation de la vie sauvage et du milieu naturel de l'Europe, agissant en vertu de l'article 14 de la Convention**,**

Constatant que l'éradication de la population de l'écureuil gris du Tessin retarderait de plusieurs décennies l'invasion des Alpes centrales et de la Suisse par l'espèce;

Rappelant que sa Recommandation n° 77 (1999) relative à l'élimination de vertébrés terrestres non indigènes demande aux Parties contractantes "de réglementer, voire d'interdire l'importation et le commerce de certaines espèces de vertébrés terrestres non indigènes sur leur territoire", ce qui inclut l'écureuil gris;

Constatant que l'important commerce de l'écureuil gris en Italie reste licite;

Regrettant qu'aucun effort d'éradication n'ait été consenti par l'Italie, contrairement à ce que demandent ses recommandations n° 78 (1999) relative à la conservation de l'écureuil roux (*Sciurus vulgaris*) en Italie et n° 114 (2005) sur le contrôle de l'écureuil gris (Sciurus carolinensis) et d'autres espèces exotiques d'écureuils en Europe;

Notant qu'un plan d'éradication a été élaboré conjointement par l'INFS et les Universités de Varese et de Turin,

Recommande que l'Italie:

1. prie instamment la Région de Lombardie et les autres autorités locales compétentes de lancer sans plus attendre le programme d'éradication de l'écureuil gris dans la vallée du Tessin, afin de considérablement retarder l'invasion du sud des Alpes par l'espèce;

Recommande que les Parties contractantes:

2. interdisent le commerce et la possession de l'écureuil gris et imposent un contrôle strict sur des nouvelles introductions éventuelles;

Invite les Etats observateurs à appliquer, le cas échéant, le point 2 ci-dessus.

Annexe 5

Convention relative à la conservation de la vie sauvage

et du milieu naturel de l'Europe

Comité permanent

Projet de Recommandation n° … (2007), examiné le … novembre 2007, sur les progrès réalisés dans l'éradication de l'érismature rousse (*Oxyura jamaicensis*)

Le Comité permanent de la Convention relative à la conservation de la vie sauvage et du milieu naturel de l'Europe, agissant en vertu de l'article 14 de la Convention**,**

Rappelant que le croisement avec l'érismature rousse est une préoccupation majeure pour la survie à long terme de l'érismature à tête blanche (*Oxyura leucocephala*), une espèce protégée par la Convention;

Rappelant sa Recommandation n° 61 (1997) sur la conservation de l'érismature à tête blanche (*Oxyura leucocephala*);

Saluant les efforts considérables d'éradication consentis par le Royaume-Uni et d'autres pays;

Notant toutefois que certains pays qui ont de petites, voire très petites populations de l'érismature rousse ne prennent aucune mesure,

Recommande aux Parties concernées:

1. de réaliser des études exhaustives pour déceler la présence de l'érismature rousse sur leur territoire;
2. d'abattre d'urgence toutes les érismatures rousses trouvées dans la nature sur leur territoire, et d'imposer un contrôle strict sur celles qui sont en captivité;
3. de mettre en place des mécanismes efficaces d'alerte afin de déceler les nouvelles entrées;
4. de supprimer, le cas échéant, tous les obstacles juridiques qui empêchent de prendre les mesures susmentionnées.

Annexe 6

Convention relative à la conservation de la vie sauvage
et du milieu naturel de l'Europe

Comité permanent

Projet de recommandation n° ... (2007) du Comité permanent, sur le commerce des espèces exotiques envahissantes et potentiellement envahissantes en Europe

Le Comité permanent de la Convention relative à la conservation de la vie sauvage et du milieu naturel de l'Europe, agissant en vertu de l'article 14 de la Convention**,**

Rappelant que l'Article 11 paragraphe 2 de la Convention demande aux Parties de contrôler strictement l'introduction d'espèces non indigènes;

Conscient du tort que les espèces exotiques envahissantes peuvent causer aux espèces et habitats indigènes protégés par la Convention;

Rappelant la Recommandation n° 99 (2003) du Comité permanent sur la Stratégie européenne relative aux espèces exotiques envahissantes (EEE) et les autres recommandations sur les modes d'introduction d'espèces exotiques envahissantes liés aux échanges commerciaux, telles que les recommandations n° 77 (1999) et 91 (2002);

Rappelant la Décision VI/23 de la Convention sur la diversité biologique et son annexe: Principes directeurs concernant la prévention, l'introduction et l'atténuation des impacts des espèces exotiques qui menacent des écosystèmes, des habitats ou des espèces;

Rappelant l'ISPM n° 11 sur l'Analyse du risque phytosanitaire pour les organismes de quarantaine, adoptée en vertu de la Convention internationale sur la protection des plantes;

Observant que le commerce augmente les possibilités de transporter les espèces exotiques potentiellement envahissantes vers de nouveaux sites, intentionnellement ou non;

Souhaitant réduire l'introduction ou l'expansion dans le territoire des Parties contractantes d'espèces exotiques envahissantes par les voies liées aux échanges commerciaux;

Rappelant les rapports intitulés "Overview of Existing International / Regional Mechanisms to Ban or Restrict Trade in Potentially Invasive Alien Species", par Mme Clare Shine [document T-PVS/Inf (2006) 8], et "Assessment of Existing Lists of Invasive Alien Species for Europe, with particular focus on species Entering Europe through Trade and Proposed Responses", par MM. Piero Genovesi et Riccardo Scalera [document T-PVS/Inf (2007) 2];

Saluant les travaux de l'Organisation européenne et méditerranéenne pour la protection des plantes (OEPP) et ses normes PM 3/67 "Lignes directrices pour la gestion des plantes exotiques envahissantes ou les plantes exotiques potentiellement envahissantes destinées à l'importation ou importées intentionnellement" et PM5/3 "Schéma d'aide à la décision pour l'Analyse du Risque Phytosanitaire pour les organismes de quarantaine", les cadres existants pour la santé vétérinaire, le programme de l'Agence européenne de l'environnement baptisé *Rationalisation des indicateurs européens de la diversité biologique pour 2010* (EEA/SEBI 2010), le projet de l'Union européenne *Delivering Alien Invasive Species Inventories for Europe* (- établissement d'inventaires des EEE pour l'Europe,

DAISIE) et, pour les pays nordiques et baltes, le portail du Réseau nordique et baltique sur les espèces exotiques envahissantes (NOBANIS),

Recommande qu'en collaboration, le cas échéant, avec d'autres Parties, les Parties contractantes:

1. réalisent une analyse approfondie et une étude scientifique des voies de propagation liées au commerce, en analysant les importations et les mouvements internationaux d'espèces et de marchandises, afin:

- de repérer les espèces exotiques envahissantes et potentiellement envahissantes intentionnellement déplacées par le commerce, et de renforcer les mesures de prévention des introductions non désirées,
- d'évaluer l'ampleur des introductions involontaires d'espèces exotiques potentiellement envahissantes par les voies de propagation liées au commerce, et de prendre des mesures intégrées fondées sur le principe de précaution afin d'atténuer autant que possible de telles introductions;

2. analysent tout spécialement les mesures de libéralisation du commerce international et de libre circulation des marchandises au sein de la Communauté pour déterminer leur contribution à l'introduction et à la dissémination d'espèces exotiques potentiellement envahissantes;

3. analysent les normes et cadres réglementaires nationaux, ainsi que les listes d'espèces que consultent les importateurs potentiels et les données sur les espèces exotiques envahissantes et potentiellement envahissantes actuellement importées afin d'améliorer, au besoin, les procédures et systèmes d'information nécessaires pour imposer un contrôle strict sur ce commerce;

4. renforcent et étendent les analyses de risque préalables à la prise de décision sur l'importation des espèces exotiques qui sont envahissantes ou potentiellement envahissantes, en optant pour des méthodes et procédures d'analyse de risque fondées sur des critères objectifs et scientifiques (comme la norme PM5/3 de l'OEPP);

5. mettent en place la réglementation nécessaire sur l'introduction, la possession et le commerce intentionnels, sur leur territoire, des espèces exotiques envahissantes ou potentiellement envahissantes énumérées à l'annexe 1 à la présente Recommandation, qualifiée ici de “métaliste”, en appliquant le principe de précaution et, si nécessaire, en interdisant l'introduction, la possession et/ou le commerce des espèces qui présentent un risque inacceptable (c’est-à-dire s'il existe suffisamment d'éléments pour démontrer leur impact négatif sur les écosystèmes, les habitats ou les espèces à partir d'analyses de risque ou d'autres sources objectives). Envisagent, pour les espèces figurant sur la métaliste, les mesures de gestion suivantes:

- espèces classées dans la catégorie A - espèces exotiques introduites intentionnellement en tant que marchandise proprement dite en vue d'être relâchée dans l'environnement (gibier, poissons d'eau douce, essences d'arbres intéressantes pour la sylviculture, agents de lutte biologique, etc.): si l'espèce présente un risque inacceptable, il convient d'envisager une interdiction régionale ou nationale de son commerce et/ou d'appliquer des mesures internes,
- espèces classées dans la catégorie B - espèces exotiques introduites intentionnellement en tant que marchandise proprement dite (telles que des plantes d'ornement, des plantes agricoles, des animaux de compagnie, des écrevisses, etc.) dans une installation de confinement ou dans un environnement contrôlé (comme les jardins botaniques, les serres, les terres agricoles, les zoos, les établissements de reproduction animale, des pisciculture, etc.): si l'espèce présente un risque inacceptable, il convient d'envisager une réglementation régionale ou nationale de son commerce et/ou une réglementation stricte des installations de confinement, ou d'appliquer des mesures internes,
- espèces classées dans la catégorie C - espèces exotiques introduites par inadvertance comme agent contaminant une marchandise spécifique (comme *Anoplophora chinensis,* qui a été introduite en Italie par l'importation de bonsaïs; les parasites de certaines espèces de poissons, les mouches à fruits, la maladie due au protozoaire *Bonamia ostreae,* transporté avec les cargaisons d'huîtres, etc.): si l'espèce présente un risque inacceptable, il convient d'envisager l'application de traitements et mesures spécifiques dans l'ensemble des secteurs concernés (c’est-à-dire le transport, l'agriculture, les pêcheries, etc.) afin de prévenir toute entrée indésirée,

- espèces classées dans la catégorie D - espèces exotiques introduites par inadvertance lors de déplacements de personnes ou d'engins (comme les nuisibles installés dans les emballages en bois, les parasites installées sur les coques des navires, les organismes présents dans l'eau de ballast, qui contaminent les conteneurs ou s'introduisent dans les avions, etc.): si l'espèce présente un risque inacceptable, il convient de surveiller les voies d'entrée et d'envisager une réglementation des vecteurs impliqués dans l'ensemble des secteurs concernés (comme le transport, l'agriculture, les pêcheries, etc.);

6. veillent à ce que les réglementations commerciales s'accompagnent, quand cela s'avère réalisable et approprié, de mesures strictes de gestion (telles qu'une réglementation des installations de confinement; l'éradication des populations déjà installées; la mise en oeuvre de campagnes de lutte ou de confinement; d'une sensibilisation aux postes de contrôle douanier; de campagnes efficaces de communication, etc.);

7. proposent, dans le cadre de la Convention, des amendements autorisant la mise à jour de la métaliste figurant en annexe 1 à la présente Recommandation, en tenant compte des travaux réalisés par d'autres organisations ou de données dérivées des analyses de risque ou d'autres indices de l'impact négatif d'une espèce sur les écosystèmes, les habitats ou les espèces, en vue de constituer une métaliste complète des espèces exotiques envahissantes ou potentiellement envahissantes déjà présentes en Europe ou dont l'arrivée est prévue dans un avenir proche, et en accordant la priorité aux espèces qui ne se sont pas encore fortement propagées;

8. encouragent une coopération plus étroite au niveau européen et méditerranéen dans la prévention de l'introduction d'espèces exotiques envahissantes par le commerce, grâce à l'échange d'informations sur le commerce, en complétant le cas échéant les listes d'espèces et en encourageant les études de risque coordonnées et les autres mesures appropriées de lutte contre le déplacement et la propagation d'EEE; dans ce contexte, soutiennent l'élaboration de registres internationaux exhaustifs d'EEE, tels que le *Global Register of Invasive Species* (GRIS) établi par le Groupe de spécialistes sur les espèces envahissantes de l'Union mondiale pour la nature (UICN ISSG);

9. améliorent les systèmes nationaux et européens d'information sur les EEE, notamment en matière de voies de propagation commerciales et de systèmes d'alerte précoce; envisagent, dans ce contexte, l'instauration de dispositions plus strictes en matière de rapports sur les EEE dans le cadre de la Convention et d'autres mécanismes appropriés,

Invite les Etats observateurs à appliquer, le cas échéant, la recommandation ci-dessus.

Appendix 1 Metalist of known invasive alien species for Europe

Species / Group of species *species listed in depoorted and pagad 2007	**Trade category**	**EPPO A1 list**	**EPPO A2 list**	**EPPO list of invasive alien plants**	**EEA/ SEBI**	**Nobanis**	**Daisie**	**Reg. 338/97**
Mammals								
Ammotragus lervia	A				1			
Callosciurus finlaysoni	B				1			
Castor canadensis	A				1	1		
Cervus nippon	A				1		1	
Eutamia sibiricus	B						1	
Herpestes javanicus *	A				1			
Muntiacus reevesii	A				1			
Mustela vison *	B				1	1	1	
Myocastor coypus	B				1		1	
Nyctereutes procyonoides	B				1	1	1	
Ondatra zibethicus	B				1	1	1	
Oryctolagus cuniculus *	B				1			
Procyon lotor	B				1		1	
Rattus norvegicus *	D				1		1	
Sciurus carolinensis	B				1		1	
Birds								
Acridotheres tristis	B				1			
Alopochen aegyptiacus	B				1			
Branta canadensis	B				1		1	
Corvus splendens	B				1			
Oxyura jamaicensis	A				1		1	1
Psittakula krameri	B						1	
Threskiornis aethiopicus	B				1		1	
Amphibians & reptiles								
Chrisemys picta	B							1
Rana catesbeiana	A				1		1	1
Trachemys scripta elegans	B				1	1	1	1

Xenopus laevis	B				1			
Fishes								
Ameiurus nebulosus	A				1			
Aphanius dispar	D						1	
Carassius auratus gibelio	A				1			
Carpio haematopterus/Cyprinus carpio *	A				1			
Fistularia commersoni	D				1		1	
Gambusia affinis	A				1			
Lepomis gibbosus *	A				1			
Liza haematocheila ex Mugil soiuy	A, B, D				1			
Micropterus salmoides	A				1			
Neogobius melanostomus *	D, C?				1	1	1	
Oncorhynchus mykiss	A				1	1		
Perccottus glenii	B, D				1			
Phoxinus phoxinux	D					1		
Pseudorasbora parva	A				1	1	1	
Salmo salar	A, B				1	1		
Salvelinus fontinalis	A				1		1	
Sander lucioperca	A					1		
Saurida undosquamis	D				1		1	
Seriola fasciata	D				1			
Siganus luridus	D				1			
Siganus rivulatus	D				1		1	
Silurus glanis	A				1			
Sphoeroides pachygaster	D				1			
Crustaceans								
Acartia tonsa	D				1		1	
Balanus improvisus	D						1	
Cercopagis pengoi	D				1	1	1	
Charbydis logicollis	D						1	
Chelicorophium curvispinum	D				1			
Dikerogammarus villosus	A, D				1		1	
Elminius modestus	D				1			

Eriocheir sinensis	D				1	1	1	
Gammarus tigrinus	D				1			
Homarus americanus	B					1		
Marsupenaeus japonicus	A, B						1	
Metapenaeus (Marsupenaeus) japonicus	A, B				1			
Orconectes limosus *	A				1			
Pacifastacus leniusculus	A				1	1		
Paralithodes camtschatica	A				1	1	1	
Percnon gibbesi	B, D				1		1	
Pontogammarus robustoides	A, D					1		
Procambarus clarkii *	A, B				1		1	
Insects								
Acleris gloverana A1/281	C	1						
Acleris variana A1/32	C	1						
Aculops fuchsiae A1/185	C	1						
Aedes albopictus	D						1	
Aeolesthes sarta A2/307	C		1					
Agrilus planipennis A1/322	C	1						
Aleurocanthus spiniferus A1/186	C	1						
Aleurocanthus woglumi A1/103	C	1						
Amauromyza maculosa A1/152	C	1						
Anastrepha fraterculus A1/229	C	1						
Anastrepha ludens A1/230	C	1						
Anastrepha obliqua A1/231	C	1						
Anastrepha suspensa A1/200	C	1						
Anoplophora chinensis A1/187	C	1			1		1	
Anoplophora glabripennis A1/296	D, C	1			1		1	
Anthonomus bisignifer A1/189	C	1						
Anthonomus eugenii A1/202	C	1						
Anthonomus grandis A1/34	C	1						
Anthonomus signatus A1/164	C	1						
Aphis gossypi	C						1	
Bactrocera cucumis A1/203	C	1						

Bactrocera cucurbitae A1/232	C	1						
Bactrocera dorsalis A1/233	C	1						
Bactrocera minax A1/234	C	1						
Bactrocera tryoni A1/235	C	1						
Bactrocera tsuneonis A1/236	C	1						
Bactrocera zonata A1/302	C	1						
Bemisia tabaci A2/178	C		1					
Blitopertha orientalis A1/33	D, C	1						
Cacoecimorpha pronubana A2/104	C		1					
Cacyreus marshalli A2/181	C		1					
Cameraria ohridella	D, C				1		1	
Carposina sasakii A2/163	C		1					
Ceratitis capitata A2/105	C		1				1	
Ceratitis rosa A1/237	C	1						
Choristoneura conflictana A1/205	C	1						
Choristoneura fumiferana A1/206	C	1						
Choristoneura occidentalis A1/207	C	1						
Choristoneura rosaceana A1/208	C	1						
Conotrachelus nenuphar A1/35	D	1						
Corythucha arcuata	C				1			
Cydia inopinata A2/193	C, D		1					
Cydia packardi A1/209	C, D	1						
Cydia prunivora A1/36	C, D	1						
Dacus ciliatus A2/238	C		1					
Dendroctonus adjunctus A1/43	C	1						
Dendroctonus brevicomis A1/263	C	1						
Dendroctonus frontalis A1/264	C	1						
Dendroctonus ponderosae A1/265	C	1						
Dendroctonus pseudotsugae A1/266	C	1						
Dendroctonus rufipennis A1/267	C	1						
Dendrolimus sibiricus A2/308	C		1					
Dendrolimus superans A2/330	C		1					
Diabrotica barberi A1/210	C, D	1						

Diabrotica speciosa A1/303	C, D	1						
Diabrotica undecimpunctata A1/292	C, D	1						
Diabrotica virgifera A2/199	C, D		1				1	
Diaphorina citri A1/37	C	1						
Dryocoetes confusus A1/268	C	1						
Dryocosmus kuriphilus A2/317	C		1					
Epitrix cucumeris A1/299	D	1						
Epitrix tuberis A1/165	D	1						
Erschoviella musculana A2/318	C, D		1					
Eutetranychus orientalis A2/288	C		1					
Frankliniella occidentalis A2/177	C		1				1	
Gnathotrichus sulcatus A1/269	C	1						
Gonipterus gibberus A1/301	C, D	1						
Gonipterus scutellatus A2/38	C, D		1					
Harmonia axyridis	A				1		1	
Helicoverpa armigera A2/110	C		1					
Helicoverpa zea A1/195	C	1						
Heteronychus arator A1/297	C, D	1						
Homalodisca coagulata A1/336	C	1						
Hyphantria cunea	C				1			
Ips calligraphus A1/270	C	1						
Ips confusus A1/271	C	1						
Ips grandicollis A1/272	C	1						
Ips hauseri A2/326	C		1					
Ips lecontei A1/273	C	1						
Ips pini A1/274	C	1						
Ips plastographus A1/275	C	1						
Ips subelongatus A2/325	C		1					
Lasius neglectus	D				1			
Lepidosaphes ussuriensis A2/319	C		1					
Leptinotarsa decemlineata A2/113	C		1				1	
Limonius californicus A1/304	D, C	1						
Linepithema humile	D				1		1	

Liriomyza huidobrensis A2/283	C		1				1	
Liriomyza sativae A2/282	C		1					
Liriomyza trifolii A2/131	C		1					
Listronotus bonariensis A1/168	C, D	1						
Lopholeucaspis japonica A2/289	C		1					
Lymantria mathura A2/331	D, C		1					
Maconellicoccus hirsutus A1/314	C	1						
Malacosoma americanum A1/276	C	1						
Malacosoma disstria A1/213	C	1						
Malacosoma parallela A2/320	C		1					
Margarodes prieskaensis A1/214	D, C	1						
Margarodes vitis A1/215	D, C	1						
Margarodes vredendalensis A1/216	D, C	1						
Melanotus communis A1/305	D	1						
Naupactus leucoloma A1/293	C, D	1						
Numonia pirivorella A2/184	C		1					
Oligonychus perditus A1/217	C	1						
Opogona sacchari A2/154	C		1					
Orgyia pseudotsugata A1/218	C	1						
Paysandisia archon A2/338	C		1					
Pissodes nemorensis A1/44	C	1						
Pissodes strobi A1/258	C	1						
Pissodes terminalis A1/259	C	1						
Popillia japonica A2/40	D, C		1					
Premnotrypes latithorax, P. suturicallus & P. vorax A1/143	C	1						
Quadraspidiotus perniciosus A2/117	C		1					
Rhagoletis cingulata A2/239	C		1					
Rhagoletis fausta A1/241	C	1						
Rhagoletis indifferens A1/242	C	1						
Rhagoletis mendax A1/243	C	1						
Rhagoletis pomonella A1/41	C	1						
Rhizoecus hibisci A1/300	C	1						
Rhynchophorus ferrugineus A2/339	C		1		1			

Rhynchophorus palmarum A1/332	C	1						
Scirtothrips aurantii A1/221	C	1						
Scirtothrips citri A1/222	C	1						
Scirtothrips dorsalis A2/223	C		1					
Scolytus morawitzi A2/309	C		1					
Sirex ermak A2 327	D, C		1					
Spodoptera eridania A1/196	C	1						
Spodoptera frugiperda A1/197	C	1						
Spodoptera littoralis A2/120	C		1				1	
Spodoptera litura A1/42	C	1						
Sternochetus mangiferae A1/286	C	1						
Strobilomya viaria A2/333	D		1					
Tecia solanivora A2/310	C		1					
Tetropium gracilicorne A2/311	C		1					
Thrips palmi A1/175	C	1						
Toxoptera citricida A1/45	C	1						
Trialeurodes vaporarium	C						1	
Trioza erytreae A1/46	C	1						
Trogoderma granarium A2/121	D		1					
Tuta absoluta A1/321	C	1						
Unaspis citri A1/226	C	1						
Viteus vitifoliae A2/106	C		1					
Xylotrechus altaicus A2/312	C		1					
Xylotrechus namanganensis A2/328	C		1					
Anellids								
Artioposthia triangulata	C				1			
Ficopomatus enigmaticus	D				1		1	
Hydroides dianthus	D				1			
Hydroides elegans	D				1			
Hydroides ezoensis	D				1			
Marenzelleria neglecta	D				1	1		
Marenzelleria viridis	D				1		1	
Pileolaria berkeleyana	D				1			

Spirorbis marioni	D				1			
Molluscs								
Anadara spp inaequivalvis/demiri	A, B				1			
Anodonta (Sinanodonta) woodiana	C, A				1			
Arion lusitanicus	C					1		
Arion vulgaris	C				1		1	
Brachiodontes pharaonis	D						1	
Corbicula fluminea	D				1		1	
Crassostrea gigas	A, B					1		
Crepidula fornicata	C, D				1		1	
Dreissena bugensis	D				1			
Dreissena polymorpha	D				1	1	1	
Ensis americanus	D				1			
Musculista senhousia	A, B				1		1	
Petricola pholadiformis	A, B				1			
Pinctada radiata	A, B, C, D				1		1	
Potamopyrgus antipodarum	D				1			
Rapana venosa	C, D				1		1	
Ruditapes philippinarum	A				1			
Teredo navalis	D						1	
Comb jellies								
Beroe cucumi					1			
Blackfordia virginica					1			
Mnemiopsis leidyi	D				1		1	
Hydroids, jellyfish, sea anemones & corals								
Cordylophora caspia	D				1		1	
Craspedacusta sowerbyi	D					1		
Polypodium hydriforme					1			
Rhopilema nomadica	D				1		1	
Ascidians and sessile tunicates								
Microcosmus squamifer					1			
Styela clava	D				1		1	

Bryozoans								
Tricellaria inopinata					1		1	
Victorella pavida					1			
Flatworms								
Artioposthia triangulata (Arthurdendyus triangulatus)						1		
Fasciola gigantica					1			
Gyrodactylus salaris					1	1	1	
Pseudodactylogyrus anguillae					1			
Cestoda								
Botriocephalus acheilognathi					1			
Nematodes								
Anguillicola crassus	C				1	1	1	
Aphelenchoides besseyi A2/122	C		1					
Ashworthius sidemi	C				1			
Bursaphelenchus xylophilus and its vectors in the genus Monochamus A1/158	C, D	1			1		1	
Ditylenchus dipsaci A2/174	C, D		1					
Globodera pallida A2/124	C		1					
Globodera rostochiensis A2/125	C		1					
Heterodera glycines A2/167	C, D		1					
Meloidogyne chitwoodii A2/227	C, D		1					
Meloidogyne fallax A2/295	C, D		1					
Nacobbus aberrans A1/144	C, D	1						
Radopholus citrophilus A1/161	C, D	1						
Radopholus similis A2/126	C, D		1					
Xiphinema americanum sensu stricto A1/150	D	1						
Xiphinema bricolense A1/260	D	1						
Xiphinema californicum A1/261	D	1						
Xiphinema rivesi A2/262	D		1					
Plants								
Acacia dealbata	A			1			1	
Acacia saligna	A				1			

Acer negundo *	A				1	1		
Acroptilon repens	C, D			1				
Ailanthus altissima *	A			1	1		1	
Ambrosia artemisiifolia *	C, D			1	1		1	
Amelanchier spicata	A, B			1		1		
Amorpha fruticosa *	A, D			1	1			
Anthriscus sylvestris	Indigenous					1		
Arceuthobium abietinum	C	1						
Arceuthobium americanum	C	1						
Arceuthobium campylopodum	C	1						
Arceuthobium douglasii	C	1						
Arceuthobium laricis	C	1						
Arceuthobium minutissimum	C	1						
Arceuthobium occidentale	C	1						
Arceuthobium pusillum	C	1						
Arceuthobium spp. (non-European) A1/24	C	1						
Arceuthobium tsugense	C	1						
Arceuthobium vaginatum	C	1						
Aster novi-belgii agg.	A				1			
Azolla filiculoides	C, D			1	1	1		
Baccharis halimifolia	A			1				
Bidens frondosa	C, D			1	1			
Buddleja davidii	A			1				
Bunias orientalis	D				1	1		
Campylopus introflexus	C					1	1	
Cabomba caroliniana	B			1				
Carpobrotus edulis * & C. spp.	A			1	1		1	
Cenchrus incertus	D			1				
Cenchrus longispinus	D				1			
Cortaderia selloana	A			1	1		1	
Crassula helmsii A2/340 (A2 in 2006)	B, C, D		1	1	1		1	
Cyperus esculentus	C			1				
Echinocystis lobata *	C, D				1		1	

Egeria densa	B, C, D			1				
Elodea canadensis	C, D				1		1	
Elodea nuttallii	C, D			1	1			
Epilobium ciliatum	D				1			
Fallopia japonica *, F. sachalinensis, Fallopia x bohemica	A			1	1	1	1	
Galinsoga quadriradiata	C, D					1		
Grindelia squarrosa	B				1			
Halophila stipulacea	C				1		1	
Hedychium gardnerianum *	A				1		1	
Helianthus tuberosus *	A			1	1			
Heracleum mantegazzianum	A			1	1		1	
Heracleum sosnowskyi	A			1	1	1		
Hydrocotyle ranunculoides A2/334 (A2 in 2005)	A		1	1	1			
Impatiens glandulifera *	B, A			1	1	1	1	
Iva (Cyclachaena) xanthiifolia	C				1			
Lagarosiphon major	A			1				
Ludwigia peploides	A			1	1			
Ludwigia uruguayensis	A			1				
Lupinus nootkatensis *	A					1		
Lupinus polyphyllus *	A			1		1		
Lysichiton americanus A2/335 (A2 in 2005)	A, B		1	1	1			
Myriophyllum aquaticum	A, B, C			1				
Opuntia ficus-indica	A				1		1	
Oxalis pes-caprae	B, C, D			1	1		1	
Paspalum paspalodes (= P distichum)	C			1			1	
Pinus mugo *	A					1		
Prunus serotina *	A			1	1	1	1	
Pueraria lobata A2/341	A		1					
Pueraria montana var. lobata (A2 in 2006)	A			1				
Rhododendron ponticum *	A			1	1		1	
Robinia pseudoacacia *	A				1		1	
Rosa rugosa	A				1	1	1	
Sambucus nigra	Indigenous					1		

Senecio inaequidens	C, D			1	1	1		
Sicyos angulatus	C, D			1				
Solanum elaeagnifolium A2/342 (A2 in 2006)	C, A, D		1	1				
Solidago canadensis	A			1	1	1		
Solidago gigantea *	A			1	1			
Solidago nemoralis	A			1				
Spartina townsendi /anglica	A				1	1		
Bryophytes								
Campylopus introflexus					1			
Macroalgae								
Acrothamnion preisii					1			
Asparagopsis armata					1			
Asparagopsis taxiformis					1			
Bonnemaisonia hamifera							1	
Caulerpa racemosa	D				1		1	
Caulerpa taxifolia *	D				1		1	
Codium fragile	D				1		1	
Grateloupia doryphora					1			
Polysiphonia morrowii					1			
Sargassum muticum	C				1			
Stypopodium schimperi					1			
Undaria pinnatifida	A, D				1		1	
Womersleyella setacea					1			
Phytoplankton								
Alexandrium catenella	D				1		1	
Alexandrium minutum	D				1			
Alexandrium tamarense	D				1			
Chattonella verruculosa	D				1	1	1	
Coscinodiscus wailesii	D				1		1	
Karenia mikimotoi	D				1			
Odontella sinensis	D						1	
Phaeocystis pouchetii					1			
Prorocentrum minimum	D						1	

Rhizosolenia calcar-avis					1			
Fungi								
Alternaria mali A1/277		1						
Anisogramma anomala A1/201		1						
Aphanomyces astaci	C				1	1	1	
Apiosporina morbosa A1/10		1						
Atropellis pinicola A1/5		1						
Atropellis piniphila A1/280		1						
Botryosphaeria laricina A2/12			1					
Ceratocystis fagacearum and its vectors A1/6		1						
Ceratocystis fimbriata f.sp. platani A2/136	D		1					
Chrysomyxa arctostaphyli A1/8		1						
Ciborinia camelliae A2/190	C		1					
Cronartium coleosporioides A1/248		1						
Cronartium comandrae A1/249		1						
Cronartium comptoniae A1/250		1						
Cronartium fusiforme A1/9		1						
Cronartium himalayense A1/251		1						
Cronartium kamtschaticum A2/18			1					
Cronartium quercuum A1/252		1						
Cryphonectria parasitica A2/69	C		1					
Deuterophoma tracheiphila A2/287			1					
Diaporthe vaccinii A1/211		1						
Didymella ligulicola A2/66			1					
Endocronartium harknessii A1/11		1						
Fusarium oxysporum f.sp. albedinis A2/70			1					
Gibberella circinata A1/306		1						
Glomerella gossypii A2/71			1					
Guignardia citricarpa A1/194		1						
Gymnosporangium asiaticum A2/13			1					
Gymnosporangium clavipes A1/253		1						
Gymnosporangium globosum A1/254		1						
Gymnosporangium juniperi-virginianae A1/255		1						

Gymnosporangium yamadae A1/257		1						
Melampsora farlowii A1/15		1						
Melampsora medusae A2/74			1					
Melampsoridium hiratsukanum						1		
Monilinia fructicola A2/153			1					
Mycosphaerella dearnessii A2/22			1					
Mycosphaerella gibsonii A1/7		1						
Mycosphaerella laricis-leptolepidis A1/16		1						
Mycosphaerella populorum A1/17		1						
Ophiostoma novo-ulmi					1		1	
Ophiostoma wageneri A1/179		1						
Phaeoramularia angolensis A1/298		1						
Phellinus weirii A1/19		1						
Phialophora cinerescens A2/77			1					
Phoma andigena A1/141		1						
Phyllosticta solitaria A1/20		1						
Phymatotrichopsis omnivora A1/21		1						
Phytophthora cinnamomi					1		1	
Phytophthora fragariae A2/79			1					
Phytophthora lateralis A1/337		1						
Phytophthora ramorum						1		
Pseudopityophthorus minutissimus		1						
Pseudopityophthorus pruinosus		1						
Puccinia horiana A2/80			1					
Puccinia pittieriana A1/155		1						
Seiridium cardinale	C						1	
Septoria lycopersici var. malagutii A1/142		1						
Sirococcus clavigignenti-juglandacearum A1/329		1						
Stegophora ulmea A1/315		1						
Stenocarpella macrospora A2/67			1					
Stenocarpella maydis A2/68			1					
Synchytrium endobioticum A2/82	C		1					
Thecaphora solani A1/4		1						

Tilletia indica A1/23		1						
Verticillium albo-atrum & V. dahliae (hop-infecting strains) A2/85			1					
Protists								
Bonamia ostreae	C				1			
Prokaryotes								
Apple proliferation phytoplasma A2/87			1					
Burkholderia caryophylli A2/55			1					
Clavibacter michiganensis subsp. insidiosus A2/49			1					
Clavibacter michiganensis subsp. michiganensis A2/50			1					
Clavibacter michiganensis subsp. sepedonicus A2/51			1					
Curtobacterium flaccumfaciens pv. flaccumfaciens A2/48			1					
Elm phloem necrosis phytoplasma A1/26		1						
Erwinia amylovora A2/52			1					
Erwinia chrysanthemi A2/53			1					
Grapevine flavescence dorée phytoplasma A2/94			1					
Liberobacter africanum & L. asiaticum A1/151		1						
Palm lethal yellowing phytoplasma A1/159		1						
Pantoea stewartii pv. stewartii A2/54			1					
Peach rosette phytoplasma A1/138		1						
Peach X-disease phytoplasma A1/140		1						
Peach yellows phytoplasma A1/139		1						
Pear decline phytoplasma A2/95			1					
Potato purple-top wilt phytoplasma A1/128		1						
Pseudomonas syringae pv. persicae A2/145			1					
Ralstonia solanacearum A2/58			1					
Stolbur phytoplasma A2/100			1					
Vibrio cholerae					1			
Xanthomonas arboricola pv. corylina A2/134			1					
Xanthomonas arboricola pv. pruni A2/62			1					
Xanthomonas axonopodis pv. citri A1/1		1						
Xanthomonas axonopodis pv. dieffenbachiae A2/180			1					
Xanthomonas axonopodis pv. phaseoli A2/60			1					

Xanthomonas axonopodis pv. vesicatoria and Xanthomonas vesicatoria A2/157			1					
Xanthomonas fragariae A2/135			1					
Xanthomonas oryzae pv. oryzae A1/2		1						
Xanthomonas oryzae pv. oryzicola A1/3		1						
Xanthomonas translucens pv. translucens A2/183			1					
Xylella fastidiosa A1/166		1						
Xylophilus ampelinus A2/133			1					
Viruses								
American plum line pattern virus (Ilarvirus) A1/28		1						
Andean potato latent virus (Tymovirus) A1/244		1						
Andean potato mottle virus (Comovirus) A1/245		1						
Bean golden mosaic virus (Begomovirus) A1/204		1						
Beet leaf curl virus A2/90			1					
Beet necrotic yellow vein virus (Benyvirus) A2/160			1					
Blueberry leaf mottle virus (Nepovirus) A2/198			1					
Cherry rasp leaf virus (Cheravirus) A1/127		1						
Chrysanthemum stem necrosis virus (Tospovirus) A1/313		1						
Chrysanthemum stunt viroid (Pospiviroid) A2/92			1					
Citrus blight disease A1/278		1						
Citrus leprosis virus A1/284		1						
Citrus mosaic virus (Badnavirus) A1/285		1						
Citrus tatter leaf virus (Capillovirus) A1/191		1						
Citrus tristeza virus (Closterovirus) A2/93			1					
Coconut cadang-cadang viroid (Cocadviroid) A1/192		1						
Cucumber vein yellowing virus (Ipomovirus) A2/316			1					
Cucurbit yellow stunting disorder virus (Crinivirus) A2/324			1					
Impatiens necrotic spot virus (Tospovirus) A2/291			1					
Lettuce infectious yellows virus (Crinivirus) A1/212		1						
Peach mosaic virus (Trichovirus) A1/27		1						
Peach rosette mosaic virus (Nepovirus) A1/219		1						
Plum pox virus (Potyvirus) A2/96			1					
Potato black ringspot virus (Nepovirus) A1/246		1						
Potato spindle tuber viroid (Pospiviroid) A2/97			1					

Potato virus T A1/247		1						
Potato yellow dwarf virus (Nucleorhabdovirus) A1/29		1						
Potato yellow vein virus (Crinivirus) A1/30		1						
Potato yellowing virus A1/220		1						
Raspberry leaf curl virus (Nepovirus) A1/31		1						
Raspberry ringspot virus (Nepovirus) A2/98			1					
Satsuma dwarf virus (Sadwavirus) A2/279			1					
Squash leaf curl virus (Begomovirus) A2/224			1					
Strawberry latent C virus A1/129		1						
Strawberry veinbanding virus (Caulimovirus) A2/101			1					
Tobacco ringspot virus (Nepovirus) A2/228			1					
Tomato chlorosis virus (Crinivirus) A2/323			1					
Tomato mottle virus (Begomovirus - and other American Geminiviridae of capsicum and tomato) A1/225		1						
Tomato ringspot virus (Nepovirus) A2/102			1					
Tomato spotted wilt virus (Tospovirus) A2/290			1					
Tomato yellow leaf curl virus (Begomovirus) and related viruses A2/182			1					
Watermelon silver mottle virus (Tospovirus) A1/294		1						
Protozoa								
Eimeria sinensis					1			
Trichodina nobilis					1			

Annexe 7

Convention relative à la conservation de la vie sauvage

et du milieu naturel de l'Europe

Comité permanent

Projet de recommandation n° (2007) du Comité permanent, examiné le … novembre 2007, sur l'éradication de certaines espèces de plantes exotiques envahissantes

Le Comité permanent de la Convention relative à la conservation de la vie sauvage et du milieu naturel de l'Europe, agissant en vertu de l'article 14 de la Convention,

Rappelant qu'aux termes de l'article 11, paragraphe 2.b, de la Convention, chaque Partie contractante s'engage à contrôler strictement l'introduction des espèces non indigènes;

Ayant à l'esprit la Recommandation n° R (84) 14 du Comité des Ministres du Conseil de l'Europe aux Etats membres relative à l'introduction d'espèces non indigènes, adoptée le 21 juin 1984;

Rappelant sa Recommandation n° 57 (1997) relative aux introductions d'organismes appartenant à des espèces non indigènes dans l'environnement;

Rappelant sa Recommandation n° 99 (2003) sur la Stratégie européenne sur les espèces exotiques envahissantes;

Rappelant qu'aux termes de l'article 8.h de la Convention sur la diversité biologique, chaque Partie empêche d'introduire, contrôle ou élimine les espèces exotiques qui menacent des écosystèmes, des habitats ou des espèces;

Rappelant la Décision VI/23 de la 6e Conférence des Parties à la Convention sur la diversité biologique, concernant «les espèces exotiques qui menacent des écosystèmes, les habitats ou les espèces» et rappelant les définitions employées dans ce texte, et en particulier les suivantes:

- élimination signifie l'extermination de l'entière population d'une espèce exotique dans une zone gérée; l'élimination totale d'espèces exotiques envahissantes d'un site donné;
- confinement désigne toute opération, entreprise dans un dispositif, une installation ou structure physique, visant à contrôler des espèces exotiques envahissantes par des mesures spécifiques qui limitent, effectivement, leur contact avec, ou leur propagation dans, et leur impact sur, l'environnement extérieur.

Soucieux de contribuer à une amélioration de la lutte contre l'introduction d'espèces exotiques, et à l'atténuation de l'impact des espèces exotiques envahissantes sur la flore et les habitats naturels;

Reconnaissant la compétence des travaux menés par l'Organisation européenne et méditerranéenne pour la protection des plantes (OEPP) pour l'identification des espèces exotiques susceptibles de menacer la diversité biologique européenne et méditerranéenne, et souhaitant la poursuite de la collaboration entre la Convention et l'OEPP;

Rappelant que suite à un inventaire des plantes exotiques envahissantes pour la région européenne et méditerranéenne, plusieurs espèces ont été évaluées dans le cadre de l'OEPP et qu'une analyse du risque phytosanitaire a été réalisée pour 5 espèces que l'OEPP recommande de soumettre à une réglementation et qui figurent à l'annexe 1 à la présente recommandation; rappelant par ailleurs que l'OEPP a collecté des informations sur d'autres plantes exotiques qui ont un fort pouvoir de propagation et une répartition très limitée, et dont des exemples sont présentés en annexe 2 à la présente recommandation;Recommande que les Parties contractantes:

1 réalisent l'élimination ou, quand l'invasion présente déjà un stade avancé, le confinement ou la gestion des espèces de plantes exotiques envahissantes qui ne sont pas encore communes et représentent une menace au plan régional, comme celles citées à l'annexe 1 à la présente recommandation;

2 envisagent des mesures similaires contre les espèces de plantes exotiques à fort pouvoir de propagation et présentant une répartition très limitée, comme celles citées à l'annexe 2 à la présente recommandation.

Appendix 1 to the recommendation, alien plant species for which eradication or containment is recommended

Species	Ecosystems	Countries in which the species occurs
Crassula helmsii	Uncultivated	Belgium, Denmark, France, Germany, Ireland, the Netherlands, the United Kingdom (Great Britain, Northern Ireland, Guernsey).
Hydrocotyle ranunculoides	Uncultivated	Belgium, France, Italy, the Netherlands, Portugal, Spain, the United Kingdom. Italy, Palestine, Israel.
Lysichiton americanus	Uncultivated	Denmark, Germany, Ireland, the Netherlands, Norway, Sweden, Switzerland the United Kingdom.
Pueraria lobata	Uncultivated	Italy, Switzerland.
Solanum elaeagnifolium	Uncultivated and cultivated	Algeria, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Republic of Macedonia, Montenegro, Morocco, Serbia, Spain, Syria, Tunisia.

Appendix 2 to the recommendation, listing examples of alien plant species having a high capacity of spread and a very limited distribution.

Species	Ecosystems	Countries in which the species occurs
Acaena novae zelandiae (=*A. anserinifolia*)	Uncultivated	United Kingdom
Alternanthera caracasana	Cultivated	Spain, Israel
Alternanthera pungens	Cultivated	Israel
Araujia sericifera	Uncultivated	Spain, France
Azolla mexicana	Uncultivated	Hungary
Bothriochloa barbinodis	Uncultivated and cultivated	France
Cabomba caroliniana	Uncultivated	The Netherlands, United Kingdom, Hungary
Cenchrus incertus	Uncultivated and cultivated	Spain, Italy, Romania
Cotula coronopifolia	Uncultivated	Portugal, Spain, Italy
Diospyros lotus	Uncultivated	France
Eichhornia azurea	Uncultivated	the Netherlands
Eichhornia crassipes	Uncultivated	Portugal, Spain
Eupatorium adenophorum	Uncultivated	Spain
Fallopia baldschuanica	Uncultivated	Spain, Italy, Slovenia, France
Glyceria striata	Uncultivated	Austria
Hakea salicifolia	Uncultivated	Portugal
Hakea sericea	Uncultivated	Portugal, France
Muehlenbeckia complexa	Uncultivated	United Kingdom
Myriophyllum heterophyllum	Uncultivated	Spain
Pistia stratiotes	Uncultivated	Spain
Pueraria lobata	Uncultivated	Switzerland
Senecio deltoideus	Uncultivated	France
Sesbania punicea	Uncultivated	Portugal, Italy