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**T-PVS (2010) 12**

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

**Groupe d'experts  
sur la Diversité biologique des Iles européennes**

Svalbard (Norvège), 26-27 juillet 2010)

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**RAPPORT**

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

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Le Groupe d'experts de la diversité biologique des îles d'Europe a tenu sa 2<sup>e</sup> réunion à Longyearbyen (Svalbard, Norvège) les 26 et 27 juillet 2010.

Le Comité permanent est invité à:

1. remercier les autorités norvégiennes de protection de la nature et les services de l'environnement du Gouverneur de Svalbard pour leur excellente hospitalité, ainsi que pour l'organisation très professionnelle de la réunion;
2. prendre note du rapport de la réunion, et notamment de l'avancement des travaux d'élaboration d'une Charte européenne pour la diversité biologique des îles;
3. prendre note, en particulier, des activités proposées par le Groupe quand il établira son programme d'activités pour 2011;
4. créer un groupe consultatif, en partenariat avec le GSEE de l'UICN et l'OEPP, afin d'apporter une assistance et des orientations en matière d'éradication des EEE dans les îles.

## 1. Ouverture de la réunion

Le Président, M. Øystein Størkensen, souhaite la bienvenue aux participants (voir l'annexe 2) et mentionne la législation qui protège l'environnement de l'archipel de Svalbard et les efforts investis par le gouvernement norvégien et le gouverneur de Svalbard pour sauvegarder sa nature vierge et en particulier éviter les introductions accidentelles d'espèces exotiques envahissantes (EEE).

Mme Guri Tveito, Directrice du Service de la protection de l'environnement du Gouverneur de Svalbard, présente les particularités écologiques et l'histoire de ces îles de l'Arctique. Svalbard fait l'objet d'une législation environnementale spécifique, et la législation norvégienne dans ce domaine ne s'applique donc pas automatiquement à la région. La police locale est chargée de veiller au respect des lois de protection de l'environnement. L'économie repose sur le tourisme, l'industrie minière et la recherche. L'exploitation minière est strictement réglementée, et 65 % du territoire est occupé par un total de 21 réserves naturelles et 7 parcs nationaux. L'entrée payée par les visiteurs alimente un fonds pour la protection de l'environnement. L'impact des véhicules à moteur est limité. Cet archipel compte de nombreuses espèces intéressantes de fleurs, de mammifères marins et de mammifères terrestres tels que l'ours polaire, le renard arctique et une variété spéciale de rennes. Les principales menaces pour l'environnement sont le réchauffement climatique et la pollution d'origine lointaine.

Le Secrétariat informe le Groupe que, depuis sa dernière réunion à Ténériffe, les deux priorités sont l'élaboration d'une Charte européenne pour la diversité biologique des îles d'Europe et de lignes directrices sur la biodiversité des îles et le changement climatique.

## 2. Adoption de l'ordre du jour

L'ordre du jour est adopté tel qu'il figure en annexe 1 au présent rapport.

## 3. Rapports nationaux et d'organisations internationales

[Document T-PVS/Inf(2010) 11]

Des rapports écrits ont été soumis par la Croatie, la France, l'Irlande, l'Italie, Malte, la Norvège et l'Espagne (îles Canaries).

### 3.1 Méditerranée

La déléguée de **Malte**, Mme Lisa Schembri-Gambin, brosse un tableau général de la diversité biologique de l'archipel maltais, de ses espèces endémiques et des menaces environnementales. Plusieurs espèces ont un statut de sauvegarde défavorable, ce qui contraint de mettre en oeuvre une puissante législation conforme aux obligations dérivées de la Convention de Berne et des directives de l'Union européenne. Une part importante du travail de conservation cible les espèces menacées et les zones protégées.

Le délégué de la **France** évoque le grand nombre d'îlots et d'îles de son pays (près de 1300 îles en Méditerranée et sur la façade atlantique) dont la principale, la Corse, représente 90 % de l'ensemble du territoire insulaire de la France métropolitaine. La diversité biologique de 80 de ces îles a été bien étudiée, et plusieurs zones protégées assurent une bonne protection de l'habitat (10 % des sites Natura 2000 sont sur des îles, et les parcs nationaux et régionaux couvrent une large part de la Corse, des îles bretonnes et de Port Cros; à cela, il convient d'ajouter les nombreuses réserves naturelles, parcs marins, etc.). Les autorités prévoient d'étendre les zones protégées afin de porter la couverture du territoire (qui est actuellement de 0,5 %) à 2 % en 2020, et de compléter le réseau par des couloirs écologiques ("trame verte / bleue"). Les trois principales sources d'inquiétude sont les espèces exotiques envahissantes, les conséquences du changement climatique et l'impact du tourisme.

### 3.2 Initiative pour les petites îles de Méditerranée

Le représentant du Conservatoire des Espace littoraux et des Rivages lacustres (France) présente initiative de son organisation et d'autres partenaires visant à promouvoir la sauvegarde de la biodiversité dans les petites îles grâce à une assistance technique et à une coopération institutionnelle multilatérale et

bilatérale. Les partenaires varient, mais cette initiative s'appuie sur le parrainage de projets, le transfert de savoir-faire technologique et le développement des capacités dans les petites îles (moins de 3000 ha). Il existe plus de 15 000 petites îles en Méditerranée, souvent caractérisées par une biodiversité intéressante, de fortes pressions et une gestion insuffisante. L'initiative réunit un réseau de 200 experts de 12 pays de la Méditerranée, 60 projets ont été réalisés dans des domaines tels que la recherche scientifique, la gestion des recensements d'oiseaux, la sensibilisation et l'éradication d'EEE.

### **3.3 Atlantique Nord et mer Baltique**

Le délégué du **Royaume-Uni** présente les activités que mène actuellement son pays en matière de biodiversité des îles. Il décrit les caractéristiques géographiques générales des îles du Royaume-Uni (autres que l'île principale), et présente leur grande importance pour les éléments menacés de la diversité biologique, et notamment les oiseaux marins et côtiers et les mammifères marins. Les îles du Royaume-Uni ont également conservé leurs pratiques agricoles traditionnelles ainsi que la flore et la faune qui y sont associées, et servent de refuge intéressant aux espèces menacées ou à des variétés intéressantes d'un point de vue génétique. Les principaux problèmes sont les espèces exotiques (dont plusieurs menacent la biodiversité indigène), et l'éradication (en particulier des rats) constitue par conséquent une priorité essentielle. Les énergies renouvelables d'origine marine (parc d'éoliennes, énergie marémotrice, etc.) sont une grande source de préoccupation.

### **3.4 Macaronésie**

Le délégué de l'**Espagne** présente la grande biodiversité des îles Canaries ainsi que les principales menaces (tourisme, difficultés sociales, agriculture commerciale, transport d'espèces exotiques, pénurie d'eau, forte pression humaine sur les terres et notamment une forte urbanisation, une gestion déficiente des déchets solides et liquides, le manque de stratégie dans l'aménagement du territoire et les politiques environnementales, et la dégradation des sols). 40 % des terres ont le statut de zones protégées, mais les politiques des pouvoirs publics sont parfois contraires aux mesures de protection. Il existe de bonnes informations sur la biodiversité indigène et sur les espèces exotiques envahissantes, de nombreux plans d'action spécifiques sont mis en oeuvre et les EEE sont très activement combattues (même s'il est souvent difficile d'obtenir les moyens nécessaires).

### **3.5 Islande, Norvège et Arctique**

Le délégué de la **Norvège** (Président) informe le Groupe qu'une part importante des efforts de sauvegarde de la biodiversité des îles dans son pays vise l'archipel de Svalbard et les îles Jan Mayen dans l'océan Arctique et leur flore et leur faune spécifiques (mammifères marins, importante population d'ours polaires). La lutte contre les espèces exotiques est une priorité dans ces territoires, tout comme la réduction des effets du tourisme et de l'exploitation minière sur leur environnement. Des lois spécifiques sont en place. La connaissance et la protection de leur biodiversité sont bonnes. La prolifération d'un petit nombre d'espèces introduites (crabe royal, campagnol des champs) est préoccupante, tout comme les conséquences du changement climatique sur la flore et la faune locales et la progression d'espèces envahissantes.

### **3.6 Expériences de l'Unesco**

Le délégué de l'Unesco présente le Plan d'action de Madrid pour les réserves de la biosphère et sa mise en oeuvre dans les îles. Il existe 179 réserves de la biosphère littorales et insulaires dans 64 pays, et 55 de toutes les réserves de la biosphère sont situées sur des îles ou sur des îlots (18 en Europe).

Le bilan d'étape du Plan d'action de Madrid sera achevé en 2010. Il vise principalement à élaborer, par le biais des réserves de la biosphère, des modèles de durabilité mondiale, nationale et locale. Elles doivent servir de sites d'apprentissage pour les professionnels qui élaborent les mesures, les décideurs, les chercheurs, les professionnels de la gestion et les communautés concernées, afin qu'ils puissent travailler ensemble pour que le développement durable convienne aux communautés locales.

### **3.7 BirdLife**

Le délégué de BirdLife indique aux participants comment les activités scientifiques et de sauvegarde des ONG sont pertinentes pour la diversité biologique des îles d'Europe. Il souligne de quelle manière la diversité biologique des îles (qui a longuement été étudiée par BirdLife) peut aider à déceler les changements climatiques. Depuis 1980, BirdLife observe les oiseaux dans le cadre d'un vaste réseau de sites (Zones importantes pour la conservation des oiseaux - ZICO). L'identification a contribué à la protection dans le cadre des réseaux Natura 2000 et Emeraude. BirdLife Espagne a mis sur pied une "ZICO marine en Espagne", où elle relève également les concentrations d'oiseaux (sur le littoral) sans nidification, les zones littorales utilisées par les colonies qui se reproduisent à terre, et les goulots d'étranglement dans les migrations. Le fruit de leur travail pourrait aider à mieux cibler les activités du groupe d'experts des petites îles.

## **4. Charte européenne pour la diversité biologique des îles**

*[Document T-PVS/Inf (2010) 12]*

Le Consultant, M. Yves de Soye, présente son avant-projet de charte. Il a choisi de présenter à la fois des principes et des recommandations afin que le Groupe puisse décider du degré de détail qu'il souhaite pour un tel document.

Le Secrétariat rappelle l'idée qui est à l'origine de la charte, c'est-à-dire un document relativement court visant à sensibiliser aux besoins de sauvegarde de la diversité biologique des îles, et qui proposerait quelques principes généraux destinés à inspirer les mesures des gouvernements et d'autres parties prenantes.

Une discussion générale s'engage entre les gouvernements et les observateurs. Certaines délégations estiment que le projet est trop détaillé et formule des recommandations très précises à l'intention des gouvernements, et préféreraient une version simplifiée, comportant davantage de « déclarations de principes » et d'orientations plus générales. Certains délégués souhaitent un code qui s'adresserait un large public, et pas uniquement aux gouvernements. Les participants expriment en général leur préférence pour un code relativement bref, facile à utiliser pour les politiciens et les gouvernements intéressés, les ONG, les professionnels de la sauvegarde de la nature, etc.

Un projet révisé de la Charte sera soumis aux membres du Groupe d'experts bien avant la prochaine réunion, en vue de leur permettre d'élaborer une nouvelle version pour adoption éventuelle par le Comité permanent de la Convention de Berne, en novembre 2011.

## **5. Les espèces exotiques envahissantes dans les îles**

### **5.1 Priorités en matière d'éradication des EEE dans les îles d'Europe**

M. Giuseppe Brundu soumet des idées pour une définition de priorités parmi les espèces présentes dans les îles, en s'appuyant sur les travaux que l'Organisation européenne et méditerranéenne pour la protection des plantes (OEPP) pour la sélection des espèces aux fins des éventuelles "analyses du risque phytosanitaire". Ces priorités reposent sur deux critères: l'aire de répartition (y compris la dissémination) et l'impact (sur le milieu naturel, les cultures ou les forêts). Il convient d'accorder la priorité aux espèces qui ont une aire de répartition réduite et un fort impact. Divers paramètres peuvent servir à définir l'aire de répartition dans les îles (nombre de spécimens, distance jusqu'à d'autres îles, difficultés pratiques pour l'élimination, etc.). L'impact sur les îles peut être défini comme l'effet d'une espèce sur les espèces endémiques ou sur des habitats menacés, les bienfaits potentiels d'une intervention du point de vue de la sauvegarde, etc.

Le Groupe prend note des informations présentées et salue l'intérêt de la méthodologie proposée pour sélectionner les espèces en vue de leur éradication.

## **5.2 Favoriser l'éradication par la création d'un groupe consultatif sur l'éradication dans les îles d'Europe**

M. Piero Genovesi, Président du GSEE de l'UICN, informe le Groupe des bons résultats obtenus par une conférence organisée en Nouvelle-Zélande sur le thème de l'éradication, ainsi que d'activités et de mesures récentes en matière d'EEE et d'éradication (objectifs post-2010 de la CDB, activités de l'AEE, initiatives de l'UE). Certains groupes d'espèces – comme les oiseaux gravement menacés d'extinction – sont menacés par des EEE, et ces dernières constituent d'ailleurs un facteur essentiel dans la moitié des cas d'extinctions animales. Les amphibiens sont particulièrement exposés. Les campagnes d'éradication peuvent constituer une parade efficace et portent souvent des fruits (notamment quand elles concernent des vertébrés dans les îles). La base de données sur l'éradication présente plusieurs campagnes réussies dans diverses îles d'Europe. En Méditerranée, les expériences de dératisation dans les îles pour protéger les oiseaux marins donnent de très bons résultats, tout comme les opérations d'éradication de diverses plantes envahissantes. L'éradication peut également constituer une solution très économique quand elle est assortie de dispositifs d'alerte précoce et de réaction rapide.

M. Genovesi suggère que les travaux techniques du Groupe d'experts des îles d'Europe pourraient servir de base aux mesures de l'UE dans ce domaine. Il propose également que la Convention de Berne crée un petit groupe consultatif qui pourrait, en collaboration avec le GSEE et l'OEPP, fournir une assistance et des conseils et assurer des échanges d'informations techniques sur des projets spécifiques d'éradication. Ce groupe consultatif travaillerait en étroite concertation avec les groupes d'experts de la Convention de Berne (des EEE, de la diversité biologique des îles d'Europe, de la diversité biologique et du changement climatique, et de différents groupes taxinomiques) et être consulté par les gouvernements, les ONG et d'autres partenaires de la Convention, le GSEE et l'OEPP.

Le Groupe approuve l'idée et décide de la soumettre au Comité permanent de la Convention.

## **5.3 Nouvelles du Pacifique**

### ***a. L'Initiative du Pacifique contre les espèces envahissantes***

M. Mick Clout, de l'Université d'Auckland, présente cette initiative qui réunit de nombreuses parties prenantes (principalement financée par le gouvernement de la Nouvelle Zélande) et vise à renforcer les capacités des îles, pays et territoires du Pacifique afin de leur permettre de gérer efficacement le problème des espèces exotiques envahissantes. L'initiative réunit des personnes de toute la région intéressées par la question, réalise des projets, fournit des évaluations et des orientations aux gouvernements et aux professionnels de la sauvegarde de la nature, apporte le cas échéant une assistance technique, conçoit des outils spécifiques et organise des ateliers de formation. M. Clout souligne l'importance de partager les informations et de bien orienter les projets et les actions sur les domaines où les bienfaits pour l'environnement sont les plus probants. L'expérience est une réussite (dans une région où les EEE constituent la principale cause d'extinctions d'espèces) et pourrait inspirer des initiatives dans d'autres régions. Le soutien gouvernemental a été déterminant pour la continuité du projet.

### ***b. Initiative pour "aider les îles à s'adapter"***

M. Stas Burgiel présente les conclusions d'un atelier d'action régionale contre les espèces envahissantes. Il visait à identifier et à renforcer les réseaux et les structures contribuant à l'efficacité et à la durabilité de la lutte contre les espèces envahissantes dans les îles. L'atelier a permis d'identifier des priorités pour la CDB et pour d'autres cadres internationaux, notamment dans la perspective des objectifs de diversité biologique post-2010 qui doivent être adoptés à Nagoya, où les EEE devraient également être reconnus comme des moteurs de la perte de diversité biologique et inscrits dans le Plan stratégique de la CDB. Au cours de l'atelier, il a également été reconnu qu'associés au changement climatique, les EEE peuvent gravement nuire à la diversité biologique des îles. Il faut un soutien politique, financier et technique accru en faveur de la collaboration et d'initiatives régionales en matière de lutte contre les espèces exotiques envahissantes. Les échanges d'expériences et d'informations sont essentielles. Dans de nombreux domaines et régions, l'on note un manque de coordination que des groupes tels que celui de la

Convention de Berne pourraient aider à pallier. Une part importante du travail de lutte contre les EEE est réalisée dans les zones protégées, mais pas en dehors de celles-ci.

Le Groupe salue les deux présentations et examine comment tirer parti de ces expériences dans ses propres activités. Les participants soulignent les difficultés que rencontrent les réseaux de défenseurs de la nature qui travaillent dans les îles, et reconnaissent la nécessité d'échanger des informations. La Convention de Berne devrait peut-être servir de catalyseur pour la réalisation de certains "projets pilotes".

## **6. Impacts du changement climatique sur la diversité biologique des îles**

[Document T-PVS/Inf (2010) 9]

M. Yves de Soye présente un rapport élaboré par Mme Cordula Epple, du PNUE-CMSC. En raison de leurs caractéristiques géographiques et biologiques, les îles sont des territoires où les espèces sont peu nombreuses, mais souvent endémiques (elles représentent à peine 5 % des terres, mais abritent 20 % des plantes endémiques). Ce sont souvent des points chauds de la sauvegarde de l'environnement (surtout les îles de type "océanique") et leur flore et leur faune sont déjà menacées par le simple fait que de nombreuses îles sont peu étendues et subissent une intense pression humaine. Un tiers des espèces mondialement menacées de mammifères, d'oiseaux et d'amphibiens vivent dans les îles. Les îles d'Europe sont très variées et la conservation de la plupart d'entre elles nécessite une approche spécifique. Les "points chauds" de la diversité biologique des îles se situent principalement dans le sud du continent et dans la région macaronésienne. La diversité biologique des îles est très vulnérable face au changement climatique en raison des maigres possibilités de dispersion, du taux élevé d'endémisme et de l'aire de répartition souvent très réduite de nombreuses espèces, même si peu d'informations sont actuellement disponibles sur l'évolution générale des populations. Le changement climatique est en partie responsable du déclin massif des oiseaux marins en mer du Nord et dans l'Atlantique Nord. Les îles devraient également souffrir de la dissémination des espèces exotiques envahissantes que risque d'induire le changement climatique.

Le Groupe note que le Groupe d'experts de la diversité biologique et le changement climatique a proposé un projet de recommandation sur la biodiversité des îles et le changement climatique pour adoption éventuelle par le Comité permanent.

## **7. Priorités d'action et propositions au Comité permanent de la Convention de Berne**

Le Groupe examine longuement ce point en raison des actions très nombreuses et variées qui sont nécessaires dans les îles. Il est important de définir un "créneau" approprié pour les activités du Groupe, adapté à la fois à ses moyens limités et aux priorités de la conservation de la biodiversité des îles.

Le Secrétariat explique que le rôle du Groupe consiste surtout à proposer aux gouvernements (et aux autres partenaires), par le biais de la Convention de Berne, de nouvelles idées et orientations en matière de priorités législatives et de mesures.

A la lumière des activités de la CDB sur la diversité biologique des îles, le Groupe décide que ses travaux ne doivent pas porter sur des points déjà couverts (zones protégées, services des écosystèmes, énergie, eau, etc.) mais plutôt sur la "santé des écosystèmes" et sur la sauvegarde de la biodiversité. Certaines questions ont été choisies comme étant particulièrement pertinentes: espèces endémiques, listes rouges des îles, sites à forte concentration d'oiseaux reproducteurs, de mammifères marins ou de reptiles, intérêt biologique des eaux littorales autour des îles, rôle des îles pour les espèces migratrices ou comme refuges, îles présentant des types d'habitat rares ou des pratiques agricoles traditionnelles et favorables à la diversité biologique, et qui ont disparu du continent.

Il faut collecter des informations sur la manière dont ces valeurs et ces espaces sont affectés par les EEE, le tourisme, l'évolution de l'exploitation des sols, le changement climatique et les autres facteurs qui modifient les écosystèmes.



La Convention de Berne est en mesure de proposer des orientations, une coordination et des conseils sur toutes les questions susmentionnées:

- analyse des lacunes en matière d'information et des moyens nécessaires pour mener des actions;
- élaboration de listes rouges / d'espèces endémiques dans les îles;
- étude des îles sous l'angle de leur importance pour les espèces migratrices;
- étude des îles sous l'angle de leur rôle de refuges pour les espèces ou des habitats disparus ou menacés sur le continent;
- importance des îles pour les vertébrés marins (et notamment les oiseaux et les tortues marines);
- îles affectées par les pertes de biodiversité;
- espèces et habitats insulaires menacés par le changement climatique;
- lutte contre les EEE dans les îles (combler les lacunes en matière d'information, proposer des mesures et des orientations, mettre sur pied des projets pilotes).

Le Groupe adopte l'idée d'un tableau de synthèse des mesures possibles. M. Ian Bainbridge propose d'en coordonner l'élaboration. Un projet figure en annexe 4 au présent rapport.

## **8. Questions diverses**

Le Groupe remercie la France pour sa proposition d'accueillir en Corse la prochaine réunion du Groupe.

Aucune autre question n'est soulevée.

## Annexe 1



### **Groupe d'Experts de la Convention de Berne sur la Diversité biologique des Iles européennes 2<sup>e</sup> réunion**

Longyearbyen, Svalbard, Norvège, (26-27 juillet 2010)  
9h30 – 18h00

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## **ORDRE DU JOUR**

### **INTRODUCTION – PRESENTATIONS**

#### **1. OUVERTURE DE LA REUNION**

Bienvenu et ouverture de la réunion par le Président, M. Øystein Størkersen , et les autorités locales de Svalbard, Mme Guri Tveito

Remarques et mises à jour du Secrétariat

#### **2. ADOPTION DE L'ORDRE DU JOUR**

#### **3. RAPPORTS PAR LES ETATS ET ORGANISATIONS INTERNATIONALES**

[document T-PVS/Inf (2010)11] – Nouvelles sur les activités en cours

- **Méditerranée et mer Noire**  
Présentations par la Croatie, la France, l'Italie et Malte
- **Initiative pour les petites îles de Méditerranée (PIM)**  
Présentation par la France (Conservatoire du Littoral)
- **Atlantique nord et Baltique**  
Présentations par l'Irlande et le Royaume-Uni
- **Macaronésie**  
Présentation par l'Espagne
- **Islande, Norvège et Arctique**  
Présentation par la Norvège

#### **Les expériences de l'Unesco**

Présentation par M. Miguel Clüsener-Godt

#### **Les expériences de BirdLife**

Présentation par BirdLife Espagne

#### **4. LA CHARTE EUROPEENNE DES ILES**

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Présentation par le consultant M. Yves de Soye  
Discussion

**5. ESPECES EXOTIQUES ENVAHISSANTES SUR LES ILES**

- **5.1 Priorités pour l'éradication des EEE sur les Iles européennes**

Présentation par M. Giuseppe Brundu

**5.2 Soutien de l'éradication par la création d'un groupe de conseil sur l'éradication sur les îles européennes**

Présentation par M. Piero Genovesi

- **5.3 Nouvelles du Pacifiques**

*a. L'Initiative du Pacifique contre les espèces envahissantes*

Présentation par M. Mick Clout

*b. Initiative pour « aider les îles à s'adapter »*

Présentation par M. Stas Burgiel

**6. LES EFFETS DU CHANGEMENT CLIMATIQUE SUR LA BIODIVERSITE DES ILES**

[Document T-PVS/Inf (2010) 9]

Présentation par M. Yves de Soye

Discussion

**7. PRIORITES D'ACTION ET PROPOSITIONS AU COMITE PERMANENT DE LA CONVENTION DE BERNE**

**8. QUESTIONS DIVERSES**

**Annexe 2****LIST OF PARTICIPANTS  
LISTE DES PARTICIPANTS****I. CONTRACTING PARTIES / PARTIES CONTRACTANTES****CROATIA / CROATIE**

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**Annexe 3**

**COMPILATION DES RAPPORTS NATIONAUX  
SUR LES ACTIVITES RELATIVES A LA  
DIVERSITE BIOLOGIQUE SUR LES ILES EUROPEENNES**

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## 1. CROATIA / CROATIE

### WRITTEN CONTRIBUTION ON ISLAND BIODIVERSITY IN CROATIA FOR THE 2<sup>ND</sup> MEETING OF THE BERN CONVENTION GROUP OF EXPERTS ON EUROPEAN ISLAND BIOLOGICAL DIVERSITY, SVALBARD (NORWAY), 26-29 JULY 2010

Prepared by the State Institute for Nature Protection and the Ministry of Culture, Nature Protection Directorate, July 2010

#### General characteristics

Even though Croatia is not an island state, it has 1 185 islands which are geographically classified into 718 islands, 389 islets (peak above sea level) and 78 reefs (peak below sea level). They all together represent just 5.8% of the Croatian territory, but they make up about 70% of the total Croatian coastline. Only 47 islands are inhabited, while 100 islands are considered to be occasionally inhabited. The 30 largest Croatian islands cover as much as 92.2% of the total island area. The largest islands are Kirk and Cres (405.78 km<sup>2</sup>).

#### Biodiversity and endemism

Plant species richness for all Croatian islands has been estimated to 1807 plant species on the basis of floristic study of 106 Croatian islands (Nikolić et al. 2008). On these islands there were 89 circum-Adriatic endemic and 35 narrow endemic plant taxa recorded. Some of the narrow endemics include taxa from genera *Asperula*, *Brassica*, *Centaurea*, *Limonium* etc. which are mostly confined to South-east Adriatic islets.

Regarding the vertebrate fauna, almost 200 species inhabit Croatian islands (Tvrtković (ed.) 1997). Of the mammalians especially interesting is the only island population of European mole (*Talpa* cf. *europaea*), which was found on the island of Cres and is considered to belong to a discrete taxon. It is classified as Endangered in Red Book of Mammals of Croatia (Tvrtković (ed.) 2006).

Croatian islands present important nesting place for many endangered bird species as Cory's Shearwater (*Calonectris diomedea*), Eleonora's Falcon (*Falco eleonora*), Griffon Vulture (*Gyps fulvus*), Audouin's Gull (*Larus audouinii*) and Little Tern (*Sterna albifrons*).

Among reptiles, the most interesting are 13 endemic taxa of Dalmatian wall lizard (*Podarcis melliselensis*), each restricted to a single island.

Invertebrates as a whole are poorly researched in Croatia. Although data on some groups of invertebrates on particular islands exist, general surveys on all Croatian islands have not been conducted yet.

#### Threats and problems

Main threats and problems on Croatian islands include: littoralization (concentration of economic activities and population along the coast), lack of integrated coastal zone planning and management, illegal building, tourism and urban development (including infrastructure and recreational activities), depopulation (the most prominent process on some islands), land abandoning (abandoning of traditional extensive grazing and mowing), unsustainable fishing, poaching, inadequate use of speleological objects, untreated waste waters, fires etc. Invasive alien species (IAS) also present one of the major threats to islands' biodiversity. Silver-leaved nightshade (*Solanum elaeagnifolium* Cav.) on the island of Plavnik, eastern mosquitofish (*Gambusia holbrooki*) in ponds of several islands, small Indian mongoose (*Herpestes auropunctatus*) on some Dalmatian islands and wild boar (*Sus scrofa*), fallow deer (*Dama dama*) and mouflon (*Ovis aries musimon*) which have been introduced to some islands as game species represent just

some of the most prominent IAS problems on Croatian islands. Furthermore, two invasive algae of the genus *Caulerpa* have been found in the Croatian part of the Adriatic Sea: *Caulerpa taxifolia* and *Caulerpa racemosa*.

## **Protection of island biodiversity**

### ***Legislation***

The Regulation on Protected Coastal Area Development and Conservation (Official Gazette 128/04) defines 'protected coastal area' consisting of all the islands and a 1 000m wide mainland and a 300m wide marine belt measured from the coastline, which stands for tidal wave line on the coast.

The Islands Act (Official Gazette Nos. 34/99, 149/99, 32/02, 33/06) prohibits the introduction and breeding of alien game species, which do not inhabit the island naturally.

The Nature Protection Act (Official Gazette Nos. 70/05 and 139/08) does not address island biodiversity as a separate subject, but regulates the protection of species and habitats, as well as the protection and use of natural assets.

In the Strategy and Action Plan for the Protection of Biological and Landscape Diversity of the Republic of Croatia (Official Gazette No. 143/08) the following action plans specifically address the island biodiversity issues:

- Protection of ecosystems and habitats - Establish and implement protection of habitats on islands hosting endemic taxa and/or on nesting sites, resting places during migration, sand beaches, ponds and springs.
- Elimination of invasive species - Scientifically determine the population count of introduced game on the islands, develop and implement elimination programmes.

The Ordinance on Proclamation of Wild Taxa as Protected and Strictly Protected (Official Gazette No. 99/09) and the Ordinance on the Sorts of Habitat Types, Habitat Map, Endangered and Rare Habitat Types as well as Safeguard Measures for Conservation of Habitat Types (Official Gazette No. 119/09) contain the lists of protected species and habitats.

The Regulation on Proclamation of the Ecological Network (Official Gazette No. 109/07) established the Croatian Ecological Network on the 47% of the land and 39% of the marine territory. Ecological Network covers 86,88% of the total island area in Croatia.

On the COP9 of the Convention on Biological Diversity in 2008, the Republic of Croatia committed to GLISPA Partnership that brings together island nations and nations with islands to ensure the conservation and sustainable livelihoods on islands.

Croatia is also dealing with the island biodiversity issues in the scope of the activities and incentives under the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) (Barcelona, 1976, 1995) and the appertaining Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (Barcelona, 1995).

Action plan for eradication of wild boar (*Sus scrofa*) on the islands of Krk and Cres has been prepared in the May 2010 under the coordination of Center for the sustainable development of north Adriatic islands. This document is non-legally binding.

### ***Protected areas***

There are three National parks on islands (IUCN category II; Brijuni, Kornati, Mljet) and two island Nature parks (IUCN category V; Telašćica and Lastovo Archipelago), which consist of land territory and the adjacent sea.

Process of the permanent protection of the Lošinj-Cres archipelago as a Regional park (IUCN category V) is ongoing, since this area has been identified as one of the critical habitats for bottlenose dolphins (*Tursiops truncatus*) in the eastern Adriatic.

### ***Croatian Ecological Network***

Croatian Ecological Network was proclaimed in 2007 in accordance with the Nature Protection Act, with defined areas of national and international importance. It includes Areas important for wild taxa (except birds) and habitats, which correspond to NATURA 2000 proposed Sites of Community Importance (pSCIs), and Areas internationally important for birds, which correspond to NATURA 2000 Special Protection Areas (SPAs).

Areas important for wild taxa (except birds) and habitats comprise in total 27.49% of the island territory in Croatia while areas internationally important for birds cover as much as 81.26% of the island territory in Croatia.

### **Ongoing and planned projects**

#### ***Project Blue Corridor***

As a part of a large-scale Conservation planning project initiated by World Wildlife Fund for Nature (WWF) 12 hot spot marine biodiversity areas for conservation in the Mediterranean region have been identified. One of 12 sites is in the Adriatic Sea, Dalmatian coast and represents a 'blue corridor' for biodiversity conservation, which specifically recognizes islands Svetac, Brusnik, Biševo, Vis, Lastovo, Mljet, Sušac and Jabuka pit. WWF and Sunce (non-government organization from Split, Croatia) are advocating implementation of the 'blue corridor' project that would help establish an MPA network in the Adriatic Sea.

#### ***Project COAST***

The main goal of the UNDP/GEF project Conservation and Sustainable Use of Biodiversity in the Dalmatian Coast through Greening Coastal Development (COAST) is to ensure that the development path of the Croatian Coast is environmentally friendly, with the conservation of landscape and biological diversity central to that development path. Project areas are four Dalmatian counties rich with biological and landscape diversity, including the following islands: Pag, Mljet, Vis, Biševo, Svetac, Jabuka, Brusnik and Palagruža, identified as of national, Mediterranean and global values. The project is to remove barriers to mainstreaming and implementing environmentally friendly practices of the key economic sectors in Dalmatia: tourism, fisheries, mariculture, agriculture and banking/finance.

The project results so far are: inventory of fauna, inventory and mapping of flora, habitat mapping, inventory of coastal fisheries resources and recommendations for sustainable coastal fisheries in Vis aquatorium, creation of the technical/expert basis as prerequisites for management of the Biševo and SE Vis marine areas as a part of the Croatian Ecological Network. In the year 2008 the book "The flora of Adriatic coast and islands" has been published, also in the frames of COAST project.

#### ***Identification and setting-up of the marine part of Natura 2000 network in Croatia - Marine NATURA 2000 Republic of Croatia***

This project aims at the identification of the marine part of NATURA 2000 network with the main goal – detailed program of work for finalizing marine NATURA 2000. This programme of work is to be prepared through consultations with relevant stakeholders and scientific community and will also contribute to further development of the national biodiversity monitoring system through capacity building for the inventorying of marine biodiversity and monitoring and reporting according to provisions of Habitats Directive. The project should start in autumn 2010.

#### ***WWF Thousand islands - Contribution to the implementation of NATURA 2000 in Croatia***

As a follow up project of PHARE 2005 (Implementation of NATURA 2000 in Croatia) - The consultation process launched by the PHARE project was very successful but incomplete in a sense that it did not address the relevant sectors that take part in management and use of the sea (fisheries, maritime transportation, tourism, energy, etc.). The proposed project will assist the SINP in extending the NATURA 2000 consultation process to all public and private groups that have an interest in the

management and use of marine resources and areas, in order to prepare the ground for the future effective management of the identified marine NATURA 2000 sites. The improvement of scientific knowledge on relevant marine biodiversity features provided by the IPA project should be coupled with a consultation process with all groups that have an interest and stake in the management of marine areas and resources (e.g. Ministry of Agriculture, fishery sector, etc.), both at national and county level.

***Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem - Pilot-project for Croatian marine protected areas (MedPan)***

The aim of the project is to enlarge effectiveness of biodiversity conservation of valuable coastal and marine areas by creating coherent network of protected marine areas and development of management plans for selected marine parks: national parks Kornati, Mljet and Brijuni, as well as nature parks Telašćica and Lastovo archipelago.

***Croatia Nature Protection Investment Project (NPIP)***

Project aims to support preparations of Croatia for entering the European Union in the segment of nature protection. The main aim of the project is to support establishment and implementation of NATURA 2000 network. It is going to encompass investments in the ecological network, investments in local community to raise nature protection and revitalization of rural areas as well as institutional capacity building.

***Improved marine protected area system in Republic of Croatia for better conservation of globally important biodiversity reservoirs and maintenance of carbon pools***

The main project goal is to enable sustainable conservation of marine biodiversity through supporting capacity building of protected areas and regional/local public institutions located at targeted pilot sites (Brijuni area, Kornati and Telašćica area, nature park Lastovo Archipelago, Mljet area). This will enable them to effectively mitigate and monitor human impact and climate change risks, as well as raise awareness on the importance of Posidonia meadows among developing (economic) sectors and local community.

## 2. FRANCE / FRANCE

Contribution de la France



### **BIODIVERSITE DES ILES FRANCAISES METROPOLITAINES. BILAN ET PERSPECTIVES**

**Bernard RECORBET<sup>1</sup> et Jean Philippe SIBLET<sup>2</sup>**

#### RESUME

La France métropolitaine compte un nombre très important d'îles et d'îlots (près de 1300) situés pour un part importante en Bretagne et en Méditerranée, la Corse représentant à elle seule plus de 90% des surfaces insulaires françaises de métropole.

La biodiversité de ces îles est particulièrement remarquable et est mise en évidence par de nombreux outils d'inventaires et de protections :

- l'inventaire de Zones Naturelles d'Intérêt Ecologique Faunistique et Floristique (ZNIEFF). 80% des îles françaises sont couvertes pour cet inventaire ;
- Natura 2000 : 10% des surfaces couvertes par ce dispositif sont des îles ;
- Les parcs naturels régionaux : la Corse et la Bretagnes sont concernées
- Les parcs nationaux : Port Cros
- Les parcs marins (l'Iroise)
- Les réserves naturelles : 15 concernent en tout ou partie des îles
- Les arrêtés préfectoraux de biotope : 67 concernent en tout ou partie des îles

Il faut souligner le rôle particulier joué par le Conservatoire des Espaces Littoraux et de Rivages Lacustres dont la vocation est d'acheter des terrains pour les soustraire aux aménagements et à la spéculation foncière. Cet organisme à acquis, depuis sa création en 1975, près de 21000 hectares sur des îles.

Le rôle des conservatoires botaniques nationaux est également très important et porte principalement sur des actions d'acquisition de la connaissance sur la flore, avec un point focal sur la flore remarquable, un travail de veille/sensibilisation sur les espèces exotiques envahissantes et enfin un travail de recensement et de cartographie des habitats.

D'autres outils tels que les réserves de biosphère du programme MAB, les zones humides « RAMSAR », le parc international des Bouches de Bonifacio en Corse, le sanctuaire PELAGOS pour les cétacés en Méditerranée.... viennent compléter le dispositif.

La biodiversité de ces îles est fragile et elle est menacée par différents facteurs dont deux font l'objet de développements particuliers :

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- les espèces exotiques envahissantes. Ce problème est particulièrement inquiétant en milieu insulaire et le rapport fait la synthèse des actions de contrôle, d'éradication et de suivis qui sont actuellement mise en œuvre sur les îles françaises ;
- les impacts du réchauffement climatiques.

Face à ces menaces le constat de la nécessité de renforcer la protection de la biodiversité insulaire est posé, en accord d'ailleurs avec les politiques issues du Grenelle de l'environnement : stratégies de création d'aires protégées, trame verte et bleue, atlas de la biodiversité communale ou plus anciennes tels que les plans nationaux d'action.

Pour les Bouches de Bonifacio, site écologique particulièrement riche, les ministres italien et français ont signé le en juin 2010 à Palau (Sardaigne) deux déclarations, l'une relative à la création du parc marin international des Bouches de Bonifacio et l'autre relative à une demande à l'ONU d'interdire le passage dans les Bouches de Bonifacio des navires transportant des marchandises dangereuses. Dans l'attente de cette interdiction, ils ont transmis à l' Organisation Maritime Internationale le 25 juin dernier une demande de désignation des Bouches de Bonifacio comme Zone Maritime particulièrement Vulnérable (ZMPV).

A l'avenir plusieurs piste d'études et d'actions sont à mettre en œuvre telles que :

- l'étude des conséquences du développement du tourisme
- l'approfondissement des connaissances sur les invertébrés
- l'étude des conséquences des changements climatiques sur les espèces endémiques
- les conséquences du développement des énergies renouvelables sur la biodiversité insulaire.

Et un certain nombre de mesures spécifiques à la Corse qui concentre de nombreux enjeux du fait de son taux d'endémisme élevé :

- créer au moins 2 réserves naturelles en montagne ; si le littoral constitue un espace particulièrement sensible et menacée par les activités touristiques, les zones de montagne insulaires soumises à une pression touristique croissante et jusque là épargnées sont à surveiller, en Corse en particulier.
- consolider le réseau des réserves sur le littoral, au Cap Corse et entre le golfe de Porto (aire du site du patrimoine mondial) et Calvi.
- -délimiter de toute urgence le Domaine Public Maritime sur l'ensemble des plages et arrières plages, lieux d'enjeux de conservation très importants , afin de mettre en place une gestion réelle des formations végétales associées (*Anchusa crispa*, *Linaria flava*, *susp. Sardo*, *Limonium strictissimum*, *Euphorbia peplis*, etc...)
- - renforcer la réglementation et les contrôles sur l'introduction d'espèces exogènes à la Corse.

## SUMMARY

There is an important number of Island and Islets in Metropolitan France (almost 1300), principally situated in Brittany and Mediterranean Sea. Corsica count for more than 90% of this superficies of French metropolitan island.

The island biodiversity is specially important and covered by numerous assessments and protection tools :

- Natural Areas of Ecological, Faunistical and Floristical Interest (ZNIIEFF) census. 80 of the French islands are covered by this assessment ;
- Natura 2000 : 10% of the French sites are situated on islands ;
- Regional Naturel Parks: Corsica and Brittany
- National Park : Port Cros
- Marine Park (l'Iroise)
- Natural Reserves : 15 are situated on islands
- Biotop Prefectoral : 67 are situated on islands

We should mention the particular task of the Coastline Spaces Conservatory who buy in order to protect them from urbanisation plans. Since 1975, this institution have bought approximately 21000 hectares on islands.

The National Botanical Conservatories job is also very important. They manage botanical surveys with special interest on rare and threatened plants, monitoring on invasive species, and habitats mapping.

Other tools like Biosphere Reserves (MAB project), RAMSAR wetlands, International Park of Bonifacio Mouths in Corsica, PELAGOS cetacean sanctuary in Mediterranean sea.... Are involved on island biodiversity protection.

Island biodiversity is sensitive and threatened by several factors including two which are specially discussed :

- Invasive species. This is a specially frightening problem for island ecosystems. This report make a synthesis on regulation, eradication and monitoring actions actually conducted in French islands ;
- Climate change impacts.

Facing these threats, it seems necessary to reinforces island biodiversity protection. Some plans are already in action, following the "Grenelle of environnement" like : protected areas creation strategy, Green and Blue framework, communal biodiversity atlas, and some more ancient like species national action plans.

For the Mouths of Bonifacio, particularly rich ecological site, the ministers Italian and French signed in June 2010 in Palau (Sardinia) two declarations, the one relating one to the creation of the international marine park of the Mouths of Bonifacio and the other relative one to a request with UNO to prohibit the passage in the Mouths of Bonifacio the ships carrying dangerous goods. In waiting of this prohibition, they transmitted to the Maritime Organization International last on June 25 a request for designation of the Mouths of Bonifacio like Maritime Zone Particularly Vulnerable (MZPV)

Some studies and actions could be explored for the future :

- impacts of tourism on biodiversity ;
- studies on invertebrates ;

- Impact of climate change on endemics species
- Impact of « green energy » on island biodiversity

And specific measures in Corsica who concentrates many stakes because a rate of high endemism :

- to create at least 2 natural reserves in mountain; if the littoral constitutes a space particularly sensitive and threatened by the tourist activities, the insular mountainous areas subjected to an increasing tourist pressure and until saved there are to be supervised, in Corsica in particular.
- to consolidate the network of the reserves on the littoral, in the Corsica Cape and between the gulf of Porto (surface of the site of the world heritage) and Calvi. ·
- - to urgently delimit the Maritime Domain Public on the whole of the beaches and back beaches, places of very important stakes of conservation, in order to set up a real management of the associated vegetation formations (*Anchusa crispa*, *Linaria flava*, *susp. Sardoia*, *Limonium strictissimum*, *Euphorbia peplis*, etc...) ·
- to reinforce the regulation and controls on the introduction of exogenic species to Corsica ·



### 3. IRELAND / IRLANDE

#### ISLAND BIODIVERSITY IN IRELAND

##### Background

Ireland's biodiversity is a product of its glacial history, complex geology and oceanic climate coupled with a long history of human influence. Owing to geographic isolation, Ireland has a depauperate flora and fauna by European standards, with few endemics (table 1). However, the mild, wet climate and relatively unpolluted atmosphere mean that many of the habitats in Ireland are of international importance (e.g. machair, turloughs, raised bogs, limestone pavement) due to their scarcity and the unique species communities found on them (e.g. species characteristic of alpine and Mediterranean communities co-occurring in the Burren; species-rich Atlantic bryophyte communities in the south-west; hepatic mat communities in the uplands).

Table 1 – Species diversity for major groups, in Ireland.

Taxonomic Group	Approximate number of species	Number of legally protected species
Vascular plants	c. 900 native; c. 1,108 established aliens	68
Bryophytes	c. 584 mosses; 228 liverworts; 3 hornworts	19
Algae	700-1,000 freshwater; 579 marine	4
Lichens	c. 1,000	1
Lichenicolous fungi	150	
Fungi	>3,500	
Mammals	c.35 terrestrial; 2 seals; 24 cetaceans	26 terrestrial+ all seals & cetaceans
Birds	c.450 observed	All
Reptiles	2; 1 turtle, but 3 others occasionally observed	1 + all turtles
Amphibians	3	3
Freshwater fish	28	11
Invertebrates	c.18,107 documented	8

Ireland is an important staging post and destination for migratory birds of conservation importance (e.g. Greenland White-fronted Geese (*Anser albifrons flavirostris*), and holds significant populations of birds rare elsewhere in Europe as well as internationally important wetland bird communities.

Much of Ireland's biodiversity is in the marine environment, with important cetacean populations, cold water coral communities and many species at the northern or southern limit of their distributional range.

The 'All-Island' approach to biodiversity conservation is important in Ireland, as species and habitats do not observe political boundaries. Many projects are run as a co-operation between the National Parks and Wildlife Service (of the Department of the Environment, Heritage and Local Government) in the Republic of Ireland, and the Northern Ireland Environment Agency.

##### Endemism

Ireland would have been rendered almost sterile biologically during the last glacial maximum, and virtually all of the island's species have colonised since the ice retreated (c. 10,000BP). As a result Ireland has much lower rates of endemism than would be expected on an island. However, there is increasing genetic evidence that some species may have survived the last glaciation *in situ*, and it is in these species that we primarily see some endemism (e.g. Irish Hare (*Lepus timidus hibernicus*), Killarney Shad (*Alosa fallax killarnensis*), Arctic charr species complex (*Salvelinus alpinus* agg.)). Endemic plant species are also found in the speciose Hawkweed (*Hieracium*), Dandelion (*Taraxacum*), Bramble (*Rubus*) and Whitebeam (*Sorbus*) genera. An endemic variety of Bumblebee (*Bombus muscorum* var. *allenellus*) is found on the offshore Aran Islands. The sea anemone (*Edwardsia delapii*) is an example of a marine endemic.

An unusual feature of some Irish species is the breadth of niche occupied here, the depauperate biota meaning that competition with con-generic species is often limited or even absent. For example the white-

clawed crayfish (*Austropotamobius pallipes*), the only crayfish species in Ireland, occurs in both rivers and lakes here, but elsewhere in its range is limited to rivers. Similarly the common frog (*Rana temporaria*) is the only frog species in Ireland and occurs from sea-level to mountain tops. Elsewhere in its range, where this frog competes with several other frog species, this frog occupies a more confined niche.

**State of Ireland’s Biodiversity**

A recent comprehensive assessment of the conservation status within Ireland for the species and habitats listed on the EU Habitats Directive [92/43/EEC] showed that the majority of the island’s important habitats have an unfavourable conservation status, including raised and blanket bogs, dune systems, fens and mires, natural grasslands and woodlands (figure 1). Many protected species have a moderately satisfactory status but some, particularly those that occur in wetland and aquatic environments, are also reported to be of bad conservation status, such as the Atlantic salmon and freshwater pearl mussel (figure 2).

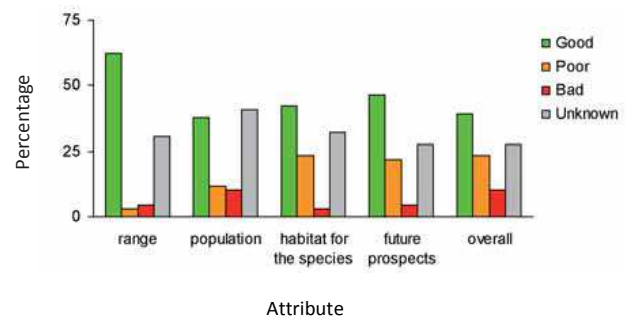
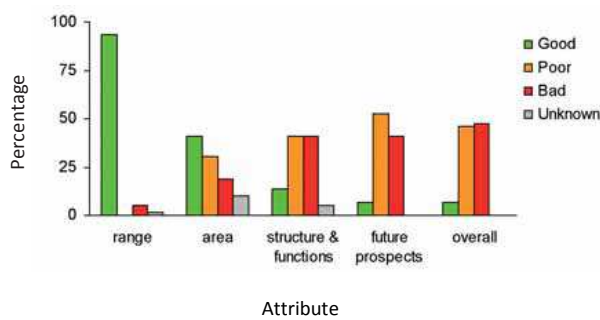


Figure 1 - Summary of conservation status for all Irish Habitats Directive habitats

Figure 2 - Summary of conservation status for all Irish Habitats Directive species

These results can be taken as an indicator of the status of Ireland’s biodiversity in general, as Habitats Directive listed habitats and species are found throughout Ireland, and cover most of Ireland’s biodiversity hotspots. Indeed, the assessment is backed up by recent IUCN regional red list assessments for water beetles and non-marine molluscs, which also show that a relatively high percentage of wetland species are threatened.

The list of Birds of Conservation Concern for Ireland, which assesses species using a system similar to the IUCN, places 25 species on the red list (i.e. of most conservation concern), 85 on the amber list, with only 89 on the least concern green list. However, there is also evidence that many of the more common breeding birds in Ireland have fared quite well over the last ten years (figure 3).

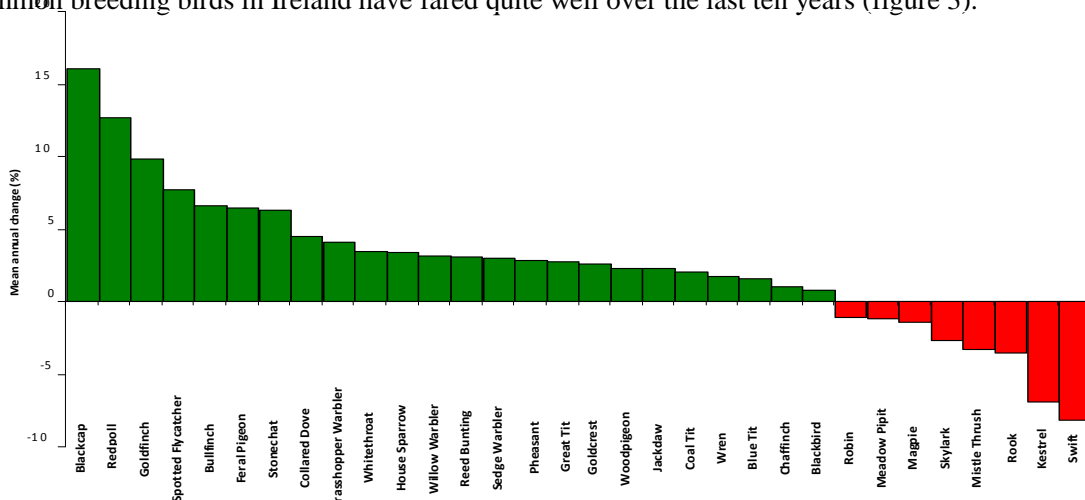


Figure 3 - Annual percentage change of selected countryside birds 1998-2007

## Economic benefits of biodiversity

A recent study to identify the nature and scale of the benefits that Irish society derives from biodiversity presented an assessment of the benefits of selected ecosystem services in the principal social and economic sectors (Table 2). Based on a preliminary estimate, the value of Ireland's ecosystem services in terms of their productive output and human utility to be over €2.6 billion per annum. This estimate omits other significant services including waste assimilation provided by aquatic biodiversity and benefits to human health.

Policy costs are estimated to be €370m per year, but only a proportion of these are truly incurred on protecting biodiversity. For example, the National Parks and Wildlife Service spends around €35m per year directly on biodiversity protection.

Table 2 – Policy costs and likely benefit values of ecosystem services in Ireland, listed by sector.

Sector	Policy costs (per annum)	Value (per annum)	Comments
<b>Agriculture</b>	€180 mill.	€1,200 mill.	Potentially significantly greater benefits from more sustainable agriculture
<b>Forestry</b>	€15 mill.	€55 mill.	Non-market benefits increasingly being recognised
<b>Marine</b>	€30 mill.	€230 mill.	Potentially significantly greater benefits from more sustainable resource management.
<b>Human welfare</b>	€260 mill.	€920 mill.	Selected benefits only
<b>Health</b>	Negligible	Unknown	Probably tens of millions
<b>Water quality</b>	€65 mill.		Catchment management expenditure likely to increase
<b>Roads (mitigation)</b>	€40 mill.		

## Threats

Ireland has experienced nearly a century of commercial afforestation, some 40 years of agricultural intensification and a decade of economic boom, which has put extreme pressure on its native biodiversity. The key threats to Ireland's biodiversity have been identified as:

- Direct damage, such as peat cutting, drainage and infilling; buildings and infrastructure; reclamation of wetlands such as bogs and fens; and removal of sand and gravel.
- Over-grazing and under-grazing of grasslands, peatlands, and coastal habitats.
- Pollution of both surface water and groundwater by nutrients or silt.
- Unsustainable exploitation of water, sand, peat, fish and other natural goods and services.
- Invasion by alien species of plants and animals.
- Recreational pressure in areas which were previously undisturbed.

Additional pressures on a number of species and habitats are likely to arise if Ireland undergoes climatic changes according to predictions.

## Conservation measures

Biodiversity in Ireland is protected by national legislation (in particular the Wildlife Act, 1976, Wildlife (Amendment) Act, 2000, Flora (Protection) Order, 1999 and Whale Fisheries Act, 1937), EU directives (in particular the Birds Directive [79/409/EEC], Habitats Directive [92/43/EEC] and Water Framework Directive [2000/60/EC]) and numerous international agreements (e.g. CITES, CBD, RAMSAR, Bern Convention, Convention on Migratory Species, OSPAR).

Biodiversity areas are protected by several designations, primarily Special Areas of Conservation (423 sites), Special Protection Areas (147 sites) and Natural Heritage Areas (148 sites designated; 600 sites under consideration). State owned lands are designated as National Parks (6 sites) and Nature Reserves (78 sites).

Conservation management plans are in preparation for designated areas. In addition, agri-environmental schemes and native woodland schemes have been available for land managers to sign up to. An active programme of bog acquisition is underway, with the ultimate aim of reducing or eliminating turf-cutting, and expanding the programme of bog restoration.

Extensive species and habitat monitoring programmes are underway. In 2010 the primary focus is on grasslands, uplands, turloughs, juniper scrub, limestone pavement, sea cliffs, various rare bryophytes, various birds species, the otter (*Lutra lutra*), frog (*Rana temporaria*) and freshwater pearl mussel (*Margaritifera margaritifera*).

A key goal of Ireland's National Biodiversity Plan is to integrate biodiversity concerns into all sectoral activities, and to increase public awareness of the importance and economic value of biodiversity. Ireland's public awareness campaign 'Notice Nature' was the winner of the 2007 EU award for best practice in communicating environmental issues (<http://www.noticenature.ie>).

The lack of an organised framework for the management of biodiversity data in Ireland, has been a key bottleneck for conservation programmes. However, a National Biodiversity Data Centre is now in place (since 2007) and acts as a central repository for handling biodiversity, and other relevant, data from a large number of sources and stakeholders (e.g. Government departments and agencies; NGOs, private collectors). The centre is working to provide checklists for all species groups in Ireland, as well as compiling inventory data about their distributions and habitats through a state of the art online mapping system. This improved access to biodiversity data will ensure that future policies and decision makers, that impact on biodiversity, have access to the best available information. See <http://www.biodiversityireland.ie> for more information.

A red listing programme aims to assess the conservation status, using IUCN categories and criteria, for Irish species, particularly for those groups that are currently under-represented on the national legislation or EU Directives. In 2010 red lists will be compiled for bryophytes, dragonflies, butterflies, fish, amphibians and reptiles.

Reintroduction programmes are in place for several raptor species, such as the golden eagle (*Aquila chrysaetos*), red kite (*Milvus milvus*) and white-tailed sea eagle (*Haliaeetus albicilla*).

### **Invasive species**

As is the case in any island state, the threat posed by alien invasive species is significant and the impacts are already in some cases almost irreversible (e.g. *Rhododendron ponticum* invasion of native forest; Zebra mussel (*Dreissena polymorpha*) in lakes and rivers). Most of the problematic invaders have arrived as escaped ornamentals, deliberate introductions for fisheries, or in ballast waters. Invasive species are a particular threat to aquatic habitats, especially rivers, lakes and canals.

An All-Ireland invasive species project has been in place since 2004 (<http://www.invasivespeciesireland.com>). This project provides detailed information on the most unwanted species, as well as advice on how to deal with some of the established invaders. A web-based reporting tool provides an early warning system for dealing with new invaders as soon as they are identified (see <http://invasives.biodiversityireland.ie/asian-clam/>). This project has already shown some success stories, with the eradication of chub (*Leuciscus cephalus*) and the development of methods for eradicating curly waterweed (*Lagarosiphon major*).

## Climate change

The presence of so many species at the extreme of their range in Ireland, means that the island is uniquely placed for monitoring the impacts of climate change. The effects of climate change are already evident, such as the rapid spread of the warmth-loving little egret (*Egretta garzetta*), breeding first in Cork but now common and spread as far north as Louth. However there are contradictions, with the snowy owl (*Bubo scandiacus*), a species at home on the tundra, nesting in Donegal, and the great skua (*Stercorarius skua*), which nests in the Shetlands and far north, nesting recently in Ireland. The migrant hawker dragonfly (*Aeshna mixta*), which was first recorded in Ireland 2000, has now spread north and west along the coast (figure 4). Other native species likely to benefit from include the lesser horseshoe bat (*Rhinolophus hipposideros*), Kerry slug (*Geomalacus maculosus*) and natterjack toad (*Bufo calamita*).

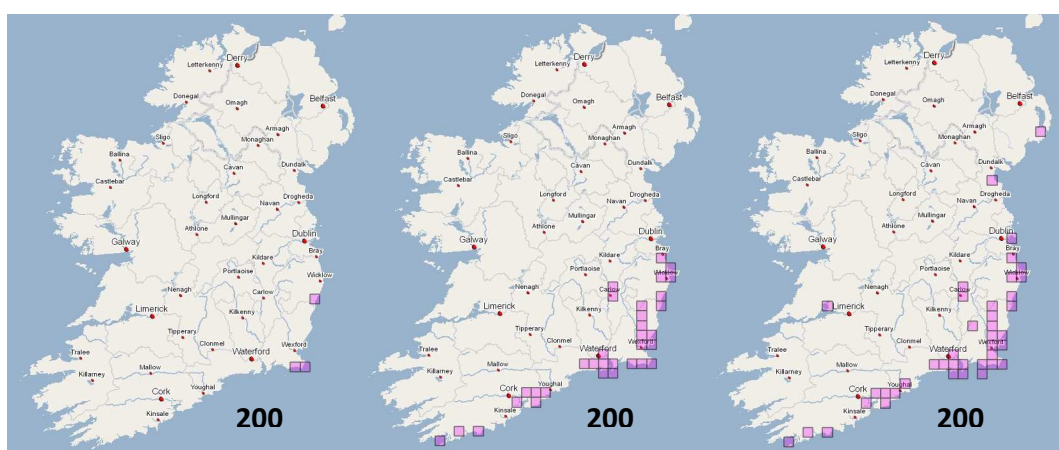


Figure 4 – Spread of the migrant hawker dragonfly across Ireland.

There are still no fully satisfactory models showing how climate change will impact on Irish biodiversity, given the complex range of habitats, geomorphology and the uncertainty over changes that will occur in the oceanic currents that drive the Irish climate. However, recent research has identified Ireland's internationally important peatlands (active raised bog, blanket bog, fens) and turloughs as being at particular risk.

## CASE STUDIES

### Conservation management of the natterjack toad (*Bufo calamita*)

The natterjack toad, a Red Data Book and EU Habitats Annex IV species, is the only toad species in Ireland. It has a biogeographically interesting distribution, and is sometimes referred to as an example of a Lusitanian species (one that links the south-west of Ireland and the north of Spain). It has been declining steadily in Ireland from the early 20th century up to the present day, mainly due to loss of breeding ponds following land drainage. The natural range is confined to a small number of coastal sites on the Dingle and Iveragh peninsulas in Co. Kerry. Recent surveys put the population at c.12,000 adults. A study carried out between 2004-2006 indicated that the range is at risk of contracting further, with very poor and irregular breeding activity recorded at the most westerly part of the current range, despite the creation of two additional pools there in 2003.

In 2008, the NPWS launched a scheme to encourage farmers to conserve toads on their land. Farmers were invited to enter a 5 year agreement with the NPWS and in return receive annual payments related to the number of ponds they dig and for maintaining the ponds (e.g. through hand clearance of vegetation) and the surrounding sward (through grazing) in a suitable condition for natterjacks. €500 was paid for the first two ponds in each hectare, and there has been an encouraging take-up for the scheme. In 2008, the first year of the programme, 25 farmers joined and 49 new ponds were dug. Ten additional farmers joined in 2009, bringing the total number of new breeding sites to 69.

**Roseate Tern Conservation (*Sterna dougallii*) (NBP Action 26]**

The Roseate Tern, (*Sterna dougallii*), is the rarest breeding seabird in northern Europe and is listed in Annex I to the EU Birds Directive, in Appendix II to the Berne Convention on the Conservation of European Wildlife and Natural Habitats (1979) and in Appendix II to the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979).

In 1988, Rockabill Island, located off north County Dublin, was designated a Special Protection Area under the Birds Directive, and a Statutory Refuge for Fauna under the Wildlife Act, 1976. When the lighthouse keepers left the island in 1989, a conservation NGO and the State cooperated to secure the Island for the terns. BirdWatch Ireland now carries out wardening and scientific seabird monitoring of Rockabill with funding from NPWS.

The number of Roseate Tern nests has increased from 152 in 1989 to reach a peak of 1,052 nests in 2009. Rockabill is an internationally important breeding site, supporting ca 78% of the NE Atlantic breeding population. Other nesting sites are in Wexford in Ireland and in small scattered colonies in the UK and Brittany in France.

Similarly numbers of breeding Common Tern (*Sterna hirundo*) have also been increasing in recent years, peaking in 2007 with 1,411 nests. Arctic Terns (*Sterna paradisaea*) have also bred at Rockabill in low numbers since 1992. This breeding population had increased to 200+ pairs by 2004 and has remained relatively stable since. Other seabirds that are also included in the annual seabird monitoring programme at Rockabill are Kittiwake (*Rissa tridactyla*) and Black Guillemot (*Cephus grille*).

## 4. ITALY / ITALIE

### OVERVIEW ON BIOLOGICAL DIVERSITY IN THE ITALIAN ISLANDS – Updating to the 2009 National Report (T-PVS (2009) 13).

By Cappelluti F.<sup>(1)</sup>, Brundu G.<sup>(2)</sup>

<sup>(1)</sup>(Ministero dell'Ambiente e della Tutela del Territorio e del Mare) Ministry of the Environment, Land and Sea, Directorate-general for nature protection, Division II – Flora and fauna protection, LIFE Nature and Biodiversity Programme, Via Capitan Bavastro 174, 00154 Roma – Italy [[www.minambiente.it](http://www.minambiente.it)]

<sup>(2)</sup>(Corpo Forestale e di Vigilanza Ambientale) Sardinian Forest Service, Directorate-general, Via Biasi 7, 09131 Cagliari – Italy [[www.sardegnaambiente.it/corpoforestale/](http://www.sardegnaambiente.it/corpoforestale/)].

#### INTRODUCTION

The present report constitute an updating of the national report produced for the Tenerife meeting (1-3 October 2009) and included in the general Report (T-PVS (2009) 13) prepared by the Directorate of Culture and Cultural and Natural Heritage. It lists newly started or in progress activities. Furthermore, it gives a piece of information on environmental policy measures, adopted and implemented by Italy during 2009-2010, which could be applied to biodiversity conservation on islands, even if only a few of them were specifically and explicitly addressed to biodiversity on islands. Nevertheless, a number of issues, data and trends remain worrying and need continuous and further efforts.

#### NEWS AND ACTIVITIES AT INTERNATIONAL/NATIONAL LEVEL (2009-2010)

In order to reduce the loss of biodiversity the Italian Ministry for Environment Land and Sea (MATTM) has launched the **National Strategy on Biodiversity** which was officially illustrated during the National Conference on Biodiversity held in Rome on 22<sup>nd</sup> May 2010, on the occasion of the International Day for Biological Diversity. The strategy confirms Italy's commitment to stop the loss of biodiversity and is an important tool for integrating the key issues of biodiversity into national politics. There is a clear commitment in the protection of the marine and costal habitats in the framework of main national and international commitments and legislation (e.g., Dir. no. 2008/56/CE, 2002/413/CE) and to apply a National Strategy for the Integrated Management of Coastal Zones (IMCZ)<sup>3</sup>, and from this point of view this could be highly beneficially to conservation of island biodiversity. Nevertheless, there are only very few specific references to biodiversity on islands both in the national Strategy on Biodiversity (e.g., *cfr* "small-islands", draft version dated 18 June 2010, pag. 22) and in the preparatory work of the "Thematic tables"<sup>4</sup>.

At the **G8 meeting in Sicily** (22-24 April 2009), environment ministers adopted the "**Carta di Siracusa**"<sup>5</sup> together with ministers from 11 other countries and representatives from international organizations. The document stresses the relationship between biodiversity and climate, focusing

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<sup>3</sup> See also: Verso la Strategia Nazionale per la Biodiversità, esiti del tavolo tecnico "Turismo e biodiversità: opportunità e impatti sulla biodiversità" AAVV (2010) <[http://www.minambiente.it/opencms/opencms/home\\_it/menu.html?m=Progetto\\_\\_Verso\\_la\\_Strategia\\_Nazionale\\_p.html&mp=/menu/menu\\_attivita/&lang=it](http://www.minambiente.it/opencms/opencms/home_it/menu.html?m=Progetto__Verso_la_Strategia_Nazionale_p.html&mp=/menu/menu_attivita/&lang=it)>. The

<sup>4</sup> E.g., 320 Important Plant Areas (IPAs) have been individuated and mapped in Italy and many of them are on islands.

<sup>5</sup> Available at: <[http://www.g8ambiente.it/public/images/20090424/doceng/09\\_04\\_24\\_Carta%20di%20Siracusa%20on%20Biodiversity.pdf](http://www.g8ambiente.it/public/images/20090424/doceng/09_04_24_Carta%20di%20Siracusa%20on%20Biodiversity.pdf)>

particularly on the role of ecosystems in mitigating and adapting to climate change. Strengthening and restoring the resilience of ecosystems, as well as ensuring a steady flow of ecosystem services, were also recognized as essential for human well-being and for achieving the Millennium Development Goals. Ministers gave special emphasis to the definition of a common path towards post-2010 targets for biodiversity. No explicit reference is found in the “Carta di Siracusa” to island ecosystems, but points 19 and 20, respectively, stress the need for conservation and sustainable development of marine and coastal zones, in particular by applying the principles of integrated coastal zone management and (20) for developing and strengthening actions to prevent and to control invasive alien species, also taking into consideration the high costs of coping with existing invasions and their strong impact on biodiversity and ecosystem services (early warning and rapid response are cited among the priority actions to be implemented).

The Ministry of Agriculture and Forestry Politics (MIPAF) has elaborated the **National Plan on Agricultural Biodiversity** (PNBA) whose main objective is to supply guidelines for the conservation and valorization of genetic and biological resources in agriculture according to national and international commitments<sup>6</sup>. To this end, a Permanent Committee for genetic resources has been established and is coordinated by the Ministry of Agriculture and Forestry Politics. A significant portion of agrobiodiversity is stored in Italian islands, yet no precise reference is found on the PNBA (e.g., production *Capparis spinosa* on Eolian islands<sup>7</sup>, conservation of *Brassica macrocarpa* on Egadi islands<sup>8</sup>).

A joint conservation plan for the protection of biodiversity is also contained in the National Strategic Plan (PSN) and in several<sup>9</sup> **Rural Development Programs** (PSR), so that this could be applied at least to the main Italian islands of Sicily and Sardinia<sup>10</sup> and surrounding islets. Furthermore, the office for biodiversity of the State Forestry Department (*Corpo Forestale dello Stato*, CFS) acts to promote new methodologies for a durable use of natural resources especially in natural reserves and in the biosphere

<sup>6</sup> E.g., On 3 November 2001, the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty) was adopted by the FAO Conference at its 31st session in Rome, by Resolution 3/2001 (<http://www.planttreaty.org/>). The Treaty is a new, legally binding instrument which seeks to ensure the conservation and sustainable management of plant genetic resources for food and agriculture, as well as the fair and equitable sharing of the benefits arising from their use (art. 1.1). At the crossroads of agriculture, commerce and the environment, the Treaty also aims to promote synergy in these areas (preamble). (<http://www.fao.org/DOCREP/005/Y3872E/y3872e06.htm>). The Treaty was ratified by Italy with the law no. 101, dated 6 April 2004, n. 101. The Law gives peculiar responsibilities to the regions, and consequently to the islands of Sicily and Sardinia, for conservation of autochthonous germplasm. See also ISPRA Manual, “Piotto B., Giacanelli V., Ercole S. (eds.), 2010. La conservazione ex situ della biodiversità delle specie vegetali spontanee e coltivate in Italia. Stato dell’arte, criticità e azioni da compiere”. Manuali e linee guida ISPRA 54/2010. Available at <[http://www.isprambiente.it/site/\\_contentfiles/00004300/4305\\_MLG\\_54\\_2010.pdf](http://www.isprambiente.it/site/_contentfiles/00004300/4305_MLG_54_2010.pdf)>. Cfr also the draft proposal of the Sardinian regional law, PL n. 174 dated 16 June 2010, titled “Tutela, conservazione e valorizzazione dell’agrobiodiversità della Sardegna” Available at: <<http://www.consregsardegna.it/XIVLegislatura/Disegni%20e%20proposte%20di%20legge/propleg174.asp>>

<sup>7</sup> Regione Sicilia, Assessorato Agricoltura e foreste, progetto “Caratterizzazione, miglioramento genetico-sanitario e difesa del Capperò delle isole minori della Sicilia”. See also, e.g., Laghetti G.; Perrino P.; Hammer K. 1999. Collecting landraces and wild relatives in the Neapolitan islands, Italy. Plant Genetic Resources Newsletter (IPGRI/FAO), 119; Laghetti G.; Hammer K.; Olita G.; Perrino P. 1998. Crop genetic resources from Ustica island (Italy): collecting and safeguarding. Plant Genetic Resources Newsletter (IPGRI/FAO), 116: 12-17. See also: K. Hammer and G. Laghetti, 2006. Small Agricultural Islands and Plant Genetic Resources. *Le piccole isole rurali italiane*. Istituto di Genetica Vegetale (IGV), Consiglio Nazionale delle Ricerche (CNR), Bari, Italy, 244 pp.

<sup>8</sup> *Brassica macrocarpa* Guss., is an endemic species present on Egadi islands, and a primary source of the gene pool of *Brassica oleracea* L. It is an endangered species, under monitoring to define *in situ* conservation strategies in the framework of the project EUGENRES 057 “AEGRO”, cfr <<http://www.cbd.int/iyb/doc/celebrations/iyb-Italy-ISPRA-article-it.pdf>> (pag. 11).

<sup>9</sup> E.g., Sardinia Island PRS at <<http://www.regione.sardegna.it/speciali/programmasviluppatorurale/>>; Sicily islands at <<http://www.regione.sicilia.it/Agricolturaeforeste/Assessorato/index.htm>>.

<sup>10</sup> E.g., see <[http://www.regione.sardegna.it/documenti/14\\_43\\_20071121202527.pdf](http://www.regione.sardegna.it/documenti/14_43_20071121202527.pdf)> and <<http://cbv.uniss.it/index.html>>.



reserves, that in some cases are island territories. Within this office a national network of germplasm and renaturalization has been created with the objective of safeguarding native plant species.

Noteworthy, the international workshop “**Island and Coastal biosphere reserve in the Mediterranean: Model for sustainable development**”<sup>11</sup> was organized in Syracuse during 10-12 November 2009 by the UNESCO Venice office and the MAB Secretariat in collaboration with the Italian Ministry for Environment Land and Sea Protection, the Consortium Plemmirio<sup>12</sup>, Marine Protected Area in Syracuse (Sicily) and Italian National Commission for UNESCO.

Since 2008<sup>13</sup> the Italian ministry of Foreign Affairs has funded, through UNEP - Directorate General for Development Cooperation (DGCS), the **GID** initiative (**Global Island Database** - <http://gid.unep-wcmc.org/>)<sup>14</sup>, with strong links to the Global Islands Network (GIN), as well as IUCN's Species Survival Commission's (SSC) Invasive Species Specialist Group (ISSG) and the Pacific Ecosystems at Risk (PIER) project. The GID reflects five of the themes important for islands, as identified by the Island Biodiversity Programme of Work (IBPoW) of the Convention on Biological Diversity (CBD), namely biodiversity, climate change, invasive species, pollution and sustainability.

More recently, the Italian Minister of the Environment, has announced financial support for the **Global Invasive Species Database (GISD)**, the freely accessible online database of the ISSG. The GISD is acknowledged as the most authoritative and comprehensive database on alien species at the global scale. Following the appointment of Piero Genovesi as the new ISSG chair, GISD will be hosted at the Environmental Protection and Research Institute (ISPRA) in Rome, Italy. The Italian Ministry of Environment is committed to provide financial contributions to enhance the improvement of the GISD and, in particular, to integrate it with other information services, thus increasing support to decision makers. The commitment of the Italian Minister is a first implementation of the actions listed in the Syracuse Charter on Biodiversity, agreed at the last G8 Environment Ministers meeting, which calls for developing and strengthening actions to prevent and control the spread of invasive alien species, and support to global information systems. From this point of view this is an important step toward the mitigation of the menace of IAS against island ecosystems.

On the 12th April 2010, Italy and France signed an agreement to set in motion the procedure for the creation of a new protected area: the **Bocche di Bonifacio Transnational Marine Park**. Ministers for the Environment Stefania Prestigiacomo and Jean Louis Borloo also pledged to set up a European group for

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<sup>11</sup> The main outcome of the 3rd World Congress on Biosphere Reserves was the Madrid Action Plan (2008-2013) which among many topics, focuses on Islands and Coastal Zones. In addition, special emphasis was given to the integrated biodiversity conservation of natural resources and sustainable development, as well as to the creation of specific thematic networks, such as those that target island and coastal zones. Building on experiences developed in insular and coastal BRs of the Mediterranean, the Seminar "Island & Coastal Biosphere Reserves in the Mediterranean. Models for Sustainable Development" intended to explore topics of common interest that could then be further investigated in the framework of a new coordinated experimental program related to insular and coastal BRs in the region, allowing for the development of management guidelines and models to be extended to the most of Mediterranean insular, coastal and marine areas. Cfr < [http://www.unesco.org/en/venice/single-view/news/island\\_coastal\\_biosphere\\_reserves\\_in\\_the\\_mediterranean\\_models\\_for\\_sustainable\\_development/back/22834/cHash/431515b015/](http://www.unesco.org/en/venice/single-view/news/island_coastal_biosphere_reserves_in_the_mediterranean_models_for_sustainable_development/back/22834/cHash/431515b015/) >.

<sup>12</sup> The Protected Marine Area of Plemmirio, established in 2001, has taken the lead to initiate an inter-institutional dialogue among stakeholders for applying to become the first Coastal Biosphere Reserve in Italian island of Sicily, in full compliance with the Eruo MAB recommendations for Biosphere Reserves. In particular, Plemmirio aims at reviewing the old fashioned ideas of marine-versus land based BRs, considering the expansion of its territorial dimension to cover whole land-sea interface, taking into account of the need for an integrated coastal zone management and the fulfillment of the development functions underpinned by its outstanding natural and cultural assets. Moreover, Plemmirio is the single marine protected area in Italy where activities and infrastructures, have been designed with particular focus on children and disable people <<http://www.plemmirio.it/>>.

<sup>13</sup> Cfr, DIPCO n. 23/2008, p. 131, Atto n. 164/2008.

<sup>14</sup> < [http://www.cooperazioneallosviluppo.esteri.it/pgdcs/download/Global\\_Island\\_Strategy.pdf](http://www.cooperazioneallosviluppo.esteri.it/pgdcs/download/Global_Island_Strategy.pdf) >

territorial cooperation, between the Maddelena Archipelago National Park and the Bocche di Bonifacio Natural Reserve, which are the two main areas of the new marine park<sup>15</sup>.

The Pelagos Sanctuary, founded on 21 February 2002, is now on the list of SPAMIs (Specially Protected Areas of Mediterranean Importance), as part of a protocol relating to the Barcelona Convention. This status gives Pelagos official recognition from Mediterranean countries as being part of a network whose aim is the efficient conservation of Mediterranean heritage. In November 2009 in Monaco, Pelagos' 4th Conference of the Parties (the decision-making body) voted for a resolution on maritime traffic, which involved the States promoting the Pelagos Sanctuary's recognition as a Particularly Sensitive Sea Area (PSSA) to the IMO, and contributing to the REPCET project (see above). This commitment was also made by ACCOBAMS during the last Scientific Committee meeting held in Casablanca in January 2010<sup>16</sup>.

The **Small Islands Project** (PPI, *Progetto Piccole Isole*) was launched in 1988 by the Italian Ringing Centre at ISPRA (formerly *Istituto Nazionale per la Fauna Selvatica*). The project represents the largest ornithological monitoring effort ever realized within the Mediterranean, thanks also to the support offered by the General Directorate of Nature Protection of the Italian Ministry of the Environment. The main aims of the project are to investigate spring migration across the Mediterranean through a network of ringing stations operating together on the basis of standardized field protocols. A second aim is to obtain sound scientific evidence of the conservation value of Mediterranean islands and coastal habitats for staging migrants during a particularly delicate phase of their annual cycle. This knowledge is needed in order to develop reliable policies for the conservation of migratory birds within the Mediterranean, with special concern to avian biodiversity on islands.

The network of Mediterranean islands and coastal sites where staging birds are monitored represents an important component of the migratory system of many species, linked to largely variable habitats, both on the breeding and wintering areas. The seasonality of passage, for instance, is a species-specific feature; the different species show a strong consistency in their migration timing in spring, and the inter-annual, within-species variability in the mean date of passage is significantly lower than the variation recorded among species<sup>17</sup>. The general seasonal pattern of passage of trans-Saharan migrants across the Mediterranean has been found to be influenced by factors acting on the wintering and breeding quarters. The importance of Africa is confirmed by the earlier spring movements within the Mediterranean of species wintering in more northern quarters; equally, species overcoming a complete wing moult on the wintering grounds show delayed northward movements. As for the influence of the breeding quarters, we found that early migration is related to cavity nesting, a strategy which implies direct competition for limited nesting opportunities, hence a selective advantage for an early arrival on the breeding grounds. The monitoring activities have also allowed to clarify different aspects of the relationships between climate and weather conditions and the inter- and intra-specific features of the calendar of return migration (see below).

The collection of biometrical data on all PPI stations allows also to infer on different populations of a same specie crossing different areas of the Mediterranean. A network of ringing stations also provides data on the daily distribution of catches at different stages of barrier crossing. In this case, by considering a general S-N pattern of movements across the Central Mediterranean, has been possible to confirm a progressive movement of fronts of migration, with a delayed arrival on islands at higher latitudes, as in the Garden Warbler<sup>18</sup>. In the same species, the observed values on the PPI stations also match the predicted

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<sup>15</sup> Cfr <<http://www.cbd.int/iyb/doc/prints/iyb-report-2010-04-en.pdf>>

<sup>16</sup> Cfr <[http://www.repcet.com/docs/AF-07-008-PT\\_EN.pdf](http://www.repcet.com/docs/AF-07-008-PT_EN.pdf)>

<sup>17</sup> Rubolini D., Spina F., Saino N. 2005. Correlates of timing of spring migration in birds: a comparative study of trans-Saharan migrants. *Biol. Journal Linnean Society*, 85(2): 199-210.

<sup>18</sup> Grattarola A., Spina F., Pilastro A. 1999. Spring migration of the Garder Warbler (*Sylvia borin*) across the Mediterranean. *J. Ornithol.*, 140: 419-430.

pattern of progressive decrease in body mass as estimated using Pennycuick's model<sup>19</sup>. This suggests that in fact birds are able to cross the extended barrier represented by the Sahara and Mediterranean in spring without significantly refueling en route; however they also need to find available habitats and resources on key staging areas like those represented by Mediterranean islands. The network of Mediterranean islands is of crucial importance for birds regardless of physical conditions and including migrants still with very large energy reserves.

The most important variable in explaining the observed inter-specific differences in average physical conditions on Mediterranean islands, as found in a large sample of trans-Saharan migrants<sup>20</sup>, is the northernmost latitude of the preferred wintering habitat for each species in Africa. Hence, the crossing of the Sahara and the Mediterranean in spring is constrained by the distribution of preferred habitats south of the Sahara *i.e.* the overall width of the ecological barrier that the different species will cross without significantly refueling is not necessarily the same for all species, as not all species are reaching their departure physical conditions in the same geographical area in Africa. This stresses again how important Mediterranean islands are for the conservation of large numbers of birds and species which are challenged with the crossing of a barrier which becomes increasingly wide due to the ongoing desertification of the Sahel and the progressive reduction of equatorial forests in Africa.

Recoveries of ringed birds, together with specific field orientation experiments have allowed to identify areas of origin and destination of birds crossing the Mediterranean in spring<sup>21,22</sup>, as well as to better understand their orientation mechanisms<sup>23</sup>.

The intense monitoring activities carried out within PPI have also allowed to investigate the ecological role of island habitats for staging migrants. The conservation value of a staging area is significantly determined also by the overall number of migrants making use of the site. It is particularly difficult to soundly estimate such numbers, especially when the population sampled through any census method (e.g. ringing in this case), is represented by a large fraction of transients (*i.e.* birds which quickly move through the study area, or island in this case). It is therefore important to find analytical tools allowing to estimate the stopover duration of single individuals. For this purpose, both the existing CMR (capture/mark/recapture) models and novel technologies have been used at the most intensively studied site within the PPI network, which is represented by the small island of *Ventotene* (Italy). The former, traditional models<sup>24</sup> and an innovative "whole-island telemetry" approach<sup>25</sup> have confirmed an extremely fast turnover rate of staging migrants, offering new insights on the possibility to come to new analytical tools finally allowing to better describe the real conservation values of the network of most important stopover sites represented by Mediterranean islands.

The fact that each ringed birds is also described in terms of physical condition at first capture, as well as when it is possibly later retrapped, allows to understand the factors governing the decision by birds to

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<sup>19</sup> Pennycuick C. J. 1975. Mechanics of flight. In *Avian Biology*, vol. 5, chapter 1 (ed. D. S. Farner and J. R. King), pp. 1–75. New York: Academic Press; Pennycuick, C. J. 1999. *Measuring Birds' Wings for Flight Performance Calculations*. Second edition. Bristol: Boundary Layer Publications.

<sup>20</sup> Pilastro A., Spina F. 1997. Ecological and morphological correlates of residual fat reserves in passerine migrants at their spring arrival in southern Europe. *Journal of Avian Biology*, 28: 309-318.

<sup>21</sup> Spina F., Volponi S. 2008. *Atlante della Migrazione degli Uccelli in Italia*. Vol. 1: non-Passeriformi. ISPRA – MATTM, Roma, pp. 800. Available at < [http://www.isprambiente.it/site/\\_files/atlante/1vol-1-32.pdf](http://www.isprambiente.it/site/_files/atlante/1vol-1-32.pdf)>.

<sup>22</sup> Spina F., Volponi S. 2009. *Atlante della Migrazione degli Uccelli in Italia*. Vol. 2: Passeriformi. ISPRA – MATTM, Roma, pp. 629.

<sup>23</sup> Gaggini V., Baldaccini E., Spina F., Giunchi D. 2010. Orientation of the pied flycatcher *Ficedula hypoleuca*: cue-conflict experiments during spring migration. *Behav. Ecol. Sociobiol.*, 64: 1333–1342.

<sup>24</sup> Tenan S., Spina F. 2010. Timing and condition-related effects on recapture probability, mass change and stopover length of spring migrating songbirds on a small Mediterranean island. *Ardeola*, 57: 121-132. < [http://www.ardeola.org/pubs/57\(1\)/121-132](http://www.ardeola.org/pubs/57(1)/121-132)>.

<sup>25</sup> Goymann W., Spina F., Ferri A., Fusani L. 2010. Body fat influences departure from stopover sites in migratory birds: evidence from whole-island telemetry. *Biol. Lett.*, 6: 478-481.

stage or not; this is an important aspect again when wishing to properly define and measure the conservation value of staging sites. Data on physical conditions at arrival on an island and at departure are allow interesting applied analyses<sup>26</sup>.

A key aspect to understand the value of islands for the conservation of the biodiversity of migratory birds is represented by the use of habitats by staging birds during their stopover. An interesting and original approach from this respect has been followed in analyzing the strong relationship between some of the Mediterranean plant species blooming in spring and the nectar uptake by migrants belonging primarily to the genus *Sylvia*<sup>27</sup> and *Phylloscopus*<sup>28,29,30</sup>. Large numbers of birds survive their spring migration thanks to their plasticity in taking advantage of nectar offered by plant species such as *Brassica* sp. or *Ferula* sp., again confirming the importance of Mediterranean plant communities for these birds and the positive outcome birds obtain while staging on the islands. The network of PPI sites has also allowed to better understand the ecological determinants, frequency and geographical distribution of this nectar feeding behavior<sup>31</sup>. This is an important component of the scientific knowledge the PPI provides for large-scale coordinated conservation policies. This is particularly true within the larger context of the environmental effects of global change; data collected through the PPI have shown for the first time how the earlier arrivals of migrants at northern latitudes across Europe are related to an earlier departure from latitudes south of the Sahara<sup>32,33</sup>. A strong influence of climate in Africa in influencing the seasonal passage of migrants across the Mediterranean has also been recently shown for the first time thanks to monitoring data collected through PPI<sup>34</sup>.

Last but not least, monitoring ringing activities represents unique opportunity for environmental education and public awareness on the importance of Mediterranean and Italian island for the conservation of European birds. From this respect one particularly interesting case is represented by the island of

<sup>26</sup> (Tenan & Spina 2010) *cf*r above.

<sup>27</sup> Brambilla M., Vitulano S., Spina F., Baccetti N., Gargallo G., Fabbri E., Guidali F., Randi E. 2008. A molecular phylogeny of the *Sylvia cantillans* complex: Cryptic species within the Mediterranean basin. *Mol. Phylogenet. Evol.*, 48: 461-472.

<sup>28</sup> Jenni L., Jenni-Eiermann S., Spina F., Schwabl H. 2000. Regulation of protein breakdown and adrenocortical response to stress in birds during migratory flights. *Am. J. Physiol. Regulatory Integrative Comp. Physiol.*, 278: R1182-R1189 – *Cfr* also: Jenni L., Mueller S., Spina F., Kvist A., Lindstroem Å. 2006. Effect of endurance flight on haematocrit in migrating birds. *Journal of Ornithology*, 147: 531-542.

<sup>29</sup> Schwilch R., Mantovani R., Spina F., Jenni L. 2001- Nectar consumption of warblers after long-distance flights during spring migration. *Ibis*, 143: 24-32.

<sup>30</sup> Schwilch R., Grattarola A., Spina F., Jenni L. 2002. Protein loss during long-distance migratory flight in passerine birds: adaptation and constraint. *The Journal of Experimental Biology*: 205 687–695.

<sup>31</sup> Cecere J., Matricardi C., Frank B., Imperio S., Spina F., Gargallo G., Barboutis C., Boitani L. 2010. Nectar exploitation by songbirds at Mediterranean stopover sites. *Ardeola*, 57: 143-157.

<sup>32</sup> Jonzén N., Lindén A., Ergon T., Knudsen E., Vik J.O., Rubolini D., Piacentini D., Brinch C., Spina F., Karlsson L., Stervander M., Andersson A., Waldenström J., Lehtikoinen A., Edvardsen E., Solvano R., Stenseth N.C. 2006. Rapid Advance of Spring Arrival Dates in Long-Distance Migratory Birds. *Science*, 312: 1959-1961.

<sup>33</sup> Jonzén N., Lindén A., Ergon T., Knudsen E., Vik J.O., Rubolini D., Piacentini D., Brinch C., Spina F., Karlsson L., Stervander M., Andersson A., Waldenström J., Lehtikoinen A., Edvardsen E., Solvano R., Stenseth N.C. 2007. Response to Comment on "Rapid Advance of Spring Arrival Dates in Long-Distance Migratory Birds". *Science*, 315: 598.

<sup>34</sup> *Cfr*, e.g.: Rubolini D., Spina F., Saino N. 2004. Protandry and sexual dimorphism in trans-Saharan migratory birds. *Behavioral Ecology*, 15(4): 592–601; Rubolini D., Spina F., Saino N. 2005. Correlates of timing of spring migration in birds: a comparative study of trans-Saharan migrants. *Biol. Journal Linnean Society*, 85(2): 199-210; Saino N., Rubolini D., Jonzén N., Ergon T., Montemaggiore A., Stenseth N., Spina F., 2007. Temperature and rainfall anomalies in Africa predict timing of spring migration in trans-Saharan migratory birds. *Clim. Res.*, 35: 123-134; Saino N., Ruolini D., von Hardenberg J., Ambrosiani R., Provenzale A., Romano M., Spina F. 2009. Spring migration decisions in relation to weather are predicted by wing morphology among trans-Mediterranean migratory birds. *Functional Ecology*, 24: 658-669; Saino N., Rubolini D., Serra L., Caprioli M., Morganti M., Ambrosini R., Spina F. 2010. Sex-related variation in migration phenology in relation to sexual dimorphism: a test of competing hypotheses for the evolution of protandry. *J. Evolutionary Biology*, doi:10.1111/j.1420-9101.2010.02068.x.

*Ventotene*, which has been listed as SPA based on data collected through the PPI and, for the same reason, has later been protected through a Nature Reserve. On that site, intense education campaigns involve large numbers of students and tourists, and the first **Migration Museum and Bird Observatory** in Italy has been created, attracting large numbers of visitors and representing now an important component for the local tourism economy<sup>35</sup>.

#### NEWS AND ACTIVITIES AT NATIONAL/REGIONAL/LOCAL LEVEL (2009-2010)

National activities for the conservation of **Audouin's Gull** are ongoing and have led to the complete national census of the breeding population, assessment of breeding success, marking of juveniles and control of marked breeders: actions carried out annually by ISPRA-CRA 16, with collaboration of MPAs and local authorities, as well as of a network of local experts. A Workshop was organized on 12 December 2009 at *Cilento National Park*<sup>36</sup>, and consequent conservation measures<sup>37</sup> at regional level (*Campania* region, Italy).

In April 2010, the Ministry of the Environment established four new **Marine Protected Areas** in Italy, increasing the number of Marine Protected Areas in Italy to thirty. At present, Italy has 27 Marine Protected Areas and 11 of them concern islands or archipelagos, as to say that in almost all the remarkable Italian island systems there is today a kind of protection under national legislation.

Regarding the implementation of Natura 2000 in marine areas Italy has designated 287 Sites of Community Importance (SCIs) with a marine part, and 55 marine Special Protection Areas (SPAs) Other identifications and designations of new marine SCIs are carried out at a regional level to improve the conservation status of marine habitats and species close to the coast and the islands.

Concerning ongoing projects on **eradication of invasive alien species (IAS) from islands**<sup>38</sup>, we highlight the **project LIFE+ "Montecristo 2010"**<sup>39</sup> plans to achieve the eradication of alien plants (e.g. *Ailanthus altissima*, *Carpobrotus sp.*, *Acacia sp.*) and alien rats (e.g. *Rattus rattus*) from the islands of *Montecristo* and *Pianosa* (Tuscany, Italy) and **conservation of breeding *Procellariidae*** as a prosecution of two previous LIFE projects with similar purposes. It is noteworthy that *Montecristo* island would be the largest island in the world where rat eradication will take place.

Main achievements in 2009-2010 were also rat and mouse eradications on small islands in the *Tavolara* archipelago [protected marine area (AMP) of "Tavolara-Punta Coda Cavallo"<sup>40</sup>, Sardinia, Italy], and analyses of data to evaluate/disseminate the results obtained with management and priorities for the

<sup>35</sup> Cfr < [http://www.riservaventotene.it/index.php?option=com\\_content&view=article&id=90&Itemid=79](http://www.riservaventotene.it/index.php?option=com_content&view=article&id=90&Itemid=79)>.

<sup>36</sup> Workshop "La gestione e la conservazione del Gabbiano corso (*Larus audouinii*) nelle Aree Protette". Web page at: < <http://www.cilentoediano.it/gab.html>> and at: < <http://www.infs-acquatici.it/>>. Proceedings are in preparation. Cfr also: Serra G., L. Melega, Baccetti N. 2001. Piano d'azione nazionale per il Gabbiano corso (*Larus audouinii*). Quad. Cons. Natura, Min. Ambiente. Ist. Naz. Fauna Selvatica, n. 6.

<sup>37</sup> Cfr < <http://programmazioneunitaria.regione.campania.it/doc/pdf/regionali/DD/DD-0064-080310-AGC05-misure-salvaguardia-gabbiano-corso.pdf>>.

<sup>38</sup> Cfr also special session on "Management of allochthonous species" held at Fabriano (Ancona, Italy) on the 5-7 May 2010, during the "VII Congresso Italiano di Teriologia" < <http://gis.dipbsf.uninsubria.it/congressi/index.php/atit/atit2010>>

<sup>39</sup> See also: DECRETO 26 marzo 2010 - Cofinanziamento nazionale del progetto LIFE + «Montecristo 2010: eradicazione di componenti florofaunistiche aliene invasive e tutela di specie e habitat nell'Arcipelago Toscano», di cui al regolamento CE n. 614/2007, ai sensi della legge n. 183/1987. (Decreto n. 4/2010). (10A06826). < <http://www3.corpoforestale.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/1973>>.

<sup>40</sup> AMP Tavolara – Punta Coda Cavallo web site: < <http://www.amptavolara.it/>>

future. Publications produced at this regard are listed further below<sup>41</sup>. The activities are carried out mainly by ISPRA- CRA 16, NEMO<sup>42</sup> s.a.s., ARP Lazio (<http://www.arplazio.it/>), PN *Arcipelago Toscano* (<http://www.islepark.it/>) and Tavolara MPA. On the 4-5 December 2009, the AMP Tavolara, in collaboration with ISPRA, organized a technical workshop titled “Ratti & Isole<sup>43</sup>”.

On 22nd of May 2009 the Sardinian-Corsican conferences on "**Biological invasions in the Sardinian-Corsican island system**" was organized in Sassari by the University of Sassari<sup>44</sup> and the Botanical Conservatory of Corsica (*Conservatoire Botanique National de Corse* - <http://cbnc.oec.fr/>) with the support of the Italian Botanical Society.

On Sardinia island control activities against *Myocastor coypus* are going on at local level<sup>45</sup>, but the species is still present<sup>46</sup>. Local removal of *Carpobrotus* sp. was part of the project Providune<sup>47</sup> (in the southern coast of Sardinia) and at “Stintino” sand dunes in the NW coast<sup>48</sup>. *Carpobrotus* sp.pl. (notably *Carpobrotus acinaciformis*, *C. edulis* and their hybrids<sup>49</sup>) and other species of the *Aizoaceae* family, introduced from South Africa into almost all Mediterranean regions, are a serious threat for coastal and sand dunes ecosystems in Mediterranean islands. *Carpobrotus* sp.pl. grow very fast as a mat-forming plant. Competition for space and soil resources may be of greater importance to the local persistence of native plants<sup>50</sup> than competition for pollinators<sup>51,52</sup> and have been recorded associated with an

<sup>41</sup> Capizzi D., Baccetti N., Sposimo P. 2008. Rats et puffins sur les îles italiennes: stratégies de gestion et priorités. In : CEEP, Actes des ateliers de travail du programme LIFE Nature 2003-2007 Conservation des populations d’oiseaux marins des îles de Marseille, Commission européenne : 59-61; Baccetti N., Capizzi D., Corbi F., Massa B., Nissardi S., Spano G., Sposimo P. 2009. Breeding shearwaters on Italian islands: population size, island selection and co-existence with their main alien predator, the black rat. Riv. Ital. Orn., 78: 83-100; Ruffino L., Bourgeois K., Vidal E., Duhem C., Paracuellos M., Escribano Canova F., Sposimo P., Baccetti N., Pascal M., Oro D. 2009. Invasive rats and seabirds: a global review after 2,000 years of an unwanted coexistence on Mediterranean islands. Biological Invasions, 11: 1631–1651; Capizzi D, Baccetti N, Sposimo P. 2010. Prioritizing rat eradication on islands by cost and effectiveness to protect nesting seabirds. Biological Conservation, 143: 1716–1727.

<sup>42</sup> Web page at: < <http://www.nemoambiente.com/>>.

<sup>43</sup> “Ratti & isole: un'emergenza per la conservazione degli uccelli marini e una risposta gestionale concreta”, at: <[http://www.amptavolara.it:80/index.php?option=com\\_content&task=view&id=152&Itemid=88](http://www.amptavolara.it:80/index.php?option=com_content&task=view&id=152&Itemid=88)>

<sup>44</sup> Dipartimento di Botanica ed Ecologia vegetale, Università degli Studi di Sassari - Centro per la Conservazione e Valorizzazione della Biodiversità dell'Università di Sassari.

<sup>45</sup> E.g., Deliberazione della Giunta Provinciale di Oristano, n. 137 del 15/10/2009 “Accordo di programma tra la Provincia del Medio Campidano e le compagnie Barracellari in materia di tutela dell’Ambiente e della Fauna selvatica”, <[http://www.provincia.mediocampidano.it/resources/cms/documents/20091015\\_DEL\\_GP\\_0137.pdf](http://www.provincia.mediocampidano.it/resources/cms/documents/20091015_DEL_GP_0137.pdf)>.

<sup>46</sup> E.g., see <<http://www.sardegnaambiente.it/index.php?xsl=612&s=103934&v=2&c=4577&idsito=19>>.

<sup>47</sup> Visit project home, PROVIDUNE (LIFE07NAT/IT/000519), “Conservazione e ripristino di habitat dunali nei siti delle Province di Cagliari, Matera, Caserta” web page at: <<http://www.providune.it/>>.

<sup>48</sup> Description of the project at: <[http://www.apat.gov.it/site/files/Pubblicazioni/Rapporto\\_100\\_2009\\_cap\\_1\\_11.pdf](http://www.apat.gov.it/site/files/Pubblicazioni/Rapporto_100_2009_cap_1_11.pdf)> pp. 305-306.

<sup>49</sup> Suehs C.M., Affre L., Médail F. 2004. Invasion dynamics of two alien *Carpobrotus* taxa on a Mediterranean island. II. Reproductive strategies. Heredity, 92: 550–556.

<sup>50</sup> Vilà M., Tessier M., Suehs C.M., Brundu G., Manca L., Galanidis A., Lambdon P., Manca M., Médail F., Moragues E., Traveset A., Troumbis A.Y., Hulme P.E. 2006. Local and regional assessment of the impacts of plant invaders on vegetation structure and soil properties of Mediterranean islands. Journal of Biogeography, 33: 853-861.

<sup>51</sup> Bartolomeus I., Bosch J., Vilà M. 2008. High invasive pollen transfer, yet low deposition on native stigmas in a *Carpobrotus*-invaded community. Annals of Botany 102: 417–424.

approximately 30–50% decrease in the diversity of native vegetation, with detrimental effect on soil properties and biological soil crust<sup>53</sup>.

The Department of Botany, the Faculty of Sciences and the Course of Doctorate in Plant Resources of the University of Palermo, with the scientific support of OPTIMA (the Organization for the Phyto-Taxonomic Investigation of the Mediterranean Area) and the International Foundation pro Herbario Mediterraneo, organized, with the financial support of the *Provincia di Trapani* the first **School on Plant Biodiversity of Mediterranean and Insular systems**. It will take place on 03-14 September 2010, at the “Palazzo Sales” in Erice (TP) Sicily.

During 2010 a new Mediterranean species of antlion, *Myrmeleon mariaemathildae* n. sp., was described on material from Sardinia (Italy) and Tunisia. The new species is associated with coastal dune environments colonized almost exclusively by grassy vegetation in which the larvae often build their pits close to *Ammophila* plants<sup>54</sup>.

The **Italian island biodiversity picture remains mixed**, with positive developments for some species and habitats, and some problems for other.

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## 5. MALTA / MALTE

### MALTA'S SHORT WRITTEN CONTRIBUTION ON ISLAND BIODIVERSITY (2<sup>nd</sup> Meeting of the Expert Group on European Island Biodiversity, Norway, July 2010)

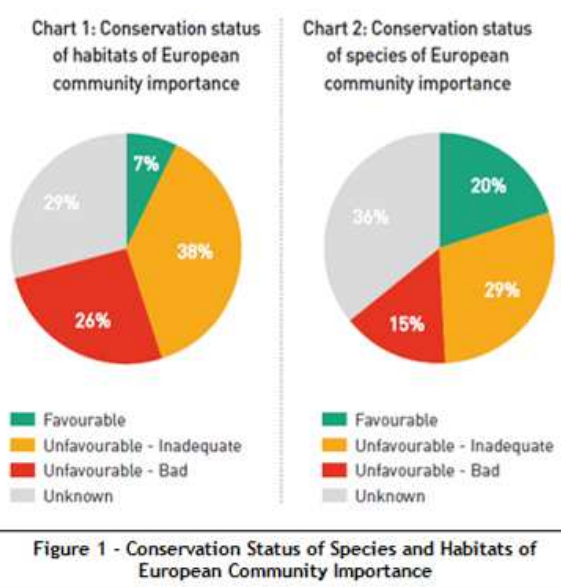
The present contribution provides an update on the developments and the state of play on the conservation of biodiversity in Malta.

#### Malta's State of the Environment Report (SOER) 2008

Building on the previous efforts and achievements found in past editions of the State of the Environment Reports for Malta (1998, 2002 and 2005), the Environment Protection Directorate within the Malta Environment and Planning Authority (MEPA) has launched this year the 2008 SOER. The latter report highlights the situation in a number of environmental areas including biodiversity, air, waters, climate change, and policy responses to environmental issues. The current report aims to communicate key environmental issues and trends to policymakers and civil society in a clear and concise way. It seeks, to increase awareness and understanding of key environmental trends, to provide a sound evidence base for policy and decision-making, and to facilitate the measurement of environmental performance and progress towards sustainability. Moreover, the 2008 SOER takes a broader approach when analysing environment sectors and indeed explores more closely how environmental issues impact our daily lives in terms of health and the economy.

Results published in the 2008 SOER show that Malta has managed to achieve positive results in a number of key areas. For example, the Report looks at the progress made in the designation of terrestrial protected areas. As at 2008, Malta had designated 27 terrestrial Special Areas of Conservation (SACs) covering 41km<sup>2</sup> (13.06% of land area), one marine SAC of 8.5km<sup>2</sup>, and 13 Special Protection Areas (SPAs; often overlapping with SACs) occupying 16.34km<sup>2</sup> or 5.18% of land area, all forming part of the EU Natura 2000 Network. Indeed, Malta has reached 93% sufficiency with respect to the proportion of habitats and species for which an adequate number of terrestrial Natura 2000 sites have been proposed under the Habitats Directive. It is noteworthy that such Natura 2000 sites also cover land area that falls within the Emerald Network.

On the other hand, the Report also highlights a number of issues that need further attention. It delves into a number of key environmental challenges in areas such as further protection of Malta's biodiversity, waste management, water management, the control of traffic emissions, as well as the ongoing pressures on land and the marine environment. Looking at the conservation status of protected species and habitats, the Report draws attention to the findings of the assessments carried out by Malta in line with requirements of Article 17 of the Habitats Directive. The status of 29% of Maltese habitats and 36% of Maltese species listed in this Directive is still unknown, of which a significant amount relates to the marine environment. In addition, 64% of habitats and 44% of species have a bad or inadequate conservation status. When considering the species in question ([Figure 1, chart 2](#); see also [Habitat and Species Checklist](#)



- Malta), some of these are also covered by the Bern Convention. The 2008 SOER states ‘Stringent measures are required for these to attain favorable status, while further surveys are needed to assess those with unknown status’.

In the context of climate change, the Report states that climate change adaptation needs to be addressed through the development of a wide-ranging adaptation plan that addresses actions across sectors as diverse as land-use, health and tourism, as well as impacts across a range of social groups. Moreover, it emphasises the requirement to mainstream climate change measures across all policy sectors, whilst striving for enhanced climate change adaptation through increased resilience.

The Report concludes by *inter alia* stating that while Malta has already made significant progress in upgrading its environmental policy capacity, its institutional capacity still needs to improve in terms of human resources and funding, as well as public and private sector investments to upgrade operations and infrastructure.

### **The International Year for Biodiversity (IYB)**

Malta has joined other countries in celebrating the International Year for Biodiversity. Celebrations at a national level were officially launched on 18 May 2010. Prior to this day, activities aimed at raising awareness on biodiversity primarily included biodiversity-related articles written by the Malta Environment and Planning Authority, amongst which those published under the section entitled “One World” in a local newspaper. The aim of these articles is to provide the general public with information related to biodiversity, such as on the various habitats and species present locally, invasive alien species and marine protected areas. The “One World” articles published to date are listed in Table 1.

Article Series	Title of Article	Date when issued in local newspaper
Threatened Protected Plants	Maltese Rock Centaury	06/03/2010
	Maltese Everlasting	09/03/2010
	Maltese Cliff-Orache	11/03/2010
	Endemic Flora	13/03/2010
	Orchids in Malta	16/03/2010
	Trees in Malta	18/03/2010
Marine Protected Areas	Habitats and Species under Threat	20/03/2010
	What are the benefits of marine protected areas?	23/03/2010
	What can I do for marine protected areas?	25/03/2010
Threatened Protected Animals	Painted Frog	30/03/2010
	The Maltese Wall Lizard	01/04/2010
	The Maltese Freshwater Crab	03/04/2010
	Status of Selected Vertebrates	06/04/2010
	Bats in Malta	08/04/2010
	Some Species of Butterflies and Moths are scarce	10/04/2010
Invasive Alien Species	What are they and why are they a concern?	13/04/2010
	The Kaffir or Hottentot Fig	15/04/2010
	Prevention is better than cure	17/04/2010
Habitats of the Maltese Islands	Introduction	20/04/2010
	Terrestrial Habitats – An Overview	22/04/2010
	Terrestrial Habitats - Steppe	24/04/2010
	Terrestrial Habitats - Garrigue	27/04/2010
	Terrestrial Habitats - Maquis	29/04/2010
	Habitats - Woodland	01/05/2010
	Coastal Habitats – Saline Marshlands	04/05/2010
	Coastal Habitats – Rainwater Rockpools	06/05/2010
	Coastal Habitats – Sand Dunes	08/05/2010
	Freshwater Habitats - Watercourses	11/05/2010

	Rupestrial Habitats – Caves and Cliffs	13/05/2010
Other	Biodiversity Day Today	22/05/2010

**Table 1 – Articles published under “One World” as part of IYB celebrations**

Malta will be holding a number of events to celebrate IYB, which are expected to include the publication of posters, and of action plans, a biodiversity photo exhibition/competition, setting up billboards at specific protected areas, open lectures, awareness-raising to NGOs and journalists, and clean-up activities. Selected legislation and policy documents related to biodiversity are also expected to be issued in the coming months. Some of these activities might actually be addressed beyond 2010.

### Other Issues

Work has continued on the development of Malta’s ‘National Biodiversity Strategy and Action Plan’ (NBSAP). Management of protected areas has also continued. *Ad hoc* discussions and management issues at a number of sites have also been carried out. In this respect, an application for a project proposal to develop a framework for the management of terrestrial Natura 2000 sites in the Maltese Islands has been submitted for funding under the European Agricultural Fund for Rural Development (EAFRD). As a concluding note, in conjunction with the increased efforts towards broader communication and awareness-raising, the MEPA website ([www.mepa.org.mt](http://www.mepa.org.mt)) was completely revamped with a drive to improve public access to information (sections related to biodiversity are being updated from time-to-time).

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## 6. NORWAY / NORVEGE

Tasks for Group of Expert on Island Biodiversity:

- To identify conservation problems in European islands
- To identify inventory of threatened endemics
- To identify species and habitats at risk from climate change
- To identify and network regional experts
- To contribute to the CBD agenda with conservation solutions for European islands

### 1. Are there any specific conservation activities focused on island biodiversity in your state?

For Norway it is mainly the Arctic and Antarctic islands that display biodiversity of special conservation concern. In Europe this is mainly the Svalbard archipelago (65.000 km<sup>2</sup>, and 90.700 km<sup>2</sup> sea) and Jan Mayen Islands (377 km<sup>2</sup>). Both areas are situated in the Arctic region with extreme climatic conditions and being very isolated from other land masses, but very influenced by sea ice and the Atlantic Sea current that especially makes the Western coast of Spitsbergen (the largest island in the Svalbard archipelago) exceptionally “warm” in relation to its far North latitude. The special climatic conditions have in its own way reduced the impact from alien species, as well as the impact from humans. However, centuries of expeditions and exploitation has reduced the populations of many species. In particular this applies to the large baleen whales and the walrus. While the largest predator in the world, the polar bear, has recovered after its protection and establishment of a circumpolar agreement on conservation of polar bear (1973). The population in Svalbard is a part of the Barents Sea population that also includes the Franz Josef Land and Novaya Zemlya, and is estimated to be about 3000 animals.

Traditionally the prevention of imports of new species (including new diseases and parasites) has been the focus of the authorities. Strict regulation applies for the import of any live fauna, and a ban on pet animals (except dogs) has been introduced. Concerning flora the prevention of introduction of new species was not focused until recently, when a new legislation was introduced in 1999 to prevent introduction and requiring a risk assessment by the nature conservation authorities. Prior to this it was commonplace to repair landscape damage (eg from roadbuilding or mining) using alien seeds (mainly from the Norwegian mainland, Russia and Arctic Canada).

Generally the main focus for both areas regarding conservation of native fauna and flora has been to introduce legislation and to collect data on biodiversity to uncover emerging risks. The nature protection regime is very good, with a total of 65% of the terrestrial part of the Svalbard archipelago protected and 85% of the territorial waters off Svalbard out to 12 nautical miles, and the entire Jan Mayen Islands is protected. While the control of imports of goods and personnel- traffic still poses a huge risk for accidental import and spread of alien species. As on the mainland it is debated to change tactics in relation to accidental imports, to better prevent this. The nature conservation authorities of Norway has the main responsibility for conservation areas and activities related to threatened species in the two areas, see [www.dirnat.no](http://www.dirnat.no) The local management authority is the Governor of Svalbard. General information on local regulations etc can be found at [www.sysselmannen.no](http://www.sysselmannen.no)

The initiative on Conservation of Arctic Flora and Fauna (CAFF) under the Arctic Council aim to conserve arctic biodiversity and promote sustainable practices. Monitoring and networking of experts is important and a number of initiatives have been undertaken to this end. This include the following three expert groups: CAFF Flora Expert Group (CFG), Circumpolar Protected Area Network (CPAN) and Seabird Expert Group (Birds. ), see <http://caff.arcticportal.org/> The Arctic Climate and Impact Assessment (ACIA) report (2005), see <http://acia.cicero.uio.no/> This report concluded with a need for more capacity to monitor and understand changes in the Arctic. The program Circumpolar Biodiversity Monitoring Program (CBMP), se <http://cbmp.arcticportal.org> is one response to this. The CBMP seek to

establish an international network of researchers, community experts and managers to detect, understand and report on Arctic biodiversity trends.

## **2. State of knowledge of threatened endemic island flora and fauna**

The knowledge is quite good, and inventories has been published on the status of all species of fauna and flora, including red lists (the most recent in 2006, see [www.artsdatabanken.no](http://www.artsdatabanken.no)) . Due to the last ice age-period ca. 10.000 years ago probably most of the immigration and/or spread of species is quite recent on these islands. Nunataks at North-west Spitsbergen may have given space for some species to overwinter the ice-age period, but endemisms on species level are not found. However, on subspecies level some endemics do occur. Among the fauna the Arctic char *Salvelinus alpinus* is recognized with distinct genetic populations (ca. 100 watercourses), the Svalbard ptarmigan *Lagopus mutus hyperborea* is much larger than its cousin on the mainland and the Svalbard reindeer *Rangifer tarandus platyrhynchus* is a small version of the reindeer in other parts of the world. All of these species are recognized as distinct and confined to the Svalbard archipelago.

Threatened species, in particular flora has been given a high degree of protection through both specifically designed nature protection areas and through improved monitoring of their status. This is also linked to the increased efforts on red listing analysis of all species, including marine species.

The Norwegian Polar Institute has the main responsibility to conduct environmental monitoring in the two areas, including the atmosphere, and both terrestrial and marine habitats, see more on <http://mosj.npolar.no>

## **3. Available information on island IAS and their effect on endemic species**

Among the most famed accidental introductions to Svalbard is the sibling vole *Microtus rossiaemeridionalis*, which took place sometime between 1919 and 1960 in the Russian settlement Grumant City. This alien species in Svalbard today mainly survive in close association with bird cliff areas localized between Longyearbyen and Grumant due to the availability of lush vegetation and shelter in scree beneath bird cliffs, but some animals are frequently observed among the Longyearbyen settlement too. This species is a vector for the parasite *Echinococcus multilocularis* which is a serious problem for humans. There seem to be no solution to eradicate this parasite. It is not known if this parasite causes problems for other mammals or fauna in Svalbard.

Both the grouse and the reindeer are subject to regular monitoring, upon which an annual bag quota is set.

The spread of king crab *Paralithodes camtschaticus* and snow crab *Chionoecetes opilio* (both introduced from the Bering Strait-area) and their effects on the marine ecosystem is debated. The king crab was released in the Murmanskfjord in the 1960ies and is now numerous along the Barents sea coasts and the snow crab was first discovered in the Barents Sea in 1996 and is quickly spreading. Information regarding the king crab from the mainland demonstrates its capability of impacting negatively the benthos and other bottom dwelling species. Little information is available yet on the effects of these two species in Arctic waters. None of these two invasive alien species have spread to Svalbard yet.

## **4. Expected effects of climate change**

Monitoring shows that both precipitation and temperatures are now steadily increasing in the Arctic. This has a direct impact on the occurrence of sea ice coverage and changes of glaciers, see more on <http://svalbard.miljostatus.no>

### Marine changes

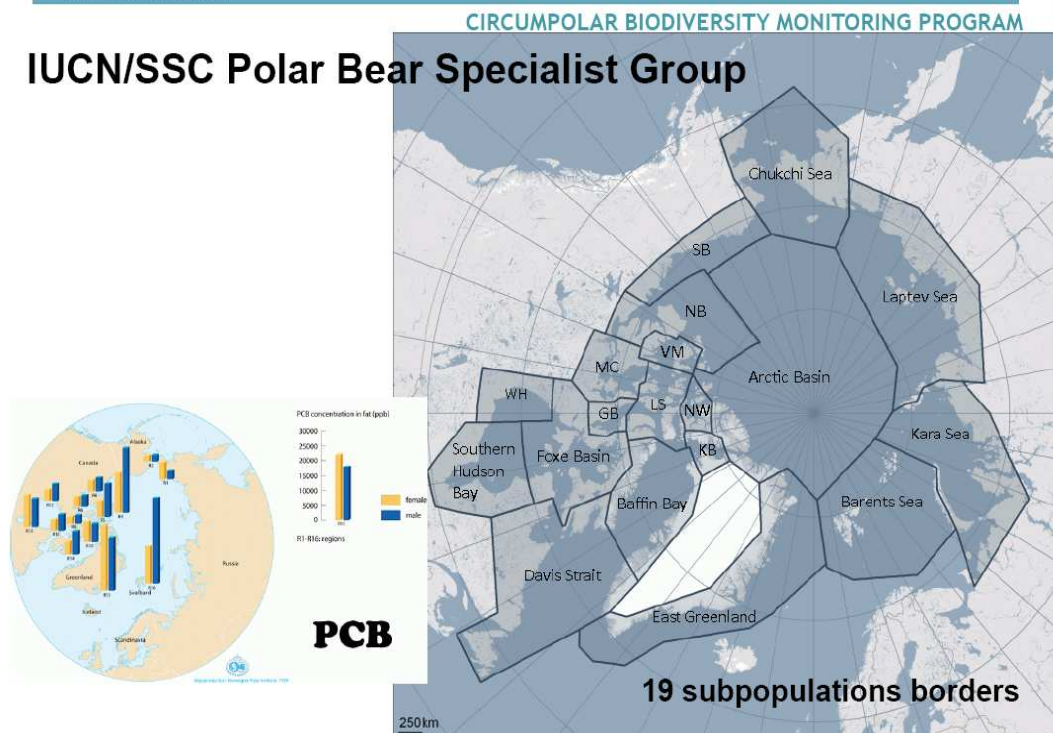
Increase in temperatures, both at sea and of the air temperature has been registered in the high latitude areas. Research programmes has uncovered significant changes in the climate in these

areas, see ACIA (<http://acia.cicero.uio.no/>). It is expected that dramatic changes in the composition of marine fauna (eg plankton, squid and fish) will have a major impact on fish stock distribution and egg seabirds. Less sea ice also impacts marine species like seals and polar bear. In recent years more polar bear individuals have been observed landlocked in summertime, obviously due to less sea-ice, causing starvation and bad condition of the bears. Annual monitoring of seabird breeding on the islands is a part of a wider monitoring programme, covering the North Atlantic <http://caff.arcticportal.org/expert-groups/seabird-group-cbird>, see national monitoring programme [www.seapop.no](http://www.seapop.no). The CAFF programme on seabirds aim to harmonise conservation, management and research and identify emerging needs. Changes in seawater temperatures is creating significant change in breeding success of seabirds in the southern part of the North-Atlantic.

The polar bear the population in the Barents Sea (including Svalbard, Franz Josef Land and Novaya Zemlya) was in 2005 estimated to be ca. 3000 individuals. More information on polar bears from the Norwegian Polar Institute (<http://npweb.npolar.no/tema/Arter/isbjorn>) the IUCN polar bear specialist group has a coordinating role for the Polar Bear Agreement (1973), see <http://pbsg.npolar.no/en/index.html> WWF International Arctic Programme are also engaged in polar bear research, see [http://wwf.panda.org/what\\_we\\_do/where\\_we\\_work/arctic/area/species/polarbear/polar\\_bear/](http://wwf.panda.org/what_we_do/where_we_work/arctic/area/species/polarbear/polar_bear/)



## IUCN/SSC Polar Bear Specialist Group



Polar bear populations and PCB levels, Norwegian Polar Institute.

### Observation of birds

Birds are quick to react to climatic changes and a steady flow of new bird species have been registered to Svalbard. The wider public has been encouraged to report on birds in the area and show a great interest in doing so. The nature conservation authorities has sponsored the establishment of a network of field biology interested people and a club house, see [www.loff.biz](http://www.loff.biz). More on birds can be found on

[www.svalbardbirds.com](http://www.svalbardbirds.com). A new field guide on Svalbard birds has recently been published and an English version will follow.

*Flora changes*

For terrestrial ecosystems it is at the moment more difficult to detect changes. However, it is expected that longer growing periods will make new areas available for the spread of existing species as well as new alien species. To monitor this situation a new research programme was initiated and the first report of this programme was published in 2010 (NINA report 579: <http://www.nina.no/archive/nina/PppBasePdf/rapport/2010/579.pdf>). The programme has established ten monitoring areas, where all vegetation will be mapped at regular intervals.

## 7. SPAIN (Canary Islands) / ESPAGNE (Iles Canarias)

### CANARY ISLANDS (SPAIN)

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The Canary Islands are an archipelago located in the Eastern Atlantic off the NW coast of Africa that includes seven major islands and several islets. They have a total area of 7.446,95 km<sup>2</sup> and a population of 1.672.689 inhabitants.

The Canaries have the status of an autonomous region within the Spanish state, with its own government and parliament. The Island Councils (the local government of each island) are responsible for managing the protected natural areas and conserving biodiversity.

Together with the Azores and Madeira (Portugal), French Guyana, Guadeloupe, Martinique and Reunion (France) the Canaries form part of the Outermost Regions of the European Union.

#### Biodiversity of the Canary Islands

According to the Canary Islands Biodiversity Data Bank, so far a total of 3965 species are known in the marine environment, of which only 164 are endemic. On land, there are 11.628 native species (7956 non-endemic and 3642 endemic) and 1348 alien, making up 90% native and 10% alien. The table shows the proportions of each group.

Terrestrial species			
	Native species		Exotic species (%)
	Endemic (%)	Non-endemic (%)	
<b>Vascular flora</b>	14	11	46
<b>Fungi</b>	3	14	4
<b>Bryophytes</b>	0	4	0
<b>Lichens</b>	1	12	0
<b>Vertebrates</b>	2	1	3
<b>Arthropods</b>	55	55	40
<b>Molluscs</b>	5	2	2
<b>Other invertebrates</b>	0	1	5

<http://www.gobiernodecanarias.org/cmayerot/medioambiente/medionatural/biodiversidad/especies/bancodatos/index.html>

#### The Canary Islands Catalogue of Protected Species

Once there is expert information that recommends it, the recently enacted Law 4/2010 of 4 June will include species, subspecies or populations where biodiversity is threatened or are of special interest for the ecosystems, classified into: endangered species (in danger of extinction or vulnerable), priority species for Canary ecosystems, and those requiring special protection. It currently includes 419 species.

<http://www.gobiernodecanarias.org/cmayerot/medioambiente/medionatural/biodiversidad/especies/catalogodeespeciesamenazadas/index.html>



### Plans for recovery of threatened species

Currently there are 19 recovery plans affecting 25 species: four vertebrates (two birds and two reptiles), and the rest are for flowering plants.

PHANEROGAMS	<i>Lotus kunkelii</i>
<i>Atractylis preauxiana</i>	<i>Lotus maculatus</i>
<i>Bencomia sphaerocarpa</i>	<i>Lotus pyranthus</i>
<i>Caralluma burchardii</i>	<i>Onopordon nogalesii</i>
<i>Cheirolophus duranii</i>	<i>Salvia herbanica</i>
<i>Crambe sventenii</i>	<i>Silene sabinosae</i>
<i>Echium acanthocarpum</i>	<i>Solanum vespertilio doramae</i>
<i>Helianthemum bramwelliorum</i>	<i>Stemmacantha cynaroides</i>
<i>Helianthemum juliae</i>	REPTILES
<i>Helianthemum tenerifae</i>	<i>Gallotia bravoana</i>
<i>Helianthemum gonzalezferreri</i>	<i>Gallotia simonyi</i>
<i>Kunkeliella canariensis</i>	BIRDS
<i>Lotus berthelotii</i>	<i>Fringilla teydea polatzeki</i>
<i>Lotus eremiticus</i>	<i>Neophron percnopterus majorensis</i>

[http://www.gobiernodecanarias.org/cmayerot/medioambiente/medionatural/biodiversidad/especies/catalogo/deespeciesamenazadas/planes\\_especies\\_amezadas.html](http://www.gobiernodecanarias.org/cmayerot/medioambiente/medionatural/biodiversidad/especies/catalogo/deespeciesamenazadas/planes_especies_amezadas.html)

### Protected areas

The Canary Network of Protected Natural Areas consists of 146 zones, which together constitute about 40% of the area of the archipelago. Currently, most of them have approved management plans. The Spanish state recently transferred to the Canary Islands Government the responsibility for managing the four National Parks.

<http://www.gobiernodecanarias.org/cmayerot/ordenacion/index.html>

### The Natura 2000 Network

Natura 2000 in the Canary Islands consists of a total of 208 sites (165 Special Areas Conservation (SACs) and 31 Special Protection Areas for birds (SPAs) which represent between 42% and 58% of the area of each island. Most of the areas on land are covered by the Canary Network of Protected Natural Areas.

Of the 168 natural habitats listed in Annex I of the Habitats Directive, about 24 are present in the Canary Islands. Two are marine: seagrass meadows (*Cymodocea nodosa*) and coastal lagoons, while the remaining 22 are terrestrial.

73 taxa are registered in the Habitat Directive for the Canaries. Of these, two are mosses, 4 are ferns, 60 higher plants, 4 reptiles and two mammals. However, the invertebrates are not represented, despite being the largest group and among those with highest endemism. On the other hand, about 44 birds found in our islands are included in the Birds Directive.

<http://www.gobiernodecanarias.org/cmayerot/medioambiente/medionatural/rn2000/index.html>

### Biosphere reserves

There are five biosphere reserves in the Canary Islands: La Palma, Gran Canaria, El Hierro, Fuerteventura and Lanzarote.

[http://www.mma.es/secciones/el\\_ministerio/organismos/oapn/oapn\\_mab\\_redreservas.htm](http://www.mma.es/secciones/el_ministerio/organismos/oapn/oapn_mab_redreservas.htm)

**Climate change**

In the Canaries, an Agency for Sustainable Development and Climate Change operates to promote policies and measures which contribute to more sustainable forms of development and address global warming. It also coordinates policies in the sector that may affect these objectives and works to favor both public and private initiatives with these ends. It also provides administrative and economic support to the Canary Forum for Sustainable Development and the Sustainable Development Observatory.

The "*Canary Island Strategy to Combat Climate Change*" is an operational tool acting as a framework for addressing the challenges facing the Canary Islands as a result of climate change; so as to be consistent with their greater wealth and vulnerability, and their responsibility and border situation.

<http://www.gobiernodecanarias.org/agenciasostenible/index.aspx>

**Control of invasive alien species**

At least 150 exotic species are believed to be invasive. The Island Councils and the Government of the Canaries are involved in numerous actions to control invasive plants in protected natural areas.

Recently the California King's snake (*Lampropeltis getula*) has become established in Gran Canaria, the result of an illegal release. It is subject to major control efforts by various public administrations.

A database of introduced species has been built up and over the next four years, a major program will take place to map and assess the impact of exotic species.

[http://www.gobiernodecanarias.org/cmayot/medioambiente/medionatural/biodiversidad/especies/bancodatos/bd\\_introducidas.html](http://www.gobiernodecanarias.org/cmayot/medioambiente/medionatural/biodiversidad/especies/bancodatos/bd_introducidas.html)

## 8. UNITED KINGDOM / ROYAUME-UNI

### ISLAND BIODIVERSITY WORK IN THE UK.

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#### 1 BIODIVERSITY ON THE UK'S ISLANDS

The mainland of the United Kingdom is an island itself, although current UK biodiversity legislation and policy does not have a specific focus on islands; more it reflects the six main work programmes of the CBD. The UK also includes a large number of smaller islands (over 700 vegetated islands and around 70 populated islands), and there are four main archipelagos (Shetland, Orkney, the Outer and Inner Hebrides) and a number of other island groups across the UK, although the great majority of the islands are within Scotland. There are a large number of initiatives that work on the islands of the UK. Most of these are carried out by the devolved administrations.

A significant number of the UK's 257 Special Protection Areas (SPAs) are located on offshore islands<sup>55</sup>, however listings are currently by site and country – the 'island' classification is not included.

##### 1.1. Internationally-important populations

A review of UK SPAs<sup>56</sup> highlights that the UK is of major international importance for several groups of birds. These include a number of groups that are especially reliant on the UK's islands: breeding seabirds, breeding and wintering waders and passage and wintering wildfowl.

UK is one of the richest areas in the world for seabirds. Just under 8 million seabirds of 25 species breed in Britain and Ireland, including 90% of the world's Manx shearwaters (*Puffinus puffinus*), 68% of Gannets (*Morus bassanus*) and 60% of Great Skuas (*Stercorarius skua*), as well as almost all of Europe's Leach's petrels (*Oceanodroma leucorhoa*). The UK SPA network holds over 4,946,000 breeding seabirds, and protection has recently been extended into inshore waters around the breeding colonies in many cases. 31 of the UK SPAs are on offshore islands. These protect some 3,788,000 breeding seabirds- a substantial proportion of all the seabirds breeding in the north-east Atlantic and North Sea areas.

The Scottish islands hold some of the densest populations of breeding waders in Europe. 30% of the biogeographic population of southern dunlin (*Calidris alpina schinzii*) breeds on the machairs and peatlands of the Outer Hebrides. There are important breeding populations of nine other species, including ringed plover (*Charadrius hiaticula*) redshank (*Tringa totanus*) and Snipe (*Gallinago gallinago*) on the grasslands and Golden plover (*Pluvialis apricaria*) and Greenshank (*Tringa nebularia*) on the peatlands. Internationally important wintering populations of Curlew (*Numenius arquata*), Sanderling (*Calidris alba*), Turnstone (*Arenaria interpres*) and Purple sandpiper (*Calidris maritima*) occur on the islands rocky and sandy shores. The habitat protection provided for these birds is a major contribution to their international conservation.

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<sup>55</sup> <http://www.jncc.gov.uk/page-2598>

<sup>56</sup> <http://www.jncc.gov.uk/page-1415>

The UK's islands hold around 200,000 grey seals (*Halichoerus grypus*); 85% of Europe's and 45% of the world population (of which 90% are in Scotland). There are also 46,000 harbour seals (*Phoca vitulina*); representing 30% of Europe's population (of which 85% breed in Scotland).

## 1.2 Grassland systems and species

Grassland systems and the species associated with them are also an important element of island biodiversity in the UK. Much island grassland is managed traditionally with little modern agricultural intensification, and hence it has a high wildlife value. Machair; a shell-enriched dune grassland, found extensively in western Scotland, is a classic UK habitat holding a wide range of threatened flora and fauna. Most of the UK's corncrake (*Crex crex*) population occurs on the Scottish islands, in the machair grassland. Breeding numbers have risen from 480 in 1993 to almost 1300 in 2008; due to direct intervention activities influencing island farming (crofting) management. It is likely that corncrakes will continue to be largely restricted to Scottish islands, but their recovery is a success story.

Machair also supports endangered insects such as the great yellow bumble bee (*Bombus distinguendus*); which is now restricted to the western and northern islands and the north Scottish coast. The slender Scotch burnet moth (*Zygaena loti scotica*) is found only on Mull on grazed coastal turf, though the nominate subspecies of this moth is found across mainland Europe.

Another widespread European bird species, the chough (*Pyrrhocorax pyrrhocorax*), is largely restricted to island grasslands in the UK, and requires special habitat management for its conservation.

## 1.3 Endemism

There is relatively little UK island endemism, but *Primula scotica* is a coastal heath and grassland species restricted to northern Scotland and Orkney; the Shetland mouse ear (*Cerastium nigrescens*) is endemic to north Shetland, and the Lundy cabbage (*Coinceya wrightii*) is endemic to Lundy Island off south-west England, and also hosts an endemic flea beetle. Maintenance of grassland through appropriate grazing levels (and in the case of the Lundy cabbage, control of rhododendron (*R. ponticum*)) are vital for these species.

## 2 MANAGEMENT ISSUES THAT AFFECT BIODIVERSITY IN THE UK 'S ISLANDS

There are a number of important management issues affecting island biodiversity in the UK.

### 2.1 Farming management

The Scottish islands hold important populations of both breeding and wintering geese. For much of the twentieth century, breeding greylag geese (*Anser anser*) were confined to the Outer Hebrides, and the population declined to around 50 breeding pairs. A range of protection measures led to their recovery and there are now around 40,000 birds spread across the western and northern Scottish islands. These are seen as causing conflict with farming management and may have effects on traditional farming which is beneficial to a range of other species.

In winter, the Scottish islands host large populations of Greenland white-fronted geese (*Anser albifrons flavirostris*) and Greenland barnacle geese (*Branta leucopsis*); around half of the world population of each species occur here. Almost all the Icelandic greylag goose population winters in Scotland; 80% (80,000) now winter on Orkney, having vacated the central Scotland mainland in the last decade. These also cause management conflict with farming interests, and several local goose management schemes have been in place on Scottish islands for the last ten years. There is currently a major review of these schemes by the Scottish Government. It is also recognised, however, that these goose populations also provide major tourism income from both birdwatching and shooting.

On a number of the UK's islands, there is overgrazing from deer and sheep, severely impacting habitat. As a consequence of difficulties in managing sheep on remote islands, a lack of grazing is also an issue on some islands. There are examples of how a lack of grazing has given rise to vegetation that is unsuitable habitat for threatened species: eg for Barnacle geese (*B. leucopsis*) which depend on short-cropped turf.

White-tailed sea eagles (*Haliaeetus albicilla*) have been reintroduced to Scotland over last 35 years (with grateful thanks to Norway for providing the birds). There are now around 40 breeding pairs, mostly on Scottish islands. These are providing major tourism income to the islands of Mull and Skye. There is however, some perceived conflict with sheep farming, which continues to require efforts to resolve, though two recent scientific studies suggest there is little predation of lambs.

## 2.2 Marine renewables

The next substantial issue is likely to be the development of marine renewables around the UK coasts. Major developments of offshore wind, tidal and wave power devices are proposed. The latter two are likely to be largely around the Scottish islands where the largest natural wave and tidal resources occur. It will be vital to assess what effects these developments may have on the marine environment and to develop strategies and methods to minimise these effects.

## 2.3 Genetic conservation

Islands have an important role to play in genetic conservation; several Scottish islands hold endemic subspecies of mice (eg *Apodemus sylvaticus hirtensis* on St Kilda) and birds (eg *Troglodytes troglodytes zetlandicus* on Shetland). Some islands act as genetic refugia for widespread species. Several Scottish islands hold genetically-pure populations of red deer (*Cervus elaphus*). On the mainland, hybridisation with Sika deer (*C. nippon*) is widespread, and legislation is forthcoming to protect the island deer populations' genetic integrity. There has been a major study of red deer population genetics and demography on Rum for thirty years.

Machair management on the Scottish islands is partly-dependent on traditional local races of cereals, such as bere barley (*Hordeum vulgare*) and black oats (*Avena strigosa*); this represents important genetic conservation of farmed crop species.

In England, the Isle of Wight and in Wales, Anglesey act as refugia for populations of red squirrels (*Sciurus vulgaris*) threatened elsewhere by the spread of grey squirrels (*Sciurus carolinensis*) and the pox virus they carry.

## 2.4 Invasive non-native species

Invasive non-native species are a critical issue for the UK's island biodiversity, as is the case across much of the world. On the Outer Hebrides, hedgehogs (*Erinaceus europaeus*), which are native to mainland UK, were introduced in the 1970s by misguided individuals wishing to control slugs (*Arion* spp) in gardens. These are now having major effects on the internationally-important breeding wader populations, by their predation of wader eggs. A major removal programme is under way, and hedgehogs have now been almost cleared from North Uist. The American mink (*Mustela vison*) also causes serious problems to ground-nesting terns, gulls and waders, and a major removal programme<sup>57</sup> is under way on Harris and Lewis.

The most widespread non-natives issue is that of rats on islands with important seabird populations. These are mostly brown rats (*Rattus norvegicus*) but there were also black rats (*Rattus rattus*) on Lundy Island in south west England. Predation of seabird eggs and chicks has been a widespread problem. Over the last 50 years, twelve islands around the UK have had rat eradication programmes. There have been some excellent results in terms of seabird responses: Manx shearwaters (*P. puffinus*) numbers have trebled on Ramsey and Lundy in the 5-10 years since rat eradication.

The rat eradication projects have become increasingly large and ambitious. The project on Canna (off west Scotland) has been the largest to date. Canna is a 1300 ha, farmed and populated island, owned by the National Trust for Scotland. A grid of thousands of poison bait tubes was set in 2005-06. The project needed to remove and maintain a population of Canna fieldmice (*Apodemus sylvaticus*), which were held and bred by the Zoological Society of Scotland for over twelve months, and reintroduced after

<sup>57</sup> <http://www.snh.org.uk/pdfs/scottish/wisles/minknov05.pdf>

the poisoning process was complete. The project was apparently effective but NTS continues a monitoring programme, of both the rat absence and seabird population responses.

Scottish Natural Heritage is also trialling rat control on Rum; an 11,000 ha island, which holds 61000 pairs, 25% of the world's Manx shearwaters (*P. puffinus*). These nest on mountain-top slopes. This project will consider whether all-island control is necessary in this case.

Quarantine vigilance is also needed in regards of rat invasions. A recent case of a shipwrecked Scottish fishing vessel on St Kilda brought the threat of rat introduction to the most important seabird islands in the UK. This resulted in a programme of rat monitoring work, both after the wreck and during the ship-breaking operations. A similar protocol is needed for all rat-free seabird islands.

### **3 BIODIVERSITY IN THE UK CROWN DEPENDENCIES**

The UK also has three Crown Dependencies; Jersey, Guernsey (and their archipelago of smaller islands) and the Isle of Man. These have many biogeographical similarities with mainland UK. The Channel islands are notable for holding a range of species whose range does not extend to mainland Britain; and insular forms of some species, such as the Guernsey form of the common vole *Microtus arvalis* which also occurs on Orkney, its sole area in the UK. The Isle of Man holds important populations of breeding birds (e.g. seabirds, chough and hen harrier (*Circus cyaneus*); similar to some Scottish islands, and they hold a range of marine and terrestrial habitats which are significant in a UK and regional context.

### **4 CONCLUSIONS**

A number of island biodiversity issues are very similar across islands, regardless of species, habitats, or geographical location. One of the key lessons learnt from experiences on inhabited UK islands is that the local people (local ownership and local involvement) are pivotal to the success of any conservation initiative. It is also important that conservation initiatives are appropriately scaled to the size of the populations of the islands to ensure long term sustainability and continuity.

Information-sharing across islands is important. For example, access to good quality scientific data about eradication or control of non-native invasive species on small islands (including costs, benefits, probability of success and how to maximise this) will help make the case for island-specific proposed actions.

Annexe 4

TABLE SUMMARISING POSSIBLE ACTION

Diversité biologique des îles - Tableau de synthèse des mesures envisageables - projet 1								
POINTS ESSENTIELS	PRINCIPALES MENACES							
	Espèces exotiques envahissantes: elles sont une des principales menaces pour la diversité biologique et peuvent avoir de graves conséquences sur les petites îles et les espèces dont les populations sont réduites.	Tourisme: ce facteur est essentiel pour l'économie de nombreuses îles, mais peut engendrer une énorme surpopulation, ainsi que de multiples pressions sur la biodiversité.	Développement: souvent associé au tourisme, le développement des constructions peut gravement affecter les habitats les plus précieux des îles.	Evolution de l'occupation des sols: intensification de l'agriculture dans les secteurs préservés par les pratiques traditionnelles, friches dans les îles éloignées, qui ont un impact majeur sur les habitats et les espèces des îles.	Changement de l'utilisation des eaux: les besoins croissants en eau et en traitement des eaux usées peut fortement affecter le niveau des nappes sous-terraines, avec de lourdes conséquences sur les espèces et sur les habitats.	Energies renouvelables: solutions possibles aux besoins énergétiques des îles, mais de nombreux modes de production d'énergie renouvelable peuvent avoir de graves conséquences sur les habitats et les espèces insulaires.	Changement climatique: les modifications de l'environnement qu'il induit peuvent avoir de lourdes conséquences sur les îles: les tempêtes, l'élévation du niveau de la mer et le changement du régime de précipitation et des températures sont autant de facteurs qui affecteront les espèces des habitats insulaires.	L'exploitation des ressources: la surexploitation des ressources des îles, comme la pêche sur le littoral et la production de sel, peuvent affecter les espèces marines et les habitats du littoral et de l'intérieur des terres.
<b>Endémisme:</b> bon nombre des espèces endémiques d'Europe se trouvent dans les îles. Elles ont une protection spéciale et une grande valeur pour la conservation. La plupart des extinctions enregistrées ces 50 dernières années concernaient des espèces endémiques des îles. Beaucoup d'îles abritent également des sous-espèces endémiques ou des variétés génétiquement distinctes qui sont importantes pour la préservation de la diversité génétique.	Identifier et analyser les besoins de sauvegarde des espèces endémiques (ex: plantes des îles de la Méditerranée; reptiles macaronésiens, ...) par élimination des EEE. Dresser la liste des endémiques des îles et des menaces liées aux EEE, identifier et promouvoir les mesures qui ont le meilleur impact sur les endémiques des îles.	Résoudre les conflits entre le tourisme et la sauvegarde des habitats en faveur des principales espèces endémiques. Identifier les sites essentiels en vue de les intégrer aux réseaux d'espaces protégés.	Perte d'habitats et de sites essentiels pour les espèces endémiques en raison du développement bâti.	Modifier les pratiques agricoles qui nuisent à des sites essentiels pour les espèces endémiques.			Conséquences du changement climatique sur les espèces endémiques dont l'aire de répartition est réduite.  Étudier les besoins / les bienfaits / les risques des transferts d'espèces orphelines.	Conséquences pour les espèces marines endémiques?
<b>Colonies et rassemblements pour la reproduction et l'hivernage:</b> les îles accueillent des populations d'importance internationale et essentielle d'oiseaux marins, d'échassiers, de phoques et de tortues marines qui se rassemblent en colonies pour la reproduction. Certaines îles accueillent aussi pour l'hivernage une large part des populations mondiales de certaines espèces d'oiseaux sauvages.	Identifier les dangers que les EEE représentent pour les espèces coloniales. Analyser les besoins en éradications de mammifères dans les îles colonisées par les oiseaux marins; identifier les mesures prises pour améliorer les perspectives d'avenir des espèces et des îles; développer les échanges de savoir-faire entre les partenaires européens.	Réduire l'impact du tourisme sur les plages nécessaires aux tortues et aux phoques. Etudier si le développement du tourisme sur les îles inhabitées affecte les espèces coloniales.		Changements dans les pratiques agricoles qui affectent les habitats essentiels pour les échassiers en période de reproduction et les oiseaux sauvages en période d'hivernage.		Perturbation des espèces coloniales par les projets d'énergies renouvelables. Diffuser des conseils fondés sur les bonnes pratiques pour l'implantation des parcs d'éoliennes.		

<p><b>Littoral:</b> très logiquement, les territoires insulaires comportent une forte part de littoral et d'habitats côtiers, et notamment de dunes, de zones humides littorales et de falaises.</p>		<p>Forte pression du tourisme sur certains habitats du littoral.</p>	<p>Disparition d'habitats côtiers au profit de constructions, d'installations touristiques, de ports, d'usines de dessalement, etc.</p>	<p>Exploitation intensive des zones humides, par exemple pour la production de riz.</p>		<p>Impact des projets de développement des énergies renouvelables et des réseaux de distribution d'électricité sur les habitats du littoral.</p>	<p>Elévation du niveau de la mer qui rétrécit le littoral au détriment des habitats saumâtres, impact des ondes de tempête sur les côtes meubles.</p>	<p>Perte de zones humides littorales converties pour la production de sel, de riz ou d'autres produits agricoles.</p>
<p><b>Etapes dans les migrations:</b> certaines îles constituent des étapes essentielles ou des goulots d'étranglement dans les migrations d'oiseaux, de mammifères et, sans doute, d'invertébrés. Elles peuvent jouer un rôle déterminant pour ces espèces dans le cadre de leur cycle annuel.</p>	<p>Analyser l'impact des EEE sur les espèces sauvages migratrices.</p>	<p>Pression sur les "oasis" d'habitat dans les goulots d'étranglement des migrations qui constituent d'importantes destinations touristiques.</p>	<p>Perte "d'oasis" par développement de la construction dans les zones urbaines engorgées.</p>	<p>Perte d'habitats semi-naturels par intensification de l'agriculture.</p>	<p>Perte de sources d'eau et d'oasis nécessaires aux espèces migratrices.</p>	<p>Risque élevé lié au développement de parcs d'éoliennes dans les goulots d'étranglement dans les migrations de grands oiseaux: rapaces, ciconiidés, etc.; proposer des bonnes pratiques, des orientations et des conseils pour l'implantation de parcs d'éoliennes.</p>		
<p><b>Refuges pour espèces:</b> certaines îles offrent un refuge à des espèces menacées ou éteintes sur le continent ou sur les îles "principales".</p>	<p>Analyser les besoins en amélioration de la biosécurité nécessaires pour prévenir l'élimination d'espèces des refuges par les EEE. Identifier les principales îles qui servent de refuges en Europe; compiler les bonnes pratiques et des orientations en matière de biosécurité des îles.</p>	<p>Evaluer le risque de zoonoses, d'arrivées d'EEE avec les touristes. Concevoir de la documentation afin d'atténuer les risques biologiques liés au tourisme.</p>	<p>Evaluer le risque de zoonoses, d'arrivées d'EEE avec les matériaux de construction, le développement des transports, etc.</p>	<p>Evaluer le risque de zoonoses, d'arrivées d'EEE avec des produits agricoles ou des aliments importés, etc.</p>	<p>Evaluer les risques que les changements dans l'utilisation de l'eau font peser sur les espèces des refuges.</p>	<p>Evaluer le risque de zoonoses, d'arrivées d'EEE avec les matériaux de construction, le développement des transports, etc.</p>	<p>Evaluer les risques que les changements de l'enveloppe climatique des îles font peser sur les espèces des refuges.</p>	
<p><b>Habitats spéciaux et gestion:</b> certaines îles ont préservé des méthodes de gestion traditionnelles et peu intensives, notamment des habitats agricoles, surtout si on les compare à l'agriculture du continent. Cela permet de maintenir la grande valeur naturelle d'habitats rares ou inexistantes dans d'autres parties du monde.</p>	<p>La perte d'habitats essentiels par invasion d'EEE, comme les systèmes dunaires envahis par des plantes non indigènes.</p>	<p>La pression subie par les habitats essentiels en raison d'une intense exploitation touristique.</p>	<p>Disparition d'habitats essentiels au profit des constructions.</p>	<p>Perte d'espaces soumis à une exploitation agricole peu intensive au profit de pratiques intensives, de l'uniformisation du paysage ou de la friche. Identifier les zones d'exploitation peu intensive les plus importantes et veiller à ce que l'UE soit sensibilisée à leur valeur pour la biodiversité.</p>	<p>Perte de zones humides suite à l'augmentation du pompage des eaux souterraines qui fait baisser le niveau des nappes phréatiques; recours accru à l'irrigation.</p>		<p>Evolution du potentiel agricole liée au changement climatique et au réchauffement de la planète, qui affecte à la fois les habitats et l'utilisation des sols.</p>	