

Strasbourg, 26 May 2011
[Inf03aadd_2011.doc]

T-PVS/Inf (2011) 3 addendum

CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

**Bern Convention Group of Experts
on Invasive Alien Species**

/

**Groupe d'experts de la Convention de Berne
sur les espèces exotiques envahissantes**

St. Julians, Malta (18-20 May 2011)

/

St Julians, Malte (18-20 mai 2011)

**Implementation of recommendations
on Invasive Alien Species**

/

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

**National reports and contributions /
Rapports nationaux et Contributions--
CROATIA / CROATIE**

*Document prepared by
the Directorate of Culture and of Cultural and Natural Heritage*

CONTENTS / SOMMAIRE

1. Croatia / Croatie

1. CROATIA / CROATIE

REPORT TO THE BERN CONVENTION GROUP OF EXPERTS ON INVASIVE ALIEN SPECIES

Report period: 2009 - 2011

Changes in legislative framework and related activities

In 2009 and 2010 the *Ordinance on transboundary movement and trade of protected wild species* has been amended, so it is now fully harmonised with the *Commission Regulation (EC) No 359/2009 of 30 April 2009 suspending the introduction into the Community of specimens of certain species of wild fauna and flora*. Apart from a list of species whose import is prohibited, this ordinance stipulates the need of import permits for all live specimens of alien species.

The amendments of the *Hunting Act* from 2009 allowed the introduced alien species to be listed as game and be hunted. If a new species appears on the territory of the Republic of Croatia, the minister competent for hunting affairs, subject to prior approval by the central state administration body competent for nature protection, shall determine whether the mentioned species is deemed to be game.

Based on the new ordinance from 2010, risk assessment studies for introduction, reintroduction and breeding of wild taxa can only be performed by a legal person authorised for performing this kind of assessments in the field of nature protection.

Within the frames of the WWF MedPo project “Protected Areas for a Living Planet – Dinaric Arc Ecoregion: Study on invasive species” WWF has financed making of draft proposal for the development of a National Strategy on Invasive Alien Species in Croatia. This document describes Croatian regulatory framework relevant to the IAS issue, and details the key actions required to address the problems caused by IAS (development and/or improvement of regulatory/legislative framework to prevent invasions, establishment of early detection and rapid response system, decision support tools to implement measures to remove established IAS, or managed them when removal is not appropriate). Representatives of Ministry of Culture – Nature Protection Directorate and Directorate for Nature Protection Inspection, State Institute for Nature Protection and Croatian Environment Agency have been included in the project in order to help with data input and expertise.

Activities in a period 2009 – 2011

Problems regarding invasive alien species in Croatia are continuing to grow and each year there are new alien species recorded which are invasive or potentially invasive in other parts of Europe. However, the public is becoming more aware of negative impacts of invasive species and more and activities concerning IAS are being conducted, either educational in character or directly focused on the monitoring of spread or on the control and eradication.

Since the last Meeting in 2009 there have been 20 projects dealing with IAS carried out in Croatia. As stated above, the projects involved educational activities, monitoring of IAS, activities of control and eradication of IAS. All the projects are listed in the Table 1.

Table 1. A list of projects concerning IAS conducted in the period 2009-2011

Effects of suppression of the alien invasive species <i>Amorpha fruticosa</i> L. by traditional land use methods on former agricultural land in the Nature Park Lonjsko Polje	Nature Park Lonjsko Polje	2009
Monitoring the removal of invasive species on the pasture after mechanical pasture renovation	Nature Park Lonjsko Polje	2010

Distribution and population characteristics of the invasive signal crayfish (<i>Pacifastacus leniusculus</i>) and autochthonous noble crayfish (<i>Astacus astacus</i>) in the Međimurje area	Public institution for management of protected natural values of Međimurje County	2010
Research of the occurrence and ecology of the autochthonous fish species of the Vransko jezero Nature Park – Analysis of the impact of introduced Danube species and marine species on autochthonous species – eel (<i>Anguilla anguilla</i>) and freshwater blenny (<i>Salaria fluviatilis</i>)	Nature Park Vransko jezero	2009
Inventarisation and mapping of the invasive plant species	Nature Park Kopački rit	2010-2011
Monitoring and control of the invasive algae of the genus <i>Caulerpa</i>	Nature Park Lastovo	2010
Action plan for control of the invasive crab species <i>Orconectes limosus</i> in the wider area of Osijek	State Institute for Nature Protection & Association for Ecological Research - BioShock	2009
Research of the invasive alien species, signal crayfish (<i>Pacifastacus leniusculus</i>) in the river Mura and its tributaries as a step towards management planning	State Institute for Nature Protection & Association Kapibara	2010
Research of the invasive species <i>Solanum elaeagnifolium</i> Cav. in Croatia with the proposed measures of eradication	State Institute for Nature Protection & Ph.D. Milenko Milović	2009
Database on invasive taxa of vascular flora of Croatia	Faculty of Science, Department of Botany	2007-2011
Removal of the invasive plant species <i>Amorpha fruticosa</i> for the purpose of conservation of the threatened species and habitats in the area of Croatian ecological network site Odransko fild.	State Institute for Nature Protection	2009
Action plan for control of the invasive crab species <i>Orconectes limosus</i> in the wider area of Osijek	State Institute for Nature Protection & Association for Ecological Research - BioShock	2009
Research of the invasive alien species, signal crayfish (<i>Pacifastacus leniusculus</i>) in the river Mura and its tributaries as a step towards management planning	State Institute for Nature Protection & Association Kapibara	2010
Fight against invasive plant species	Ecological Society of Brod -BED	2011
Invasive alien species in freshwater ecosystems of Croatia	Association Kapibara	2009
Ecological research on toxic phytoplankton and shellfish toxicity	Institute of oceanography and fisheries, Split	2007-2011
Invasive invertebrate species in freshwater ecosystems of Croatia	Faculty of Science, Biology Department, Zagreb	2007-2011
Monitoring of aeroallergens and a model of systematic control of allergenic plants	Faculty of Agriculture, Osijek	2007-2011
Monitoring, control and eradication of the invasive algae of the genus <i>Caulerpa</i> in the Adriatic Sea	Institute of Oceanography and Fisheries, Laboratory for Benthos	2009-2011
The determination of the spatial distribution of economically important pests using GIS	Faculty of Agriculture, Zagreb	2007-2011

As a result of educational activities, several publications on IAS have been published in the stated period (

Table 2).

Table 2. A list of publications on IAS published in the period 2009-2011

A poster - <i>Invasive alien species</i>	State Institute for Nature Protection	2009
<i>Handbook for Inventorying and Status Monitoring of freshwater crayfish</i>	State Institute for Nature Protection	2010
A poster and the leaflet - <i>Invasive plants – a threat to biodiversity</i>	UNDP Croatia - COAST project	2009
A brochure - <i>Invasive alien species in the freshwater ecosystems of the rivers Drava, Mura, Dunav and Mura</i>	Association Kapibara	2009

Besides educational publications, as a result of the growing interest of the scientific community in Croatia, there have been 27 scientific papers dealing with distributional data of the invasive species and their impact on the native communities or on the economy published since 2009:

1. Alegro, A., Bogdanović, S., Rešetnik, I. & Boršić, I. (2010). *Thladiantha dubia* Bunge (Cucurbitaceae), new alien species in Croatian flora. *Natura Croatica*, 19(1), 281-286.
2. Barun, A., Budinski, I., & Simberloff, D. (2008). A ticking time-bomb? The small Indian mongoose in Europe. *Aliens*, 26, 14-16.
3. Barun, A., Simberloff, D. & Budinski, I. (2010). Impact of the small Indian mongoose on native amphibians and reptiles of the Adriatic islands, Croatia. *Animal Conservation*, 13, 549-555.
4. Barun. (2011). The small Indian mongoose (*Herpestes auropunctatus*) on Adriatic Islands: impact, evolution, and control. University of Tennessee Knoxville.
5. Cukrov, M., Despalatovic, M., Žuljević, A. & Cukrov, N. (2010). First record of the introduced fouling tubeworm *Ficopomatus enigmaticus* (Fauvel, 1923) in the Eastern Adriatic Sea, Croatia. *Rapp. Comm. int. Mer Médit.*, 39, 483.
6. Čaleta, M., Jelić, D., Buj, I., Zanella, D., Marčić, Z., Mustafić, P. & Mrakovčić, M. (2010). First record of the alien invasive species rotan (*Perccottus glenii* Dybowski, 1877) in Croatia. *Journal of Applied Ichthyology*, 27(1), 146-147.
7. Dragičević, B. & Dulčić, J. (2009). Fish Invasions in the Adriatic Sea. In D. Golani, & B. Appelbaum-Golani (Eds.), *Fish Invasions of the Mediterranean Sea: Change and Renewal* (pp. 35-56). Pensoft Publishers.
8. Dražen, D., Ivezić, M., Raspudić, E. & Brmež, M. (2010). Razvoj modela za prognozu pojave odraslih oblika kukuruzne zlatice (*Diabrotica virgifera virgifera* LeConte) na području istočne Slavonije., (pp. 702-706).
9. Dulčić, J., Dragičević, B. & Tutman, P. (2009). Record of *Regalecus glesne* (Regalecidae) from the eastern Adriatic Sea. *Cybium*, 33(4), 339-340.
10. Dulčić, J., Pallaoro, A., Dragičević, B. & Stagličić-Radica, N. (2010). On the record of dwarf flathead *Elates ransonnetii* (Platycephalidae) in the Adriatic Sea. *Cybium*, 34(2), 222-223.
11. Galzina, N., Barić, K., Šćepanović, M., Goršić, M. & Ostojić, Z. (2010). Distribution of Invasive Weed *Ambrosia artemisiifolia* L. in Croatia. *Agriculturae Conspectus Scientificus*, 75(2), 75-81.
12. Hudina, S., Faller, M., Lucić, A., Klobučar, G. & Maguire, I. (2009). Distribution and dispersal of two invasive crayfish species in the Drava River basin, Croatia. *Knowledge and Management of Aquatic Ecosystems*, 9, 394-395.
13. Hulina, N. (2010). "Planta Hortifuga" in Flora of the Continental Part of Croatia. *Agriculturae Conspectus Scientificus*, 75(2), 57-65.
14. Ivezić, M., Raspudić, E., Brmež, M., and, I. M. & Brkić, A. (2009). Maize Tolerance to Western Corn Rootworm Larval Feeding: Screening through Five Years of Investigation. *Agriculturae Conspectus Scientificus*, 74, 291-295.

15. Ivezić, M., Raspudić, E., Jelovčan, S. & Šoh, K. (2011). *Harmonia axyridis* - New species ladybirds in Croatia. In B. Cvjetković (Ed.). (pp. 38-39). Hrvatsko društvo biljne zaštite.
16. Matošević, D., Pernek, M. & Hrašovec, B. (2010). First record of oriental chesnut gall wasp (*Dryocosmus kuriphilus*) in Croatia. *Šumarski list*, 134(9-10), 497-502.
17. Matošević, D., Pernek, M., Dubravac, T. & Barić, B. (2009). Research of leafminers on woody plants in Croatia. *Šumarski list*, 133, 381-390.
18. Mešić, A., Čuljak, T. G. & Miličević, T. (2010). Population Dynamics of Invasive Species *Cameraria ohridella* Deschka et Dimić (Lepidoptera: Gracilariidae) in Central Croatia. *Šumarski list*, 134(7-8), 387-394.
19. Pernek, M. & Matošević, D. (2009). Black locust gall midge (*Obolodiplosis robiniae*), new pest on black locust trees and first record of parasitoid *Platygaster robiniae* in Croatia. *Šumarski list*, 133(3-4), 157-163.
20. Poloniato, D., Ciriaco, S., Odorico, R., Dulčić, J. & Lipej, L. (2010). First record of dusky spinefoot *Siganus luridus* in the Adriatic Sea. *Annales for Istrian and Mediterranean Studies, Series historia naturalis*, 20(2), 161-166.
21. Stančić, Z. & Mihelj, D. (2010). *Anredera cordifolia* (Ten.) Steenis (Basellaceae), naturalised in south Croatia. *Natura Croatica*, 19(1), 273-279.
22. Stanković, I. & Ternjej, I. (2010). New ecological insight on two invasive species: *Craspedacusta sowerbii* (Coelenterata: Limnomedusae) and *Dreissenia polymorpha* (Bivalvia: Dreissenidae). *Journal of Natural History*, 44(45-46), 2707-2713.
23. Stanković, V. M., Koren, T. & Stanković, I. (2010). The Harlequin ladybird continues to invade southeastern Europe. *Biological Invasions*, 1-6.
24. Vlahović, D. & Mitić, B. (2010). Non-native Plants of the Plešivica Mountains (Northwestern Croatia). *Agriculturae Conspectus Scientificus*, 75(2), 51-56.
25. Vuković, N., Bernardić, A., Nikolić, T., Hršak, V., Plazibat, M. & Jelaska, S. D. (2010). Analysis and distributional patterns of the invasive flora in a protected mountain area: A case study of Medvednica Nature Park (Croatia). *Acta Societatis Botanicorum Poloniae*, 79(4), 285-294.
26. Žganec, K., Gottstein, S., & Đurić, P. (2010). Distribution of native and alien gammarids (Crustacea: Amphipoda) along the course of the Una River. *Natura Croatica*, 19(1), 141-150.
27. Žganec, K., Gottstein, S. & Hudina, S. (2009). Ponto-Caspian amphipods in Croatian large rivers. *Aquatic Invasions*, 4(2), 327-335.

In September 2009 on the 10th Croatian Biological Congress round table with the topic „Invasive alien species and Croatian scientists“ was organized by State Institute for Nature Protection (SINP). The following questions were raised to the Croatian biologists on the round table:

- What is the number of published papers on the topic of IAS by Croatian scientists?
- Are there and who are scientists and scientific institutions in Croatia dealing with the problem of control and eradication of IAS?
- Are there and who are scientists and scientific institutions in Croatia dealing with issues of IAS impacts on the biodiversity or on the economy?
- Is it possible to get over personal interests and to collect data on invasive species in one place?

As a part of educational and awareness raising campaign, in 2011 SINP has begun with the creation of the web site about IAS. The web site should be finished by the end of this year. After its completion it should become a part of the Croatian early warning and rapid response system on IAS.

In 2010 started the project *Development of faunistic and speleological databases (CRO fauna and CRO speleo) as part of NPIS (Nature Protection Information System)*, financed from the IPA 2007 – TAIB/TAF programme, led by SINP. The project assignment is development and implementation of two databases that are essential elements of NPIS: faunistic database CRO-fauna and speleological database CRO-speleo. Through thematic expert databases a storing organization and availability of

biodiversity and spelological/biospleological data will be improved and a framework that would permit and stimulate experts and other data collectors in the field to provide data into databases and to ensure easy access of all interested to stored data via Internet with appropriate security limitations will be created. The CRO-fauna database will be designed to store all the relevant information about the IAS, needed for the efficient early warning and rapid response system.

In May 2010 the final draft of “Action plan for eradication of the wild boar (*Sus scrofa*) from the islands of Krk and Cres” was prepared by the five-member working group, formed by the experts and scientists from the Faculty of Agriculture and the Faculty of Forestry, University of Zagreb, the Ministry of Agriculture, Forestry and Water Management (Department for hunting) and the State Institute for Nature Protection. The proposed action plan lists the activities and measures to be taken to eradicate the wild boar on the islands of Krk and Cres, where it is alien. According to the available information implementation of this Action Plan has not yet been considered.

On the 28th and 29th October 2011 in Zagreb EEA/EIONET Workshop on invasive alien species in West Balkan countries was held. It was organized by the European Environment Agency (EEA) in cooperation with IUCN/SSC Invasive Species Specialist Group (ISSG), with participation of experts from Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Kosovo, Montenegro and Serbia, as well as experts from WWF MedPO. Objectives of the meeting were to share information on invasive alien species within EU and neighbouring countries, to review the information available on invasive alien species in Western Balkan countries and to discuss possible approaches for future activities and collaborations in view of the establishment of a European EWIS.

Report on the progress with the European Ruddy Duck eradication strategy was submitted in 2010 by the Croatian Institute for Ornithology and the Ministry of Culture – Nature Protection Directorate. No ruddy ducks were recorded so far in nature or being held in captivity.

Follow-up of the following recommendations of the Standing Committee

- Recommendation No 141 (2009) of the Standing Committee, adopted on 26 November 2009, on potentially invasive alien plants being used as biofuel crops

Introduction of alien plants into nature on the territory of the Republic of Croatia is forbidden, but exceptionally can be permitted by the competent authority (Ministry of Culture, Nature Protection Directorate) if the risk assessment study shows it is scientifically and technically founded and acceptable from the standpoint of nature protection and sustainable management. So far, no formal requests to permit the introduction of alien plants to be used as biofuel crops have been received.

- Recommendation No. 140 (2009) on the control of the small Indian mongoose (*Herpestes auropunctatus*) in Southeast Europe
The amendments of the Hunting Act from 2009 allowed the introduced alien species to be listed as game and be hunted. Mongoose is listed as a game species but the control of population by hunters happens only sporadically in some areas. Due to the financial and organisational constraints, no comprehensive assessment of the range and trend of the small Indian mongoose population and its impact on native biodiversity has been conducted.
- Recommendation No. 134 (2008) of the Standing Committee, adopted on 27 November 2008, on the European Code of Conduct on Horticulture and Invasive Alien Plants

No actions taken so far.