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The Ramsar Regional Center for Training and Research on Wetlands in the Western Hemisphere (CREHO) is a not-for-profit international organization that promotes management and wise use of wetlands in the Americas.

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EDITORIAL

The last edition of *Infohumedal* of 2009 is dedicated to invasive species in wetlands, taking into consideration how anthropogenic actions drastically influence the maintenance of the ecological characteristics of our ecosystems, unchaining the high impact consequences and, on many occasions, irreversible consequences. Nevertheless, in this edition we emphasize the positive actions that individuals and establishments are carrying out with the aim to correct or mitigate the adverse effects.



In this edition we have included the usual publication section, events, species and news, visiting from Tierra del Fuego to North America with the recent designations of wetlands of international importance in the Americas. Besides, we highlighted the range of ecosystems present in our continent, highlighting once again, key processes such as the High Andean Wetlands Strategy and local actions for wetland conservation undertaken in Peru, Uruguay and Mexico.

We hope you enjoy the journey through the Western Hemisphere in this edition, visiting Central America, the Caribbean, North America and South America. As always, we encourage you to continue collaborating with us next year and join the World Wetlands Day celebration dedicated to climate change, the subject that is the centre of attention this month with the Climate Change Conference in Copenhagen.

We take this moment to thank you for all the support that have given to us this year and the interest shown by our increasing rapidly growing number of subscribers to *Infohumedal*.

We wish you the best for 2010!

Rosa Montañez
Executive Director
CREHO



NEWS

ACADEMIC COOPERATION

During the second half of 2009, CREHO's headquarters received the collaboration of a B.S. student in Social Communications from the Santa María La Antigua University, Sue Ellen Julio, who provided support to communication activities as part of her professional practice in the area of Public Relationships.

Sue Ellen tell us that "during the time I was in CREHO I learned many things, especially about wetlands and migratory birds". She also says that "to carry out my daily assignments helped me to acquire a new perspective with respect to the environment and the different ways in which I can contribute to its conservation".

We wish Sue Ellen success in her professional career and we are sure that her experience with CREHO has been fruitful.



RECENTLY DESIGNATED RAMSAR SITES IN THE WESTERN HEMISPHERE

Argentina

The Argentinean government has designated a new, beautiful and very valuable Wetlands of International Importance located at the Tierra del Fuego province: *the Vinci Guerra glacier and Associated Peatlands*, which has become the most southern Ramsar Site in the world. In the following link you will be able to see a few photos of the glacier and the peatlands:

http://www.ramsar.org/cda/ramsar/display/main/main.jsp?zn=ramsar&cp=1-26-45-84^24167_4000_0



Bolivia

Bolivia recently announced the expansion of the *Laguna Colorada Ramsar Site*, designated in 1990, from the original 51,000 hectares to nearly 1.5 million hectares. Renamed "*Los Lípez*", this Ramsar Site, in the Potosi Department, is located in the Bolivian Altiplano and includes an endoreic High Andean complex of salt marshes and hyper salt marshes, salty lakes as well as *bofedales* and geothermal wetlands. Photos of the site can be seen at the Ramsar web page: http://www.ramsar.org/cda/ramsar/display/main/main.jsp?zn=ramsar&cp=1-26-45-84^24053_4000_0.



Brazil

The *Natural Patrimony Private Reserve Fazenda Río Negro* is another portion of the very famous Pantanal wetlands, which has been designated by Brazil as a Wetlands of International Importance. It is characterized by its abundance of freshwater or alkaline lakes and permanent and intermittent rivers. For [more information](http://www.ramsar.org/cda/ramsar/display/main/main.jsp?zn=ramsar&cp=1-26-76^24002_4000_0) go to: http://www.ramsar.org/cda/ramsar/display/main/main.jsp?zn=ramsar&cp=1-26-76^24002_4000_0



Chile

The Chilean government has designated two new High Andean wetlands as Wetlands of International Importance. They are located in the Antofagasta region and will become parte of a network of Ramsar sites in the High Andean region in the northern part of Chile. The *Salar de Aguas Calientes IV* and the *Salar de Pujsa* are centred around salty lagoons that are extraordinarily important to migratory birds in the Western Hemisphere, and both sites support important mammal populations. Chile now has 11 Ramsar sites covering a total of 192,080 hectares. For [more information](http://www.ramsar.org/cda/ramsar/display/main/main.jsp?zn=ramsar&cp=1-26-76^23989_4000_2), go to: http://www.ramsar.org/cda/ramsar/display/main/main.jsp?zn=ramsar&cp=1-26-76^23989_4000_2



United States

The United States has named its 25th Ramsar Site as *Corkscrew Swamp Sanctuary*, which is owned and managed by Florida's Audubon Society. The site comprises ground forests of pine, moist meadowlands, cypress swamps and marshes. The 600 years old majestic bold cypresses reach up to 40 meters and constitute the largest and most pristine cypress forest in North America. [Photos of the site](#) can be seen at the Ramsar web page: http://www.ramsar.org/cda/ramsar/display/main/main.jsp?zn=ramsar&cp=1-26-45-84^24158_4000_2



Mexico

The government of Mexico has designated it's 114th Wetland of International Importance *El canal del Infiernillo* and *Esteros del Territorio Comcaac (Xepe Coosot)* is a canal formed between the Tiburon Island and the Sonora Coast in the North East of Mexico, it is characterised by the presence of meadows of marine grass, mangrove vegetation estuaries, seasonal streams and small patches of coral reefs. For [more information](http://www.ramsar.org/cda/ramsar/display/main/main.jsp?zn=ramsar&cp=1-26-45-84^24252_4000_2): http://www.ramsar.org/cda/ramsar/display/main/main.jsp?zn=ramsar&cp=1-26-45-84^24252_4000_2





VI WORKSHOP OF THE REGIONAL STRATEGY FOR CONSERVATION AND SUSTAINABLE USE OF HIGH ANDEAN WETLANDS



From the 21st to 25th of September, 2009, in La Paz, Bolivia, the Sixth Workshop of the Regional Strategy for Conservation and Sustainable Use of High Andean Wetlands was carried out. Delegates from Argentina, Bolivia, Colombia, Costa Rica, Chile, Ecuador, Peru and Venezuela were present, as well as representatives from international institutions and NGOs.

At the meeting, progress made by the member countries was evaluated and the La Paz Declaration was endorsed. This declaration highlights the importance of wetlands and the harmful effects of climatic change. The document will be taken to the forum which will take place in Copenhagen, where the United Nations will hold discussions on this important issue.



This is a Regional Initiative established within the Framework of the Ramsar Convention. It proposes the participation of interested parties with the purpose of defining goals for the conservation and sustainable use of wetlands and wetlands complexes in moors, *jalca* and *puna* ecosystems as well as other High Andean ecosystems.

WORKSHOP ON WETLANDS CONSERVATION, ADMINISTRATION AND MANAGEMENT

Source: Blgo. Ricardo Jiménez Vilchez



Between August 13th and 15th, 2009, the Macro Regional Course "Wetlands Conservation, Administration and Management", organized by the Regional Administration of Natural Resources and Environmental Management of Lima's Regional Government, was carried out.

The purpose was to strengthen conceptual and methodological evaluation issues, as well as to identify threats, effects or processes that human actions have on wetlands, in order for the actors to be able to analyze, understand and sustainably manage those ecosystems.



Participants produced a declaration about the course where they acknowledged having become more aware of and sensitized about wetlands conservation, administration and Management.





I CANADIAN RAMSAR SITE MANAGERS TRAINING COURSE

Source: <http://www.crestonwildlife.ca>

The National Training Course for Canadian Ramsar Site Managers took place at the Creston Valley Wildlife Management Area from October 5th - 8th, 2009. This was the first ever course of its kind offered in Canada.

The course was presented by the Centre for Environmental Stewardship and Conservation in cooperation with the Creston Valley Wildlife Management Area, a Ramsar site in southeastern British Columbia, Canada. Delegates from across Canada participated in a variety of presentations, group panels, and a hands-on field exercise.



Sponsors included the Creston Valley Wildlife Management Authority, Ducks Unlimited Canada, Environment Canada, the Columbia Basin Trust, the Habitat Conservation Trust Foundation, the Regional District of Central Kootenay, Columbia Brewery, and the City of Creston.

AMERICAS FOLLOWING MEETING OF THE 5TH WORLD WATER FORUM

Source: Mariana Argüello. GWP Centro America. <http://www.gwpcentroamerica.org>

The meeting took place on 30th November and 1st December 2009 in San Jose, Costa Rica and relied on the presence of representatives of different organizations from different parts of the American continent.

The principal objective of this event was to discuss the forms and means of fulfilling the compromises that raised in the discussions sustained by the actors of the Americas region during the 5th World Water Forum, celebrated in Turkey in March of this year. During this meeting Costa Rica officially launched its National Plan of Integrated Water Resource Management.

The event was organized by the regional consortium of the Americas (CRA), shaped by more than 30 establishments, and on this occasion led by the National Association of Businesses of Water and the Sanitation of Mexico (ANEAS) and the National Agency of Brazilian Waters (ANA), with the support of the Global Water Partnership, Central American chapter.

RED KNOT PROJECT

Source: Alejandro Fallabrino. Karumbé www.karumbe.org

Since December 2008, Karumbé, a non-governmental organization with headquarters in Uruguay, has been carrying out studies about the ecology of this species, particularly with respect to its migration pattern.



The main goal of this project is to delimit key sites for the habitat conservation of the Red Knot (*Calidris canufus rufa*) and to identify possible threats to these birds in the area of La Coronilla-Barra del Chuy, as the basis of a proposal to include this area within the recently created *Protected Marine-Coastal Area of Cerro Verde e Islas*, in Uruguay. For more information, go to karumbemail@gmail.com

SPECIAL ISSUE

INVASIVE SPECIES IN WETLANDS

The effects caused by invasive species on wetlands ecosystems and the biodiversity found there within, as well as upon humans are numerous and vary greatly. An invasive species is a plant, animal or microscopic pathogen that, for many reasons, is taken out of its natural habitat to be located into a new habitat. Given the fact that there are no natural predators in its new home, the species is able to propagate without the presence of natural population controls.

For more information about Ramsar and Invasive Species go to [Ramsar COP7 DOC. 24](#)

INVASIVE SPECIES THREATS IN THE CARIBBEAN REGION

Extract of the Report elaborated by Moses Kairo et al, 2003, to the Nature Conservancy. Complete report can be [downloaded](http://www.issg.org/database/species/reference_files/Kairo%20et%20al.%202003.pdf) from: http://www.issg.org/database/species/reference_files/Kairo%20et%20al.%202003.pdf

Invasive species such as weeds, pests and diseases that afflict crops and livestock have been documented as a threat to agricultural systems for centuries. However, they are now recognized as having an increasing impact upon a broad range of socio-economic activities. Ever increasingly, invasive species are being seen as threats to indigenous biodiversity, this owing to the impacts they impose upon natural and semi-natural habitats and ecosystems.



Invasive species are now widely cited as the second greatest global threat to biodiversity, after habitat destruction. Of course, the two phenomena can go hand in hand: habitat destruction can make areas more vulnerable to invasive species, and species' invasions can result in the destruction of habitats.

INVASIVE SPECIES AND ISLANDS



Invasive species are now considered to represent the greatest threat to island biodiversity and habitat loss. There are two main factors to be considered here: First, islands are particularly valuable centers of biodiversity. Their physical isolation from the continental mainland and the dynamics of natural colonization and local evolutionary adaptations often lead to the development of unique biotas. Endemism is a common feature of the flora and fauna of islands. Secondly, islands appear to be particularly vulnerable to the impact of invasive species. A number of reasons have been suggested for this, including: low density of indigenous species (providing for greater vacant niche space and less competition than would be found on the mainland), small population sizes

(rendering them prone to extinction), and the evolutionary effects of isolation upon island species (leading, for example, to the loss of defensive behaviors and consequent vulnerability to introduced predators).

INVASIVE SPECIES AND THE CARIBBEAN

The Caribbean region is regarded as one of the world's biodiversity "hotspots" (Myers *et al.* 2000): it supports some 7000 species of endemic plants and 779 endemic vertebrates. Invertebrate endemism is also extensive in the region, but it is relatively poorly documented. For example (excluding the fauna of Trinidad & Tobago, which is highly influenced by South America), some 40% of the Caribbean's butterflies are from one single island (Smith *et al.*, 1994).

Furthermore, the number of species reported alien, naturalized, or invasive to non-agricultural habitats far exceeds the number of introduced agricultural pests known to the region. It is reasonable to conclude that the majority of species have established themselves outside of agricultural systems. Non-agricultural habitats where alien species have been found to particularly establish themselves include wetlands and riparian corridors, disturbed lands, grasslands (including rangelands and overgrazed pasturelands), urban areas, roadsides, forests, and beaches/dunes.

The effects of individual introduced species at the local level may vary in relation to the impacts recorded in other regions; however, similarities among regions are likely. It is possible that the impacts of the same introduced species may vary among islands. It is important that the ecological and environmental impact of species be more fully understood; while at the same time, there continues to be scope for further research in this area that could underpin future management and risk assessment.

THE AFRICAN PALM: AN ALIEN AND INVASIVE SPECIES IN THE WETLANDS OF THE HONDURAS CARIBBEAN BASIN

Author: Juan Carlos Carrasco. President of the Wetland Technical Committee of Honduras . jc_navas@yahoo.com

The monoculture of the African Palm (*Elaeis guianensis*) had its beginnings in Honduras in 1923 when a company introduced experimental plantations in order to evaluate new tropical crops in Central America. Given to this crop a series of ecological attributes like carbon capture, biofuels, biological corridors up to forests, but the reality is different.

In Honduras there are approximately 225,000 hectares of African Palm, of those, 170,000 are plantations and 55,000 are the product of invasion, distributing themselves over 83% of the national territory. The plantations occupy the principal valleys used for food production and, in a smaller percentage, forestry grounds. The invaded areas involve 95% of the coastal plains of river and estuarine lagoon flooding on the Caribbean basin; the majority of those sites are protected, including 5 of the 6 Ramsar sites in Honduras.

It is recommended to those loans and subsidies financial entities that encourage this monoculture, to evaluate first their environmental and social impacts to ecosystems.





BUILDING AN INFORMATION RESOURCE OF INVASIVE ALIEN SPECIES ON RAMSAR DESIGNATED SITES AND OTHER IMPORTANT WETLANDS

Author: Shyama Pagad. UICN CSE Invasive Species Specialist Group s.pagad@auckland.ac.nz

Invasive Alien Species are listed as one of five direct drivers that result in changes to ecosystems. Others include: changes in land use, climate change, overexploitation, and pollution (Ecosystems and human well-being. Volume 1 Current State and Trends London: Island Press).

The Invasive Species Specialist Group (ISSG) has undertaken to develop thematic datasets that can be used as analytical tools by stakeholders; invasive species on Ramsar designated sites is one of the focal themes.

The Ramsar Sites Information Service (RSIS) is the primary source of information about Ramsar designated sites. Site sheets provide information on Ramsar criteria, bio-geographical details, physical features, and social, cultural and ecological values of sites. Information on factors that adversely affect the site's ecological character, including invasive species and conservation measures undertaken and proposed are also listed.

The ISSG is initiating the development of a general resource containing invasive species data and information for all Ramsar sites. The Ramsar Secretariat and the ISSG are exploring different types of data exchange opportunities to facilitate the development of such a resource.

The first phase of the project which covers a third of the 1869 sites [Africa-280, Oceania-77 and the Western Hemisphere-320] commenced in November 2009 with a desktop literature search. Communication with regional networks and stakeholders will be undertaken using emails and questionnaires to collate current and accurate information. It is envisaged that by early April 2010 a beta version of the resource will be posted on the ISSG website for feedback.

The ISSG has developed a dataset in excel format of Ramsar sites in the Western Hemisphere (322), including annotations of invasive species information extracted from the RSIS for 107 sites where invasive species are listed as a threat. Information from other sources is being collated to enhance the resource.

This spreadsheet is available on the [CREHO website](http://www.creho.org/images/File/infomedales/issg_creho.xls):
http://www.creho.org/images/File/infomedales/issg_creho.xls

The ISSG would like to take the opportunity to request stakeholders in the region to explore the dataset. You can download the file and insert invasive species information, then return it to ISSG OR Alternatively send ISSG information (reports, journal articles, data, or personal observations) related to invasive species threats to wetlands in the Western Hemisphere.

Contact: Shyama Pagad [s.pagad@auckland.ac.nz].

[Resolución VII.14 de la COP7](#)

recognizes "the severe threat that Invasive Alien Species pose to the ecological character of wetland ecosystems and to wetland species both terrestrial and marine (Resolutions of the San Jose Conference 1999)". The Resolution recognizes that a critical and necessary mechanism for sustainable and long term wetland invasive species management is the availability of, and access to accurate, reliable and current data and information. Building inventories of wetland invasive; identifying methods of management and control of these species, case studies and links to other relevant sources are some of the stated ac-



The [IUCN SSC Invasive Species Specialist Group \(ISSG\)](#) aims to reduce threats to natural ecosystems and the native species they contain by increasing awareness of invasive species, and of ways to prevent, control or eradicate them. The ISSG manages and maintains the [Global Invasive Species Database](#)

PROJECT TO RESTORE A *POPAL* INVADDED BY THE GERMAN HAY (*ECHINOCHLOA PYRAMIDALIS*) IN LA MANCHA Y EL LLANO RAMSAR SITE AT VERACRUZ, MEXICO

Person responsible for the project: Dr. Patricia Moreno Casasola patricia.moreno@inecol.edu.mx

The freshwater herbaceous wetlands (*popales* and *tulares*) are important ecosystems because they provide a large amount of environmental services to various populations. In the Mexican state of Veracruz, wetlands cover only 2.3% of the natural ecosystems; this area is decreasing due their exposure to human pressures, mainly associated with extensive cattle ranching activities.



More than twenty years ago in the coastal zone of Actopan, Veracruz, Mexico, the German Hay (*Echinochloa pyramidalis*) was introduced to the wetlands as cattle feed. This is a highly invasive species of African origin that freely implants itself into the *popales* and *tulares*, radically altering the structure and function of these ecosystems. Recent investigations show that, in order to eradicate this hay and recover the affected wetlands, active intervention into these sites and restoration activities are necessary.



Thus, in February 2007, a project was started with the objective of restoring the structure, composition and ecological function of a *popal* that forms part of the La Mancha y El Llano Ramsar Site. The area had been previously invaded by the German hay. Among the primary activities being carried out to restore the area are: the direct extraction of the species, the recovery of the original topography to normalize the periodicity of water fluctuations (hydro-period), and the restoration of communities of native plant species. It is expected that these efforts will help to gradually recover the fauna through the regeneration of surrounding areas that were not invaded by the species.

Progress made in the restoration, and its success, will be measured by monitoring biological, physical and chemical indicators. This study intends to become the basis for more extensive activities in the region for areas afflicted by the same problem. The project is financed by the National Commission for Biodiversity Knowledge and Use (CONABIO, for its initials in Spanish).

The dividing line that you can see in the picture is a canal built as a physical barrier to prevent the reintroduction of the grass from neighbor land (far right).

The appearance of the neighboring property gives us an idea of how it looked before the wetland restoration.



Patricia Moreno-Casasola ©

EL HUMEDAL DE SANTA ROSA Y EL IMPACTO ANTRÓPICO: AGRICULTURA Y ESPECIES INTRODUCIDAS

Autores: Damaso W. Ramirez¹, Hector Aponte¹ y Asuncion Cano^{1,2}

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The Santa Rosa Wetlands are located to the North of the Lima Department, in Peru; they comprise an area of some 40 hectares that includes a large body of water in the central zone, a small lagoon to the west and a main channel that derives water from the Chancay River. The wetlands are surrounded by many sources of human influence, such as agriculture, cattle ranching, and pigsties, among others.

Studies carried out in the area shed light concerning the current state of the flora and the origins of the vegetable species found there. It is alarming to find that, of the 66 flora species identified, 50% is comprised of introduced species considered to be “crop invaders”, because of their relation to agricultural activities (for example, *Chenopodium ambrossoides*, *Echinochloa crusgavonis*, *Echinochloa oryzoides*, *Eleusine indica*, *Rumex obtusifolius*).

This high percentage of introduced species is an indicator of the human pressure being exerted upon this environment. Agricultural activity has not only led to the presence of invasive species; it has also accelerated the eutrophic process of the wetland by overwhelming the lagoon with nutrients drained from adjacent crops during fertilization and irrigation activities; this has caused an increase in aquatic species such as *Pistia stratiotes*, *Eichhornia crassipes*, and *Lemna gibba*, which are currently distinguished for their high population density, often covering large parts of the wetlands' bodies of water.



© Héctor Aponte

Santa Rosa is probably the wetland suffering the highest anthropic impact along Lima's central coast. Agriculture and cattle ranching are the key threats identified, of which agriculture has demonstrated the greatest impact due to the on-going yearly expansion of fields in cultivation towards the wetlands, as well as the introduction of invasive species during the course of agricultural activities. Hence, management measures are needed to counteract and control the impacts inflicted upon this ecosystem.

EXAMPLES OF INVASIVE ESPECIES PRESENT IN THE WESTER HEMISPHERE WETLANDS

Purple loosestrife (*Lythrum salicaria*)

Source: Shyama Pagad, UICN CSE GEEI

Purple loosestrife (*Lythrum salicaria*) is nominated as one of the '[100 World's Worst Invasive Species](#)' by the Invasive Species Specialist Group (ISSG) of IUCN. A native of Eurasia it has invaded Canada, the United States, Australia and New Zealand. Purple loosestrife is capable of invading a variety of wetland habitats, including marshes, river and stream banks, pond edges, lakes, roadside ditches, and reservoirs. Disturbed areas are more prone to invasion because exposed soil is ideal for germination. It forms dense stands that choke out native vegetation and destroy fragile wetland habitats. Purple loosestrife itself has almost no food or shelter value to the native wildlife.



Gary A. Monroe @ USDA-NRCS PLANTS Database ©

Nile Tilapia

(*Oreochromis niloticus*)

Source: [Invasives in Mesoamerica and the Caribbean](#), G. Hernández et al., UICN 2002.

This fish hails from Africa, and it is an internationally famous invasive species; it has voracious appetite, reproduces quickly, and grows very large in terms of biomass, thus rapidly displacing native species and causing damage to the natural ecosystem. The tilapia was introduced to Central America and the Caribbean for commercial purposes, to be grown in ponds and exported. However, due to the lack of strict controls, thousands of these fish have escaped their cages and ended up in rivers, lakes, and along the coasts of the region.



Bob Walker 1988 ©

North American Beaver (*Castor canadensis*)

Source: Shyama Pagad, UICN CSE GEEI

Castor canadensis commonly known as the North American beaver is native to North America. It is a large herbivorous rodent typically found near water. Beavers are known as "ecosystem engineers" for their ability to alter the physical and chemical nature of bodies of water and their adjacent terrestrial systems. The beaver was introduced to Tierra del Fuego, Argentina, some 40 years ago; it is considered to be a major threat to the few native species that reside there, which are accustomed to low levels of organic matter in the wetlands. Deforestation caused by *C. canadensis* has also had the immediate effect of increased erosion, due to exposed slopes which later result in flooding and the complete coverage by sediment of forest floors. Consequently, seedling germination and establishment has become impeded (Lizzaralde *et al.* 2004). Following the removal of beavers, these forests may not completely regenerate into meadows for more than 20 years (Martinez Pastur *et al.* 2006).





PUBLICATIONS AVAILABLE FOR DOWNLOAD ON THE WEB

On the web, you find interesting documents that talk about conservation, which are available for downloads for free. We invite you to send any publication you would like to share, to the following e-mail info@creho.org

Marine Menace. Alien Invasive Species in the Marine Environment

This booklet is targeted at the general public to highlight an important but often overlooked issue, and to serve as a source of information and inspiration. The material presented in this booklet is based on a large volume of work by many institutions and scientists around the world researching marine invasive species and developing means to prevent, manage and mitigate bioinvasions. [Download](http://cmsdata.iucn.org/downloads/marine_menace_en_1.pdf) in PDF format: http://cmsdata.iucn.org/downloads/marine_menace_en_1.pdf



Energy and Climate Change

This publication provides an overview of key facts and societal challenges related to economic development, future energy demand and the impact that demand could have on the climate system. We cannot know exactly how the world will develop over the next half century, but the scenarios used here fit with the United Nations (UN) development goals of poverty reduction and improved living standards in the developing world. [Download](http://www.wbcsd.org/DocRoot/xxSdHDIXwf1J2J3ql0I6/Basic-Facts-Trends-2050.pdf) in PDF format: <http://www.wbcsd.org/DocRoot/xxSdHDIXwf1J2J3ql0I6/Basic-Facts-Trends-2050.pdf>

Assessing and Managing Invasive Species *Within Protected Areas*

One of the most severe threats to Protected Areas around the globe is invasive alien species. Preventing new invasions is the most efficient approach to addressing this threat, followed by quickly detecting and eradicating or containing new invasive species that do become established. This quick guide was written to provide Protected Area managers with guidance on how to create a comprehensive assessment and strategic plan for Invasive Alien Species as a basis for action.



Download from: <http://www.cbd.int/invasive/doc/ias-tnc-guide-2009-en.pdf>



Events and Courses

6th workshop in Conservation genetics: Microevolutionary processes in wild species 12-22 January 2010. Santiago, Chile.

This course has an integrated vision of the direct aspects of applied conservation genetics and is aimed at postgraduate students or professionals that have approached the design stage or the initial phase of execution of their thesis or project in a way that it could be useful for them to improve. This course facilitates, alongside the theoretical and practical training in this area of conservation biology, the interchange of experiences with those who work directly with wild species in Latin America.

For more information: <http://regenec.ula.ve/taller/ene2010/programa.html>

Diploma in Integrated management of Hydraulic resources. Last date for inscription and sending of documentation: 6 February 2010.

This diploma is composed of 10 courses, one onsite that will be directed 5-9th April 2010 in Panama City, the rest of the course is distance learning. It is aimed at professional personnel in different governmental fields, in hydroelectric businesses, businesses related to supplying and sanitation services, agricultural producers, members of local organisations, managers of hydraulic resources, non governmental organisations and people interested in the opportunities and knowledge of the best practices in hydraulic management. The total cost of the program is \$US 4,000.00 which includes hosting, food and local transport during the onsite course, also, documentation and materials of the 10 courses in the program. The graduates will obtain a diploma from the University of the United Nations in Integrated management of hydraulic resources.

For more information: www.cathalac.org

IV Conference of the European Ponds Conservation Network From 31st May to 4th June 2010, Berlin, Germany

Berlin, Germany, has been chosen as the venue for the 4th conference of the European network for reservoir conservation. This event is carried out every 2 years, and every time it attracts more experts with diverse training on the subject. The conference is directed at scientists and University students, experts from research centres, consultants, decision makers, conservation organisation representatives, hydric resource administrators and agricultural groundmen. For more information: <http://www.4epcn2010.de/>

1st Central American Fair of Community Water Management From 19th to the 24th March 2010. San Jose, Costa Rica.

This event aims to strengthen the positioning of the principal actors involved in the community handling of water at the regional level. For more information and inscriptions:

www.nuestraagua.org





A call for articles ¡Collaborate with us!

Send us information about the activities, results and processes taking place in the Americas towards the implementation of the Ramsar Convention, or about actions in the wetlands. We are also interested in publishing information regarding training courses and events.

Send us your activities, events, processes, project outcomes or other positive news to info@creho.org. Remember that each article must have a maximum size of 1,300 characters, including the spacing. The images to illustrate your article must have a resolution higher than 96 dpi and must be accompanied by the name of the photographer and the copyright authorization in order to be reproduced in INFOWETLAND



Special Issue: "Caring for Wetlands: an Answer to Climate Change"



For the special issue featured in our next publication, we invite you to send us specialized information regarding the processes, techniques, experiences and outcomes about the effects of climate change in wetlands. You can send chronicles, essays or technical analysis.

Format for the special issue: Send us your chronicle, essay or technical analysis to info@creho.org.

Remember that each article must have a maximum size of 3,000 characters, including spacing. The images to illustrate your contribution must have a resolution higher than 96 dpi and must be accompanied by the name of the photographer and the copyright authorization in order to be reproduced in INFOWETLAND.

INFOWETLAND Issue 5 Number 1

Infowetland is an information service provided by the Ramsar Regional Center for Training and Research on Wetlands in the Western Hemisphere (CREHO)

Next INFOWETLAND will be out in March 2010

The special issue will deal with relationship between wetlands and climate change

**Send your news, topics, events and information before February 28th, 2010
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