BioNews

Bringing you the latest in research and monitoring news from the Dutch Caribbean

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This Issue

Welcome to BioNews

BioNews is a monthly newsletter produced by the Dutch Caribbean Nature Alliance (DCNA), which provides an update on biodiversity research and monitoring efforts currently underway on and around the six islands of the Dutch Caribbean as well as an overview of related events and meetings in the near future.

For any questions or feedback, or if you would like to make a contribution, please contact us at research@DCNAnature.org

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Layout & Design: Robert Jan van Oosten.

Editor's Notes

This month's issue profiles several scientific discoveries with new implications for conservation in the Dutch Caribbean. On St. Eustatius, the first evidence of a rat stealing a seabird egg from a nest was captured with the use of camera traps - a component of STENAPA's Red-billed Tropicbird conservation work. On Curaçao, a research team from Naturalis Biodiversity Center in the Netherlands carried out dedicated surveys on crabs, shrimps and molluscs living in association with corals and other invertebrate hosts. The study yields several new species records for Curaçao, new symbiotic associations and possibly even species new to science. Caribbean-wide, lionfish removal efforts have been a major component of conservation action in regards to this invasive predator. New evidence suggests this could be a permanent, but successful solution in controlling and limiting the impacts of the Lionfish. Additionally, the lionfish control website (www.lionfishcontrol.org), originally set up by STINAPA Bonaire and DCNA to support and monitor lionfish control efforts has been expanded to include Aruba, Curaçao and St. Maarten.

BREAKING NEWS:
Rats confirmed stealing eggs on St. Eustatius

by Adrian J. Delnevo

After a few seasons of research on the population biology and nesting success of Red-billed Tropicbirds on Saba and St. Eustatius, important information on the threats to their breeding success is starting to become clearer. Urgent actions to remove some predatory feral cats on Saba appear to be benefiting nesting success at an adjacent colony. However, on St. Eustatius, long-suspected predation by rats has recently been confirmed, and suggests that a range of additional conservation measures will be required to benefit Red-billed Tropicbirds, and this may vary between Saba and St. Eustatius. *Continued on page 2 >>*

Rat stealing Red-billed Tropicbird egg from nest
Photo credit: STENAPA

>> *Continued from page 1:* **Rats confirmed stealing eggs on St. Eustatius**

Red-billed Tropicbirds only lay one egg and thus any egg or chick loss will typically result in failed breeding for that year. Some birds may lay a second egg, but these are usually unsuccessful. Nest failure may be due to numerous causes, including one of the pair dying or changing nesting partner, rock falls or collapsed burrows, insufficient food, immature or inexperienced birds, and nest predation by rats, cats, crabs and even goats. Studies elsewhere on other seabird species have shown that controlling one predator may result in an increase in other predators. For example, when cats were removed, this led to increased numbers of rats. However, the findings were mixed, and in some studies, controlling cats did result in an increase in rats, but in other studies, there was no increase in rats. Cats are clearly a significant predator of tropicbirds, at least at some colonies, on Saba, but we do not fully understand the complex relationship between tropicbirds, cats, rats and other predators.

An analysis of last year's camera trap data shows that cats primarily prey on Red-billed Tropicbird chicks. However, the additional new evidence suggests that rats tend to prefer tropicbird eggs. Progress has been made, but further research into the island-specific predator-prey relationships between these three (and other) species will have to continue in order to come up with an appropriate and effective conservation plan to ensure the survival and sustainability of these magnificent birds.

Tropicbirds often nest in crevices between the rocks
Photo credit: B.S. & R.D. Kirkby

Research Overview

Below you will find an overview of the research work underway in the Dutch Caribbean in January 2014.

Category	Subject	Islands	Organisation: Lead Scientist
Mammals	Invasive Vervet Monkey survey	SXM	Nature Foundation: Etienne Lake
Birds	Red-billed Tropicbird breeding success and effects of invasive predators (incl. predator control)	SAB	IMARES: Dolfi Debrot, Erik van der Woude & Martijn Terpstra
Birds	Pilot study of post-fledging survival of Yellow-shouldered Amazon Parrots	BON	Echo: Sam Williams UoS: Isabelle Dean
Plants	Phenology study of Yellow-shouldered Amazon food tree species	BON	Echo: Sam Williams
Invasives	Grazing pressure by feral goats	EUX	IMARES: Dolfi Debrot
Invasives	Invasive seagrass colonisation, productivity and herbivory by sea turtles in Lac Bay	BON	STCB: Mabel Nava STINAPA Bonaire: Sabine Engel VU: Tineke van Bussel
Geomorphology	Benthic habitat mapping	SAB	IMARES: Erik Meesters & Ingrid van Beek
Socio-economic	TEEB (The Economics of Ecosystems and Biodiversity) study for Saba and St. Eustatius	SAB, EUX	VU: Pieter van Beukering WKICS: Esther Wolfs
Ecosystems	Quantitative community/ecosystem (flora & fauna) population ecology	SAB	Adrian Delnevo

Don't see your research on this list? Email us: research@DCNAnature.org

Monitoring Overview

Below you will find an overview of the monitoring programmes for which fieldwork took place on the islands in January 2014. Please check DCNA's website for a complete overview of all long-term monitoring programmes that are in place in the Dutch Caribbean (www.dcnanature.org/resources/research-monitoring)

Category	Subject	Islands	Organisation: Lead Scientist
Mammals	Marine mammal sightings[1]	BON, SAB, EUX, SXM	BON: Martin de Graaf SCF: Kai Wulf STENAPA: Jessica Berkel Nature Foundation: Tadzio Bervoets
Mammals	Bat abundance, distribution, reproduction and behaviour	ARU, BON	FPNA: Indra Zaandam STINAPA Bonaire: Fernando Simal CARMABI: Clifford de Lannoy IVIC: Jafet Nassar
Birds	Annual Yellow-shouldered Amazon parrot roost counts	BON	DRO: Frank van Slobbe STINAPA: Fernando Simal Echo: Sam Williams
Birds	Red-billed Tropicbirds diet composition	SAB	Adrian Delnevo and students SCF: Kai Wulf
Birds	Red-billed Tropicbirds breeding success (and egg loss)	SAB, EUX	Adrian Delnevo SCF: Kai Wulf STENAPA: Hannah Madden
Birds	Flamingo abundance (monthly counts)	BON	DRO: Frank van Slobbe STINAPA Bonaire: Fernando Simal
Reptiles	Sea turtle in-water surveys	SXM	Nature Foundation: Tadzio Bervoets
Reptiles	Sea turtle foraging grounds monitoring	BON	STCB: Mabel Nava
Reptiles	Sea turtle nesting and beach patrol	ARU, BON, EUX, SXM	Turtugaruba: E. & R. van der Wal STCB: Mabel Nava STENAPA: Jessica Berkel Nature Foundation: Tadzio Bervoets
Reptiles	Sea turtle sightings	BON, EUX, SXM	STCB: Mabel Nava STENAPA: Jessica Berkel Nature Foundation: Tadzio Bervoets
Fish	Fisheries landings	BON, SAB, EUX	IMARES: Martin de Graaf, Teun Boon (Bonaire) SBMU: Jimmy van Rijn (Saba) LVV: Erik Boman (St. Eustatius)
Fish	Shark tagging and migration	SXM	Nature Foundation: Tadzio Bervoets
Fish	Fish surveys using stereo baited remote video	SAB, EUX	IMARES: Martin de Graaf, Dolfi Debrot & Twan Schoffers (Saba) LVV: Erik Boman
Mollusks	Queen Conch reproduction, distribution & abundance	SAB, EUX	IMARES: Martin de Graaf SBMU: Jimmy van Rijn LVV: Erik Boman (St. Eustatius)
Crustaceans	Lobster reproduction	EUX	IMARES: Martin de Graaf SBMU: Jimmy van Rijn LVV: Erik Boman
Crustaceans	Lobster larvae abundance	SAB, EUX	IMARES: Martin de Graaf SBMU: Jimmy van Rijn LVV: Erik Boman
Plants	Seagrass monitoring	SXM	Nature Foundation: Tadzio Bervoets
Plants	Reforestation project on Klein Bonaire	BON	STINAPA: Elsmarie Beukenboom
Plants	Phenology study of cyclic activity columnar cacti and agave (associated with ongoing bat monitoring programme)	ARU, BON	FPNA: Indra Zaandam STINAPA Bonaire: Fernando Simal
Plants	Phenology study of columnar cacti and native tree species on Bonaire	BON	STINAPA Bonaire: Paulo Bertuol & Fernando Simal
Plants	Ongoing study of flora of Aruba, Bonaire and Curaçao	ARU, BON, CUR	Naturalis/WUR: André van Proosdij
Terrestrial Biodiversity	Habitat structure, composition, and diversity; remote and automated monitoring of invertebrates, mammals, birds, amphibians and reptiles	SAB	Adrian Delnevo SCF: Kai Wulf
Invasives	Lionfish abundance	ARU, BON, CUR, SAB, EUX, SXM	STINAPA Bonaire: Ramon de Leon CARMABI: Mark Vermeij SBMU: Jimmy van Rijn STENAPA Nature Foundation: Tadzio Bervoets
Environmental	Water quality in Simpson Bay Lagoon and Great Bay and ponds	SXM	Nature Foundation: Tadzio Bervoets with SLAC
Environmental	Cloud forest monitoring of variable environmental parameters on Mt. Scenery, Windwardside and Fort Bay	SAB	SCF: Tom van 't Hof & Kai Wulf
Geomorphological	Beach profile change over time	SAB, EUX	Jennifer Rahn
Human impact	Diver visitation	BON, SAB, EUX, SXM	STINAPA Bonaire: Ramon de Leon SCF: Kai Wulf STENAPA Nature Foundation: Tadzio Bervoets

1. As part of fisheries monitoring on Saba and St. Eustatius by Meike Scheidat and Martin de Graaf (IMARES).

Don't see your monitoring programme on this list? Email us: research@DCNAnature.org

Would you like secure storage and dynamic analysis for your research and monitoring data? Work with Alterra and IMARES to develop a user-friendly process for data input, management and basic analysis, including statistics, graphics and maps, within the Dutch Caribbean Biodiversity Database (www.dcbd.nl).

Atlantic Pearl Oyster Shrimp *(Pontonia manningi)* among the gills of the bivalve Atlantic Thorny Oyster (*Spondylus americanus)*
Photo credit: Charles Fransen

'Research of the Month':

New Biodiversity Records For Curaçao

by Sancia E.T. van der Meij, Bastian T. Reijnen and Charles H.J.M. Fransen

From 16 October to 9 November 2013, three members of the Naturalis Marine Biodiversity Team performed fieldwork on the reefs of Curaçao investigating crabs, shrimps and molluscs living in association with various invertebrate groups. Dives were made at 23 locations along the southwest coast of Curaçao and one location on the northeast coast. One dive was made by submersible with the 'Curasub' from Substation Curaçao, exploring the deep reefs. Many new records for the Curaçao marine fauna were established, including new associations and even species new to science.

Exploratory marine biodiversity research in the Caribbean and Curaçao in particular has been carried out extensively in the early and mid-20th century. Both deep and shallow water research was carried out by scientists mainly from the United States, France and the Netherlands. The historical collections from the Dutch Caribbean were generated by trawling and dredging from large research vessels, shore collecting, and to some extend using SCUBA. The most extensive Dutch Caribbean collections are now housed in Naturalis Biodiversity Center in Leiden, the Netherlands. In the last three decades, the focus of research shifted from biodiversity to ecology, behaviour and conservation among others. In recent years however there is a renewed interest in the biodiversity of the Dutch Caribbean as it is threatened by human-mediated processes like climate change, coastal development, biotic invasions, tourism and overfishing. The Naturalis Marine Biodiversity Team is presently developing research projects in the area. The combination of taxonomic expertise and historical collections at Naturalis provides a solid basis for the study of biodiversity shifts caused by human-mediated processes Selected taxonomic groups are used as a proxy to detect biodiversity changes in the area.

Members of the Naturalis Marine Biodiversity Team in the Curasub. Left to right: Charles Fransen, Bastian Reijnen and Sancia van der Meij.
Photo credit: Barry Brown, Substation Curaçao

Charles Fransen studied a group of symbiotic shrimp, which form associations with various reef organisms such as sponges, anemones, echinoderms, sea squirts and molluscs. Worldwide about 600 species have been recognized of which 59 have been recorded in the Caribbean. From Curaçao, only 7 species were previously recorded in the scientific literature. The recent surveys recorded a total of 25 species, constituting many new records for Curaçao. Among the findings is a new species of shrimp that lives in association with a stony coral. This type of association has not been recorded for the Caribbean, and for the entire Atlantic Ocean, before. Another interesting observation was made during a dive with the Curasub. Invited by its owner, Adriaan 'Dutch' Schrier, the research team joined him in a dive on the southwest shore of Curaçao to a depth of 270 metres. At about 220 metres they observed sea urchins hosting shrimps. These sea urchins, *Paleopneustes tholoformis*, were collected together with the shrimps by the meticulous manoeuvring of Curasub pilot Bruce Brandt and skilled handling of the submersible's collecting gear by Adriaan 'Dutch' Schrier himself. The shrimp (*Diapontonia maranulus*) turned out to be a species known only from a dive to 244-309 metres with the Johnson Sea Link submersible off Grand Bahama Island. From the present study, it is expected that more extensive research on shallow and deep reefs using SCUBA and the Curasub submersible will yield many new records for the marine fauna of Curaçao.

Sancia van der Meij studied coral-gall crabs (Cryptochiridae), a family of small crabs that live in obligate symbiosis with stony corals. Currently around 50 gall crab species are recognized from both shallow and deep reefs worldwide. Most species have been described from the Indo-Pacific, only four species are known from the Caribbean. One of these species was recorded from Piscadera Bay by the Dutch carcinologist L.B. Holthuis in 1957. No other historical records of gall crabs are available for Curaçao or, in fact, any other of the Dutch Caribbean islands. During the expedition at least three gall crab species were recorded from 21 different coral hosts, seven of which are new associations. One of the newly recorded gall crab species may constitute a range extension of a species described from Brazil. This is currently being studied in more detail.

The third member of the team, Bastian Reijnen, studied Octocorallia (gorgonians and soft corals) as well as members of the gastropod family Ovulidae. Most ovulid snails live in obligate symbiosis with octocorals and are therefore highly dependent on their coral hosts. Like the gall crabs, the highest species diversity of both species groups can be found in the Indo-Pacific, but the Atlantic has its own unique species. The shallow water Octocorallia were studied and described by F.M. Bayer in the 1960s, nevertheless the expedition may have discovered three new species of gorgonians in the shallow waters around Curaçao. Close examination of the octocoral samples also revealed new host species for a number of Atlantic Ovulidae, for example the Fingerprint Flamingo Tongue (*Cyphoma signatum*) was found on a Purple Sea Fan (*Gorgonia ventalina*), whilst it was only known from the octocoral *Plexaurella dichotoma*. In addition, while deep diving with the Curasub, many rarely seen species of soft coral (Octocorallia) were recorded. One of the questions that arose from this deep dive with a submersible is if the gorgonians and soft corals found in deep water have associations with new shrimp and/or ovulid species.

Material collected will be further analysed at Naturalis Biodiversity Center in the Netherlands using, among others, molecular techniques to reveal phylogenetic relationships and discover possible cryptic species. Several scientific publications describing new species, new associations and other interesting observations are expected to be published from 2014 onwards.

Galls of *Troglocarcinus corallicola* (indicated by arrows) in Mountainous Star Coral (*Orbicella faveolata)*, the gall crabs are just visible.
Photo credit: Sancia van der Meij.

A common sight on the reefs of Curaçao, Flamingo Tongue (*Cyphoma gibbosum*) on a Pseudoplexaura sp.
Photo credit: Bastian Reijnen

If you have suggestions for projects we could profile as 'Research of the Month' in BioNews, please let us know.

Conservation Organisations of the Dutch Caribbean

Aruba
Fundacion Parke Nacional Arikok
tel: +297-585-1234
www.arubanationalpark.org

Bonaire
STINAPA Bonaire
tel: +599-717-8444
www.stinapa.org

Bonaire
STCB
tel: +599-717-2225
www.bonaireturtles.org

Bonaire
Echo
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www.echobonaire.org

Curaçao
CARMABI
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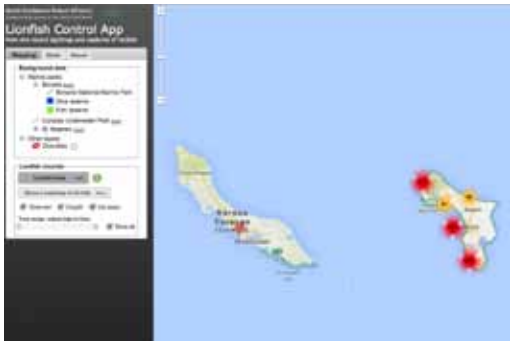
www.carmabi.org

Lionfish Control Efforts Show Success

Despite being one of the most beautiful and elegant fish on the Caribbean coral reefs nowadays, the Lionfish (*Pterois volitans/miles*) has a much darker side to its existence. Native to the Indo-Pacific region, Lionfish could not be found anywhere in the Dutch Caribbean prior to 2009. Their rapid reproduction cycles (30,000 eggs every four days), unique hunting style, voracious appetite and lack of any significant predator make the Lionfish an ominous threat to Caribbean reef biodiversity. Studies in the Bahamas have shown an alarming >75% reduction in juvenile native reef fish where Lionfish are present.



Impression of the Dutch Caribbean Lionfish Control website
Image credit: DCNA

Since its first occurrence in the wider region in the early 90s, various Caribbean islands have taken different approaches how to deal with the invasion, ranging from immediate control efforts to a deliberate hands-off approach. Being highly dependent on dive-tourism, Bonaire, as well as other Dutch Caribbean islands, has taken a proactive approach to combat the lionfish invasion with the help of trained volunteers. Additionally, systematic assessment studies were carried out by the nature conservation organisations on the islands to measure the effectiveness of the control programmes.

Complete eradication is impossible due to constant recruitment from unfished locations, such as locations too deep for recreational diving and/or inaccessible locations. However, new research suggests that continuous control efforts may be able to suppress the population and eventually allowing native fish stocks to return. A predictive study using computer models, as well as data collected from 24 coral reefs in the Bahamas, found that if 75% - 95% of the Lionfish on a single reef were removed, the native fish would increase 50% to 70% within 18 months. The biomass of larger individuals, including ecologically important grazers and economically important fisheries species, had increased by 10-65% by the end of the 18 months. By contrast, the biomass of small native fishes declined by more than 50% on all reefs where Lionfish densities were insufficiently suppressed during the experiment.

A first evaluation of the effectiveness of the lionfish removal programmes on Bonaire and Curaçao also indicates that they have a significant impact. Lionfish numbers are almost three times lower in fished areas over unfished areas on the same island. This proves that control efforts using volunteers are successfully reducing local density and biomass of lionfish on our reefs, which helps protect our native reef fish species.

In 2012, an online application was developed by STINAPA Bonaire and DCNA to allow park staff and lionfish hunters to record their observations and lionfish kills on Bonaire (www.lionfishcontrol.org). The application allows this data to be viewed on a map, which gives an unprecedented insight into lionfish distribution and removal efforts and allows park staff to begin to gauge the effects of their population control efforts. This web-based and mobile-device-friendly application has recently been expanded to include Aruba, Curaçao and St. Maarten after a successful pilot period on Bonaire in which over 10,000 records have been entered.

Now, Lionfish hunters and ocean-going public from Aruba, Bonaire, Curaçao and St. Maarten can record their observations and captures of Lionfish in an easy-to-understand and informative way. In combination with additional research, the information provided by this citizen science initiative gives unprecedented insight into lionfish distribution and success of removal efforts.

Lionfish are a threat to Dutch Caribbean reef biodiversity
Photo credit: Rudy van Geldere

Reports and Publications

Below you will find an overview of the reports and publications on biodiversity related subjects in the Dutch Caribbean that came out in or around January 2014. The listed publications can be downloaded from the Dutch Caribbean Biodiversity Database (DCBD) - www.dcbd.nl/resources

Geelhoed, S.C.V.; Janinhoff, N.; Verdaat, J.P.; Bemmelen, R.S.A. van; Scheidat, M. (2014)
Aerial surveys of marine mammals and other fauna around Aruba, Curacao and Bonaire, November 2013. IMARES Report no. C012/14 - 22 p.

Green, S.J.; Dulvy, N.K.; Brooks, A.L.M.; Akins, J.L.; Cooper, A.B.; Miller, S.; Côté, I.M. (2014)
Linking removal targets to the ecological effects of invaders: a predictive model and field test. Ecological Applications. http://dx.doi.org/10.1890/13-0979.1

Huijbers, C.; Nagelkerken, I.; Debrot, A.O.; Jongejans, E. (2013)
Movement across ecosystem boundaries: source-sink population dynamics of a coral reef fish. Ecology 94: 1859-1870.

Lucke, K.; Scheidat, M.; Geelhoed, S.C.V.; Debrot, A.O. (2014)
Marine mammals in the Wider Caribbean - Current research and priorities for future studies. IMARES Report no. C007/14 - 38 p.

Ruiz-Ramos, D.V.; Weil, E.; Schizas, N.V. (2014)
Morphological and genetic evaluation of the hydrocoral *Millepora* species complex in the Caribbean. Zoological Studies 53(4):1-15.

Stephen C.L.; Reynoso, V.H.; Collett, W.S.; Hasbun, C.R.; Breinholt, J.W. (2013)
Geographical structure and cryptic lineages within common green iguanas, *Iguana iguana*. Journal of Biogeography 40: 50–62.

Zande, R. van der; Vermeij, M.J.A.; Léon, R. de; Sluijs, A. (2014)
Growth, mortality and recruitment rates of the brown alga *Lobophora variegata* in relation to herbivory and nutrients on Bonaire. 37 p.

List of Acronyms

ARU	Aruba
BON	Bonaire
CUR	Curaçao
BON	Bonaire
SAB	Saba
EUX	St. Eustatius (Statia)
SXM	St. Maarten
CaMPAM	Caribbean Marine Protected Areas Management
CARMABI	Caribbean Research and Management of Biodiversity Foundation
CBD	Convention on Biological Diversity
CIEE	Council on International Educational Exchange
DCBD	Dutch Caribbean Biodiversity Database
DCNA	Dutch Caribbean Nature Alliance
DRO	Directorate of Spatial Planning and Development, Bonaire
EPIC	Environmental Protection In Caribbean
EEZ	Exclusive Economic Zone
FPNA	Fundacion Parke Nacional Arikok
IMARES	Institute for Marine Resources and Ecosystem Studies
IUCN	International Union for the Conservation of Nature
IMO	International Maritime Organization
IVIC	Venezuelan Institute for Scientific Research
LVV	Department of Agriculture, Animal Husbandry and Fisheries
Min EZ	Ministry of Economic Affairs
NBC	Naturalis Biodiversity Center, Leiden, the Netherlands
NIOZ	Royal Netherlands Institute for Sea Research, The Netherlands
SCF	Saba Conservation Foundation
SLAC	Simpson Bay Lagoon Authority Corporation, St. Maarten
STCB	Sea Turtle Conservation Bonaire
STENAPA	St. Eustatius National Parks
STINAPA	Stichting Nationale Parken Bonaire
TEEB	The Economics of Ecosystems and Biodiversity
UoS	University of Sheffield, UK
VU	Amsterdam University, the Netherlands
WIDECAST	Wider Caribbean Sea Turtle Network
WKICS	WolfsKater International Consultancy Services B.V.
WUR	Wageningen University and Research Center, the Netherlands
UoB	University of Bristol, UK
UoS	University of Sheffield, UK
VU	Amsterdam University, the Netherlands
WIDECAST	Wider Caribbean Sea Turtle Network
WKICS	WolfsKater International Consultancy Services B.V.
WSNP	Washington Slagbaai National Park
WUR	Wageningen University and Research Center, the Netherlands

Conservation Organisations of the Dutch Caribbean

Curaçao
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Saba
Saba Conservation Foundation
tel: +599-416-3295
www.sabapark.org

St. Eustatius
STENAPA
tel: +599-318-2884
www.statiapark.org

St. Maarten
Nature Foundation
tel: +721-544-4267
www.naturefoundationsxm.org

St. Maarten
Emilio Wilson Estate FDN
tel: +1-721-524-1516
www.sxmconservation-foundations.org/ewef

More events to add to this calendar? Please e-mail us at research@DCNAnature.org and we will include them in the next issue.

Calendar

BioNews provides you with an overview of nature conservation and management related events coming up in the next months.

February

2	Event	World Wetlands Day
3 - 7	Meeting	IMO Subcomittee Meeting on Pollution Prevention and Response - IMO Headquarters, London, UK
4	Event	Goed Geld Gala 2014 - Amsterdam, the Netherlands
19 - 21	Meeting	BIOPAMA - Developing a Shared Vision for Improving Access to Information for Protected Area Management - Rodney Bay, Saint Lucia

March

17 - 21	Conference	World Climate Research Program Conference - Latin America & Caribbean: Developing, Linking and Applying Climate Knowledge - Montevideo, Uruguay
17 - 19	Meeting	DCNA Board Meeting - St. Eustatius
19	Meeting	Fisheries Committee meeting - St. Eustatius
20	Meeting	EEZ Committee meeting - St. Eustatius
24 - 28	Meeting	47th Meeting of the Ramsar Standing Committee - Gland, Switzerland
26 - 28	Meeting	15th Session Western Central Atlantic Fishery Commission (WECAFC) - Port of Spain, Trinidad
31 - 4	Workshop	GEF/UNEP/CABI Workshop "Policies, Strategies and Best Practices for Managing Invasive Alien Species in the Caribbean" - Port of Spain, Trinidad

April

7 - 11	Symposium	Mangrove Symposium. Annual Meeting of the Western Division of the American Fisheries Society - Mazatlan, Mexico
8 - 9	Meeting	Wider Caribbean Sea Turtle Network (WIDECAST) annual meeting
9 - 12	Meeting	2nd Convention on Biological Diversity (CBD) Dialogue Seminar on Scaling up Finance for Biodiversity - Quito, Ecuador
10 - 17	Meeting	34th Annual International Symposium on Sea Turtle Biology and Conservation - New Orleans, Louisiana (USA)
28 - 8	Meeting	27th Meeting of the CITES Animals Committee, 21st Meeting of the CITES Plants Committee and Joint AC/PC Session - Veracruz, Mexico

May

6 - 7	Workshop	Workshop "Towards the creation of a strategy for the control of lionfish in the Mesoamerican reef" - Guatemala City, Guatemala.
6 - 9	Conference	33rd Session FAO Regional Conference for Latin America and Caribbean - Santiago de Chile, Chile
14	Conference	World Coral Reef Conference - Manado, Indonesia
19 - 23	Meeting	NetBiome CSA meeting - Canary Islands, Spain
26 - 30	Conference	39th Annual Conference of the Caribbean Studies Association - Mérida, Mexico

June

2 - 6	Symposium	2nd Sharks International Symposium 2014 - Durban, South Africa
3 - 5	Meeting	7th Meeting of the Consultative Committee of Experts of the Inter-American Sea Turtle Convention (IAC) - Tampa, Florida
23 - 27	Meeting	18th Meeting of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) - Montreal, Canada

July

TBD	*Meeting*	*SPAW Scientific and Technical Advisory Committee (STAC) meeting - Cuba*
2 - 4	Conference	38th Annual Conference of the Society for Caribbean Studies - Glasgow, Scotland, UK
7 - 11	Meeting	65th Meeting of the CITES Standing Committee - Geneva, Switzerland

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