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Welcome to BioNews.

This is the second issue of a new monthly newsletter by the Dutch Caribbean Nature Alliance (DCNA), focusing on the biodiversity research and monitoring in the Dutch Caribbean.

BioNews presents you with an overview of the on-going research and monitoring efforts and provides a regular update on what's currently happening on our islands.

Your feedback and comments on BioNews are most welcome!



Foreword

This issue of BioNews profiles the research and monitoring efforts for January and February 2013 and highlights a new monthly feature, called 'Research of the Month,' which presents a more detailed look at some of the fascinating work

underway on our islands. This month's choice is the Lesser Antillean Iguana on St. Eustatius. If you would like to showcase your project in BioNews, please let us know and we will share it for you.



Research overview

Below you will find an overview of the research work, which took place in the Dutch Caribbean in January and February 2013. *Don't see your research on this list?* Email us: research@DCNAnature.org

Category	Title	Islands	Organisation: Project leader
Birds	Study on the presence of Audubon's Shearwater on Saba and St. Eustatius	SAB, EUX	SCF: Kai Wulf STENAPA: Hannah Madden Adrian Delnevo
Reptiles	Sea turtle satellite tracking	BON	STCB: Mabel Nava
Corals	Benthic marine communities on St. Eustatius	EUX	IMARES: Dolfi Debrot i.c.w. STENAPA and Island Government
Insects	Arachnid collection	EUX	STENAPA: Hannah Madden
Plants	Flora of Aruba, Bonaire and Curaçao	ARU, BON, CUR	Naturalis Biodiversity Center: André van Proosdij
Plants	Phenology study (associated with ongoing bat monitoring programme) incl. inventory and mapping of caves	ARU, BON, CUR	FPNA: Indra Zaandam STINAPA Bonaire: Fernando Simal CARMABI: John de Freitas Jafet Nassar
Invasives	Lionfish stomach content study (continuation of 2011 study)	BON	CIEE: Fadilah Ali
Invasives	Diet of feral cats on Saba	SAB	IMARES: Dolfi Debrot and students
Invasives	Distribution of cats and rats in Saba habitats	SAB	IMARES: Dolfi Debrot and students
Habitats	Mapping of benthic marine environment of St. Eustatius	EUX	IMARES: Dolfi Debrot i.c.w. STENAPA and Island Government
Environmental	Nutrient dynamics on coastal reef environments	CUR	CARMABI: Mark Vermeij
Environmental	Environmental status of Simpson Bay, St. Maarten	SXM	Nature Foundation: Tadzio Bervoets

Dutch Caribbean Biodiversity Database

The Dutch Caribbean Biodiversity Database (DCBD) is an initiative of the Ministry of Economic Affairs (EZ) to create a central online resource, which will house all biodiversity and conservation related information for the Dutch Caribbean region. The database will be used to organise, securely store and display data and information as well as produce statistics, graphics, maps and reports on biodiversity.

In mid February, DCNA Secretariat staff met with Alterra at their offices in Wageningen to discuss the development of the database and in what ways DCNA and Alterra can work together to develop a central repository for all biodiversity research and monitoring data, maps and literature for the Dutch Caribbean. The developers at Alterra have been working on an update of the application, which will be released in the near future.

DCNA is working with Alterra to provide terrestrial bird monitoring data for inclusion in the database, starting with four years of bird counts from St. Eustatius and various bird monitoring datasets from Bonaire. This will be followed by more detailed behavioural data on specific birds, including nesting and roosting of the Yellow-shouldered Amazon Parrot, the "Lora", on Bonaire and breeding success of Red-

billed Tropicbirds on Saba and St. Eustatius. Butterfly observations from St. Eustatius have also been prepared for inclusion. DCNA has also prepared a prioritised overview of the monitoring programmes underway and planned in the Dutch Caribbean and to gain an understanding of the large amount of data that will need to be housed.

Need help?

If you have research or monitoring data, the DCNA Secretariat can assist by making sure your data is housed in the database and working with you to develop a user-friendly process for data input as well as the statistics, graphics, maps or reports you might need.



Monitoring overview

Below you will find an overview of the monitoring, which took place on the islands in January and February 2013. In each future BioNews newsletter you will find an update on monitoring currently underway.

Category	Title	Islands	Organisation: Lead Scientist
Mammals	Marine mammal sightings monitoring	SAB, EUX, SXM	SCF: Kai Wulf STENAPA: Steve Piontek Nature Foundation: Tadzio Bervoets
Mammals	Bat population monitoring	ARU, BON, CUR	FPNA: Indra Zaandam STINAPA Bonaire: Fernando Simal CARMABI: John de Freitas Jafet Nassar
Birds	Terrestrial bird monitoring (point counts and transects)	EUX	STENAPA: Hannah Madden
Birds	Red-billed Tropicbird abundance and breeding success monitoring	SAB, EUX	SCF: Kai Wulf STENAPA: Hannah Madden
Birds	Yellow-shouldered Amazon roost count monitoring	BON	DRO: Frank van Slobbe Echo: Sam Williams STINAPA Bonaire: Fernando Simal
Birds	Wetland bird monitoring surveys in salina's	BON	STINAPA Bonaire: Fernando Simal
Birds	Island-wide bird monitoring:	CUR	CARMABI: Mark Vermeij
Birds	Island-wide bird monitoring: <ul style="list-style-type: none"> • wetlands • winter seabird colonies • Brown Pelican colonies • (Songbird) monitoring on the northern flanks of Pic Paradis and in northern section of Dutch Cul-de-Sac 	SXM	EPIC: Adam Brown
Reptiles	Monitoring of sea turtle foraging grounds	BON	STCB: Mabel Nava
Reptiles	Hawksbill monitoring project in Lac	BON	STCB: Mabel Nava
Reptiles	Sea turtle nesting and beach monitoring	ARU, BON, EUX, SXM	Turtugaruba: Edith & Richard 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
Reptiles	Sea turtle capture-mark-recapture programme	BON	STCB: Mabel Nava
Reptiles	Lesser Antillean Iguana sightings monitoring	EUX	STENAPA: Hannah Madden LVV: Erik Boman
Fish	Fisheries landings monitoring	BON, SAB, EUX	IMARES: Martin de Graaf WUR: Oriana Wouters (Bonaire) LVV: Erik Boman (St. Eustatius) SCF: Brooke Rodgers
Fish	Shark tagging and migration monitoring	SXM	Nature Foundation: Tadzio Bervoets
Fish	Fish surveys using stereo baited remote video	SAB, EUX	IMARES: Martin de Graaf & Dolfi Debrot WUR: Jelmer Pander (Saba) WUR: Tiedo van Kuijk (St. Eustatius)
Mollusks	Queen Conch population study (Capture-Mark-Recapture) in Lac Bay	BON	Sabine Engel STINAPA Bonaire: Ramon de Leon
Mollusks	Queen conch monitoring Saba Bank (reproduction, distribution & abundance)	SAB	IMARES: Martin de Graaf WUR: Sanne Koenen
Crustaceans	Lobster monitoring (reproduction, distribution & abundance)	EUX	IMARES: Martin de Graaf WUR: Suzanne Poiesz
Insects	Monitoring of butterfly species	EUX	STENAPA: Hannah Madden
Plants	Invasive seagrass monitoring	BON, SXM	STINAPA Bonaire: Sabine Engel Nature Foundation: Tadzio Bervoets
Invasives	Lionfish Monitoring	ARU, BON, CUR, EUX, SXM	BNMP: Ramon de Leon CARMABI: Mark Vermeij STENAPA: Anna Maitz Nature Foundation: Tadzio Bervoets
Environmental	Freshwater quality monitoring	SXM	Nature Foundation: Tadzio Bervoets
Geomorphological	Beach profile monitoring	SAB	Jennifer Rahn
Human impact	Diver visitation monitoring	BON, SAB, EUX, SXM	STINAPA Bonaire: Ramon de Leon SCF: Kai Wulf STENAPA: Anna Maitz Nature Foundation: Tadzio Bervoets

In the monitoring overview table you will find an overview of the monitoring underway in the Dutch Caribbean. In each future BioNews newsletter you will find an update on current monitoring.

Don't see your monitoring programme on this list?

Email us: research@dcnanature.org



Research of the month

St. Eustatius' Lesser Antillean Iguana: *Cause for concern*

The Lesser Antillean Iguana (*Iguana delicatissima*) was once found throughout the Lesser Antilles, ranging from Anguilla to Martinique, but population sizes have been subject to a rapid decline. Nowadays, the Lesser Antillean Iguana is found on only 13 islands in the region, with St. Eustatius being its last refuge within the Dutch Caribbean, hence its listing on the IUCN Red List as an Endangered Species facing extinction. Of these 13 island populations, only two exceed the long-term minimum viable population size of 5,000 individuals (Dominica and Guadeloupe) and on six the species is on the brink of extinction.

Mainly due to the fact that its "big brother" the Green Iguana (*I. iguana*) has not been introduced on St. Eustatius, the Netherlands now have the responsibility over one of the last surviving, potentially viable and genetically pure populations of the Lesser Antillean Iguana, which emphasizes the international responsibility to conserve this endangered reptile.

Until recently, St. Maarten was also home to a population of this striking, bright-green miniature dragon, but due to the introduction in the mid-90s of the Green Iguana, that population has ceased to exist. The larger and more aggressive Green Iguana not only out-competes its smaller relative, but because the species are so closely related genetically, they can interbreed creating "hybrid" species. This forms a major threat to preserving the integrity of the species.

The Lesser Antillean Iguana and the Green Iguana can be most easily distinguished by the large sub-tympanic scale that can be found under the jaw on the cheeks and the unmistakable black and green banding of the tail, both typical features of the Green Iguana.

Population sizes for the Lesser Antillean Iguana on St. Eustatius have been estimated in the past at around a few hundred individuals, which is already far below the minimum viable population size. Recent research by IMARES Wageningen UR and the St. Eustatius National Parks (STENAPA) (Debrot & Boman, 2012) has indicated that since the last survey in 2004 population densities have declined across all habitats on the island and certain populations on St. Eustatius have even disappeared completely. Population densities vary from 0.0 to 2.0 with an average of 0.35 iguanas per square hectare, which is less than 1% of the average densities of healthy populations documented elsewhere.

On St. Eustatius, human hunting is likely a minor problem, shelter and food availability on the is-

land are abundant, invasive predator densities in the wild are relatively low and we know the Green Iguana has not yet invaded. So what can be the cause for the population decline? Lesser Antillean Iguanas need nesting sites that are un-lit, barren, sandy and well-drained, a prerequisite that appears to be limited on St. Eustatius.

Furthermore, the majority of deaths or endangerments of iguanas on St. Eustatius are attributable to anthropogenic causes, mostly in gardens getting entangled in fences or trapped and molested by dogs. So it seems that the lack of nesting sites and high iguana mortalities due to anthropogenic causes are the two core factors limiting recovery of the Lesser Antillean Iguana on St. Eustatius.

Management recommendations

To counter this negative trend a few measures could be implemented for better protection of the wild population: training of customs officials to prevent potential entry of the mongoose and the Green Iguana from neighbouring islands will help ensure these serious threats do not make their way to St. Eustatius; improving enforcement and updating protective legislation will create a supportive legal framework for protection; the development and maintenance of new nesting habitat, a measure that is both easy and inexpensive, and the establishment of a programme to promote "iguana-friendly" gardens will alleviate pressure off the two greatest threats for the Lesser Antillean Iguana on St. Eustatius.

More scientific insight is still needed in the critical biological parameters that limit the recovery of the species. An on-island husbandry and breeding project could potentially play a crucial role in the survival of the Lesser Antillean Iguana and would increase public awareness for the current status of the species by providing a relaxed setting in which the local community can experience the iguana as the gentle and beautiful animal that it is.

Credits

This project was part of the Wageningen University BO research programme (BO-11-011.05-004) and was financed by the Dutch Ministry of Economic Affairs, Agriculture and Innovation (EL&I).

Reference

Debrot, A.O.; Boman, E. K. (2013) The Lesser Antillean Iguana on St. Eustatius: 2012 status update and review of limiting factors. Den Helder: IMARES Wageningen UR, (Report C166/12) - p. 45.

Full report can be downloaded on:

<http://tinyurl.com/iguanareport2012>



Nature parks of the Dutch Caribbean



Aruba
Fundacion Parke Nacional Arikok
San Fuego 71
Santa Cruz, Aruba
tel: +297-585-1234
www.arubanationalpark.org



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



Curaçao
CARMABI
Piscadera Baai, Curaçao
tel: +599-9-462-4242
www.carmabi.org

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 January and February 2013.

Beukering, P. van; Wolfs, E. (2013)

What's Bonaire's Nature Worth? The Economics of Ecosystems and Biodiversity (TEEB) Caribbean Netherlands study. IVM Institute for Environmental Studies and WKICS. For more information: <http://www.ivm.vu.nl/en/projects/Projects/economics/Bonaire/>

Debrot, A.O.; Bemmelen, R.S.A. van; Ligon, J. (2013)

Bird communities of contrasting semi-natural habitats of Lac bay, Bonaire, during the fall migration season, 2011. Den Helder: IMARES, (Report C165/12) - p. 25.

Debrot, A.O.; Boman, E. K. (2013)

The Lesser Antillean Iguana on St. Eustatius: 2012 status update and review of limiting factors. Den Helder: IMARES Wageningen UR, (Report C166/12) - p. 45.

Noble, M.M.; van Laake, G.; Berumen, M.L.; Fulton, C.J. (2013)

Community Change within a Caribbean Coral Reef Marine Protected Area following Two Decades of Local Management. PLoS ONE 8(1): e54069. doi:10.1371/journal.pone.0054069.

Perry, C.T.; Murphy, G.N.; Kench, P.S.; Smithers, S.G.; Edinger, E.N.; Steneck, R.S. & P.J. Mumby (2013)

Caribbean-wide decline in carbonate production threatens coral reef growth. Nature Communications 4, Art.no.: 1402 doi:10.1038/ncomms2409.

List of acronyms

ARU	Aruba	DRO	Directorate of Spatial Planning and Development
BON	Bonaire	EPIC	Environmental Protection In Caribbean
CUR	Curaçao	EEZ	Exclusive Economic Zone
BON	Bonaire	FPNA	Fundacion Parke Nacional Arikok
SAB	Saba	IMARES	Institute for Marine Resources and Ecosystem Studies
EUX	St. Eustatius (Statia)	IVIC	Instituto Venezolano de Investigaciones Cientificas
SXM	St. Maarten	LVV	Department of Agriculture, Animal Husbandry and Fisheries
BNMP	Bonaire National Marine Park	Min EZ	Ministry of Economics (formerly: Ministry of Economics, Agriculture and Innovation)
CARMABI	Caribbean Research and Management of Biodiversity foundation	SCF	Saba Conservation Foundation
CIEE	Council on International Educational Exchange	STCB	Sea Turtle Conservation Bonaire
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	STENAPA	St. Eustatius National Parks
CRFM	Caribbean Regional Fisheries Mechanism	STINAPA	Stichting National Parken Bonaire
DCBD	Dutch Caribbean Biodiversity Database	UvA	University of Amsterdam
DCNA	Dutch Caribbean Nature Alliance	WUR	Wageningen University and Research Center



Nature parks of the Dutch Caribbean



Saba

Saba Conservation
Foundation
Fort Bay, Saba
tel: +599-416-3295
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St. Eustatius

STENAPA
Gallows Bay, Statia
tel: +599-318-2884
www.statiapark.org



St. Maarten

Nature Foundation
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Calendar

BioNews provides you with an overview of biodiversity research and monitoring related events coming up in the next six months. More events to add to this calendar? Please email us: research@DCNAnature.org

March

- 'Nature Policy Plan 2013-2017 for Caribbean Netherlands' to be presented to Dutch Parliament
- Meeting - 3 to 14 March – CITES Conference of Parties in Bangkok, Thailand
- Meeting - 12 to 14 March – Inter-American Sea Turtle Convention (IAC), Consultative Committee of Experts meeting in Honduras
- **Meeting - 18 to 21 March – 18th DCNA Board Meeting on St. Maarten**
- Meeting – 19 – 20 March – Billfish Conservation Management meeting in Fort Lauderdale, Florida
- Workshop – 20 March – Marine Mammal workshop in Surinam
- Meeting - 27 March – International Oil Pollution Compensation Fund meeting on Curaçao
- Meeting - 28 March – EEZ Committee meeting on Curaçao
- Fieldwork – Red-billed Tropicbird breeding success monitoring – SCF and STENAPA
- Fieldwork – Audubon's Shearwater monitoring – SCF and STENAPA
- Monitoring – Third Annual Marine Mammal Monitoring Project – St. Maarten Nature Foundation
- Monitoring – Terrestrial bird count monitoring on Bonaire – Echo

April

- Workshop – 22 to 24 April – Workshop on mooring installation on Saba – SCF and DCNA
- Meeting – 24 to 26 April – 11th Meeting of the Caribbean Fisheries Forum in Bridgetown, Barbados - CRFM
- Research – The Economics of Ecosystems and Biodiversity (TEEB) study for Saba and St. Eustatius – WKICS and UvA

May

- Meeting – 31 May – Seventh Meeting of the CRFM Ministerial Council in Bridgetown, Barbados

June

- Meeting – 26 to 28 June - Inter-American Sea Turtle Convention (IAC) sixth Conference of Parties: Galapagos
- Workshop – Marine Protected Area workshop on Saba – SPAW Regional Coordinating Unit

October

- Meeting – EEZ Committee meeting (location to be decided)
- Meeting – 14 to 18 October - International Coral Reef Initiative (ICRI) General meeting in Belize
- Workshop – 14 to 18 October - Global Coral Reef Monitoring Network (GCRMN) Caribbean workshop in Belize
- Meeting – 14 to 18 October – Convention of Biological Diversity (CBD) Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) meeting in Montreal, Canada
- Congress – 21 to 27 October – Third International Marine Protected Areas (IMPAC) Congress in Marseille, France

November

- Meeting – 4 to 8 November – Annual Gulf and Caribbean Fisheries Institute (GCFI) meeting in Corpus Christi, Texas
- **Event – Mid November – His Royal Highness King Willem Alexander of the Netherlands will visit the Dutch Caribbean**