A CAGARRA

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ZOOLOGICAL NEWS | NOTÍCIAS ZOOLÓGICAS

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Have you seen, heard or read something of zoological interest? Let us know!

Viu, leu ou ouviu algo com interesse zoológico recentemente? Informe-nos!

Community-based conservation – a key to successful sea turtle protection in the island of Maio, Cape Verde Islands

In 2013, the *Fundação Maio Biodiversidade* (FMB) trialled a new sea turtle conservation strategy on Maio. The island is one of the three most important nesting sites for the endangered loggerhead sea turtle *Caretta caretta* in the Cape Verde Islands and had the highest rates of killed females and poached nests in the country in 2012. As a result of FMB's work, just in one season the total number of killed nesting turtles on the protected beaches was reduced from 152 in 2012 to 38 in

2013 as compared to the same area and only 2% of the nests were poached on the protected beaches.

One of the main strengths of the strategy was that turtle conservation teams were based in eight of the coastal communities around the island. The teams were made up of a minimum of two guards from the communities, a team leader from Maio or another island and national and international volunteers. The team members were hosted by local families. The integration of the teams in the communities made the efforts to protect sea turtles more visible in coastal villages, while men, women and especially the youth had opportunities to observe and participate in night patrols, nesting beach clean-ups and awareness raising events. The activities opened the door to the turtle world, showing the threats these animals are facing, especially during the highly vulnerable nesting period. In addition, host families received financial benefits for their hospitality. It seems that the combination of both practical education and turtle friendly income opportunities were key to the success of FMB's strategy.

Human predation is considered to be one of the major threats for sea turtles in Maio. In contrast to the islands of Sal and Boa Vista, the island has not yet been influenced by mass tourism. There still remain beaches not covered by the protection teams, where turtles and nests are still taken frequently. It is very important to expand the project to include the remaining villages of Maio, for which additional funding is urgently needed.

Fundação Maio Biodiversidade, *Vila do Maio, Janeiro de 2014.*

Monitoring Kentish plover populations in Maio, Cape Verde Islands

The Kentish plover *Charadrius alexandrinus* is the most common breeding shorebird in Cape Verde. Since 2007, a breeding population of Kentish plover has been monitored at the Salinas do Porto Inglês, Maio Island, where 502 adult plovers have been ringed along with 695 chicks. This is the largest breeding population of Kentish plover in the Macaronesian islands. Kentish plover also breeds in Azores, Madeira and the Canary Islands, as well as in other islands in the archipelago of Cape Verde, including Santiago, São Vicente, Sal and Boa Vista.

Salinas do Porto Inglês, Maio, Cape Verde Islands. © Cristina Carmona.

From September to December 2013, the *Fundação Maio Biodiversidade* (FMB) - together with the Biodiversity lab of the University of Bath, U.K. - undertook the yearly activities of monitoring and ringing the plover population during the breeding season. We searched for nests in the area, ringed all unringed adult breeders and waited for the chicks to hatch to ring them. In addition, weekly surveys of the plover population were carried out this year for the first time. Surveys involved two main objectives: 1) recording individuals' sex, colour rings and their location, and 2) recording the presence of external agents that could potentially endanger breeding birds and/or the protected area of the Salinas (e.g. large numbers of tourists, cattle, ravens, cars).

Colour-ringed adult Kentish plover (left) and chicks (right), Salinas do Porto Inglês, Maio, Cape Verde Islands. © Cristina Carmona.

In 2013, we found a total of 104 plover nests, of which 36% hatched and 51% disappeared. We followed 62 plover broods, of which 22 reached the fledging age (representing 34% of all broods). Therefore, a high proportion of nests and chicks were lost or presumably predated.

Monitoring of the plover population at the Salinas do Porto Inglês is important for three reasons. First, by estimating the number of individuals we can obtain a yearly assessment of population changes. Second, evaluating nest success reveals threats and can lead to conservation actions. For instance, brown-necked ravens *Corvus ruficollis* have become more common in recent years. The increase of ravens in the area coincides with the establishment of the Salina Beach Resort in 2010, which in turn coincides with the increase in predation percentage observed in Kentish plover nests and chicks. Ravens pose a threat not only to plovers, but to all the breeding birds in the area. Third, monitoring nests and broods has revealed that plover families use a large area around the Salinas. Therefore, building houses and vilas in close proximity to the Salinas will most likely endanger nests and plover families.

Periodic surveys at the Salinas allowed us to identify an additional potential risk in the cruise tourism. Cruise tourism to Maio will increase in the near future and, given the proximity of the Salinas to Maio's pier, the access to the Salinas during the breeding season should be restricted, along with the building of a fence to avoid disturbance of nesting birds.

We anticipate that the plover monitoring project run jointly by FMB and the University of Bath will continue in future years. We are always looking for volunteers to help with our work. Please contact us at office@maioconservation.org if you'd like to get involved.

We would like to thank the Direcção Geral do Ambiente (DGA) and the Câmara Municipal do Maio (CMM) for their support and permission to work at the Salinas do Porto Inglês and all staff and friends of FMB for their support.

Cristina Carmona, Alex Tavares, Franziska Koenen, Edihno Innes and Tamás Székely, *Department of Biology & Biochemistry, University of Bath, and Fundação Maio Biodiversidade.*

A third record of Fraser's dolphin for the Cape Verde Islands

On the morning of 24 February 2014, the carcass of a dolphin was found at Praia Cabral, north of Sal Rei, Boa Vista, Cape Verde Islands. Before being burried, a few photographs of the dolphin were taken, which allowed the animal to be positively identified as Fraser's dolphin *Lagenodelphis hosei.* Total length was reported to be 2.24 m. After the place of burial had been pointed out to BIOS.CV collaborator Pedro López-Suárez, skin samples were taken and preserved in 80% ethanol. Upon checking the burial site again the next morning, it was found that the carcass had been butchered during the night, with the flesh presumably being taken to be sold locally. Nevertheless, the animal's head could still be saved and this was burried elsewhere, with the skull to be retrieved at a later date and subsequently deposited in the Boa Vista reference collection, maintained jointly by BIOS.CV and Cabo Verde Natura 2000.

Fraser's dolphin *Lagenodelphis hosei*, Praia Cabral, Boa Vista, Cape Verde Islands, 24 February 2014.

Fraser's dolphin *Lagenodelphis hosei*, Praia Cabral, Boa Vista, Cape Verde Islands, 24 February 2014.

This constitutes only the third record of Fraser's dolphin for the Cape Verde archipelago. Previous records were of a pod of *ca.* 20 animals, 5 nm southwest of São Nicolau, 31 August 2003, and a beached animal at Curral Velho, southern Boa Vista, 10 March 2006 (Torda *et al*., Zoologia Caboverdiana 1: 71-73, 2010). The status of Fraser's dolphin in the eastern tropical Atlantic (ETA), defined as the waters extending from Mauritania to Angola along the west coast of Africa, was recently reviewed by Weir *et al.* (Marine Biodiversity Records 6; e35, 2013), who were able to report altogether 10 confirmed records for the ETA area, to which an 11th can now be added.

Pedro López-Suárez (BIOS.CV) and Cornelis J. Hazevoet (SCVZ).

A glimmer of hope for the magnificent frigatebird in Cape Verde

On 15 February 2014, while visiting the shore at Curral Velho opposite the islet of the same name in southern Boa Vista, Pedro López-Suárez and students from the local high school observed two female magnificent frigatebirds *Fregata magnificens* flying from the islet towards the main island. The observation came as a welcome surprise, as it was thought that the total frigatebird population in Cape Verde currently consisted of just two birds, one male and one female (cf. Zoologia Caboverdiana 3: 82-86, 2012).

During a visit to Curral Velho islet on 10 January 2014, a frigatebird nest with a single egg was found, but during a subsequent visit on 13 March, only egg shells were found and the egg apparently did not hatch and was presumably predated.

At present, Curral Velho islet is the only breeding locality of *Fregata* in the Cape Verde archipelago and, indeed, in the whole of the eastern Atlantic. There has been no nesting activity at the former breeding locality of Baluarte islet, off eastern Boa Vista, during the past 10 years. It is as yet unclear if individual frigatebirds from the Cape Verde population engage in long wandering journeys in the Atlantic, only to return to the islands at a later date, or if trans-Atlantic dispersal occurs, with birds from Caribbean populations reaching Cape Verde at times. Investigations into these possibilities are currently underway.

As the white underparts of the two female frigatebirds seen in Boa Vista in February 2014 each showed a slightly different pattern, careful observation may make it possible to distinguish between the two individuals and hence follow their movements more closely. Observers are urged to report all observations of frigatebirds from anywhere in the archipelago, indicating the sex of birds seen, as well as the precise locality, date and any other relevant details.

Pedro López-Suárez (BIOS.CV) and Cornelis J. Hazevoet (SCVZ).

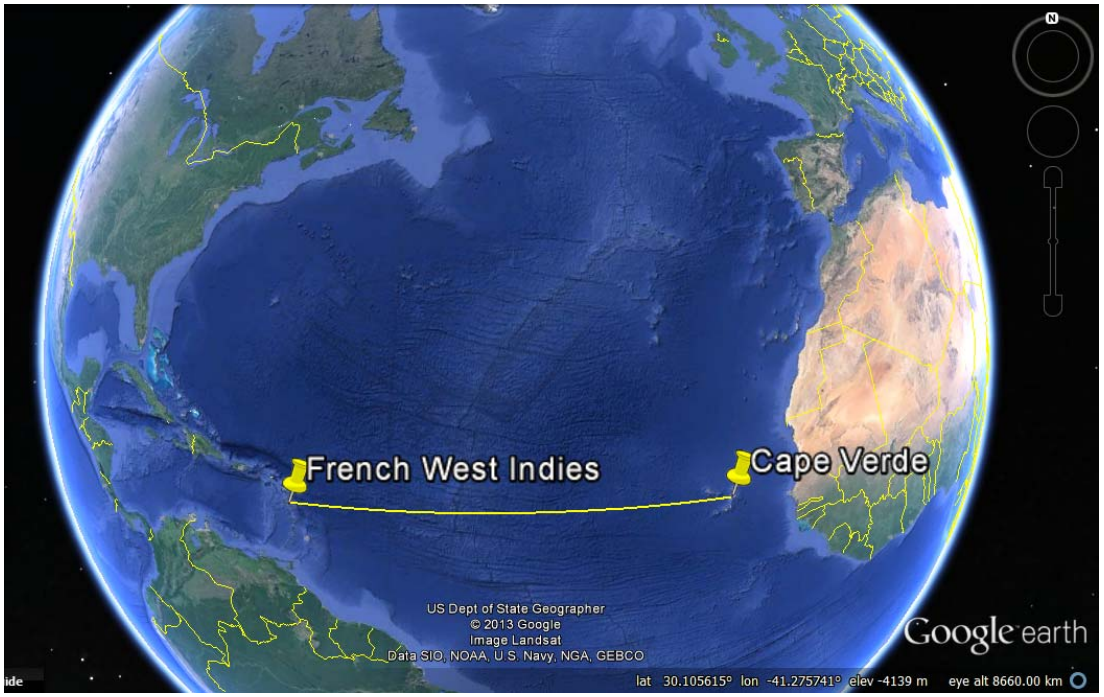
First evidence for humpback whale movement between the Cape Verde Islands and the West Indies

Humpback whale 4756 photographed in the Cape Verde Islands in 2013 by Pedro López-Suárez, BIOS.CV

There are two known wintering grounds for humpback whales *Megaptera novaeangliae* in the North Atlantic, separated by around 4,000 km of open ocean. For the first time, a whale has been seen moving from one of these North Atlantic winter grounds to the other - and back. Whale number 4756, first seen in the Cape Verde Islands in 2009 and again in 2011, was photographed in the French West Indies in 2012 before returning to the Cape Verde Islands again in 2013. The discovery of this unusual long-distance movement between these discrete breeding areas was the result of a large-scale international collaboration involving BIOS.CV and the Irish Whale and Dolphin Group working in the Cape Verde Islands and BREACH and the National Marine Mammal Lab of NOAA in the French West Indies. The re-sighting was made by researchers from the North Atlantic Humpback Whale Catalogue http://www.coa.edu/nahwc.htm, a central database for identification photographs from across the ocean basin.

Peter Stevick, Humpback Whale Catalogue, College of the Atlantic, Bar Harbor, Maine, USA.

Humpback whale 4756 photographed in the French West Indies in 2012 by Amy Kennedy, BREACH/NOAA.



Sighting locations for humpback whale 4756. The distance between them is about 4,200 kilometers. However, nothing is known about the path the whale followed, and the line is not intended to show the track.

RECENT PAPERS ON CAPE VERDE ZOOLOGY AND PALEONTOLOGY | ARTIGOS RECENTES SOBRE ZOOLOGIA E PALEONTOLOGIA CABOVERDIANA

Recently published papers on Cape Verde zoology are listed and an abstract – if available – is given. Should you know of any omissions in this listing, please let us know. We appreciate receiving copies of your latest publications for inclusion in future editions. Please contact cjhazevoet at gmail.com or rui.freitas at docente.unicv.edu.cv

Potential adverse health effects of persistent organic pollutants on sea turtles: Evidences from a cross-sectional study on Cape Verde loggerhead sea turtles. M. Camacho, O.P. Luzardo, L.D. Boada, L.F. López-Jurado, M. Medina, M. Zumbado, & J. Orós, **2013**. Science of the Total Environment 458-460: 283–289; http://dx.doi.org/10.1016/j.scitotenv.2013.04.043

ABSTRACT The Cape Verde nesting population of loggerhead sea turtles (*Caretta caretta*) is the third largest population of this species in the world. For conservation purposes, it is essential to determine how these reptiles respond to different types of anthropogenic contaminants. We evaluated the presence of organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) in the plasma of adult nesting loggerheads from Boa Vista Island, Cape Verde, and studied the effects of the contaminants on the health status of the turtles using hematological and biochemical parameters. All turtles had detectable levels of non-dioxin like PCBs, whereas dioxin-like congeners (DL-PCBs) were detected in only 30% of the turtles. Packed cell volume decreased with higher concentrations of PCBs, which suggests that PCB exposure could result in anemia in sea turtles. In addition, a negative association between some OCPs and white blood cells (WBC) and thrombocyte estimate was noted. The DDT-metabolite, p,p′-DDE was negatively correlated with the Na/K ratio and, additionally, a number of correlations between certain PAHs and electrolyte balances were found, which suggest that exposure to these environmental contaminants could affect the kidneys and salt glands in sea turtles. Additionally, several correlations were observed between these environmental pollutants (OCPs and PAHs) and enzyme activity (GGT, ALT, ALP and amylase) and serum protein levels, pointing to the possibility that these contaminants could induce adverse metabolic effects in sea turtles. Our results indicate that anthropogenic pollutants are present in the Cape Verde loggerhead turtle nesting population and could exert negative effects on several health parameters. Because of the importance of this loggerhead nesting population, protective regulations at national and international levels as well as international action are necessary for assuring the conservation of this population.

Comparative study of organohalogen contamination between two populations of eastern Atlantic loggerhead sea turtles (*Caretta caretta*). Maria Camacho, Luís D. Boada, Jorge Orós, Pedro López, Manuel Zumbado, Maria Almeida-González & Octavio P. Luzardo, **2013**. Bulletin of Environmental Contamination and Toxicology 91 (6): 678-683; http://dx.doi.org/10.1007/s00128-013-1123-3

ABSTRACT We evaluated the presence of 37 organohalogen contaminants in plasma samples from 162 juvenile and 197 adult loggerhead turtles (*Caretta caretta*) from the archipelagos of the Canary Islands and Cape Verde, respectively, and compared the contamination profiles found. We detected five organochlorine pesticides (OCP) and 16 polychlorinated biphenyls (PCBs). The concentrations of the two groups of contaminants were higher in turtles from the Canary Islands (OCPs, 1.04 vs. 0.37 ng/mL; PCBs, 1.92 vs. 0.08 ng/mL). We also observed a different profile of PCB contamination between the two populations. In addition, there was a negative correlation between body size and the total concentration of PCBs in the Canary Islands turtles, but not in turtles from Cape Verde. The present study presents the first data on the organochlorine contaminants (OCs) of live turtles from Canary Islands. In addition, we perform a comparison of the levels and profiles of OCs between these two different groups of loggerhead sea turtles from the Eastern Atlantic.

Monitoring organic and inorganic pollutants in juvenile live sea turtles: Results from a study of *Chelonia mydas* and *Eretmochelys imbricata* in Cape Verde. María Camacho, Luis D. Boada, Jorge Orós, Pedro López, Manuel Zumbado, Maira Almeida-González & Octavio P. Luzardo, **2014**. Science of the Total Environment 481: 303-310;
http://dx.doi.org/10.1016/j.scitotenv.2014.02.051

ABSTRACT Despite the current environmental concern regarding the risk posed by contamination in marine ecosystems, the concentrations of pollutants in sea turtles have not been thoroughly elucidated. In the current study, we determined the concentrations of 18 organochlorine pesticides (OCPs), 18 polychlorinated biphenyls (PCBs), 16 polycyclic aromatic hydrocarbons (PAHs) and 11 inorganic elements (Cu, Mn, Pb, Zn, Cd, Ni, Cr, As, Al, Hg and Se) for the first time in two sea turtle species (*Chelonia mydas* and *Eretmochelys imbricata*). Only five of the 18 analyzed OCPs were detected in both species. The average total OCP concentration was higher in green turtles than in hawksbills (0.33 ng/ml versus 0.20 ng/ml). Higher concentrations of individual congeners and total PCBs were also detected in green turtles than in hawksbills (ΣPCBs=0.73 ng/ml versus 0.19 ng/ml), and different PCB contamination profiles were observed in these two species. Concerning PAHs, we also observed a different contamination profile and higher levels of contamination in green turtles (ΣPAHs = 12.06 ng/ml versus 2.95 ng/ml). Di- and tri-cyclic PAHs were predominant in both populations, suggesting a petrogenic origin, rather than urban sources of PAHs. Additionally, all of the samples exhibited detectable levels of the 11 inorganic elements. In this case, we also observed relevant differences between both species. Thus, Zn was the most abundant inorganic element in hawksbills (an essential inorganic element), whereas Ni, a well-known toxicant, was the most abundant inorganic element in green turtles. The presence of contaminants is greater in green turtles relative to hawksbill turtles, suggesting a greater exposure to hazardous chemical contaminants for green turtles. These results provide baseline data for these species that can serve for future monitoring purposes outlined in the EU's Marine Strategy Framework Directive.

Geographic patterns of genetic variation in a broadly distributed marine vertebrate: new insights into loggerhead turtle stock structure from expanded mitochondrial DNA sequences. Brian M. Shamblin, Alan B. Bolten, F. Alberto Abreu-Grobois, Karen A. Bjorndal,

Luis Cardona, Carlos Carreras, Marcel Clusa, Catalina Monzón-Argüello, Campbell J. Nairn, Janne T. Nielsen, Ronel Nel, Luciano S. Soares, Kelly R. Stewart, Sibelle T. Vilaça, Oguz Türkozan, Can Yilmaz, Peter H. Dutton, **2014**. PLoS ONE 9(1): e85956. http://dx.doi.org/10.1371/journal.pone.0085956

ABSTRACT Previous genetic studies have demonstrated that natal homing shapes the stock structure of marine turtle nesting populations. However, widespread sharing of common haplotypes based on short segments of the mitochondrial control region often limits resolution of the demographic connectivity of populations. Recent studies employing longer control region sequences to resolve haplotype sharing have focused on regional assessments of genetic structure and phylogeography. Here we synthesize available control region sequences for loggerhead turtles from the Mediterranean Sea, Atlantic, and western Indian Ocean basins. These data represent six of the nine globally significant regional management units (RMUs) for the species and include novel sequence data from Brazil, Cape Verde, South Africa and Oman. Genetic tests of differentiation among 42 rookeries represented by short sequences (380 bp haplotypes from 3,486 samples) and 40 rookeries represented by long sequences (~800 bp haplotypes from 3,434 samples) supported the distinction of the six RMUs analyzed as well as recognition of at least 18 demographically independent management units (MUs) with respect to female natal homing. A total of 59 haplotypes were resolved. These haplotypes belonged to two highly divergent global lineages, with haplogroup I represented primarily by CC-A1, CC-A4, and CC-A11 variants and haplogroup II represented by CC-A2 and derived variants. Geographic distribution patterns of haplogroup II haplotypes and the nested position of CCA11.6 from Oman among the Atlantic haplotypes invoke recent colonization of the Indian Ocean from the Atlantic for both global lineages. The haplotypes we confirmed for western Indian Ocean RMUs allow reinterpretation of previous mixed stock analysis and further suggest that contemporary migratory connectivity between the Indian and Atlantic Oceans occurs on a broader scale than previously hypothesized. This study represents a valuable model for conducting comprehensive international cooperative data management and research in marine ecology.

Phylogeny of *Parablennius* Miranda Ribeiro, 1915 reveals a paraphyletic genus and recent Indo-Pacific diversification from an Atlantic ancestor. A. Levy, S. von der Heyden, S.R. Floeter, G. Bernardi, V.C. Almada, **2013**. Molecular Phylogenetics and Evolution 67 (1): 1-8; http://dx.doi.org/10.1016/j.ympev.2012.12.010

ABSTRACT A molecular phylogeny of 15 (out of 26 recognized) species of *Parablennius* Miranda Ribeiro, 1915 was constructed based on two mitochondrial and two nuclear gene fragments, and using maximum parsimony, maximum likelihood and Bayesian approaches. The closely related genera *Hypleurochilus*, and *Salaria Scartella* were also studied to ascertain their relationship with *Parablennius*. Phylogenetic analyses were compared with morphology-based taxonomical studies. *Hypleurochilus*, *Salaria* and *Scartella* appear well supported within a clade including all *Parablennius*, indicating that this genus is paraphyletic. The species pairs *P. parvicornis–P. sanguinolentus* and *P. gattorugine–P. ruber* are well-supported and relatively distant from remaining *Parablennius*. Remaining *Parablennius* form two distinct well-supported groups: (1) a clade of Atlantic-Mediterranean *Parablennius* (*P. pilicornis, P. marmoreus, P. rouxi, P. salensis* and *P. tentacularis*); (2) a clade including *Hypleurochilus*, the Indo-Western Pacific

Parablennius (*P. cornutus, P. intermedius, P. tasmanianus* and *P. yatabei*) and the Atlantic-Mediterranean *P. incognitus* and *P. zvonimiri*. Use of a relaxed molecular clock suggests that Indo-Pacific *Parablennius* originated recently from an Atlantic *Parablennius* that may have dispersed via southern Africa, rather than via the Tethys seaway.

[SCVZ Editor's note: Although not mentioned in the abstract, the analysis includes *Parablennius salensis* and *Scartella caboverdiana* from the Cape Verde Islands.]

Weight–length relationships for 27 demersal fish species caught off the Cape Verde archipelago (eastern North Atlantic). J.N. Pereira, A. Simas, A. Rosa, A. Aranha, S. Lino, E. Constantino, V. Monteiro, O. Tariche & G. Menezes, **2012**. Journal of Applied Ichthyology 28 (1): 156-159; http://dx.doi.org/10.1111/j.1439-0426.2011.01915.x

ABSTRACT Weight–length relationships were estimated for 27 demersal fish species of the Cape Verde archipelago. Samples were collected in October and November 2000 using longline gear in depths up to 600 m, and occasionally to 1200 m. The b values were within expected ranges, varying between 2.406 and 3.761, except for *Syacium micrurum* (1.574) and *Paraconger notialis* (4.476), which presented strong allometries instigated through further analysis. This work revises previous literature in the archipelago and provides the first reference on weight–length parameters for 10 fish species worldwide and for 21 species of the Cape Verde archipelago.

A new species of the genus *Anthrenus* Geoffroy, 1762 (Coleoptera: Dermestidae: Megatominae) from the Republic of Cape Verde. Andreas Herrmann & Jiří Háva, **2012**. Studies and Reports (Prague), Taxonomical Series, 8 (1-2): 127-130.

ABSTRACT *Anthrenus* (*Nathrenus*) *strakai* sp. nov. from the Republic of Cape Verde is described, illustrated and compared with the similar looking species *Anthrenus* (*Nathrenus*) *molitor* Aubé, 1850 and *Anthrenus* (*Nathrenus*) *signatus* Erichson, 1846, both from the Mediterranean region.

Insecticide susceptibility of *Aedes aegypti* populations from Senegal and Cape Verde archipelago. Ibrahima Dia, Cheikh Tidiane Diagne, Yamar Ba, Diawo Diallo, Lassana Konate & Mawlouth Diallo, **2012**. Parasites & Vectors 5:238 (4 pages); http://dx.doi.org/10.1186/1756-3305-5-238

ABSTRACT Two concomitant dengue 3 (DEN-3) epidemics occurred in Cape Verde Archipelago and Senegal between September and October 2009. *Aedes aegypti* was identified as the vector of these epidemics as several DEN-3 virus strains were isolated from this species in both countries. The susceptibility to pyrethroids, organochlorine, organophosphates and carbamate was investigated in two field strains of *A. aegypti* from both countries using WHO diagnostic bioassay kits in order to monitor their the current status of insecticide susceptibility. The two tested strains were highly resistant to DDT. The Cape Verde strain was found to be susceptible to all others tested insecticides except for propoxur 0.1%, which needs further investigation. The Dakar strain

was susceptible to fenitrothion 1% and permethrin 0.75%, but displayed reduced susceptibility to deltamethrin, lambda-cyhalothrin and propoxur. As baseline results, our observations stress a careful management of insecticide use for the control of *A. aegypti*. Indeed, they indicate that DDT is no longer efficient for the control of *A. aegypti* populations in Cape Verde and Dakar and further suggest a thorough follow-up of propoxur susceptibility status in both sites and that of deltamethrin and lambda-cyhalothrin in *A. aegypti* populations in Dakar. Thus, regular monitoring of susceptibility is greatly needed as well as the knowing if this observed resistance/susceptibility is focal or not and for observed resistance, the use of biochemical methods is needed with detailed comparison of resistance levels over a large geographic area.

Littoral Tanaidacea (Crustacea: Peracarida) from Macaronesia: allopatry and provenance in recent habitats. Roger N. Bamber, **2012**. Journal of the Marine Biological Association of the United Kingdom 92(5): 1095-1116. http://dx.doi.org/10.1017/S0025315412000252

ABSTRACT The Macaronesian Islands in the mid-Atlantic pose a number of questions relating to their colonization by littoral tanaidaceans, as these taxa have no obligate dispersive phase. Recent surveys of the four main archipelagos discovered twelve species of tanaidacean, four of which are new to science, in seven genera (one new to science). In addition, some taxa described by Vanhöffen at the beginning of the last century were rediscovered. All the taxa are described, and their zoogeography, likely origin, and possible means of colonization are discussed.

[SCVZ Editor's note: Includes descriptions of *Gamboa darwini* sp. nov. and *Parapseudes fitzroyi* sp. nov., type locality, Ilhéu Santa Maria (Quail Islet), Praia, Santiago, Cape Verde Islands, and *Zeuxo* (*Parazeuxo*) *coturnix* sp. nov., type locality, Praiamar, Praia, Santiago, Cape Verde Islands.]

Tanaidacea (Crustacea) from Macaronesia III. The shallow-water Tanaidomorpha from the Cape Verde archipelago. Kim Larsen, Ryoko Nagaoka & Elsa Froufe, **2012**. Zootaxa, 3498: 24-44.

ABSTRACT Three new species of Tanaidacea are described from the Cape Verde archipelago in the Mid-Atlantic, collected during the sampling program of the Laboratory of Marine Community Ecology and Evolution (LMCEE) to Macaronesia and former Portuguese colonies. The new species belong to the tanaidomorphan families Leptocheliidae (*Leptochelia parasavignyi*), Paratanaidae (*Paratanais vicentetis*), and Pseudotanaidae (*Pseudotanais breviaquas*).

Die Pterophoridae der Kapverdischen Inseln, 2. Beitrag, mit der Beschreibung einer neuen Art der Gattung *Stenoptilia* Hübner (Lepidoptera: Pterophoridae). E. Arenberger & E. Aistleitner, **2012**. Nachrichtenblatt der Bayerischen Entomologen 61(1/2): 23-25.

ABSTRACT A list of the Pterophoridae from new collections from the Caboverde Islands is given. *Stenoptilia fogoa* sp. nov., type locality, Bangaeira, Chã das Caldeiras, Fogo, Cape Verde Islands, is described and its imago and the genitalia of both sexes are illustrated.

Patterns of diversity of the Rissoidae (Mollusca: Gastropoda) in the Atlantic and the Mediterranean Region. Sérgio P. Ávila, Jeroen Goud & António M. de Frias Martins, **2012.** The Scientific World Journal 2012, Article ID 164890, 30 pp.; http://dx.doi.org/10.1100/2012/164890

ABSTRACT The geographical distribution of the Rissoidae in the Atlantic Ocean and Mediterranean Sea was compiled and is up-to-date until July 2011. All species were classified according to their mode of larval development (planktotrophic and nonplanktotrophic), and bathymetrical zonation (shallow species - those living between the intertidal and 50 m depth, and deep species - those usually living below 50 m depth). 542 species of Rissoidae are presently reported from the Atlantic Ocean and the Mediterranean Sea, belonging to 33 genera. The Mediterranean is the most diverse site, followed by Canary Islands, Caribbean, Portugal, and Cape Verde. The Mediterranean and Cape Verde Islands are the sites with higher numbers of endemic species, with predominance of *Alvania* spp. in the first site, and of *Alvania* and *Schwartziella* at Cape Verde. In spite of the large number of rissoids at Madeira archipelago, a large number of species are shared with Canaries, Selvagens, and the Azores, thus only about 8% are endemic to the Madeira archipelago. Most of the 542-rissoid species that live in the Atlantic and in the Mediterranean are shallow water species (323), 110 are considered as deep water species, and 23 species are reported in both shallow and deep waters. There is a predominance of non-planktotrophs in islands, seamounts, and at high and medium latitudes. This pattern is particularly evident in the genera *Crisilla*, *Manzonia*, *Onoba*, *Porosalvania*, *Schwartziella*, and *Setia*. Planktotrophic species are more abundant in the eastern Atlantic and in the Mediterranean Sea. The results of the analysis of the probable directions of faunal flows support the patterns found by both the Parsimony Analysis of Endemicity and the geographical distribution. Four main source areas for rissoids emerge: Mediterranean, Caribbean, Canaries/Madeira archipelagos, and the Cape Verde archipelago.We must stress the high percentage of endemics that occurs in the isolated islands of Saint Helena, Tristan da Cunha, Cape Verde archipelago and also the Azores, thus reinforcing the legislative protective actions that the local governments have implemented in these islands during the recent years.

Two beautiful and new *Euthria* (Gastropoda: Buccinidae) from the northern Cape Verde Archipelago. Koen Fraussen, Bernardino Monteiro & Frank Swinnen, **2012**. Gloria Maris 51 (1): 16-24.

ABSTRACT Two beautiful species collected in the northern part of the Cape Verde Archipelago are described as new. *Euthria placibilis* sp. nov. is compared with *E. soniae* Rolán, Monteiro & Fraussen, 2003 and *E. ponsonbyi* Sowerby, 1889; *Euthria inesae* sp. nov. is compared with *E. josepedroi* Rolán & Monteiro, 2007 and *E. cecilea* Fraussen & Rolán, 2003.

The genus *Gibberula* (Gastropoda, Cystiscidae) in the Cape Verde Islands with the description of a new species. Diego Moreno, **2012**. Iberus, 30(1): 67-83.

ABSTRACT The species of the genus *Gibberula* from the Cape Verde islands are reviewed. There are at least four species, three previously described: *Gibberula lucia* Jousseaume, 1877, *G. rauli*

Fernandes, 1987 and *G. rolani* Cossignani and Cecalupo, 2005, and one new species, *G. elvirae* n. sp. is here described. *Gibberula rachmaninovi* Kellner, 2003, is considered here as a synonym of *Volvarina sauliae* (Sowerby, 1846).

A new species of *Phorcus* (Vetigastropoda, Trochidae) from the Cape Verde Islands. José Templado & Emilio Rolán, **2012**. Iberus 30 (2): 89-96.

ABSTRACT A recent molecular study has shown that the well-known intertidal Cape Verde topshell, previously identified as *Osilinus punctulatus*, *O. tamsi* or *O. atratus*, is a distinct undescribed species (Donald *et al.* 2012). Therefore we describe it here as new for science and compare it to the closest species.

[SCVZ Editor's note: Description of *Phorcus mariae* sp. nov., type locality, Sal Rei, Boa Vista, Cape Verde Islands.]

A new subspecies of *Haliotis tuberculata* Linnaeus, 1758 from the Cape Verde Islands, Central West Africa. Buzz Owen & Carlos M.L. Afonso, **2012**. Pp. 56-60 *in* Daniel L. Geiger & Buzz Owen (eds.), Abalone: World-wide Haliotidae. viii + 361 pp., 99 figs., 92 col. pls., hardcover, ConchBooks, Hackenheim, Germany.

[SCVZ Editor's note: Description of *Haliotis tuberculata fernandesi* ssp. nov., type locality, Ponta Norte, Sal Island, Cape Verde Islands.]

At the bottom of the deep blue sea: a new wood-boring bivalve (Mollusca, Pholadidae, Xylophaga) from the Cape Verde Abyssal Plain (subtropical Atlantic). Janet R. Voight & Michel Segonzac, **2012**. Zoosystema 34 (1):171-180; http://dx.doi.org/10.5252/z2012n1a8

ABSTRACT Bivalves of *Xylophaga* Turton, 1822 require access to wood or other vegetation on the seafloor, into which they bore. They ingest the wood and, with the aid of bacteria, digest it to survive. Their complete dependence on vegetation for survival suggests that the group would be rare on the abyssal plains, as the availability of terrestrial vegetation declines with distance from land masses. Deployment of a small block of wood on a mooring at 4626 m depth in the Cape Verde Abyssal Plain, over 1600 km west of Africa tested that suggestion. When recovered seven months after deployment, the wood carried an estimated 170 boreholes/cm^2 evidence of extremely and surprisingly rapid colonization by a previously unknown species, here described as *Xylophaga alexisi* n. sp. The species is unique in having an incomplete siphon, a posterior adductor scar made of linear elements and in lacking cirri at both siphonal openings. Atlantic species described by Harvey (1996) are compared to this and other species. The bivalves are estimated to have grown 0.011 mm per day, comparable to growth estimates of *X. ricei* Harvey, 1996 at 5000 m depth. The high density of this species at this site, the great distance of the site from the continent which is so arid to be Saharan in character and the minimal input the site receives from surface and bottom currents argue strongly that wood-boring species thrive in the largest benthic habitat on Earth, the abyssal plain.

Revision of the genera *Murchisonella* and *Pseudoaclisina* (Gastropoda, Heterobranchia, Murchisonellidae). Anselmo Peñas & Emilio Rolán, **2013**. Vita Malacologica 11: 15-64.

ABSTRACT A revision of the species of two genera of the family Murchisonellidae Casey, 1904, which have Recent representatives *Murchisonella* Casey, 1904 and *Pseudoaclisina* Yoo, 1994, is presented. All the known species are figured, their morphologies described and comparisons made. In the first genus, *Murchisonella*, 22 species are recognised, from which 10 are new; in the other genus, *Pseudoaclisina*, there are seven, which all are new species for science.

[SCVZ Editor's note: Includes description of *Murchisonella africana* sp. nov., type locality, Tarrafal, Santiago, Cape Verde Islands.]

Extreme habitat adaptation by boring bivalves on volcanically active paleoshores from North Atlantic Macaronesia. Ana Santos, Eduardo Mayoral, Markes E. Johnson, B. Gudveig Baarli, Mário Cachão, Carlos Marques Silva & Jorge Ledesma-Vázquez, **2012**. Facies 58: 325-338; http://dx.doi.org/10.1007/s10347-011-0283-z

ABSTRACT Extensive bivalve borings are described in detail for the first time from basalt rockgrounds in the North Atlantic volcanic islands of Macaronesia. They occur on a Middle Miocene rocky shore of a small islet of Porto Santo (Madeira Archipelago of Portugal), as well as on Plio-Pleistocene rocky shores on Santiago Island (Cape Verde). A basalt substrate is widely penetrated by clavate-shaped borings belonging to the ichnogenus *Gastrochaenolites* interpreted as dwelling structures of suspension-feeding bivalves. Some of these borings still retain evidence of the alleged trace-makers preserved as body fossils, while others are filled with their casts. The ichnofossil assemblage present on these bioeroded surfaces belongs to the *Entobia* ichnofacies. Recognition of *Gastrochaenolites* borings in volcanic rocks provides useful paleoenvironmental information regarding an expanded strategy for hard-substrate colonization. Preliminary results from fieldwork in the Cape Verde Archipelago indicate that such borings are more widespread through Macaronesia than previously thought.

A new species of *Spauligodon* (Nematoda: Oxyurida: Pharyngodonidae) in geckos from São Nicolau Island (Cape Verde) and its phylogenetic assessment. Fátima Jorge, Miguel A. Carretero, Ana Perera, D. James Harris & Vicente Roca, **2012**. Journal of Parasitology 98 (1): 160-166; http://dx.doi.org/10.1645/GE-2856.1

ABSTRACT A new nematode species, *Spauligodon nicolauensis* n. sp., is described from geckos *Tarentola bocagei* and *Tarentola nicolauensis* on the island of São Nicolau, Cape Verde. The new nematode was found in the pellets obtained directly from the geckos in a non-invasive fashion, and its identity was assessed both at morphologic and genetic levels. The new species has morphological similarities with *Spauligodon tarentolae* Spaul, 1926, also parasitizing geckos from the Canary Islands. However, the male cloacal region in the new species is distinct, presenting a different shape of the caudal papillae. The overall resemblance probably resulted from colonization

via descent from an ancestor of *S. tarentolae* carried by the ancestor of Cape Verde *Tarentola*. The analysis of nuclear DNA sequences confirms that the new species is phylogenetically distinct from all other *Spauligodon* species already analyzed, forming a group clearly separated from species parasitizing lacertid lizards. The COI genetic distance suggests that the *S. nicolauensis* n. sp. found in the two species of geckos in São Nicolau Island may have resulted from a host-switching event, when they came into contact after the unification of the island.

First report of *Dirofilaria immitis* in the Republic of Cape Verde. Cristina Pereira, Conceição Almeida, Manuel Malta, Raquel Vilaça & Pablo Payo-Puente, **2013**. Veterinary Parasitology 192: 290-291. http://dx.doi.org/10.1016/j.vetpar.2012.09.032

ABSTRACT In Maio Island, Republic of Cape Verde, a seven-year old mongrel female dog exhibiting severe generalized adenomegaly and a poor body condition was examined during an animal welfare campaign. A blood smear was drawn from peripheral blood collection and several organisms consistent with *Dirofilaria immitis* microfilariae were identified. Both the antigen test conducted from plasma and the RT-PCR test performed from the blood smear sample were positive for *D. immitis*. This is, to the best of our knowledge, the first report of *D. immitis* in Cape Verde. The fact that the dog was autochthonous and had never left the island strongly suggests there might be other animals infected with the parasite. Our finding confirms the existence of the parasite in the canine population and necessarily implies the presence of a competent vector. As a serious cardiopulmonary disease and with the risk of the pathogen spreading rapidly, broader epidemiological studies need to be conducted to determine *D. immitis* prevalence in the canine population of Maio Island.

Sponges of the family Esperiopsidae (Demospongiae, Poecilosclerida) from Northwest Africa, with the descriptions of four new species. Rob W.M. van Soest, Elly J. Beglinger & Nicole J. de Voogd, **2012**. European Journal of Taxonomy 18: 1-21; http://dx.doi.org/10.5852/ejt.2012.18

ABSTRACT Sponges belonging to the genera *Amphilectus* Vosmaer, *Esperiopsis* Carter and *Ulosa* de Laubenfels of the family Esperiopsidae were collected during 1986 and 1988 expeditions of the Netherlands Centre for Biodiversity Naturalis (at that time the National Museum of Natural History at Leiden and the Zoological Museum of Amsterdam) in waters off the coasts of Mauritania and the Cape Verde Islands. Four new species, *Amphilectus utriculus* sp. nov., *Amphilectus strepsichelifer* sp. nov., *Esperiopsis cimensis* sp. nov., *Ulosa capblancensis* sp. nov., and two already known species, *Amphilectus* cf. *fucorum* (Esper) and *Ulosa stuposa* (Esper) are described and discussed.

Diversity patterns and zoogeography of the Northeast Atlantic and Mediterranean shallow-water sponge fauna. Joana R. Xavier & Rob W. M. van Soest, **2012**. Hydrobiologia 687: 107–125; http://dx.doi.org/10.1007/s10750-011-0880-4

ABSTRACT Recognizing and understanding present-day biodiversity and biogeographical patterns and how these relate to contemporary and past climate is pivotal to predict the effect of

future climate on marine biodiversity and promote adequate conservation policies. Sponges constitute an important and dominant component of the marine benthos and are therefore an excellent model group for such investigations. In this study, we assessed the diversity patterns and the zoogeographical affinities of the Northeast Atlantic and Mediterranean shallow-water demosponge assemblages. Data on the distribution of 745 species throughout 28 areas was compiled from the literature and used to build a presence/absence matrix. Diversity patterns were assessed from estimates of species richness (*S*) and taxonomic distinctness (AvTD). The Mediterranean Sea proved to be more diverse both in terms of species richness and taxonomic distinctness (*S* = 539, AvTD = 94.74) than the Northeast Atlantic (*S* = 480, AvTD = 92.42) and the two regions together were found to constitute a diversity hotspot harbouring approximately 11% of the global demosponge diversity. We found an Atlantic N–S and a Mediterranean NW-SE gradient of increasing taxonomic distinctness that is strongly correlated to both contemporary (*R*2 = 0.5667; *P*\0.01) and historical values (*R*2 = 0.7287; *P*\0.01) of sea surface temperature (SST) at the Last Glacial Maximum (LGM). The zoogeographical affinities examined through classification (cluster analysis) and ordination (nonmetric multidimensional scaling, nMDS) based on the Bray–Curtis similarity index, revealed the presence of three groups approximately corresponding to the Northern European Seas, Lusitanian and Mediterranean provinces outlined in the 'Marine Ecoregions of the World' (MEOW) classification system. Geographical distance and oceanographic circulation were shown to constitute important factors in shaping the zoogeographical affinities among areas. The vast majority of the species occurring in the Northeast Atlantic and the Mediterranean (67 and 57%, respectively) was shown to have extremely restricted geographical ranges, as single-area or narrow-range (2–3 areas) endemics, which raises some concerns regarding their conservation.