# A CAGARRA

**Newsletter of the Zoological Society of Cape Verde**

**Boletim de Sociedade Caboverdiana de Zoologia**

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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!

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## Egyptian vulture survey in Santo Antão in December 2014

The Egyptian Vulture *Neophron percnopterus* is a globally endangered species, with almost all populations worldwide undergoing a strong decline. The species used to be widespread in Cape Verde until about 25 years ago, but in the last few decades it underwent a very rapid decline and virtually disappeared from the country. In Cape Verde, like in other archipelagos (Canary islands, Balearics, Socotra), the Egyptian vulture is sedentary - most other populations are migratory, with Eurasian birds spending the winter in Africa, the Arabian Peninsula and the Indian subcontinent.

Recently the VCF, CIBIO (Portugal) and the University of Cape Verde joined forces to try to establish the current status of the species in Cape Verde, with generous support of a small Grant from the Association Francaise de Parcs Zoologiques (AFdPZ). In December, two Cape Verdean biologists spent 10 days doing fieldwork in Santo Antão, one of the islands where the species still survives, to collect data and information. The biologists did 241 interviews all over the island, covering subjects like the presence of the bird, the number of cattle heads present, the use of pesticides and poison, and surveyed garbage dumps and slaughterhouses. They found that indeed Egyptian vultures are still present. They mapped 26 recent observations of the species (in the last 5 years), with the most recent observation in December 2014 in the Porto Novo area, where an Egyptian vulture was seen eating a dead pig. Some of these observations relate to a pair seen

together. The species seems to have declined substantially after widespread chemical fumigation on the island in 1988, to try and control a grasshopper plague then affecting the local populations. Other threats identified were the use of poison to control feral dogs and the reduced availability of food for Egyptian vultures – fish, traditionally salted and dried on the beaches, resulting in plenty waste products available to the vultures, is now sent fresh to São Vicente, while the carcasses of dead cattle are now buried. If we add this to the increased sanitization of villages and urban development, one begins to understand the reasons behind the species' demise. The survey mapped four active garbage dumps, with the largest one in Aguada. There is only one slaughterhouse on Santo Antão (at João de Dias, Ribeira Grande), where the remains of animals are buried or incinerated, but local people still traditionally kill animals throughout the countryside, abandoning some animal parts, which are usually eaten by dogs. The project will now survey the species in other islands, while a conservation plan will be developed later on. Follow the project at the VCF site www.4vultures.org

Egyptian vulture survey in Santo Antão: biologists interviewing local people, December 2014. © UniCV.

## How is the osprey faring in Boa Vista?

Pedro López Suárez provided an oversight of breeding success and other reproductive parametres of the osprey *Pandion haliaetus* in Boa Vista. As can be seen in the Table below, there was a peak in breeding success during the years 2005-2006 and a low (with zero young fledged) in 2013. With four young fledged, productivity in 2014 was back at the level of 2001-2004. The reasons behind these fluctuations are currently being analyzed and a full report will be published in due course. As yet, the ospreys have not made use of the artificial nest platforms placed in Boa Vista in 2014 (see A Cagarra No. 8).

| | 2001 | 2002 | 2004 | 2005 | 2006 | 2007 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|
| No. of active nests | 7 | 6 | 11 | 7 | 11 | 10 | 12 | 10 | 13 |
| No. of successful pairs | 3 | 3 | 4 | 6 | 9* | 4 | 1 | 0 | 3 |
| No. of young fledged | 4 | 4 | 4 | 9 | 13* | 5 | 1 | 0 | 4 |
| Mean productivity | 0.57 | 0.66 | 0.36 | 1.28 | 1.18* | 0.50 | 0.08 | 0 | 0.30 |
| Breeding success | 42.85 | 50.00 | 36.36 | 85.71 | 81.81* | 40.00 | 8.33 | 0 | 23.07 |

Summary of osprey *Pandion haliaetus* reproductive parametres in Boa Vista Island. *In 2006 an injured chick, victim of sibling aggression, was removed from its nest and relocated to another nest (which held two addled eggs), where it fledged successfully.

## Survey of cream-coloured courser in Maio

From April to November 2013, a census of the cream-coloured courser *Cursorius cursor* was carried out on the island of Maio in order to better understand its habitat requirements and distribution, as well as obtaining an estimate of population size. Nesting sites were searched for, adults and young were colour-ringed and blood samples were taken. A total of 282 individuals was observed during 99 point transect counts. Most birds were seen in the eastern and southern part of the island. The first nests were found in August, after the first rains. Seven nests were found at the Salinas do Porto Inglês, but only one of these hatched succesfully. One nest contained four eggs, the others 1-2 eggs. Five nests disappeared, while one nest was predated, presumably by brown-necked raven *Corvus ruficollis*. In addition, two family parties with fledged young were seen. A full account of the survey will be published in *Zoologia Caboverdiana.*

# ZOOLOGICAL NEWS FROM THE NEWSPAPERS | NOTÍCIAS ZOOLÓGICAS DE JORNAIS

## Paúl: Baleia encontrada em avançado estado de decomposição

Uma baleia de cerca de quatro metros e com uma tonelada foi encontrada morta na tarde de ontem, 18, na zona de Estança, Paúl, Santo Antão, já em avançado estado de decomposição. Segundo informações colhidas no local, a baleia foi avistada a boiar em alto mar, por volta das 17h00 de ontem. Pouco depois, o animal encalhou no cascalho. Depois de várias tentativas a PN, os bombeiros e a Câmara Municipal e alguns populares removeram o mamífero de mar. As autoridades acreditam que a baleia poderia estar morta em alto mar há mais de uma semana.

A Semana, 20 de Dezembro de 2015

## Maio: Invasão diária de galinhas do mato às lavouras desespera agricultores

A invasão diária de galinhas do mato às propriedades na ilha do Maio tem causado "enormes estragos" nas lavouras, justamente num ano de pouca produção devido à falta de água para a rega, afirmam os agricultores, mostrando-se “desesperados”. A Inforpress constatou no local que o cenário do mau ano agrícola, à semelhança do que se vive um pouco por todos os recantos do país, no Maio, em particular, tanto o gado como as aves têm-se deparado com a falta de alimentos para a sua sobrevivência, facto que está a reflectir nitidamente no caso das galinhas do mato que encontram nas propriedades agrícolas uma alternativa para as suas necessidades prementes, redundando-se, é certo, em grandes prejuízos para os agricultores.

Santos Ribeiro, agricultor da localidade de Figueira é um dos aflitos com esta situação que se disponibilizou para conversar com a Inforpress sobre o assunto. Segundo disse, este ano estão a deparar-se com um duplo problema, a falta de água nos poços e consequentemente, pouca produção, e para agravar ainda mais a situação estão a caminhar já para o desespero porque já não conseguem suportar a invasão das galinhas do mato aos campos de lavoura. Santos Ribeiro explicou que tem sido uma luta com enorme sacrifício para se conseguir controlar o possível, sentindo-se obrigados a levantarem-se cedo para se deslocarem às suas propriedades agrícolas para montarem a guarda e só deixarem o local quando começa a anoitecer, altura em que as galinhas recolhem-se também às tocas. “Consideramos esta situação uma autêntica praga. No meu caso concreto saio da minha casa às 05:00 da manhã e só regresso por volta das 07 ou 08:00, mas mesmo assim não queremos matá-las, porque entendemos que é uma dádiva de Deus e porque se decidirmos matá-las sabemos que podem desaparecer da natureza, por isso limitamos apenas a afugentá-las esperando pela vinda das chuvas”, frisou. Este agricultor disse por outro lado à Inforpress estar consciente de que essas aves têm também funções importantes no meio ambiente e por isso, matá-los poderia perigar o equilíbrio ambiental.

A título de exemplo apontou ainda o caso dos cavalos que, segundo disse, praticamente já não existem na ilha do Maio. “Não há exemplares sequer para sua reprodução, e por essa razão preferimos continuar a defender os campos aguardando pela chegada das chuvas que resolvem o problema produzindo alimentos também para esses animais”, sustentou. Luciano Ribeiro Silva é um outro agricultor que contou também a sua história à Inforpress sobre o combate à invasão das galinhas do mato, “lutando para salvar o pouco que se consegue produzir”. “Estou a fazer algumas armadilhas para caça-las, mas isso é insuficiente porque são muitas, mas estamos conscientes de que devemos fazer o nosso papel de guardiões e esperar pelas chuvas para que possam conseguir alimentos longe das nossas propriedades, porque acabar com eles não é uma boa alternativa, não obstante os prejuízos que temos vindo a encaixar”, indicou. Paradoxalmente, no meio de toda essa história a Inforpress foi abordada também por gente que se diz desconte com a “caça desenfreada” de galinhas do mato por parte de alguns estrangeiros. Segundo alegam, nesse ritmo dentro de poucos anos esta espécie poderá desaparecer na ilha.

Expresso das Ilhas, 15 de Março de 2015

# RECENT PUBLICATIONS ON CAPE VERDE ZOOLOGY AND PALEONTOLOGY | PUBLICAÇÕES RECENTES SOBRE ZOOLOGIA E PALEONTOLOGIA CABOVERDIANA

Recent publications on Cape Verde zoology and paleontology are listed and an abstract – if available – is given. Should you know of any omissions in this (or previous) listing(s), 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

**Evolution of island warblers: beyond bills and masses.** Bernd Leisler & Hans Winkler, **2015**. Journal of Avian Biology 45; http://dx.doi.org/10.1111/jav.00509

ABSTRACT In this paper, we take a closer look into the evolution of *Acrocephalus* warblers on islands in the Atlantic, Indian and Pacific Oceans. The shape-related morphological evolution of island species is characterized by changes in the hind limb, flight, and feeding apparatus. Birds on islands converged to a morphology with strong legs, shorter rictal bristles, and rounder, more slotted and broader wings. Because of their high variance among islands, body size and bill dimensions did not contribute to the separation of continental and island forms, although bills tend to be longer on islands. The wings of island birds hardly vary among islands, unsurprisingly due to a lack of the adaptive features associated with long distance flights. The tendency towards shorter rictal bristles in the island warblers can be explained by the diminished role of aerial feeding, and closer contact with various substrates in the course of extractive foraging. The shift towards stronger legs in several insular species is remarkable because reed warblers on continents have even stronger legs than other passerines of comparable size. This trait correlates with diverse, acrobatic feeding techniques that are typically associated with broad habitat use. Bills reach extreme lengths on some islands. However, short bills occur as frequently, rendering this character highly variable among islands. Short bills indicate gleaning feeding techniques, whereas long bills are typical for species that pursue hidden and difficult-to-access prey. Body sizes differ greatly from island to island. On average, the sizes of island birds do not differ from continental ones, however. We suggest that vegetation clutter is the major driving force for this variation. The main conclusion following from our results is that evolution on islands pertains to all functional complexes, and not only the hitherto studied body size and bill dimensions.

[SCVZ EDITOR'S NOTE: Comparative study on the evolution of morphological traits in acrocephaline warblers on islands, including Cape Verde warbler *Acrocephalus brevipennis.*]

**Salto de pardal – Os segredos de um pardal cabo-verdiano que ajuda a contar a história da evolução.** Alexandre Vaz, **2015**. National Geographic Magazine (Portugal), January 2015: 92-99.

[No abstract; popular account of research on *Passer iagoensis*.]

**Effects of hook and bait in a tropical northeast Atlantic pelagic longline fishery: Part I-Incidental sea turtle bycatch.** Rui Coelho, Miguel N. Santos, Joana Fernandez-Carvalho & Sérgio Amorim, **2014**. Fisheries Research; http://dx.doi.org/10.1016/j.fishres.2014.11.008

ABSTRACT The interaction between tuna fisheries and sea turtles is commonly recognized as one of the major threats and causes for the decline of sea turtle populations. Within the tuna and swordfish fisheries, the incidental sea turtle bycatch is usually more frequent from longline fisheries targeting swordfish. Therefore it is important to test possible mitigation measures, particularly in areas where fishing activities and high abundance of these species overlaps, as is the case of the Tropical Northeast Atlantic Ocean. Between August 2008 and December 2011, a total of 202 experimental pelagic longline sets were carried out in that region (latitude: 11–22ºN, longitude: 20–38ºW). The aim was to test the effects of changing the traditional J-style hooks (10º offset) baited with squid used by the fishing industry, against two circle hooks (one non-offset and one with 10º offset) and mackerel bait. Four sea turtle species were captured, with the leatherback *Dermochelys coriacea* comprising most of the bycatches (BPUE, bycatch per unit of effort using the traditional configuration of 0.990 turtles/1000 hooks), followed by three hardshell species: the loggerhead *Caretta caretta* and the olive ridley *Lepidochelys olivacea* (BPUE = 0.165 turtles/1000 hooks), and the Kemp ridley *Lepidochelys kempii* (BPUE = 0.024 turtles/1000 hooks). In general, the sea turtle interactions in the fishery can be reduced by changing from the traditional gear to one of the experimental combinations. However, those reductions were species-specific, with the leatherback bycatches reduced only when changing from J-style to the non-offset circle hook, while for the hardshell turtles both the hookstyle (using a circle hook, with or without offset) and the bait (using mackerel) significantly reduced the incidental bycatches. Hooking location was also species-specific, with most hardshell specimens hooked by the mouth and esophagus, while leatherbacks were mostly hooked externally by the flippers. Most of the sea turtles were captured and released alive with the mortality rates independent of the hook style and bait type used. A reduction of 55% in leatherback incidental bycatches can be expected in this fishery by changing from J-style to circle hooks, whereas for the hardshell species a 50–59% reduction can be obtained by changing to circle hooks (respectively with and without offset), and a 55% reduction by usingmackerel bait.

**Effects of hook and bait in a tropical northeast Atlantic pelagic longline fishery: Part II-Target, bycatch and discard fishes.** Joana Fernandez-Carvalho, Rui Coelho, Miguel N. Santos & Sérgio Amorim, **2014**. Fisheries Research; http://dx.doi.org/10.1016/j.fishres.2014.11.009

ABSTRACT The incidental bycatch of sea turtle in tuna and swordfish fisheries is currently recognized as one of the major threats to the populations of these species. Therefore a number of mitigation measures have been tested, particularly for longline fisheries targeting swordfish. As mitigation measures may also affect the fish catches, it is important to quantify these impacts both at the ecological and socio-economic levels. Between August 2008 and December 2011, a total of 202 experimental pelagic longline sets were carried out in the Tropical Northeast Atlantic Ocean. The combination J-hook baited with squid (traditionally used by the fishery) was compared against two circle hooks (one non-offset and one with 10º offset) and mackerel bait. Catches per unit effort (CPUE) were calculated and compared between the different hook style and bait combinations for all target, bycatch and discarded fish species. In addition, a GLM (generalized linear model) was

applied for swordfish *Xiphias gladius* and blue shark *Prionace glauca* (two main target species) and bigeye thresher *Alopias superciliosus* (most discarded species). The swordfish catches were negatively affected when changing from the traditional gear (J-style hooks baited with squid) to one of the experimental combinations, with the bait type having a stronger influence than the hook style on this reduction. However, the overall target species CPUE and the value of the retained catch (VPUE, value per unit of effort) were not significantly affected, due to an increase on the blue shark CPUE. Furthermore, the hook style and the bait type did not seem to influence the at-haulback mortality rates of most discarded species, which were highly species-specific. Given the apparent lack of impact on the overall value of the retained catch, the use of circle hooks baited with mackerel on this particular fishery and region would be highly beneficial for sea turtle conservation, without affecting the economic viability of the fishery.

**Oceanic loggerhead turtles *Caretta caretta* associate with thermal fronts: evidence from the Canary Current Large Marine Ecosystem.** Kylie L. Scales, Peter I. Miller, Nuria Varo-Cruz, David. J. Hodgson, Lucy A. Hawkes & Brendan J. Godley, **2015**. Marine Ecology Progress Series 519: 195-207; http://dx.doi.org/10.3354/meps11075

ABSTRACT Oceanographic fronts are physical interfaces between water masses that differ in properties such as temperature, salinity, turbidity and chlorophyll *a* enrichment. Bio-physical coupling along fronts can lead to the development of pelagic biodiversity hotspots. A diverse range of marine vertebrates have been shown to associate with fronts, using them as foraging and migration habitats. Elucidation of the ecological significance of fronts generates a better understanding of marine ecosystem functioning, conferring opportunities to improve management of anthropogenic activities in the oceans. This study presents novel insights into the oceanographic drivers of habitat use in a population of marine turtles characterised by an oceanic-neritic foraging dichotomy. Using satellite tracking data from adult female loggerhead turtles *Caretta caretta* nesting at Cape Verde (n = 12), we tested the hypothesis that oceanic- foraging loggerheads associate with mesocale (10s to 100s of km) thermal fronts. We used high-resolution (1 km) composite front mapping to characterise frontal activity in the Canary Current Large Marine Ecosystem over 2 temporal scales: (1) seasonal front frequency and (2) 7 d front metrics. Our use-availability analysis indicated that oceanic loggerheads show a preference for the highly productive upwelling region between Cape Verde and mainland Africa, an area of intense frontal activity. Within the upwelling region, turtles appear to forage epipelagically around mesoscale thermal fronts, exploiting profitable foraging opportunities resulting from physical aggregation of prey.

**Loggerhead conservation in Santa Luzia Island, Cabo Verde: a partnership with the Sea Shepherd Conservation Society.** Patrícia Rendall Rocha & Tommy Melo, **2015**. African Sea Turtle Newsletter 3: 10-12. Available at http://oceanecology.org/african-sea-turtle-newsletter/.

[No abstract.]

**Age estimation and growth pattern of the grouper *Cephalopholis taeniops* (Epinephelidae) off the Cape Verde Archipelago, north-west Africa.** O. Tariche, J.G. Pajuelo, J.M. Lorenzo, A. Luque & J.A. Gonzalez, **2014**. Journal of the Marine Biological Association of the United Kingdom; http://dx.doi.org/10.1017/S0025315414001441

ABSTRACT The grouper *Cephalopholis taeniops* is a carnivorous fish of the Cape Verde coastal marine ecosystem. Nothing is known regarding the age and growth of this epinephelid. In this study, the age and growth of *C. taeniops* was investigated by annual growth increment counts from 2804 specimens (7-51 cm total length) collected between January 2005 and December 2011. Whole otoliths underestimated the age indicated in sections by approximately 70%; therefore, sectioned otoliths were used in this study. A year's growth was represented by one opaque and one translucent ring. There was no apparent time lag from the start of the increase in the seawater temperature and the beginning of the formation of the opaque ring. The formation of the translucent rings coincided with a decrease in surface seawater temperature. *Cephalopholis taeniops* is a slow-growing and long-lived species, with ages of up to 20 years recorded. The seasonalized von Bertalanffy growth function was the best fitted among the four models tested, with an Akaike weight higher than 0.99. Growth was described by the seasonalized von Bertalanffy growth function as follows: $L_{\infty}$ = 54.26 cm, k = 0.135 year $^{-1}$, $t_0$ = -0.853 year, C = 0.439 and $t_s$ = 0.667.

**A revised checklist of Cape Verde Islands sea fishes.** R. Hanel & H.-C. John, **2014**. Journal of Applied Ichthyology; http://dx.doi.org/10.1111/jai.12621

ABSTRACT During ichthyological research and teaching activities in the Cape Verde Archipelago, the authors noticed that the readily available inventories of its sea fishes underrepresented the mesopelagic species, contrary to an older Spanish list, which regrettably remained widely unknown. These inventories were compared, revised, combined and commented on, plus a multitude of individual descriptions, survey reports, biogeographical treatises, and unpublished data were put in a checklist. From the resulting list of 1046 names thus far reported, 779 species are supported by records, respectively, their general zoogeography. Another 29 records need confirmation. Seventeen (in the literature, up to 20) species are believed to be endemic. The list comprises 91 first records, plus many earlier records from previously disregarded literature. Seventy-five other names are erroneous either by synonym, misidentification, or misspelling. In 64 cases earlier listings referred to an erroneous geographical location. The number of recorded species will likely increase with future ichthyological research. The ichthyofauna of the Cape Verde Islands is composed mainly of widely distributed species, plus those from the Guinean Region, a few endemics, several amphi-Atlantic species, as well as shore fishes from the NW African coast.

**Zur Kenntnis der Spanner-Fauna der Kapverden (Cabo Verde) (Lepidoptera: Geometridae).** Eyjolf Aistleitner & Axel Hausmann, **2015**. Nachrichtenblatt der Bayerischen Entomologen 64 (1/2): 2-11.

ABSTRACT Based on results from collecting at light, the senior author has gathered more than 300 data sets for geometrid moths from Cabo Verde in the years 1998 to 2013. These records

belong to 16 species, two of them were new for science, four others were new for the archipelago. The checklist of geometrids of Cabo Verde could be extended from 16 species in the year of 2005 to 22 species today.

**Vector competence of the *Aedes aegypti* population from Santiago Island, Cape Verde, to different serotypes of dengue virus.** Aires Januário Fernandes da Moura, Maria Alice Varjal de Melo Santos, Claudia Maria Fontes Oliveira, Duschinka Ribeiro Duarte Guedes, Danilo de Carvalho-Leandro, Maria Lidia da Cruz Brito, Hélio Daniel Ribeiro Rocha, Lara Ferrero Gómez & Constância Flávia Junqueira Ayres, **2015**. Parasites & Vectors 8:114 (9 pp.); http://dx.doi.org/10.1186/s13071-015-0706-8

ABSTRACT Dengue is an arboviral disease caused by dengue virus (DENV), whose main vectors are the mosquitoes *Aedes aegypti* and *Aedes albopictus*. *A. aegypti* is the only DENV vector in Cape Verde, an African country that suffered its first outbreak of dengue in 2009. However, little is known about the variation in the level of vector competence of this mosquito population to the different DENV serotypes. This study aimed to evaluate the vector competence of *A. aegypti* from the island of Santiago, Cape Verde, to four DENV serotypes and to detect DENV vertical transmission. Mosquitoes were fed on blood containing DENV serotypes and were dissected at 7, 14 and 21 days post-infection (dpi) to detect the virus in the midgut, head and salivary glands (SG) using RT-PCR. Additionally, the number of copies of viral RNA present in the SG was determined by qRT-PCR. Furthermore, eggs were collected in the field and adult mosquitoes obtained were analyzed by RT-PCR and the platelia dengue NS1 antigen kit to detect transovarial transmission. High rates of SG infection were observed for DENV-2 and DENV-3 whereas for DENV-1, viral RNA was only detected in the midgut and head. DENV-4 did not spread to the head or SG, maintaining the infection only in the midgut. The number of viral RNA copies in the SG did not vary significantly between DENV-2 and DENV-3 or among the different periods of incubation and the various titers of DENV tested. With respect to DENV surveillance in mosquitoes obtained from the eggs collected in the field, no samples were positive. Although no DENV positive samples were collected from the field in 2014, it is important to highlight that the *A. aegypti* population from Santiago Island exhibited different degrees of susceptibility to DENV serotypes. This population showed a high vector competence for DENV-2 and DENV-3 strains and a low susceptibility to DENV-1 and DENV-4. Viral RNA copies in the SG remained constant for at least 21 dpi, which may enhance the vector capacity of *A. aegypti* and suggests the presence of a mechanism modulating virus replication in the SG.

**A genetic approach to the origin of *Millepora* sp. in the eastern Atlantic.** C. López, S. Clemente, C. Almeida, A. Brito & M. Hernández, **2015**. Coral Reefs; http://dx.doi/10.1007/s00338-015-1260-8

ABSTRACT Many species have experienced recent range expansions due to human-mediated processes, such as the unintentional transport on ships or plastic waste and ocean warming, which facilitates many tropical species to tolerate living beyond their normal limit of distribution, with a potential impact on autochthonous assemblages. In September 2008, three colonies of the fire coral *Millepora* sp. (Cnidaria: Hydrozoa) were found on the southeastern coast of Tenerife (Canary

Islands), though this species had been previously described to have a circumtropical distribution with Cape Verde Islands as its northern limit of distribution in the eastern Atlantic. The aim of this study was to determine the origin of these new colonies in the Canary Islands (11ºN of its previously known northernmost limit of distribution) using variation in the cytochrome oxidase subunit I (COI) gene as a molecular marker. In order to do that, *Millepora* samples from Tenerife and Cape Verde Islands were collected for molecular analyses, and COI sequences from Caribbean samples listed in GenBank were also included in the analysis. Our results showed that all the specimens from Tenerife were genetically identical, suggesting that the colonization of the Canary Islands was the result of a very recent and strong founder effect. The nucleotide sequences of the samples from the Cape Verde and the Canary Islands were closer to the Caribbean than between themselves, pointing to the Caribbean population as the source population for both archipelagos, through independent founder events. The fact that *Millepora* sp. arrived to Cape Verde long before arriving to the Canaries (Pleistocene fossils have been found in that archipelago) suggests that the habitat requirements for this species did not exist before in the Canarian archipelago. Therefore, the rising seawater temperatures recently registered in the Canary Islands could have facilitated the settlement of reef-forming corals drifting across the two basins of the Atlantic.

***Mycale* species (Porifera: Poecilosclerida) of Northwest Africa and the Macaronesian Islands.** R.W.M. van Soest, E.J. Beglinger & N.J. de Voogd, **2014**. Zoologische Mededelingen (Leiden) 88 (4): 59-109.

ABSTRACT Based on collections assembled by Dutch expeditions to the Northwest African region, including the offshore islands in the neighbouring Atlantic, a taxonomic monograph of sponges of the genus *Mycale* is presented. Additional material from the region borrowed from the Zoologisk Museum of the University of Copenhagen and incidental samples made by individual collectors were also included. The combined collections contained sixteen species, nine of which are new to science: *Mycale* (*Aegogropila*) *syringosimilis* spec. nov., *Mycale* (*Aegogropila*) *tenerifensis* spec. nov., *Mycale* (*Arenochalina*) *africamucosa* spec. nov., *Mycale* (*Carmia*) *atropha* spec. nov., *Mycale* (*Carmia*) *guineensis* spec. nov., *Mycale* (*Naviculina*) *cruzi* spec. nov., *Mycale* (*Paresperella*) *janvermeuleni* spec. nov., *Mycale* (*Rhaphidotheca*) *verdensis* spec. nov. and *Mycale* (*Zygomycale*) *sierraleonensis* spec. nov. We briefly review six *Mycale* species known from the region, but not represented in our material, making the faunal diversity twenty-two species. We present a key to all species of Northwest Africa and the neighbouring offshore Atlantic islands. The regional diversity of *Mycale* species is discussed in comparison to those of other regions.

**Coastal dunes with high content of rhodolith (coralline red algae) bioclasts: Pleistocene formations on Maio and São Nicolau in the Cape Verde archipelago.** Markes E. Johnson, B. Gudveig Baarli, Carlos M. da Silva, Mário Cachão, Ricardo S. Ramalho, Jorge Ledesma-Vázquez, Eduardo J. Mayoral & Ana Santos, **2013**. Aeolian Research 8: 1-9;
http://dx.doi.org/10.1016/j.aeolia.2012.10.008

ABSTRACT Rhodoliths are spherical growths (coralline red algae) that contribute bioclasts to coastal dunes in the Gulf of California (Mexico) and the Canary Islands (North Atlantic).

Pleistocene dunes on Maio and São Nicolau islands in the Cape Verde archipelago were studied to quantify rhodolith contribution relative to other sources. Near Pilão Cão on Maio, a transverse dune at Lomba Greija covers 0.3 $km^2$, exposing stoss slopes that dip 8º–10º NE and leeward slip faces that dip 28º–32º SW and SE. Point counts on thin-section samples show that basalt and other non-carbonate materials account for 5%, on average, whereas fine matrix and voided space (dissolved grains) account for 67%. Among remaining identifiable bioclasts (coralline red algae, mollusks, corals, foraminifera, and echinoderms), rhodolith grains with an average diameter of 0.5 mm account for 74%. Near Carriçal at Covoadinha de Chacina on the SE coast of São Nicolau, the stoss slope dips 8º SE for 70–80 m on narrow longitudinal dunes. Point counts on a thin-section sample taken 2.5 m above basement rock, reveal that basalt and other non-carbonate materials account for 10%, on average, whereas fine matrix and voided spaces account for 60%. Among identifiable bioclasts from the remainder (coralline red algae, mollusks, echinoderms, and bryozoa), rhodolith grains ranging in size from 0.5 to 1 mm account for 96%. Potential enrichment from coralline red algae may be overlooked in coastal dunes, because content normally is described as dominated by mollusk shells, the tests from abundant foraminifera, and/or ooids.

**Miocene–Pliocene rocky shores on São Nicolau (Cape Verde Islands): Contrasting windward and leeward biofacies on a volcanically active oceanic island.** Markes E. Johnson, Ricardo S. Ramalho, B. Gudveig Baarli, Mário Cachão, Carlos M. da Silva, Eduardo J. Mayoral & Ana Santos, **2014**. Palaeogeography, Palaeoclimatology, Palaeoecology 395: 131-143; http://dx.doi.org/10.1016/j.palaeo.2013.12.028

ABSTRACT North Atlantic islands in the Cape Verde Archipelago off the coast of West Africa commonly feature an elongated N–S shape in which reduced northern coasts and longer eastern shores absorb the brunt of wave activity and long-shore currents generated by prevailing North East Trade Winds. Located in the middle windward islands, São Nicolau is unusual in profile with an elongated E–W configuration that offers a broad target against high energy, wind-driven waves. Conversely, the south shore of São Nicolau provides relatively wide shelter in a leeward setting. Reconstruction of the proto-island prior to the onset of the Main Eruptive stage during the Late Miocene at ~5.1 Ma reveals a moderately smaller island with essentially the same E–W orientation. This study combines previous data with results from a detailed stratigraphic log based on Upper Miocene limestone deposits on the island's south flank for comparison with stratigraphic profiles of Upper Miocene limestone from the island's northeast quarter. Logs from a Pliocene sandy limestone outcropping on the south-central coast of São Nicolau give added context to the diversity of marine invertebrates, including branching coral colonies and delicate ramose bryozoans that found shelter in a leeward setting. Whole rhodoliths contribute the main fabric of carbonates deposited against rocky shores on the northern, exposed side of the Miocene island, whereas only traces of worn rhodoliths and rhodolith sand occur as in finer Miocene grainstone on the island's southern, protected side. Miocene and Pliocene carbonate deposits were terminated by submarine flows on an actively growing volcanic island. The passage zone from submarine to subaerial flows on the island's flanks makes a useful meter-stick to gauge absolute water depth at the moment of local extinction by volcanic activity.