ZOOLOGIA CABOVERDIANA

REVISTA DA SOCIEDADE CABOVERDIANA DE ZOOLOGIA

VOLUME 12 | NÚMERO 2

Dezembro de 2024

ZOOLOGIA CABOVERDIANA

REVISTA DA SOCIEDADE CABOVERDIANA DE ZOOLOGIA

Zoologia Caboverdiana é uma revista científica com arbitragem científica (*peer-review*) e de acesso livre. Nela são publicados artigos de investigação original, artigos de síntese e notas breves sobre Zoologia, Paleontologia, Biogeografia, Etnozoologia e Conservação nas ilhas de Cabo Verde. Também publicamos artigos originais ou de revisão de uma área geográfica mais ampla desde que debruçados sobre espécies que ocorrem no arquipélago de Cabo Verde.

Os artigos podem ser submetidos em inglês (com um resumo em português) ou em português (com um resumo em inglês). *Zoologia Caboverdiana* tem periodicidade bianual, com edições no Verão e no Inverno. Para mais informações, deve contactar o Comité Editorial.

As normas para os autores podem ser obtidas em www.scvz.org.

Zoologia Caboverdiana is a peer-reviewed open-access journal that publishes original research articles as well as review articles and short notes in all areas of Zoology, Paleontology, Biogeography, Ethnozoology and Conservation in the Cabo Verde islands. We also publish research articles and reviews with a broader geographic scope if focusing on some native Cabo Verdean animals with broader geographic range.

Articles may be written in English (with Portuguese summary) or Portuguese (with English summary). *Zoologia Caboverdiana* will be published biannually, with issues in summer and winter. For further information, contact the Editorial Committee.

Instructions for authors can be downloaded at www.scvz.org.

zoologiacaboverdiana@gmail.com

Conselho Editorial | Editorial Board

Doutor Adolfo Marco (Estación Biológica de Doñana, Espanha)
Doutor António P. Almeida (ISECMAR/UTA)
Doutora Ana S.P.S. Reboleira (CESAM, Universidade de Aveiro, Portugal)
Prof. Doutor Bert Boekschoten (Vrije Universiteit Amsterdam, Holanda)
Doutor Carlos M.L. Afonso (CCMAR, Universidade do Algarve, Portugal)
Doutora Celeste Benchimol (Uni-CV)
Doutora Corrine Almeida (ISECMAR/UTA)
Doutora Diara Rocha (Uni-CV)
Doutor Eduardo Ferreira (CESAM)
Doutor Edwin Pile (FMV, Universidade do Panamá, Panamá)
Doutor Jailson Pereira (ISECMAR/UTA)
Doutora Joana Alves (Instituto Nacional de Saúde Pública, Cabo Verde)
Doutor Jorge Neves (CIIMAR, Universidade do Porto, Portugal)
Doutor Jose A. González (ULPGC, Gran Canaria, Espanha)
Doutor José Augusto Alves (CESAM)
Doutor Julio César Voltolini (Universidade de Taubaté, Brasil)
Doutor Luis Palma (CIBIO-InBIO)
Doutor Leopoldo Moro (Governo de Canárias, Tenerife, Espanha)
Doutor Manuel Jimenez Tenorio (Universidade de Cádiz, Espanha)
Doutor Massimiliano Rosso (CIMA, Research Foundation, Italy)
Doutor Nuno Loureiro (CBA, Universidade do Algarve, Portugal)
Doutor Paulo Catry (ISPA, Portugal)
Pedro Geraldes (SPEA, BirdLife, Portugal)
Doutor Rafael Zardoya (CSIC, Museu Nacional de Ciências Naturais, Espanha)
Doutora Raquel Vasconcelos (CIBIO-InBIO, Universidade do Porto, Portugal/ TwinLab Cabo Verde
Doutor Rui Pedro Vieira (CEFAS/ Universidade de Southampton, Reino Unido)
Mestre Rui Freitas (ISECMAR/UTA)
Doutor Simon Berrow (IWDG/ Instituto de Tecnologia de Galway-Mayo, Irlanda)
Doutor Vitor H. Paiva (MARE, Universidade de Coimbra, Portugal)

Adolfo Marco, PhD (Doñana Biological Station, Spain)
António P.Almeida, PhD (ISECMAR/UTA)
Ana S.P.S. Reboleira, PhD (CESAM, University of Aveiro, Portugal)
Prof. Bert Boekschoten, PhD (Vrije Universiteit Amsterdam, Netherland)
Carlos M.L. Afonso, PhD (CCMAR, University of Algarve, Portugal)
Celeste Benchimol, PhD (Uni-CV)
Corrine Almeida, PhD (ISECMAR/UTA)
Diara Rocha, PhD (Uni-CV)
Eduardo Ferreira, PhD (CESAM)
Edwin Pile, PhD (FMV, University of Panama, Panama)
Jailson Pereira, PhD (ISECMAR/UTA)
Joana Alves, PhD (National Center for Sanitary Development, Cabo Verde)
Jorge Neves, PhD (CIMAR, University of Porto, Portugal)
Jose A. González, PhD (University of Las Palmas of Gran Canaria, Spain)
José Augusto Alves, PhD (CESAM)
Julio César Voltolini, PhD (University of Taubaté, Brazil)
Luis Palma, PhD (CIBIO-InBIO, Portugal)
Leopoldo Moro, PhD (Canarian Government, Tenerife, Spain)
Manuel Jimenez Tenorio, PhD (University of Cádiz, Spain)
Massimiliano Rosso, PhD (CIMA, Research Foundation, Italy)
Nuno Loureiro, PhD (CBA, University of Algarve, Portugal)
Paulo Catry, PhD (ISPA, Portugal)
Pedro Geraldes (SPEA, BirdLife, Portugal)
Rafael Zardoya, PhD (CSIC, National Museum of Natural Sciences, Spain)
Raquel Vasconcelos, PhD (CIBIO-InBIO, University of Porto, Portugal/ TwinLab Cabo Verde)
Rui Pedro Vieira, PhD (CEFAS/ University of Southampton, UK)
Rui Freitas, MSc (ISECMAR/UTA)
Simon Berrow, PhD (IWDG/ Galway-Mayo Institute of Technology, Ireland)
Vitor H. Paiva, PhD (MARE, University of Coimbra, Portugal)

Zoologia Caboverdiana 12, 2, 18–19
Available at www.scvz.org

Nota editorial

Caixa de Pandora

Os esforços na conservação da biodiversidade no arquipélago de Cabo Verde têm ecoado nos média a nível nacional e internacional. Acções concretas na conservação da biodiversidade têm catapultado Cabo Verde para um patamar de destaque, por ser um país insular vulnerável às alterações climáticas e também pelas iniciativas ambientais adoptadas. Temas como a protecção dos ecossistemas marinhos, das espécies endémicas ou em vias de extinção, bem como a vulnerabilidade do arquipélago à introdução de espécies exóticas têm estado na ordem do dia. A necessidade de ajustar as políticas ambientais ao contexto cabo-verdiano permitiu um aumento da produção científica, cada vez mais liderada por autores nacionais. É neste contexto que apresentamos o presente número da *Zoologia Caboverdiana*, onde constam um artigo e duas notas breves, todos liderados por investigadores do país.

A primeira publicação intitula-se "*Biologia reprodutora do francelho* (Falco tinnunculus alexandri*) na ilha do Maio, Cabo Verde*". Os autores deste artigo analisaram dados durante o período de incubação, incluindo o número de ovos, dados biométricos, pesos, dieta e comportamento dos juvenis desta ave de rapina. Os resultados mostraram que menos de metade dos juvenis sobrevive em cada ninho. A competição e o canibalismo entre os juvenis foram confirmados nesta subespécie. Além disso, a análise da dieta revelou que esta preda espécies endémicas, como o pardal-da-terra *Passer iagoensis* e a lagartixa espinal do Maio *Chioninia spinalis maioensis*.

A segunda publicação é uma nota breve intitulada "*À boleia em redes à deriva*". Neste trabalho, os autores utilizam como exemplo a espécie *Bolinus cornutus* para demostrar como o arquipélago de Cabo Verde é vulnerável a espécies que se aproveitam das redes à deriva na costa ocidental africana para se propagarem. As redes de pesca que se perderam ou foram abandonadas no mar ao largo de Cabo Verde acabam por recolher vários espécimes deste molusco que naturalmente não ocorrem no arquipélago.

A terceira e última nota breve faz uma resenha das publicações que focam na enseada de coral da Laginha, na ilha de São Vicente. No documento intitulado "*A Enseada de coral da Laginha em Mindelo (Cabo Verde): um património natural sob ameaça*", os autores demostraram a importância da enseada como lar de inúmeras espécies. Foi demonstrado que o número de publicações com dados da enseada de coral tem vindo a aumentar, muito devido ao alto número de endemismos na zona, principalmente de peixes. Esse facto fez com que fosse submetida uma proposta de criação de uma área protegida na zona, visando dar um estatuto de protecção a esse ecossistema.

A conservação da biodiversidade cabo-verdiana é uma tarefa de todos os que usufruem dela, directa ou indirectamente. Neste contexto, os investigadores tem vindo a fazer a sua parte, abrindo a caixa de pandora do conhecimento sobre as espécies e ecossistemas, produzindo informações valiosas para a tomada de decisão política. Dito tudo isso, em nome do Comité Editorial desejo-vos boa leitura e que apreciem este número.

Evandro Lopes
Editor-chefe interino da
Zoologia Caboverdiana

Zoologia Caboverdiana 12, 2, 18–19
Available at www.scvz.org

Editorial note

Pandora's Box

The efforts to conserve biodiversity in the Cabo Verde Archipelago have been echoed in the national and international media. Concrete actions in biodiversity conservation have propelled Cabo Verde into the spotlight, both as an insular country vulnerable to climate change and because of the environmental initiatives adopted. Issues such as the protection of marine ecosystems, endemic or threatened species and the archipelago's vulnerability to the introduction of exotic species have been on the agenda. The need to adjust environmental policies to the caboverdean context has led to an increase in scientific production led by national authors. It is in this context that we present this issue of *Zoologia Caboverdiana*, which includes an article and two short notes, all led by researchers from the country

The first publication is entitled "*On the breeding biology of Alexander's kestrel* (Falco tinnunculus alexandri) *on Maio Island, Cabo Verde*". The authors of this article analysed data during the incubation period, including the number of eggs, biometric data, weights, diet and behaviour of the juveniles of this raptor. The results showed that less than half of the juveniles survive in each nest. Competition and cannibalism between juveniles were confirmed in this subspecies. In addition, diet analysis revealed that they preys on endemic species such as the house sparrow *Passer iagoensis* and the Maio skink *Chioninia spinalis maioensis*.

The second publication is a short note entitled "*Hitchhiking on drifting nets*". In this work, the authors use the *Bolinus cornutus* species as an example to demonstrate how vulnerable the Cabo Verde archipelago is to species that take advantage of driftnets on the West African coast to spread. Fishing nets that have been lost or abandoned at sea off Cabo Verde end up collecting several specimens of this mollusc that do not naturally occur in the Archipelago.

The third and final short note reviews the publications that focus on the Laginha coral bay on São Vicente Island. In the document entitled "*The Laginha coral bay in Mindelo (Cabo Verde): a natural heritage site under threat*", the authors demonstrated the importance of the bay as a home to numerous species. It was shown that the number of publications with data from the coral bay has been increasing, largely due to the high number of endemics in the area, mainly fish. This has led to the submission of a proposal to create a protected area in the site, with the aim of giving this ecosystem a protected status.

The conservation of Cabo Verde's biodiversity is a task for all those who benefit from it, directly or indirectly. In this context, researchers have been doing their role, opening the pandora's box of knowledge about species and ecosystems, producing valuable information for political decision-making. Having said all this, on behalf of the Editorial Committee, I wish you a nice reading and hope that you will appreciate this issue.

Evandro Lopes
Interim Editor-in-Chief of
Zoologia Caboverdiana

Zoologia Caboverdiana 12, 2, 20–28
Available at www.scvz.org

Artigo original | Original article

On the breeding biology of Alexander's kestrel (*Falco tinnunculus alexandri*) on Maio Island, Cabo Verde

Jairson Veiga [1, *], Juan Patino-Martinez [1], José Santos [1], Atanásio Monteiro[1], Hélia Reis [1], João Reis [1], Samir Martins [2, 3] & António Araújo [4]

[1] FMB, Maio Biodiversity Foundation, Porto Inglês, Maio, Cabo Verde
[2] Lantuna.cv, Cidade da Praia, Santiago, Cabo Verde
[3] BIOS.CV, Conservation of the Environment and Sustainable Development, Sal Rei, Boa Vista, Cabo Verde
[4] Blue and Green, Nature Conservation and Ecotourism, Mindelo, São Vicente, Cabo Verde

** Corresponding author e-mail: jairson.veiga@fmb-maio.org*

RESUMO

O conhecimento da biologia reprodutiva das aves de rapina é essencial para o desenvolvimento de medidas de conservação eficazes que melhorem as taxas de sobrevivência. Este estudo fornece os primeiros dados de monitorização da subespécie endémica *Falco tinnunculus alexandri* durante a época de reprodução na ilha do Maio, Cabo Verde. Foram recolhidos dados durante o período de incubação, incluindo o número de ovos, dados biométricos, pesos, dieta e comportamento dos juvenis. Os resultados mostraram que menos de metades dos juvenis sobrevivem em cada ninho. A competição e o canibalismo entre os juvenis foram confirmados nesta subespécie. Além disso, a análise da dieta revelou que o francelho-de-Alexander preda espécies endémicas, como o pardal-da-terra *Passer iagoensis* e lagartixa espinal do Maio *Chioninia spinalis maioensis*. Estas descobertas são de extrema importância para aumentar o conhecimento da sua biologia reprodutora, informação importante para delineamento de medidas de conservação desta subespécie em Cabo Verde.

Palavras-chave: Aves de rapina, biometria, dieta, nidificação, sucesso reprodutor

ABSTRACT

Knowledge on the reproductive biology of birds of prey is essential to develop effective conservation measures and increase their survival rates. This study provides the first monitoring data available of the endemic subspecies *Falco tinnunculus alexandri* during the breeding season on the island of Maio, Cabo Verde. Data were collected during the incubation period, including the number of eggs, biometric data, weights, diet and behaviour of juveniles. The results show less than half of juveniles survived per nest. Competition and cannibalism between offspring were observed in this subspecies. Additionally, the diet analysis revealed that Alexander's kestrel preys on endemic species, such as the Cabo Verde sparrow *Passer iagoensis* and Maio skink *Chioninia spinalis maioensis*. These findings are extremely important for increasing knowledge of its reproductive biology, which is important information for outlining conservation measures for this subspecies in Cabo Verde

Keywords: Birds of prey, biometrics, diet, nesting, breeding success

INTRODUCTION

The Common kestrel (*Falco tinnunculus*) is a widely distributed bird of prey, occurring across the Palearctic, Afrotropical and Oriental regions (Cramp 1980, White *et al*. 1994, Sale 2016). The species inhabits open habitats with abundant food resources (Butet *et al*. 2010), feeding on small mammals, birds, reptiles and insects (Aparicio 2000, Kübler *et al*. 2005, Riegert *et al.* 2007, Żmihorski & Rejt 2007). The prey spectrum can vary seasonally and geographically (Khaleghizadeh & Javidkar 2006). Nesting occurs in various settings, including tree cavities (Shrubb 1993), cliffs, rocks (Anushiravani & Sepehri Roshan 2017), buildings (Charter *et al*. 2007), and artificial nest boxes (Costantini *et al*. 2010, Boileau & Bretagnolle 2014).

Reproductive traits of island birds often differ from those of mainland birds (Isenmann 1982, Kuusela 1983, Thibault *et al*. 1992). These include smaller clutch sizes, later laying dates and adaptations to insular conditions (Cody 1966, Wiggins *et al*. 1998, Carillo & González-Dávila 2005). Factors influencing these differences include habitat variation (Grant 1965), climatic conditions (Blondel 1985), genetic factors (Frankham 1997), island size and isolation (Wiggins *et al*. 1998), as well as predator and parasite pressures (Williamson 1981, Møller 1997). In Cabo Verde, two subspecies of the Common kestrel are recognized: *Falco tinnunculus neglectus* on the northwestern islands and *Falco tinnunculus alexandri* on the southeastern islands (Hazevoet 1995, Hille *et al*. 2003). On Maio Island, the breeding subspecies is *Falco tinnunculus alexandri* (Ontiveros, 2005, Veiga *et al*. 2022). Despite its wide distribution across habitats on the island, there is limited information about its biology (Hazevoet 1995). Previous studies in the archipelago have focused on taxonomy, distribution, breeding phenology, and diet (Bourne 1955, Naurois & Bonnaffoux 1969, Naurois 1987, Hazevoet 1995, Ontiveros 2005), but detailed reproductive data remain unavailable (Hazevoet 1995). This study aims to improve the knowledge of the breeding biology of Alexander's kestrel on Maio Island. We investigated breeding phenology, clutch size, reproductive success, juvenile biometrics, and diet composition for future research to build on and inform conservation strategies for this endemic subspecies.

MATERIAL AND METHODS

The study was conducted on Maio Island, Cabo Verde (15º16'12.0'N, 23º12'0.0'W; Fig. 1) from October to February during the breeding seasons of 2022, 2023 and 2024. Nine Alexander's kestrel nests (three per year) were monitored. The nests were located on low sedimentary rock cliffs and palm trees *Atlantic phoenix* (Fig. 2A, B, C). Incubation time (n = 9) was monitored using infrared sensor cameras (SOLOGNAC-BG500) installed in nests from the laying of the last egg until hatching.

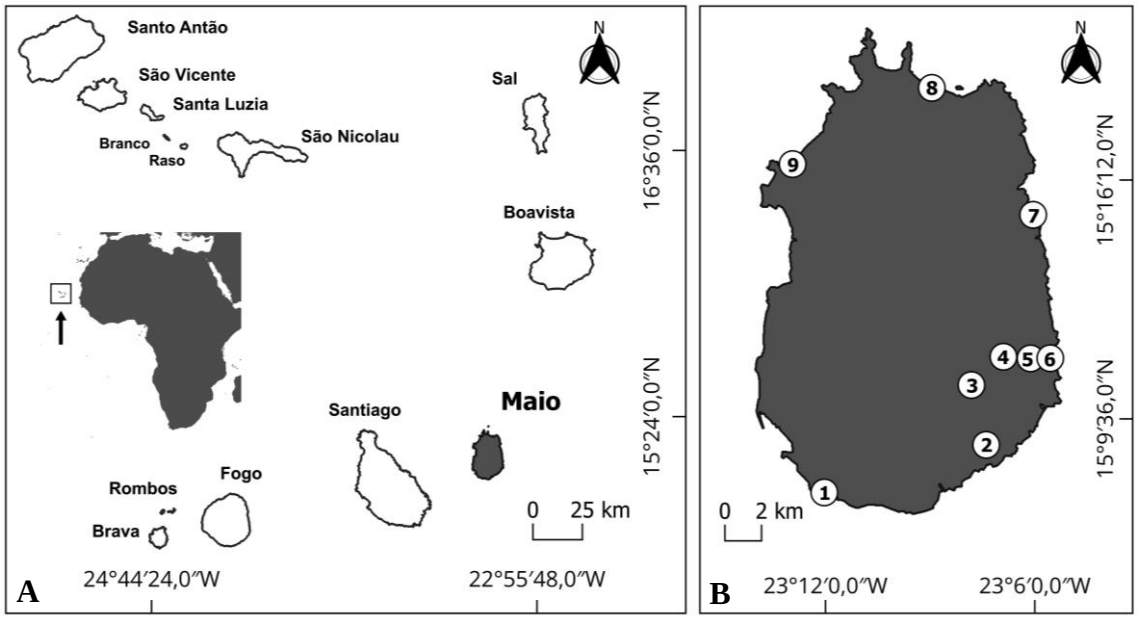

Fig. 1. Study area: **A**) Cabo Verde Archipelago and its location off the west coast of Africa, (black arrow) with Maio Island shaded, **B**) Location of monitored nests on Maio Island (numbered white circles).

In the most accessible nests (n= 4), eggs (n= 19) were counted and measured (length and maximum width) using a portable calliper (BM-RS/150 mm, accuracy ± 0.05 mm) and weighed using the digital scale (Smart Weigh Digital Pro Pocket Scale TOP2kg, accuracy ± 0.1). Egg volume (V), was calculated using the formula of Douglas (1990): $V= Kv*L* W^2$ (Kv, egg volume coefficient, L, egg length and W, egg width). After hatching, juveniles (n= 5) in two nests were weighed and measured weekly (culmen length, head-to-culmen length, wing length, wingspan length, tarsus length and weight).

In each nest (n= 9), hatching success (percentage of eggs that hatched) and survival success (number of fledglings from each nest) were calculated. After hatching, food remains (n= 48) found in the nine nests were collected, identified and counted weekly. The proportion of occurrence for each prey group was calculated, based on the quotient between the number of individuals of a given prey category and the total number of individuals of all prey categories x100. The behaviour of juveniles was monitored by cameras with infrared sensors installed in the nests from hatching until the juveniles left the nest. All statistical analyses were performed using R software version 4.2.2 (R Core Team 2022).

Fig. 1. Photos of the different stages of *Falco tinnunculus alexandri* in the nest: **A)** Breeding female of the Alexander's kestrel in front of the nest in a palm tree. **B**) Eggs incubated by a pair of kestrels in cavities of sedimentary rocks. **C, D**) Nestlings in the first few days after hatching. **E)** Nestlings on their second week of age. **F)** Two juveniles ready to leave the nest.

RESULTS

In the nine Alexander's kestrel pairs monitored, incubation lasted for 22.6 ± 1.5 days on average (Fig. 2B). In nine nests, the average number of eggs per clutch was 4.5 ± 0.8 eggs (Fig. 2B). Nineteen eggs from four most accessible nests had an average weight of 18.0 ± 1.4 g, an average length of 38.0 ± 1.1 mm and an average width of 30.6 ± 0.8 mm and an average volume of 18.3 ± 1.0 cm^3. The biometrics of five juveniles from two nests measured and weighted in the first week after hatching were as follows: average culmen length was 8.8 ± 0.8 mm, the average head-culmen length was 33.6 ± 2.0 mm, the average wing length was 29.0 ± 4.8 mm, the average wingspan was 138 ± 23.1 mm, the average tarsus length was 25.1 ± 4.4 mm and the average weight was 52.4 ± 23.9 g (Fig. 3). The biometrics of five juveniles measured and weighted in the last week before leaving the

nest (fifth week) were as follows: average culmen length was 12.8 ± 0.4 mm, the average head-culmen length was 45.3 ± 0.5 mm, the average wing length was 179.8 ± 1.8 mm, the average wingspan was 560.3 ± 5.9 mm, the average tarsus length was 48.6 ± 0.3 mm and the average weight was 182.7 ± 11.0 g (Fig. 3). The average hatching success of eggs from nine nests was 69.4 ± 32.3% (Fig. 2C, D) and juvenile survival was 35.2 ± 25.3 % (Fig. 2E, F).

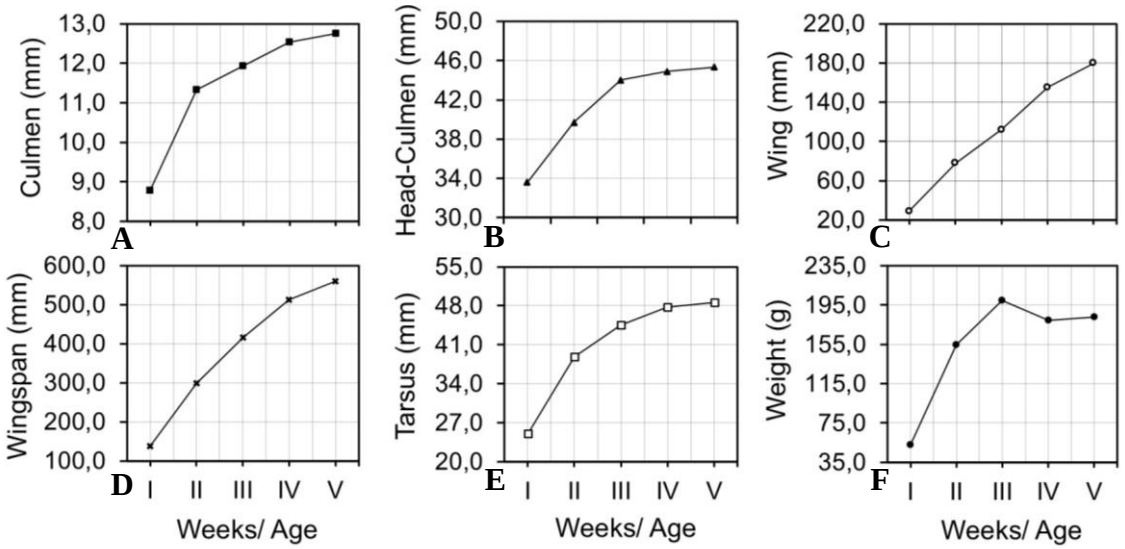

Fig. 3. Graphs representing mean weekly growth of 5 juvenile kestrels: **A**) Culmen length, **B**) head-to-culmen length, **C**) wing length, **D**) wingspan length, **E**) tarsus length, and **F**) weight.

Of the 46 food items collected from the nests, eight different prey species, including insects, reptiles, birds and mammals were identified (Table 1). In two of the nests, the dominant juvenile was observed pushing its siblings out of the nest. Cannibalism was recorded in one of the nests, with two siblings feeding on the third (dead) one. Juveniles left the nest during the fifth week after hatching in all the nests.

Table 1. Prey species found in nests and respective percentage of occurrence. The proportion (% SOP) of species occurrence in prey remains as well as the number of prey remaining in the nests (Nº. Prey) for a total of 46 prey are provided. Species that are endemic to Cabo Verde are marked with an asterisk (*****)

Class	Species/ Subspecies	Common name	% SPO	Nº prey
Insects	*Oedaleus senegalensis*	Senegalese grasshopper	6.5	3
Reptiles	*Chioninia spinalis maioensis*	Maio skink *	21.7	10
Birds	*Ammomanes cinctura*	Bar-tailed lark	10.9	5
	Coturnix coturnix	Common quail	2.2	1
	Eremopterix nigriceps	Black-crowned sparrow-lark	8.7	4
	Gallus gallus domesticus	Domestic chicken	6.5	3
	Passer iagoensis	Cabo Verde sparrow *	34.8	16
Mammals	*Mus musculus*	House mouse	8.7	4
All			100.0	46

DISCUSSION

The results indicate that Alexander's kestrel exhibits reproductive traits similar to other common kestrel populations, such as clutch sizes of 3–6 eggs (Massemin *et al*. 2002, Valkama *et al*. 2002, Anushiravani & Roshan 2017, Kabeer *et al*. 2021) and egg volumes ranging between 16.10 and 25.30 cm³ (Valkama *et al*. 2002). However, incubation periods were shorter (22.6 days vs. 27–31 days documented elsewhere; Anushiravani & Roshan 2017, Charter *et al*. 2008, Valkama *et al*. 2002, Kabeer *et al*. 2021) and average hatching success was lower (69.4% vs. 84.4–87.5%; Anushiravani & Roshan 2017, Kabeer *et al*. 2021). Reproductive characteristics of birds of prey can vary between islands and regions (Lack 1968, Cody 1971, Isenmann 1982). It is assumed that insularity may affect the reproductive biology of raptors in different ways (Carillo & González-Dávila 2005), and these discrepancies may reflect adaptations to particular environmental conditions of Maio Island, including food availability, climate, and predator pressure (Hille *et al*. 2003). The mortality of juvenile Alexander's kestrels in the nests on Maio Island is above the ranges recorded in other populations (64.8% vs. 55–59%; Wiehn *et al*. 2000). One of the causes of mortality observed in some nests was intra-clutch competition and cannibalism, which are two known and described phenomena in falconiforms (Bonabeau *et al*. 1998, Redondo *et al*. 2019, Romano *et al*. 2022). Observations of intra-clutch competition and cannibalism suggest adaptive strategies to maximize survival under unpredictable feeding conditions (Bonabeau *et al*. 1998, Markham & Watts 2007, Hadjikyriakou & Kirschel 2016). The diet composition of Alexander's kestrel on Maio was similar to that in other regions, including small mammals, birds, reptiles, and insects (Aparicio 2000, Kübler *et al*. 2005, Riegert *et al*. 2007, Żmihorski & Rejt 2007). On Maio Island, Alexander's kestrel, preys mainly on endemic species (56.5%), which are abundant and have a conservation status of low concern on the Red List, such as *Passer iagoensis* (BirdLife International 2024) and *Chioninia spinalis maioensis* (Vasconcelos 2013), that should not raise concern about this predation. In addition, it also captures chickens (6.5%), which may be a source of conflict with local human communities (Stahl *et al*. 2002, Avery & Cummings 2004, Zuluaga *et al*. 2016).

It is hoped that these findings will encourage further ecological studies of this taxon to provide additional information supporting the improvement of its habitat conditions on the island.

ACKNOWLEDGEMENTS

We thank all the donors (Critical Ecosystem Partnership Fund, Maio 2025 Program and European Union) supporting FMB and the Direcção Nacional do Ambiente (DNA), for the authorisations provided. We also acknowledge the support of J. Sahuc, J. Vaz, E. Horta, and J. Gomes for their help in the fieldwork.

REFERENCES

Anushiravani, S. & Sepehri Roshan, Z. (2017) Identification of the breeding season diet of the Common Kestrel, *Falco tinnunculus* in the north of Iran. *Zoology and Ecology*, 27, 114–116.

Aparicio, J.M. (2000) Differences in the diets of resident and non-resident Kestrels in Spain. *Ornis Fennica*, 77, 169–175.

Avery, M.L. & Cummings, J.L. (2004) Livestock depredations by black vultures and golden eagles. S*heep and Goat Research Journal*, 19, 58–63.

Boileau, N. & Bretagnolle, V. (2014) Post-fledging dependence period in the Eurasian Kestrel (*Falco tinnunculus*) in western France. *Journal of Raptor Research*, 48, 248–256.

Bonabeau, E., Deneubourg, J.L. & Theraulaz, G. (1998) Within-brood competition and the optimal partitioning of parental investment. *The American Naturalist*, 152, 419–427.

Blondel, J. (1985) Breeding strategies of the Blue Tit and Coal Tit (*Parus*) in mainland and island Mediterranean habitats: A comparison. *The Journal of Animal Ecology*, 531–556.

Bourne, W.R.P. (1955) A new race of kestrel from the Cape Verde Islands. *Bulletin of the British Ornithologists' Club*, 75, 35–36.

Butet, A., Michel, N., Rantier, Y., Comor, V., Hubert-Moy, L., Nabucet, J. & Delettre, Y. (2010) Responses of common buzzard (*Buteo buteo*) and Eurasian kestrel (*Falco tinnunculus*) to land use changes in agricultural landscapes of Western France. *Agriculture, ecosystems & environment*, 138, 152–159.

Carillo, J. & González-Dávila, E. (2005) Breeding biology and nest characteristics of the Eurasian Kestrel in different environments on an Atlantic island. *Ornis Fennica*, 82, 55–62.

Charter, M., Izhaki, I., Bouskila, A. & Leshem, Y. (2007) Breeding success of the Eurasian Kestrel (*Falco tinnunculus*) nesting on buildings in Israel. *Journal of Raptor Research*, 41, 139–143.

Charter, M., Leshem, Y.O.S.S.I., Izhaki, I. & Halevi, S.H.A.Y. (2008) A case of polygamy or co-operative breeding in the Common Kestrel *Falco tinnunculus* in Israel. *Sandgrouse*, 30, 164–165.

Cody, M.L. (1971) Ecological aspects of reproduction. *In* Farner, O.S. & King, J.R (eds.), *Avian Biology*, Vol. I Academic Press, London. pp 461–512.

Cody, M.L. (1966) Ageneral theory of clutch size. *Evolution*, 20, 174–184.

Costantini, D., Carello, L. & Dell'Omo, G. (2010) Temporal covariation of egg volume and breeding conditions in the Common Kestrel (*Falco tinnunculus*) in the Mediterranean region. *Ornis Fennica*, 87, 144–152.

Cramp, S. (1980) *Birds of the Western Palearctic*, Vol 2. Hawksto Bustards. University Press, Oxford,

Douglas A. (1990) Volume determination in reptilian and avian eggswith practical applications. *South African Journal of WildlifeResearch*, 20, 111–117.

Frankham, R. (1997) Do island populations have less genetic variation than mainland populations?. *Heredity*, 78, 311–327.

Grant, P.R. (1965) The adaptive significance of some size trends in island birds. *Evolution*, 19, 355–367.

Hadjikyriakou, T.G. & Kirschel, A.N. (2016) Video evidence confirms cannibalism in Eleonora's Falcon. *Journal of Raptor Research*, 50, 220–223.

Hazevoet, C.J. (1995) *The birds of the Cape Verde Islands*. BOU Check-list No. 13. Tring:British Ornithologists' Union,London. 192 pp.

Hille, S.M., Nesje, M. & Segelbacher, G. (2003) Genetic structure of kestrel populations and colonization of the Cape Verde archipelago. *Molecular Ecology*, 12, 2145–2151.

Isenmann, P. (1982) The influence of insularity on fecun-dity in tits (Aves, Paridae) in Corsica. A*cta Oecologica*. 3, 295–301.

Kabeer, B., Bilal, S., Abid, S., Mehmood, A., Asadi, M. A., Jilani, M. J. & Hejcmanová, P. (2021) Determining population trend and breeding biology of common kestrel (*Falco tinnunculus*) at Sir Bani Yas Island of emirates. *JAPS: Journal of Animal & Plant Sciences*, 31, 596–603.

Khaleghizadeh, A. & Javidkar, M. (2006) On the breeding season diet of the Common Kestrel, *Falco tinnunculus*, in Tehran, Iran. *Zoology in the Middle East*, 37, 113–114.

Kübler, S., Kupko, S. & Zeller, U. (2005) The kestrel (*Falco tinnunculus L.*) in Berlin: investigation of breeding biology and feeding ecology. *Journal of Ornithology*, 146, 271–278.

Kuusela, S. (1983) Breeding success of the Kestrel *Falco tinnunculus* in different habitats in Finland. I*n Proceedings of the third Nordic Congress in Ornithology*. 1981, 53–58.

Lack, D. (1968) *Ecological adaptations for breeding in birds*, Vol. 33. London. Methuen. 409 pp.

Markham, A.C. & Watts, B.D. (2007) Documentation of infanticide and cannibalism in Bald Eagles. *Journal of Raptor Research*, 41, 41–44.

Massemin, S., Korpimäki, E., Pöyri, V. & Zorn, T. (2002) Influence of hatching order on growth rate and resting metabolism of kestrel nestlings. *Journal of Avian Biology*, 33, 235–244.

Møller, A.P. (1997) Parasitism and the evolution of host life history. *In* Clayton, D.H. & Moore, J. (ed.). *Host parasitism evolution: General principles and avian models*. Oxford University Press, Oxford, pp. 105–127.

Naurois, R.D. (1987) Contribution à la connaissance de l'Ecologie de la Crécerelle (*Falco tinnunculus Linné*) dans l'Archipel du Cap Vert. *Bolletino di Museo Regionale di Scienze Naturali Torino*, 5, 195–210.

Naurois, R.D. & Bonnaffoux. D. (1969) L'avifaune de l'ile du Sel (ilha do Sal, archipel du Cap Vert). *Alauda*, 37, 93– 113.

Ontiveros, D. (2005) Abundance and diet of Alexander's kestrel (*Falco tinnunculus alexandri*) on Boavista island (Archipelago of Cape Verde). *Journal of Raptor Research*, 39, 80–83.

R Core Team. (2022) R: A Language and Environment for Statistical Computing. Version 4.2.2. Vienna: R Foundation for Statistical Computing. Oslo.

Redondo, T., Romero, J.M., Díaz-Delgado, R. & Nagy, J. (2019) Broodmate aggression and life history variation in accipitrid birds of prey. *Ecology and Evolution*, 9, 9185–9206.

Riegert, J., Dufek, A., Fainová, D., Mikeš, V. & Fuchs, R. (2007) Increased hunting effort buffers against vole scarcity in an urban Kestrel Falco tinnunculus population. *Bird Study*, 54, 353–361.

Romano, A., Morganti, M., Assandri, G., Bazzi, G., Corregidor-Castro, A., Morinay, J., Cecere, J.G., Pilastro, A. & Rubolini, D. (2022) Sibling competition for food and kin selection in nestlings of a colonial raptor. *Animal Behaviour*, 194, 233–238.

Sale, R. (2016) *Falcons (Collins New Naturalist Library)*,Vol. 132. Harper Collins UK. 608 pp.

Shrubb, M. (1993) Nest sites in the kestrel *Falco tinnunculus*. *Bird Study*, 40, 63–73.

Stahl, P., Ruette, S. & Gros, L. (2002) Predation on free-ranging poultry by mammalian and avian predators: field loss estimates in a French rural area. *Mammalian Review*, 32, 227–234.

Thibault, J.C., Patrimonio, O. & Torre, J. (1992) Does the diurnal raptor community of Corsica (Western Mediterranean) show insular characteristics? *Journal of Biogeography*, 363–373.

Valkama, J., Korpimäki, E., Wiehn, J. & Pakkanen, T. (2002) Inter-clutch egg size variation in kestrels *Falco tinnunculus*: seasonal decline under fluctuating food conditions. *Journal of avian biology*, 33, 426–432.

Veiga, J., Patino-Martinez, J., Santos, J., Reis, H., Reis, J. & Araújo, A. (2022) Nest site competition between birds of prey on Maio Island, Cabo Verde. *Zoologia Caboverdiana*, 10, 38–40.

Wiehn, J., Ilmonen, P., Korpimäki, E., Pahkala, M. & Wiebe, K.L. (2000) Hatching asynchrony in the Eurasian kestrel *Falco tinnunculus*: an experimental test of the brood reduction hypothesis. *Journal of Animal Ecology*, 69, 85–95.

Wiggins, D.A., Møller, A.P., Sørensen, M.F.L. & Brand, L. A. (1998) Island biogeography and the reproductive ecology of great tits *Parus major*. *Oecologia*, 115, 478–482.

White, C.M., Olson, P.D. & Kiff, L.F. (1994) Family Falconidae (falcons and caracaras). *In*: del Hoyo, J., Elliott, A. & Sargatal, J. (Eds.). *Handbook of the Birds of the World*, Vol. 2. New World Vultures to GuineafowL. Barcelona, Lynx Edicions. pp. 206–275.

Williamson, M. (1981) Island populations. Oxford University Press, Oxford. 286 pp.

Żmihorski, M. & Rejt, Ł. (2007) Weather-dependent variation in the cold-season diet of urban kestrels Falco tinnunculus. *Acta Ornithologica*, 42, 107–113.

Zuluaga, S. & Echeverry-Galvis, M.Á. (2016) Domestic fowl in the diet of the Black-and-chestnut Eagle (*Spizaetus isidori*) in the Eastern Andes of Colombia: a potential conflict with humans.*Ornitología Neotropical*, 27, 113–120.

Received 27 June 2024
Accepted 26 December 2024

Zoologia Caboverdiana 12, 2, 29–31
Available at www.scvz.org

Nota breve | Short note

Hitchhiking on drifting nets

Sarah Santos [1, *] & Evandro P. Lopes [1, 2]

[1] *ISECMAR/UTA, Instituto de Engenharias e Ciências do Mar, Universidade Técnica do Atlântico, CP 163, Mindelo, São Vicente, Cabo Verde*
[2] *CIBIO-InBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos, Laboratório Associado. BIOPOLIS Program in Genomics, Biodiversity and Land Planning, CIBIO, Campus de Vairão, Vairão, Portugal*

* *Corresponding author e-mail: sssantos@uta.cv*

Keywords: Cabo Verde, introduced species, ghost fishing, mollusks

The marine litter has been the subject of much concern given its great impact on marine ecosystems (Lima *et al.* 2020). It has become quite clear that one of the main causes of marine litter is ghost fishing, a type of fishing that results in the loss or illegal disposal of fishing gear at sea (Baird 2006). According to World Animal Protection, 640,000 tonnes of fishing gear are left in our oceans every year, causing huge economic and environmental damage (Casarini *et al*. 2011).

Due to its geographical position, the Cabo Verde Archipelago may be prone to the introduction of species arriving on marine waste (Cardoso & Caldeira 2021). With this in mind, in 2016, at Janela, on Santo Antão Island (17°07'14.8"N 24°59'23.5"W), a bottom fishing net was collected to identify its contents. It was found to contain 20 kg of sea snails. Based on the rough-textured outer surfaces, shell length (maximum 200 mm), short spines spiraling off a long, straight siphonal canal, low spires, and colour (ovate aperture mostly white, buff or tan shell interrupted on the body whorl by three darker brown spiral bands; Fig. 1), these shells were identified as horned murex *Bolinus cornutus* (L. 1758). The shells of six dry specimens were deposited in the BIOCATALOG collection, under the code UCV2024/00006.

Bolinus cornutus is often confused with *B. brandaris* (L. 1758) from Mediterranean, but *B. cornutus* has its larger size, reduced spire, and two rows of spines on the siphonal canal (as *B. brandaris* have one). Typically, the final whorl of *B. cornutus* bears two (occasionally three) rows of spines, while these spines often exhibit significant backward curvature (Houart 1996).

Bolinus cornutus is a predatory marine gastropod mollusk of the family Muricidae. It is common in the Canary Islands and along the west coast of Africa, where it inhabits moderately shallow waters (Muniz-Solís &

Guerra-Merchán 1994; Houart 1996). Although Muniz-Solís & Guerra-Merchán (1994) list Cabo Verde as part of the distribution of the species, it has never been seen before. Rolán (2005) argued that the presence of *B. cornutus* in Cabo Verde was doubtful. The net that was lost or abandoned at sea off Cabo Verde drifted away, eventually collecting the horned murex.

Fig. 1. Specimens of *Bolinus cornutus* found in 2016 at Janela, Santo Antão Island, Cabo Verde (photo by E. Lopes).

Cabo Verde coastline is influenced by the canary current, which connects with the wind-driven north equatorial current approaching the African coast (Freitas *et al*. 2018; Medina *et al*. 2007). This could explain the arrival of *B. cornutus* individuals as these currents transport debris from areas far away (Cardoso & Caldeira 2021). This case exemplifies how Cabo Verde is vulnerable to introduced species brought as marine litter, possibly affecting its fragile marine ecosystems and endemic species.

ACKNOWLEDGEMENTS

This study was supported by the Biocatalog Project (ISECMAR Species Collection, Cabo Verde) and Centro de Observação e Investigação Ambiental (COIA). We thank M.J. Tenorio and R. Zardoya for additional comments and revisions. We also thank the Instituto do Mar (IMAR), in particular W. Évora, for providing the samples, the UTA biology students for sample analysis, and the anonymous reviewers of this manuscript.

REFERENCES

Baird, R.J. (2006) *Aspects of illegal, unreported and unregulated fishing the Southern Ocean*. Springer, Berlin, 286 p.

Cardoso, C. & Caldeira, R.M. (2021) Modeling the exposure of the Macaronesia Islands (NE Atlantic) to marine plastic pollution. *Frontiers in Marine Science*, 8, 653502.

Casarini, L.M., Campolim, M.B., Castilho-Barros, L., Graça-Lopes, R., Fortuna, M.D., Mello-Junior, J.E.A. & Scola, D.C.A. (2011) Avaliação dos petrechos de pesca recolhidos em unidades de Conservação. *Proceedings of the V Simpósio Brasileiro de Oceanografia-Oceanografia e Políticas Públicas*, 17–20.

Freitas, R., Falcón, J.M., Gonzáles, J.A. & Burnett, K.A. (2018) New and confirmed records of fishes from the Cabo Verde archipelago based on photographic and genetic data. *Arquipelago, Life and Marine Sciences*, 35, 67–83.

Houart, R. (1996) Les Muricidae d'Afrique occidentale I. Muricinae & Muricopsinae. *Apex*, 11, 95–161.

Lima, M.K.S, Fonteles de Vasconcelos Filho, J.I., de Freitas, R.M. & Feitosa, C.V. (2020). Pesca fantasma: Uma síntese das causas e consequências nos últimos 15 Anos. *Arquivos de Ciências do Mar*, 52, 98–114.

Medina, A., Brêthes, J.C., Sévigny, J.M. & Zakardjian, B. (2007) How geographic distance and depth drive ecological variability and isolation of demersal fish communities in an archipelago system (Cape Verde, Eastern Atlantic Ocean). *Marine Ecology*, 28, 404– 417.

Muniz-Sólis, R. & Guerra-Merchán, A. (1994) Malacologic study from Pliocene of Estepona (Malaga). Family Muricidae, Rafinesque, 1815 (Gastropoda, Prosobranchia). *Iberus: Revista de la Sociedad Espanola de Malacologia*, 12, 07– 41.

Rolán, E. (2005). *Malacological fauna from the Cape Verde Archipelago: 1. Polyplacophora and Gastropoda*. ConchBooks: Hackenheim, Germany. 455 pp.

Received 30 June 2024
Accepted 21 November 2024

Zoologia Caboverdiana 12, 2, 32–35
Available at www.scvz.org

Nota breve | Short note

Laginha coral bay in Mindelo (Cabo Verde): a natural heritage site under threat

Evandro P. Lopes [1] *, Guilherme Mascarenhas [1], Keider Neves [2] & Rui Freitas [1]

[1] *ISECMAR/UTA, Instituto de Engenharias e Ciências do Mar, Universidade Técnica do Atlântico, CP 163, Mindelo, São Vicente, Cabo Verde*
[2] *BIOSFERA 1- Associação para a defesa do meio ambiente, Zona Sul Cemitério R5, CP 233, Mindelo, São Vicente, Cabo Verde*

* *Corresponding author e-mail: elopess@uta.cv*

Keywords: biodiversity, conservation, coral communities, literature review

Coral reefs are the shallow-water marine ecosystems with the greatest biological diversity, but they are threatened worldwide by human activities and climate change (Roberts *et al.* 2002). The creation of monitoring programmes makes it possible to outline conservation and recovery strategies for these habitats. The National Coral Reef Management and Conservation Plan (PNGCC) emphasises the urgent need for coral communities conservation in Cabo Verde. One of the habitats listed in the PNGCC is the Laginha Coral Cove (ECL), with a depth of up to 7 metres, on the island of São Vicente (Fig. 1A). The aim of this study was to research, compile and catalog the publications focusing on the marine biodiversity of the ECL. An advanced search using the keywords 'Matiota' and 'Laginha' was carried out on Google Scholar, with a focusing on scientific documents.

Results showed that the number of documents increased annually (Fig. 1B). The inventory of the fauna and flora of the bay by Mascarenhas (2022) contains more than 600 species, including 16 endemic fish species (Wirtz *et al.* 2013), a potentially extinct mollusc *Africonus lugubris* (Tenorio *et al.* 2020) and two crustaceans, the recently described *Typton anaramosae* and the first national record of *Gnathophyllum americanum* (Neves 2020a, b). However, these publications revealed that the seabed of the ECL is dominated by four species of stony corals (Fig. 1C): *Siderastrea radians*, *Favia fragum*, *Porites astreoides* and *Porites porites*, and the hidrocoral, *Millepora alcicornis* (Lopes *et al.* 2014). Seven other species of coral (two genera and two species are endemic), the green turtle *Chelonia mydas* and various invertebrates are also mentioned (Mascarenhas 2022).

Also noteworthy is the record of a small and rare labrid *Doratonotus megalepis*, endemic to Cabo Verde and São Tomé (Freitas & Mascarenhas pers. obs.).

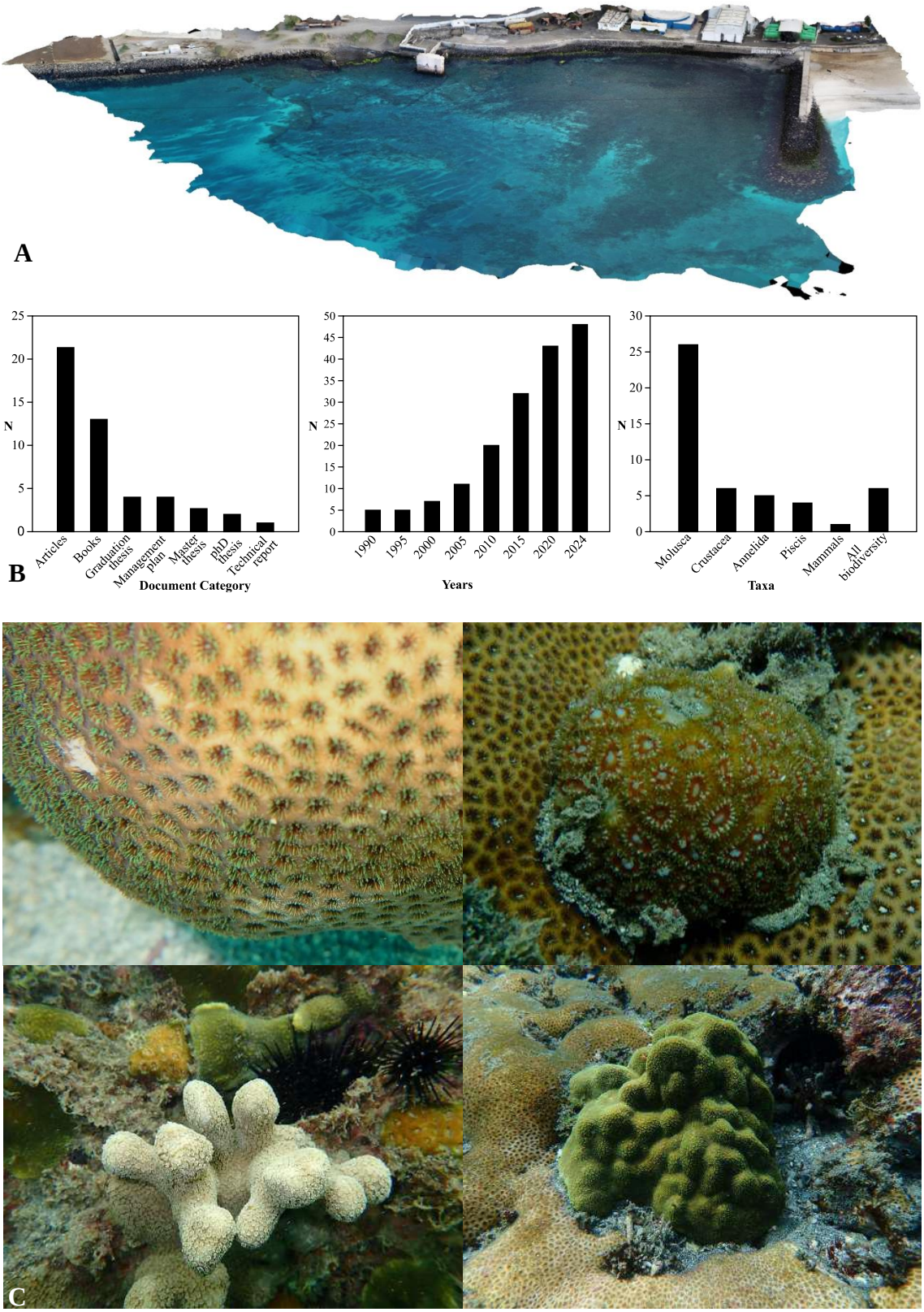

Fig. 1. Data and most common coral species relating to the Laginha coral bay (position on google maps). **A)** Orthophotometric drone image and 3D video (by Jandir Medina); **B)** Graph with number of publications (N) per category, per year (cumulative) and taxa respectively. **C)** The coral species *Siderastrea radians*, *Favia fragum*, *Porites porites* and *Porites astreoides* respectively (photos by Guilherme Mascarenhas).

Most of the publications found focussed on molluscs and crustaceans and were articles. These included studies on the genetic structure and population density assessment of the species *Pinna rudis* (Lopes *et al.* 2019, 2024); the description of new species/ records of crustaceans (Neves, 2020a, b); the ecophysiology of marine molluscs (Lopes-dos-Santos *et al.* 2014); the inventory of Conidae molluscs (Tenorio *et al.* 2008); and the determination of the genetic pattern of zoanthids (López *et al.* 2019). Also worth mentioning are two recent thesis, one using digital observation by photogrammetry (Gigli, 2022) and revealing the impact of burial on corals, and another using underwater video technique to monitor the dynamics and structure of coastal fish communities (Rocha 2024). However, there is a lack of basic studies on these communities supporting this ecosystem and conservation. In this context, we highlight the unpublished report on the underwater trail establishment (Trilha_ECL_2021), an important environmental education tool and the scientific proposal to create a Scientific Interest Site (ProLaginhaAMP_2020).

This work emphasises a significant lack of research into the flora and environmental education of the ECL. It shows that creating a Protected Area as scientific site and reducing or diverting wastewater discharges will be fundamental to safeguard the survival of this stronghold of marine biodiversity.

ACKNOWLEDGEMENTS

We thank J. Medina for the drone imagery from Laginha coral bay, R. Vasconcelos and two anonymous reviewers for additional comments and revisions of this manuscript.

REFERENCES

Lopes-dos-Santos, R.M.A., Galante-Oliveira, S., Lopes, E.P., Almeida, C. & Barroso C. (2014) Assessment of imposex and butyltin concentrations in *Gemophos viverratus* (Kiener, 1834), from São Vicente, Republic of Cabo Verde (Africa). *Environmental Science and Pollution Research*, 21, 10671–10677.

Gigli, F.M. (2022) Digital observations through Structure from Motion photogrammetry reveal impact from sediment load on local corals in Mindelo, Cabo Verde. Master's thesis in marine biology. Algarve University, Faro, 57 pp.

Mascarenhas, G. (2022) Espécies Marinhas da Enseada d' Coral da Laginha, S. Vicente, Cabo Verde. *Available from*: https://scvz.org/livrolaginha/

Lopes, E.P., Freitas, R. & Silva, O. (2014) Os Corais em Cabo Verde: um património a proteger. *Revista Internacional em Língua Portuguesa*, 22, 45 –64.

Lopes, E.P., Monteiro, N. & Santos, A.M. (2019) *In situ* method for assessing the biometric data of *Pinna rudis* Linnaeus, 1758. *Zoologia Caboverdiana*, 7, 48–56.

Lopes, E.P., Monteiro, N. & Santos, A.M. (2020) Epibiotic assemblages on the pen shell *Pinna rudis* (Bivalvia, Pinnidae) at Matiota Beach, São Vicente Island, Cabo Verde. *African Journal of Marine Science*, 42, 13–21.

Lopes, E.P., Santos, S., Xavier, R., Santos, J., Cabezas, P.M. & Santos, A.M. (2024) Genetic structure of *Pinna rudis* L. 1758 (Mollusca, Bivalvia, Pinnidae) in the Cabo Verde Islands (Central-East Atlantic). *PeerJ, in press.*

López, C., Reimer, J.D., Brito, A., Simón, D., Clemente, S. & Hernández, M. (2019) Diversity of zoantharian species and their symbionts from the Macaronesian and Cape Verde ecoregions demonstrates their widespread distribution in the Atlantic Ocean. *Coral Reefs*, 38, 269–283.

Neves, K. (2020a) A new species of the shrimp genus *Typton* Costa, 1844 (Malacostraca, Decapoda, Palaemonidae) from the Cabo Verde Archipelago. *Zootaxa*, 4768, 264–270.

Neves, K. (2020b) First record of the striped bumblebee shrimp *Gnathophyllum americanum* (Crustacea, Decapoda, Palaemonidae) in the Cabo Verde Islands. *Zoologia Caboverdiana*, 8, 11–13.

Roberts, C.M., McClean, C.J., Veron, J.E.N., Hawkins, J.P., Allen, G., McAllister, D.E., Mittermeier, C.G., Schueler, F.W., Spalding, M., Wells, F., Vynne, C. & Werner T.B. (2002) Marine biodiversity hotspots and conservation priorities for tropical reefs. *Science*, 295, 1280–1294.

Rocha, D.D.M. (2024) Avaliação da densidade e abundância dos peixes da Enseada de Coral (Laginha, Cabo Verde) usando técnicas de vídeo subaquático. Bachelor thesis in biological sciences, Technical University of the Atlantic, Mindelo, 35 pp.

Tenorio, M.J., Afonso, C.M.L. & Rolán, E. (2008) New endemic species of *Conus* (Gastropoda, Conidae) from the Islands of São Nicolau, Santo Antão and Sal in the Cape Verde Archipelago. *Vita Malacologica* 6, 1–10.

Tenorio, M.J., Abalde, S., Pardos-blas, J.R. & Zardoya, R. (2020) Taxonomic revision of West African cone snails (Gastropoda: Conidae) based upon mitogenomic studies: implications for conservation. *European Journal of Taxonomy* 63, 1–89.

Wirtz, P., Brito, A., Falcón, J.M., Freitas, R., Fricke, R., Monteiro, V., Reiner, F. & Tariche O. (2013) The coastal fishes of the Cape Verde Islands – new records and an annotated check-list: (Pisces). *Spixiana*, 36, 113–142.

Received 16 December 2024
Accepted 26 December 2024

 ISSN 2074-5737

SOCIEDADE CABOVERDIANA DE ZOOLOGIA

Caixa Postal 163, São Vicente, Cabo Verde
E-mail: zoologiacaboverdiana@gmail.com
Website: www.scvz.org

Direcção | Officers

Presidente | President	Rui Freitas
Vice-Presidente | Vice-President	Evandro Lopes
Secretário | Secretary	Evandro Lopes
Vogal | Member	Keider Neves

A missão da **Sociedade Caboverdiana de Zoologia**, organização científica, não-governamental, apartidária e sem fins lucrativos, é a de promover a investigação e a comunicação de ciência no domínio mais vasto da Zoologia no arquipélago de Cabo Verde. Esta missão é realizada através da:
a) publicação de uma revista científica com revisão de pares, bianual, disponível na internet e de livre acesso, *Zoologia Caboverdiana*, com artigos periódicos e publicações especiais;
b) publicação dum boletim científico disponível na internet, *A Cagarra*, com notícias zoológicas, resumo de artigos e outras publicações relacionadas com Cabo Verde;
c) publicação em papel e divulgação de material técnico-científicos relacionado com a História Natural de Cabo Verde em forma de panfletos, livros, actas, listas bibliográficas, entre outros;
d) promoção da investigação científica em Cabo Verde através da atribuição de bolsas de estudo e apoio logístico;
e) organização de encontros científicos (ex: palestras, fóruns, ateliers, congressos) em Cabo Verde dentro das temáticas da Sociedade;
f) emissão de pareceres técnicos ou quaisquer outros documentos legais para instituições privadas ou estatais no domínio mais vasto da Zoologia de Cabo Verde.

Subscrições para novos membros por e-mail.

The **Zoological Society of Cabo Verde**, a scientific, non-governmental, non-partisan and non-profit organization, sets itself as a goal to promote zoological research and science communication in the broadest sense in the Cabo Verde Islands. This mission is accomplished by:
a) publishing a bi-annual peer-review scientific journal, available online and freely accessible, *Zoologia Caboverdiana*, with periodical articles and special publications;
b) publishing of a scientific bulletin available online, *A Cagarra*, with zoological news, article abstracts and other publications related to Cabo Verde;
c) publishing in print and disseminating technical-scientific materials related to the Natural History of Cabo Verde in the form of leaflets, books, minutes, bibliographical lists, and others;
d) promoting research in Cabo Verde through the award of scholarships and logistical support;
e) organizing scientific meetings (e.g. lectures, forums, workshops, congresses) in Cabo Verde within the purposes of the Society;
f) issuing technical opinions or any other legal documents for private or governamental entities in the wider field of Zoology of Cabo Verde.

New memberships can be applied by e-mail.

ZOOLOGIA CABOVERDIANA

Volume 12 | Número 2 | Dezembro de 2024

Todos os conteúdos da *Zoologia Caboverdiana* podem ser obtidos em www.scvz.org
All contents of *Zoologia Caboverdiana* can be downloaded at www.scvz.org

Capa | Front cover

Francelho/Filili *Falco tinnunculus alexandri* nas dunas do Parque Natural do norte do Maio, ilha do Maio, Cabo Verde, Fevereiro de 2024 | Common kestrel *Falco tinnunculus alexandri* in the dunes of the northern Maio Natural Park, Maio Island, Cabo Verde, February 2024 (fotografia de | photo by António Saldanha)

Índice | Contents

ISS 2074-5737

Sociedade Caboverdiana de Zoologia