

**Crocodile Specialist Group Steering Committee Meeting
Chetumal International Business and Convention Centre, Chetumal, Mexico
(4 July 2022)**

Red List

Report on Activities: May 2018 to March 2022

“The CSG Veterinary Science Group provides a platform for the exchange of and access to crocodile specific veterinary knowledge and advises the CSG on veterinary matters relating to crocodilian conservation and farming.

The CSG Veterinary Science Group contributes to advancing crocodile veterinary science and medicine.

The CSG Veterinary Science Group provides support to animals under human care, including farms, zoological or educational institutions, Biologists and researchers, Non-governmental and Government organizations investigating in-situ mortalities and population health status”

1. New Vice Chair

Our trusted CSG Veterinary Science sub-group secretary, Dr. Gowri Mallapur, was invited to join the CSG Steering Committee as a Deputy Vice Chair. For the last 10 years, Gowri has been playing a central role in administering the group.

2. Continuation of the Fritz Huchzermeyer Veterinary Science Student Research Assistance Scheme

Since the last CSG meeting in 2018 (Santa Fe, Argentina), there have been 11 recipients of the FHVS-SRAS. The overall geographic distribution of the funds (N= 16) being Australia/Oceania (1), Southern East Africa (1), East Southeast Asia (3), South America (5) and North America (6) (see details in Annex 1). We encourage Chairs of under-represented regions to advertise this assistance scheme.

3. Veterinary Science Group mailing list

The veterinary list continues to be a resource that attracted interesting questions from a number of veterinarians and researchers and other “croc” professionals. Many thanks to those posting questions and answers and to Gowri Mallapur for administering this forum.

New members were added as below and addresses updated as per information:

- a. Szarianne Khan, Hope Zoo Preservation Foundation
- b. César Norberto Cedillo Leal
- c. Dr. James Fensham DVM, BSc (Veterinary Bioscience), SBANS, Associate Veterinarian, Future Fisheries Veterinary Service Pty Ltd. Australia
- d. Dr. Peter Sykes, aquatic epidemiologist
- e. Daniela Neris Nossa

The list currently includes: Annabelle Olsson, Teri Aquino, Luis Bassetti, Rogelio Cedeño, Tony Colbert, JE & ME Cooper, Sally Isberg, Val Lance, Rainier Manalo, Paolo Martelli, Akira Matsuda, Geoff McClure, Robby McLeod, Natalie Milic, Jan Myburgh, Silke Pfitzer, Cathy Shilton, Brian Sibongga, Lucho Siglieri, Pablo Siroski, Mike Talka, Marisa Tellez, Kent Vliet, Lonnie McCaskill, Wajjwalku Worawidh, Gonzalo Fernandez Hoyo, Chanrajakit Jitraporn, Charles Caraguel, Danny Govender, Bed Khadka, Gerry Swan, Jaelle Rowland, Bruce Douglas, David Huchzermeyer, Chris Foggin, Csaba Geczy, Paul Reilly, James Perran Ross, Charlie Manolis, Magdalene Francis, Manuel Muñiz, Samuel Seashole, Terry Cullen, Wenda Soctine, Isabelle Paquet-Durand, Daniel Blazko, Clark Cooper, Kenneth Conley, Sierra McLinn, Yhuri Nébega, Jasmin Moran, Daniela Neris Nossa, Marcelo Renan Santos, Brandon Moore, Eric Langlet, Cesar Cedillo, Brian Stacy

4. Workshops at CSG meetings

Plans for a veterinary workshop were disrupted by Covid19.

5. Other

- a. A number of Vet Science group members have contributed to discussing and refining SOPs pertaining to the welfare of farmed crocodiles.
- b. A number of Vet Science group members have assisted the TTF run crocodile workshops in Indonesia

6. Website updates (www.iucncsg.org/pages/Resources-provided-by-the-CSG-Veterinary-Science-Group.html)

The list of existing resources on the website:

1. Step by Step Guide and Reporting Form for the Necropsy of Crocodilians (English) (prepared by Dr. Paolo Martelli and Dr. Fritz Huchzermeyer)
 - 1.1. Guia Paso por Paso y Formato de Reporte para la Necropsia de Crocodilianos (Español) (Translated by Dr. Luis Sigler)
 - 1.2. Manuel Operatoire et Formulaire pour la Realisation d'Autopsies de Crocodiliens (Français) (Translated by Dr. Samuel Martin)
 - 1.3. Langkah-langkah Panduan Dan Formulir Pelaporan Untuk Nekropsi Buaya (Bahasa Indonesian) (Dr. Paolo Martelli and Dr. Fritz Huchzermeyer, translated by Dr. Vidi Saputra)
2. Literature relating to crocodilian immobilization (compiled by Dr. Annabelle Olsson)
3. Manual for Parasite Collection and Preservation (Dr. Marissa Tellez)
4. A Checklist of Host-Parasite Interactions of the Order Crocodylia (Dr. Marisa Tellez; University of California Press, Berkeley). Dr. Tellez has also provided a Crocodile-Parasite Data Sheet (Excel format)
5. Link to the Histopathology site (Spectrum WebViewer), added an index
6. Crocodilian Laboratory Diagnostics and Necropsy Reference List (compiled by Dr. Cathy Shilton)
7. Crocodilian Clinical Laboratory Diagnostics Overview: Haematology and Clinical Biochemistry (Dr. Cathy Shilton)
8. Crocodile Necropsy: Procedure and Appearance of Tissues (Saltwater Crocodile *Crocodylus porosus*) (Dr. Cathy Shilton) added photos
9. Crocodile Necropsy: Examples of Lesions in Farmed Saltwater (*Crocodylus porosus*) and Freshwater (*C. johnstoni*) Crocodiles (Dr. Cathy Shilton)
10. Euthanasia/killing method for crocodilians
11. Parasite drawings

12. Diagnosing and treating disease in live crocodiles (presentation delivered by Dr. Paolo Martelli at Cambodia CSG, 2015, with added Table of Contents).
13. Necropsy recognition of disease in hatchlings (presentation delivered by Dr. Cathy Shilton at Cambodia CSG, 2015, with added Table of Contents).
14. Biosecurity, an introduction (presentation delivered by Dr. Cathy Shilton at Cambodia CSG, 2015).
15. Sampling Tips for Various Types of Ancillary Necropsy Testing (from CSG Veterinary Workshop, 2016)
16. Immobilization of Crocodiles (Dr. Silke Pfitzer, Dr. Samuel Martin and Dr. Paolo Martelli) (from CSG Veterinary Workshop, 2016)
17. Necropsy Basics and Taking the Best Samples (Dr. Cathy Shilton) (from CSG Veterinary Workshop, 2016)
18. Live Blood and Tissue Sampling Techniques (from CSG Veterinary Workshop, 2016)
19. Ultrasound - a Useful Tool for Health Assessment in Crocodilians (Dr. Paolo Martelli and Dr. Brian Chin Wing Kot) (from CSG Veterinary Workshop, 2016)
20. Transmitter Attachment and Monitoring - Appropriate Techniques and Technologies (Dr. Xander Combrink, Dr. Jonathan Warner and Dr. Danie Pienaar) (from CSG Veterinary Workshop, 2016)
21. Marking: Tags, Natural Tail Marks and Scute Clipping (Dr. Xander Combrink, Dr. Jonathan Warner and Dr. Danie Pienaar) (from CSG Veterinary Workshop, 2016)
22. Prudent Use of Medicines in Crocodilians with Special Reference to Antimicrobial Agents (compiled by Prof. Gerry Swan; posted February 2019)
23. "Humane Euthanasia/Killing Methods for Crocodilians - An Update" (2020)

Prepared by: Paolo Martelli, Cathy Shilton and Gowri Mallapur

Date: 4 June 2022

Annex 1: FHVS-SRAS funded applicants

- 2015-16 Jose Aguilera Gonzalez (Costa Rica): Evaluation of the health of the American crocodile (*Crocodylus acutus*) in the Tempisque River basin, Costa Rica.
- 2016-01 Maria Soledad Moleon (Argentina): Immunological investment in Broad-snouted caiman (*Caiman latirostris*) under stressful conditions.
- 2016-04 Arvin Marcaida (Philippines): Endoparasitic helminths in *Crocodylus mindorensis* and *Crocodylus porosus* from crocodile farms in the Philippines.
- 2017-11 Sierra McLinn (USA): Investigating the life-cycle of the deadliest crocodylian parasite in North America.
- 2017-20 Ethan Woodyard (USA): Molecular characterization of parasites infecting *Alligator mississippiensis*.
- 2018-05 Kathryn Wayne (USA): Establishing crocodylian genital differentiation: New approaches investigating hatchling *Alligator mississippiensis* sexual dimorphisms.
- 2018-11 Veronica Arias Perez (Costa Rica): Analysis of antibiotic sensitivity profiles in *Escherichia coli* isolates from the cloacas of American crocodiles (*Crocodylus acutus*) captured in tilapia ponds in Canas Guanacaste, Costa Rica.
- 2018-22 Melciellyne Aguilar (Panama): Detection and identification of *Trypanosoma* sp. in wild *Crocodylus acutus* and *Caiman crocodylus* at Monument Natural Isla Barro Colorado, Lago Gatún, Republic of Panama.
- 2019-04 Ana Calderon (Mexico): Indicators of stress physiology in *C. moreletii* in Yucatan Peninsula, Mexico.
- 2019-22 Kasahun Delene (Ethiopia): Isolation and identification of *Salmonella* species from juvenile Nile crocodiles at Arba-Minch Crocodile Ranch, Arba-Minch, Ethiopia.
- 2020-02 Elyn Buitizon (Philippines): Ultrasonographic features of the liver, spleen and gallbladder of subadult Saltwater Crocodiles (*Crocodylus porosus*) and Philippine Crocodiles (*Crocodylus mindorensis*).
- 2020-03 Celina Setias (Philippines): Ultrasonographic features of the Urogenital organs in subadult Saltwater Crocodiles (*Crocodylus porosus*) and Philippine Crocodiles (*Crocodylus mindorensis*).
- 2020-05 Gervais Habarugira (Australia): Understanding the mechanisms of West Nile virus (WNV) infection and induced lesions in *Crocodylus porosus*.
- 2020-08 Milan Piva (USA): MRI study of male crocodylian anatomy.
- 2021-02 Caleb Gordon (USA): Identifying the developmental basis of snout width and associated craniofacial anomalies in crocodylians.
- 2021-03 Kyla Beguesse (USA): New approach for identifying pathologic bone in crocodylian species.
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