The HARCC Herald

SUMMER 2025

THE ULTIMATE GOAL:
Healthy, Happy Pet Birds

Many speakers at the 2025 AAV conference received funding from HARCC. We are honored to support these outstanding professionals and their work:

- Dr. Hugues Beaufrère (University of California, Davis)
- Dr. M. Scott Echols (Scarlet Imaging)
- Dr. Hugo Gonzalez-Jassi (Louisiana State University)
- Dr. Cheryl Greenacre (University of Tennessee)
- Dr. Jan Hooimeijer (Consultancy Practice for Birds, Netherlands)
- Dr. Jörg Mayer (University of Georgia)
- Dr. David Sanchez-Migallon Guzman (University of California, Davis)

Harrison Avian Research & Conservation Collaborative

HARCC is committed to defining and solving challenges relevant to avian clinicians through research and conservation funding and to supporting an environment that encourages new ideas and new approaches to avian research that drive advances in avian care.

- **Evaluation of the Analgesic Effects of Cannabinoids in Orange-winged Amazon Parrots (*Amazona amazonica*)**

David Sanchez-Migallon Guzman, LV, MS, Dipl ECZM (Avian, Small Mammal), Dipl ACZM, University of California, Davis School of Veterinary Medicine

Previous published studies from our laboratory have evaluated the pharmacokinetics of cannabinoids in orange-winged Amazon parrots and have shown to be well tolerated and have a favorable pharmacokinetic profile. This was the first study to evaluate the pain-relieving effects of cannabinoids in any parrot species. The objective was to evaluate the analgesic effect and duration of action of two dosages of cannabidiol and cannabidiolic acid rich hemp extract in orange-winged Amazon parrots in a blinded balanced cross-over study using withdrawal thresholds to noxious thermal stimulus. Sedative and agitation behaviors were also monitored and scored during the study. The results support the use of this formulation of hemp-rich cannabinoids for pain management in this species.

Avian Research Grants

To date, HARCC has invested $400,692.75 in avian research grants, made possible through the generosity of donors like you. Your tax-deductible donations and your support on Facebook ensure that vital research continues and new discoveries take flight. HARCC is recognized by the IRS as a tax-exempt nonprofit organization. To contribute to future avian research projects, scan QR code.

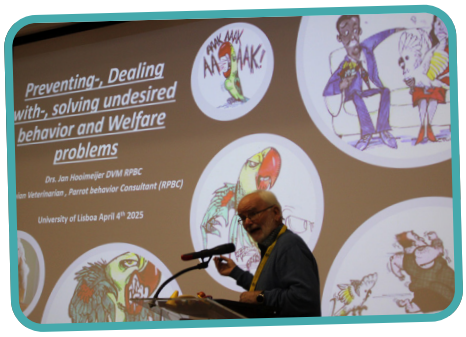
• Optimization of Avian Long Bone Fracture Repairs – A Duck Bone Model

Hamish Baron, BVSc (Hons), MVS (Avian Medicine), PhD, FANZCVS (Avian Medicine and Surgery), Director, The Unusual Pet Vets, Australia

Avian fractures are repaired using a variety of external and internal fixation, but limited data exists comparing the strength, flexibility and holding power of the various techniques. Specifically, there is limited comprehensive data on the use of locking compression plates and polyether ether ketone (PEEK) rods in avian bones. We will establish how thread pitch impacts screw-holding ability in the femur and humerus. This data will inform screw and implant size selection and allow us to compare the commonly used repair techniques: type one tie-in external fixateur, locking compression plates, as well as a novel technique using intramedullary PEEK rods, in a stress-to-failure bone model in the femur and humerus of cadavers.

• Enhancing Knowledge in Behavior, Cognition, Welfare and Preventive Medicine

Dr. Jan Hooimeijer, Avian Health Care, Meppel, The Netherlands



Supported by an an anonymous donor through HARCC, Dr. Hooimeijer provides seminars and workshop programs to practitioners and students to strengthen veterinary training in parrot behavior, cognition, welfare, and preventive medicine. He has developed the Dutch 5-Step Behavior Protocol, a tool to handle parrots based on creating mutual respect and mutual trust. This low-stress approach ensures the welfare of parrots as well as the welfare of the caretakers with the concepts based on ethology. The similarities in behavioral and welfare problems in parrots/animals and children are remarkable and are therefore not just applicable to parrots but to any animal and child. His work dispels myths (such as parrots being unsafe around children) and highlights preventable issues like arteriosclerosis and feather-picking, to prepare future clinicians to advance avian health and welfare.

• Health and Welfare Assessment with Pathogen Analysis of Confiscated Parrots

Patricia J. Latas, DVM and Brooke Durham, Founder and Director, SoCal Parrot (SCIACC)

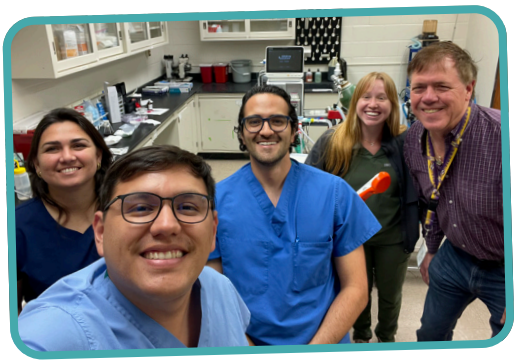
In February of 2025, SoCal International Avian Confiscation Center (SCIACC) received 200 birds from a suspected smuggling/ hoarding case. Originally thought to be a quarantine and release case, this cohort of birds has required longer term care as disease presented itself in the population.

During the last several months, the HARCC grant has provided funds for the following: 259 PCRs for 17 pathogens, identifying 4 positives within the population, 3 being zoonotic and potentially lethal, resulting in 63 positive PCRs for these pathogens, and 72 re-tests. In addition, over 20 bacterial cultures have been analyzed, 8 pathogens identified, 10 microbiome tests submitted with 17 organisms of interest identified, and several full blood panels have been taken. Testing is ongoing as the population is continuously monitored for fluctuations in diseases present.

Staff have given interns the invaluable experience of caring for and treating birds directly victimized by the pet parrot trade. This population of mixed parrot species will continue to be cared for at SCIACC under the veterinary expertise of Dr. Pat Latas and director Brooke Durham, allowing young career wildlife conservationists and wildlife rehabilitators a chance to learn and experience firsthand the intersection of wild parrot and captive pet trade, with focus on disease mitigation and management of smuggled birds.

• Hypothermia and Rewarming Times During General Anesthesia in Hispaniolan Amazon Parrots (*Amazona ventralis*): A Comparative Study of 3 Thermal Support Strategies and a Novel Body Temperature Measuring Tool

Hugo A. Gonzalez-Jassi, MVZ, Zoological Medicine Resident, School of Veterinary Medicine, Louisiana State University



Peri anesthetic hypothermia is one of the most common complications encountered when anesthetizing animals that have a high surface to volume ratio, like birds. Hypothermia exacerbates other physiological and cardiovascular anesthetic complications.

This project aimed to evaluate the use of a heated Mapleson A anesthesia circuit in combination with convection warming strategies compared to non-heated rebreathing anesthesia circuits to manage peri anesthetic hypothermia. Additionally, we sought to investigate the use of a microchip to monitor the body temperature of anesthetized birds in comparison with standard esophageal and cloacal probes.

A group of 12 Hispaniolan Amazon parrots from our research colony was anesthetized to compare 3 different rebreathing anesthesia circuits in combination with convection warming strategies. Although the results showed no statistically significant difference in the times of temperature loss and rewarming between circuits, our research serves as foundational data that this type of heated anesthesia circuits is safe to use in avian patients. The data analysis of the comparison between the microchip and probes is still pending and appears promising in describing a less invasive technique to monitor body temperature.

• Comparative Analysis of Antiseptic Preparation Methods on Skin Microbiota and Body Temperature in Pigeons (*Columba livia domestica*)

Michelle Waligora Kendall, DVM, Department of Small Animal Medicine & Surgery, Veterinary Teaching Hospital, University of Georgia

The principles of avian surgery are often extrapolated from other species. Aseptic methods remain largely untested in birds. The objectives of this study were to compare the effects of antiseptic solutions on skin bacterial load and body temperature in pigeons.

Thirty pigeons were anesthetized and prepared for both right and left lateral approaches to coeliotomy. Feathers were plucked, and skin swabs for colony-forming unit (CFU) determination were obtained before and after application of each of five antiseptic protocols: chlorhexidine 4% and povidone iodine 7.5% each with a saline or alcohol rinse, DuraPrep without a rinse, and saline used for both scrub and rinse as the control. CFUs were counted after 48 hours of incubation. Core body temperature was measured via esophageal probe during preparation of the first site for each bird. Seven of the post-treatment swabs grew bacteria, five were selected for MALDI-TOF identification and Staphylococcus spp. were isolated from all five swabs. All antiseptic protocols significantly reduced bacterial load, with no significant difference in effectiveness between protocols when excluding the saline control. One-way ANOVA revealed no significant differences in temperature changes across treatments. These findings indicate all tested protocols containing an antiseptic were effective at reducing bacterial load without significant variation in effectiveness. Additionally, there were no statistically or clinically significant changes in body temperature regardless of treatment.

• Novel Formalin Alternative for Preserving Tissues for Histology

M. Scott Echols, DVM, Dipl ABVP (Avian), Mobile Avian Surgical Services, The Medical Center for Birds, Park City, Utah

Our team has just started exploring novel means to preserve tissues without the use of formaldehyde, phenol, methanol or ethanol (the most commonly used chemicals in tissue preservation). The goal is to find a safer alternative to these chemicals (especially formaldehyde) and provide greater use of the preserved tissues (formaldehyde is not acceptable for DNA, RNA or electron microscope analysis). Shown is a picture of a pigeon preserved using a novel process and then necropsied 2 months later after simple refrigeration only. The image shows the exposed organs with minimal (if any) tissue degradation. Blinded pathology studies are scheduled as the next step in the study.

Updates of 2024 HARCC Funding

• Pharmacokinetics of Amoxicillin-Clavulanic acid in Domestic Chickens after Multiple-day Oral Dosing and Comparing Three Formulations

Cheryl B. Greenacre, DVM, DABVP (Avian), DABVP (Exotic Companion Mammal), University of Tennessee

A previously published study in chickens found no measurable amoxicillin plasma concentrations at any time point after receiving a chewable tablet formulation of amoxicillin-clavulanic acid at 125 mg/kg orally every 12 hours for 9 doses. We performed a random, cross-over study evaluating amoxicillin plasma concentrations in eleven, white Leghorn hens after receiving either a Clavamox® chewable tablet crushed in water (CW, n=7; 250mg/kg) instilled into the crop, or whole tablet (TO, n=6; 161-234 mg/kg) given orally, or Clavamox® oral suspension (OS, n=7; 250 mg/kg) instilled into the crop, every 8 hours for 13 doses. Plasma amoxycillin levels were evaluated at various time points. All birds in both the CW and OS groups had amoxycillin plasma concentrations above the minimum therapeutic plasma concentration for humans (0.5 µg/ml) for at least 6 hours, and all birds in the TO group for at least 4 h, although the concentrations were highly variable for the TO group.

• Investigation of Side Effects of Using Intravenous Honey Infusion Therapy to Treat Avian Veterinary Patients

Dr. Jörg Mayer, Team Zoological Medicine, College of Veterinary Medicine, University of Georgia

The project using intravenous honey has been completed, and the manuscript has been submitted to the AJVR. Our results established that the use of honey as an intravenous agent is extremely safe in chickens, as we used 4 times the dose that would be used in clinical settings. We also infused much faster (2-4 times the rate) than we would use on clinical patients to see if we could produce negative side effects. All the animals tolerated it very well. Following publication, we believe this new kind of theory will be accepted by a wider audience.

• Effect of Deslorelin Acetate Implants on Blood Lipids and Steroid Hormones in Female Cockatiels

Hugues Beaufrère, DVM, PhD, Dipl. ACZM, ABVP (Avian), ECZM (Avian), Board-certified in Zoological Medicine,TM University of California, Davis School of Veterinary Medicine

Our recent research in female cockatiels has revealed that deslorelin, a treatment often used to suppress egg laying, also plays an important role in the management of reproductive-associated hyperlipidemia. We found that birds receiving a deslorelin implant showed lower levels of cholesterol, triglycerides, and some lipoprotein parameters. The effect was most noticeable in the first two months after treatment and all treated cockatiels were protected from hyperlipidemic events during the 6-month study when compared to controls. Progesterone was found to be lower in the treated group with marginal decrease in estradiol as well. These results shed light on how managing reproduction in female psittacine birds can also help manage associated lipid accumulation conditions, such as dysregulated vitellogenesis, hepatic lipidosis, and atherosclerosis.

Visit us at www.harccresearch.org

HARCC
Harrison Avian Research & Conservation Collaborative
3610 South Ocean Blvd, Unit 601
South Palm Beach, FL 33480 • www.harccresearch.org

Do you have a proposal or an idea for a research project relevant to avian clinicians? Scan QR Code