González-Hein, Gisela, et al. "Prevalence of Aves Polyomavirus 1 and Beak and Feather Disease Virus From Exotic Captive Psittacine Birds in Chile." *Journal of avian medicine and surgery* 33.2 (2019): 141-149.

Abstract: Avian polyomavirus disease and psittacine beak and feather disease (PBFD) are both contagious viral diseases in psittacine birds with similar clinical manifestations and characterized by abnormal feathers. To determine the prevalence of Aves polyomavirus 1 (APyV) and beak and feather disease virus (BFDV) in captive, exotic psittacine birds in Chile, feathers from 250 psittacine birds, representing 17 genera, were collected and stored during the period 2013–2016. Polymerase chain reaction testing was used to detect APyV and BFDV were detected in feather bulb samples. The results indicated that 1.6% (4/250) of the samples were positive for APyV, 23.2% (58/250) were positive to BFDV, and 0.8% (2/250) were positive to both APyV and BFDV. This is the first report, to our knowledge, of APyV and BFDV prevalence in captive, exotic psittacine birds in South America. Analysis of 2 Chilean partial sequences of the gene encoding agnoprotein 1a (APyV) and the replication-associated protein (BFDV) extends the knowledge of genomic variability for both APyV and BFDV isolates and their spectrum of hosts. No geographical marker was detected for the local isolates.

Intro

* Avian polyomavirus and beak and feather disease virus (BFDV) are the most common viral diseases in psittacine birds and can cause fatal disease
* Aves polyomavirus 1 (APyV), formerly known as budgerigar fledgling disease virus, is a doublestranded DNA virus and a member of the family Polyomaviridae
* Budgerigar fledgling disease virus, the etiologic agent of psittacine beak and feather disease (PBFD), is a member of the family Circoviridae.
* Feather bulb is the sampling site of choice for both viruses
* The percentage of APyV viral genomes detected in psittacine birds from different countries ranges from 0.8% in Italy to 15.2% in Taiwan.19–21 For BFDV, these percentages range from 3.5% in the United States to 41.2% in Taiwan and 64.5% in Thailand.
* No previous studies looking at prevalence in Chile or any other South American countries
* The purpose of this investigation was to determine the prevalence, by PCR testing, of APyV and BFDV infection in imported and domestically bred psittacine birds in Chile.

M&M

* Total DNA obtained from feathers
* 250 feather samples collected between 2013 and 2016
* Feathers were classified as normal or abnormal in appearance
* PCR for APyV and BFDV run on each sample
* Partial sequence analysis performed on positive samples and compared to known positive sequences

Results

* 17 genera of psittacine birds from 2 families represented
* A total of 4 APyV-positive birds (1.6%) were identified in 2 genera
* The BFDV was detected more frequently. A total of 58 BFDV-positive birds (23.2%) were found in 13 genera.
* Only 0.8% (2/250) of the birds (1 being of the Psittacula genus and another of the Trichoglossus genus) were positive for both APyV and BFDV.
* Twenty-six of 250 feather samples (10.4%) were categorized as abnormal.
* Fourteen of 26 abnormal feathers were BFDV positive, and 3 of 26 abnormal feathers (11.5%) were APyV-positive
* Of the 250 feathers, 224 (89.6%) were categorized as normal.
* Twelve of 192 negative BFDV samples (6.3%) had abnormal feathers, and 14 of 58 BFDV-positive samples (24.1%) had abnormal feathers
* In the case of APyV, 3 of 4 APyV-positive birds (75%) had abnormal feathers, and 23 of 246 APyV-negative samples (9.3%) had abnormal feathers

Discussion

* In this study, we report for the first time, to our knowledge, the prevalence of APyV (1.6%) and BFDV (23.2%) in psittacine birds in captivity in Chile, as detected by PCR.
* A 36% seropositivity for APyV in captive psittacine birds was previously reported in Chile
* This difference may be a result of the different techniques used or because of the higher probability of finding antibodies, rather antigens, in a population.
* Regarding BFDV, the rate of PBFD infection (23.2%) that we obtained was similar to that observed in studies of psittacine birds in Poland (25.3%)
* Based on these findings, our recommendations for preventing the spread of the viruses include inspection of aviaries, followed by molecular diagnostic testing to determine the prevalence of the viral causative agents BFDV and APyV
* Testing the nursery environment for viral contamination is also important
* Recommend that native Chilean psittacine birds should not be in proximity to exotic psittacine birds in zoos, rescue centers, or private collections.
* Difficult to interpret the phylogenetic information of the viruses

**Superficial Chronic Ulcerative Dermatitis (SCUD) in Psittacine Birds: Review of 11 Cases (2008-2016).**

Abou-Zahr, T., Carrasco, D. C., Shimizu, N., Forbes, N. A., Dutton, T. A., Froehlich, F., & De Bellis, F.

JAMS 2018 32(1): 25-33

**Abstract:**

We reviewed 11 cases of superficial chronic ulcerative dermatitis (SCUD) in psittacine birds that presented to an exotic animal practice over an 8-year period. African grey parrots (*Psittacus erithacus*) were overrepresented, accounting for 55% of SCUD-affected birds. All affected birds were hand-reared pets and bonded strongly to their owners. In all cases, fungal culture results were negative. The most commonly cultured bacteria were *Enterobacter cloacae* (27%), followed by *Escherichia coli*, and *Staphylococcus aureus* (both 18%). An underlying cause of behavioral self-mutilation with secondary infection of dermatitis lesions by opportunistic bacteria was suspected in 10 of 11 cases. The axillae were the most common anatomic sites affected (45%). In two cases, more than one site was affected concurrently. Mean age of birds affected was 11.4 years. Two birds had suffered from SCUD previously, with 1 bird having suffered from 3 previous episodes and was euthanized as a result. All birds were treated with systemic antibiotics, topical antibacterial preparations, and systemic nonsteroidal anti-inflammatory drugs. A neck collar was applied in all cases. Median time to clinical resolution was 2 months (range, 1–21 months). Excluding the bird that was euthanized, all birds showed a positive response to treatment.

* **Intro:**
	+ Bacterial dermatitis in parrots - Staphylococcus aureus, Enterobacter cloacae
		- Mycobacteriosis also reported
	+ SCUD – umbrella term for dermatitis in psittacines in general
		- Aka under wing pyoderma
		- Absence of other histologic findings
		- most commonly observed dermatologic condition in parrots
		- often may involve enteric bacteria that opportunistically invade lesions after a breach of skin integrity
* **Discussion:**
	+ Can be caused by or progress from self-trauma, thermal or caustic trauma, polyfolliculitis, enteric giardiasis, and neoplasia
	+ Vit A/E deficiency and poorly performed wing trims can predispose to feather mutilation
	+ African grays over-represented
	+ Self-mutilation secondary to reproductive frustration presumptive cause of initial self-trauma resulting in SCUD in these cases
	+ predisposition for SCUD in hand-reared psittacine birds
	+ SCUD often recurs
	+ Bacterial culture – **E. cloacae most frequent**, then E.coli and S. aureus
		- All sensitive to enrofloxacin, amoxicillin clavulanate, TMS
		- Topicals used – mupirocin, SSD, germicidal barrier ointment
		- Parenteral abx used – Clavamox, TMS, enro, doxy in one bird
			* In SCUD cases with positive bacterial culture, parenteral abx therapy is indicated
			* C/S recommended, as multiple MRSA dermatitis cases described in psittacines
			* Topical steroids not recommended, risk of profound immunosuppression with absorption
			* C/S recommended in all cases of dermatitis in psittacine birds – MRSA has been described
	+ No fungal culture was positive
	+ Axilla most common site
	+ Hydrocolloid dressing over propatagium overlaid with radiographic film sutured on and replaced weekly resulted in marked healing within 14 days
		- Lesions took several months to heal, from 1-21 months
	+ Cutaneous mycobacteriosis may be a ddx
	+ Environmental changes with training and adjunctive medical/sx tx often required
	+ Deslorelin implants may help
		- GnRH agonist
		- Adjunct to appropriate behavioral modification, acts up to 3 months

**HINDLIMB PARALYSIS SYNDROME IN WILD CARNABY'S COCKATOOS (*CALYPTORHYNCHUS LATIROSTRIS*): A NEW THREAT FOR AN ENDANGERED SPECIES**

Anna Le Souëf, Simone Vitali, Rick Dawson, Rebecca Vaughan-Higgins, Kristin Warren

J Wildl Dis. 2020 Jul;56(3):609-619.

**Taxa:** Aves → Psittaciformes → Psittacidae → Cacatuinae (subfamily)

**Abstract:** Carnaby's Cockatoos (*Calyptorhynchus latirostris*) are in decline in SW Western Australia from several processes, including habitat loss and fragmentation. However, in recent years, a disease syndrome has also emerged as a significant population threat. Emerging diseases in wildlife have the potential for catastrophic effects on population numbers, especially if a species is experiencing existing pressure from other threatening processes. This article describes an investigation into a hindlimb paralysis syndrome that has occurred in the summer and autumn since 2012 in 84 wild Carnaby's Cockatoos. Recovery from the syndrome has been demonstrated in 21 of 33 cases when supportive therapy was applied. Although a definitive diagnosis has not been obtained, the hypothesized etiology is an organophosphate-induced delayed-onset neuropathy. The syndrome may indicate that interaction between the cockatoos and inland agricultural practices are affecting this migratory species in ways that are, so far, poorly understood.

**Background:**

* An increasing number of wild Carnaby’s cockatoos were presented to the Perth Zoo with hindlimb paresis/paralysis
* Organophosphates (OP) = anti-cholinesterase (anti-ChE) toxins that hydrolyze acetylcholine
	+ Acute clinical signs: fatal respiratory or cardiac arrest
	+ Absorption via oral, inhalational, or dermal routes
	+ OPs can be stored in fat and mobilized with physical exertion (e.g. migration)
	+ OPs are readily metabolized are rarely found on diagnostics
* OP-induced delayed neuropathy = peripheral neuropathy 2-3 wks post-OP exposure in humans, chickens, and a white-fronted Amazon

**Key Points:**

* Carnaby’s cockatoos with hindlimb paralysis syndrome were unable to stand +/- foot clenching, hindlimb paresis/paralysis
	+ Normal neurologic status in wings and head with an intact appetite
	+ Varying body condition
	+ Some had keel ulceration and eschar formation from prolonged sternal recumbency
* Most commonly presented in the summer and fall with no sex or age predilection
* No other local avian species known to be affected
* Few ticks but none known to cause paralysis
* Elevated AST +/- elevated CK and heterophils +/- hypoproteinemia
* No significant toxins detected (no OPs, only n=1 with nicatinoids)
	+ Consistent with hypothesize of delayed-onset polyneuropathy from OP exposure
* No significant depression of brain and plasma AChE activity consistent with delayed polyneuropathy syndrome
* Fair survival rate (21/33) with supportive care (fluids, antibiotics, meloxicam)
	+ Average recovery = 8 days
	+ No need for atropine because the OPs are already metabolized
* Hypothesize that OP exposure from agriculture during inland breeding then developed signs after migration to coastal Perth

**Conclusion:** Hindlimb paralysis syndrome in Carnaby’s cockatoos is hypothesized to be from an organophosphate-induced delayed-onset neuropathy that can resolve with supportive care.

**Fatal *Leucocytozoon* infection in a captive grey-headed parrot (*Poicephalus robustus suahelicus*)**Galosi L, Scaglione FE, Magi GE, Cork SC, Peirce MA, Ferraro S, Cucuzza LS, Cannizzo FT, Rossi G.
*J Avian Med Surg*. 2019;33(2):179-183

**Taxa**: Aves 🡪 Psittaformes 🡪 Psittacidae 🡪 Poicephalus robustus suahelicus
**Abstract**: A necropsy was conducted on a **female grey-headed parrot (*Poicephalus robustus suahelicus*) that died following signs of depression, ruffled feathers, and inappetence**. Microscopic examination revealed the presence of hemoprotozoa in the liver. A nested polymerase chain reaction (PCR), targeting the mitochondrial cytochrome b gene of Haemoproteus species, Plasmodium species, and Leucocytozoon species, was performed on frozen tissue samples collected at necropsy. The hemoprotozoa were identified by PCR analysis as Leucocytozoon species. Hemoprotozoa are rarely reported in African parrots, and this is the first report of a Leucocytozoon species infection in a *Poicephalus robustus suahelicus*.

**Background:**

* Single case report
* *Leucocytozoon*: phylum Apicomplexa (other genera *Plasmodium* and *Haemoproteus*)
* Transmitted to birds (intermediate host) by Simulidae black flies (definitive host) by bite and blood feeding
* High prevalence and diversity of *Leucocytozoon* parasites in corvids, outbreak reported in raptors, few scattered cases of infection in psittacines.
* Basophilic merozoites in parasitophorous vacuoles, typical invagination of host cell cytoplasmic membrane around parasites, occur in RBC or WBC (host/species dependent)

**Key points**

* Gross: BCS 2/5, normal plumage, enlarged spleen and liver, pale viscera, pulmonary edema, multifocal necrosis in liver and myocardium.
* Histo: schizonts in liver, merozoites in macrophages in liver, spleen, and lung. No protozoal infection in muscles or brain
* Nested PCR positive for *Leucocytozoon* spp. Lineage reported in corvids in Italy, Japan, and Germany
* Liver iron level higher than previous report of *Amazona* species with iron accumulation, suspect from tissue and cell breakdown due to blood parasites.
* Hemolytic anemia likely caused hypoxia resulting in pulmonary edema and necrosis of liver and myocardium (also pale viscera)

**Conclusions**

* First description of fatal *Leucocytozoon* spp. infection in African parrot
* First PCR confirmed *Leucocytozoon* spp. in psittacine bird.
* Possibly abberant infection in abnormal host, immunocompromise and naivety may be risk factors, migratory birds may be reservoirs.

Dieckmann, H., Jiménez-Soto, M., Jiménez-Rocha, A., Rojas, E., & Conrad, P. A. (2020). INTESTINAL AND BLOOD PARASITES IN SCARLET (ARA MACAO) AND GREAT GREEN (ARA AMBIGUA) MACAWS IN WILDLIFE REHABILITATION CENTERS IN COSTA RICA. *Journal of Zoo and Wildlife Medicine*, *51*(2), 385-390.

Abstract: Costa Rica undertakes continuous efforts to recover the native population of macaw species through rehabilitation programs for breeding and releasing birds in protected areas. In the summer of 2018, a total of **107 scarlet (*Ara macao*) and 93 great green (*Ara ambigua*) macaws were sampled in four wildlife rehabilitation centers in Costa Rica. Fecal samples representing 200 individuals were analyzed for intestinal parasites, and 23 individuals were sampled for hemoparasites. *Ascaridia* and *Capillaria* were found in fecal samples. No hemoparasites were found.** The distribution of percentage of infection was analyzed by location, species, and housing type. As part of a health screening prior to release, parasitological examination is recommended.

* Introduction:
	+ Ministry for the Environment and Energy of Costa Rica began controlled release program to improve numbers and genetic diversity of macaw species.
		- Utilizes animals confiscated from illegal trade.
		- Rehabilitation centers release macaws from confiscations and injured wildlife, concern for proper health screening prior to release that may pose risks to wild population.
	+ Hemoparasites of Psittacidae – Haemoproteus and plasmodium, prevalence varies by location and family. Have not yet been reported in CR macaw species.
	+ Intestinal parasites – Ascaridia galli, intestinal coccidia (Eimeria spp), Giardia duodenalis, Capillaria spp reported in macaws in CR.
* **Aim of study: Obtain baseline data on percent infection of fecal and blood parasites in captive macaws selected for reintroduction to the wild CR population.**
* M+M:
	+ Four locations, scarlet and green macaws, July 2018.
	+ Birds confiscated by government, donated from private owners, rescued from wild for medical concerns, hatched while in captivity.
	+ Fecal samples (pooled) collected for floatation. Blood samples from two locations for hemoparasite screening.
* Results:
	+ Fecals (200 birds):
		- Location 2 – Great green and scarlet macaw pooled fecal samples from two aviaries tested positive for Ascaridia spp. No clinical signs.
		- Location 3 – Great greens and scarlet macaws positive for Ascaridia spp.
		- Location 4 – Scarlet macaws had Capillaria spp in pooled fecals.
	+ Blood smears (23) – No hemoparasites in any sample.
* Discussion:
	+ Low percentage of infection on fecals may be due to limitation of fecal floatation with sugar suspension vs centrifugation.
	+ Variety of husbandry practices not assessed in detail, may contribute to parasite presence depending on location.
		- Second location had highest Ascaridia spp burden.
		- Location 4 only location with Capillaria spp.
* Takeaway:
	+ **Pilot project evaluated % infection intestinal and blood parasites in green and scarlet macaws, intestinal parasites (Ascaridia, Capillaria spp.) found. No hemoparasites.**
	+ Fecal screening at time of capture and repeated before release of these birds may help elucidate whether parasites are acquired during captivity or occur in the wild population.