# ASA Avicultural Bulletin

ASA
A JOURNAL FOR BIRD BREEDING, CONSERVATION, RESTORATION AND EDUCATION
January/February/March 2023

# NEXT ISSUE

**Eclectus (working title) John Griffith**

ASA BULLETIN

The purposes of the Society are the study of foreign and native birds to promote their conservation and protection; the dissemination of information on the care, breeding, and feeding of birds in captivity; the education of Society members and the public through publications, meetings, and available media; and the promotion and support of programs and institutions devoted to conservation. Front Cover: Palm cockatoo *Probosciger aterrimus* Photo: John Griffith Inside cover: Eclectus Photo John Griffith  The Avicultural Society of America e-Bulletin is published quarterly online on our website, asabirds.org

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January/February/March 2023

# President's Message

Aviculture United: AFA & ASA Combined 2023 Educational Conference

This year's education conference is shaping up to be a spectacular experience!

ASA and our friends at American Federation of Aviculture (AFA) are jointly hosting a combined conference in the historic city of Dallas, Texas, September 28 through September 30, 2023. This year's theme is aptly titled, Aviculture United.

There will be two tracks of speakers covering many aspects of avicultural education and practice. In addition, there will be a plethora of vendors and sponsors who will be attending and adding to the overall experience. Easy registration for one, two, or all three conference days, with or without the banquet option, can be booked online at: https://afabirds.org/2018_WordPress/conference/Conference-Registration-for-the-AFA-&-ASA-2023-Educational-Conference-Hilton-Richardson-Dallas-TX-p423200295.

A discounted room reservation option for conference attendees is also available through a block reservation at Hilton Richardson Dallas.You can take advantage of the hotel room discount here: https://www.hilton.com/en/attend-my-event/afa49thannualconference/.

This history-making combined conference is one you don't want to miss! I hope to see you there!

Thank you!
Sarah Brabbs
Avicultural Society of America, President

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# THE FEEDING BIOLOGY OF PALM COCKATOOS ON *Cape York Peninsula*

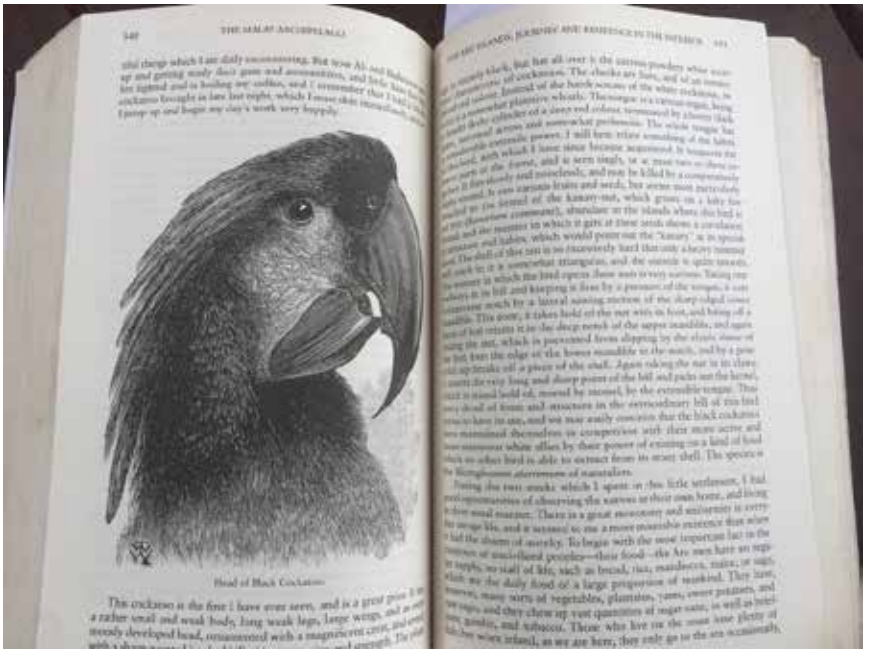
**All Photos and Text by John Griffith**

*except where noted*

"The palm cockatoo (*Probosciger aterrimus*), also known as the goliath cockatoo or great black cockatoo, is a large smoky-grey or black parrot of the cockatoo family native to New Guinea, Aru Islands and Cape York Peninsula. It has a very large black beak and prominent red cheek patches.

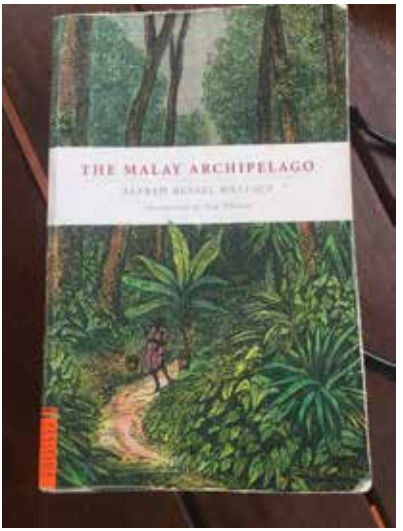
The palm cockatoo was originally described by German naturalist Johann Friedrich Gmelin in 1788 as *Psittacus aterrimus*. Its specific name, *Probosciger aterrimus*, is from Latin proboscis, long thin nose + -ger, carry, and Latin superlative adjective for ater, black, hence a "black bird with a long thin nose (beak)".
The only member of the monotypic genus, Probosciger, the palm cockatoo is a member of the white cockatoo subfamily Cacatuinae. Earlier limited genetic studies found it to be the earliest offshoot from the ancestors of what have become the cockatoo family.[1]"

[1] Wikipedia https://en.wikipedia.org/wiki/Palm_cockatoo



**History**; Alfred Russel Wallace was perhaps the first European (over 150 years ago) to ponder the uniqueness of the palm cockatoos bill and how it evolved to be a specialist feeder. He described how the bird feed on its favourite food, the kanary nut, *Canarium sp.* in great detail. Palm cockatoos are considered to be an ancient species. On Cape York Peninsula there are only a dozen or slightly more species of food trees that they have been recorded feeding in.

In his book, *The Malay Archipelago,* Wallace writes,




"Thus every detail in form and structure in the extraordinary bill of this bird seems to have its use, and we may easily conceive that the black cockatoos (Palm

Cockatoos) have maintained themselves in competition with their more active and more numerous white allies by their power of existing on a kind of food which no other bird is able to extract from its stony shell". It would appear that the beak has evolved to suit the fruits and nuts that they feed on.

*Canarium acutifolium* and palm cockatoo *Probosciger aterrimus*

**Food Trees that Palm Cockatoos have been Recorded Feeding in**

*Canarium acutifolium* are found in – New Guinea, Maluku, Sulawesi, New Britain, New Ireland, Bougainville, Qld Australia. In Australia, *C. australianum* grows naturally

*Canarium acutifolium* and palm cockatoo *Probosciger aterrimus*

below 100 m (330 ft) altitude in the scarce remaining lowland rainforests of the Wet Tropics region of north-eastern Queensland. This sub species of the Canarium family is listed as vulnerable in Queensland.

I have included images of a male palm cockatoo feeding in *Canatium australianum* at Iron Range, Cape York Peninsula. These trees are common in the area.

**Nonda Plum**; *Parinari nonda* is a shrub or small tree in the family Chrysobalanaceae. It occurs in northern Australia and New Guinea. This is the favoured food of Palm Cockatoos during their breeding season. It is only the kernel that is extracted from the fruit and eaten by the cockatoos. The edible fruits are harvested in the wild by aboriginal people and made into soups. The flesh contains a large amount of starch. One day I observed a female Palm Cockatoo gorge herself on Nonda Plums just prior to her laying her egg.

**Beach Almond**. T*erminalia catappa* is a large tropical tree in the leadwood tree family, *Combretaceae*, native to Asia, Australia, the Pacific, Madagascar and Seychelles.

The tree has been spread widely by humans, so the native range is uncertain. It has long been naturalised in a broad belt extending from Africa to northern Australia and New Guinea through south-eastern Asia and Micronesia into the Indian sub-continent. More recently, the plant has been introduced to parts of the Americas. Until the mid-20th century, the tree had been used extensively in Brazilian urban landscaping, since being a rare case tropical deciduous, their fallen leaves would give a “European” flair to the street. This practice is

Beach Almond
Photo: Kevin Sharp

currently abolished, and the "amendoeiras" are being replaced by native, evergreen trees.

Tannins that are released from the foliage of this Almond Tree that fall to the ground, prevent the development of other plants under this tree.

Wind, harsh sun and salt spray from the sea don't damage this robust tree making them an excellent species to help control beach erosion.

The kernel inside of the fibrous fruit is what the Palm Cockatoo eats. They are an important wet season food source as this

is a time when other food trees are a flush with new growth. Some birds travel several kilometres during the wet to feed in these trees.

As Palm Cockatoos feed in these trees they prune the branches, the same as a farmer would prune fruit trees in an orchard. When food is in short supply, they return to feed on the dry fruit that are left on the ground.

Kevin Sharp has observed Palm cockatoos feeding on Beach Almonds in West Papua, Indonesia. (see photo of opened fruit). In Costa Rica various macaws and Amazon Parrots already use it as an important source of food, but also the two-toed sloths, bats & squirrels.

The beach almond seems to have also medical benefits: The leaves have anti-inflammatory and antibiotic effects that are scientifically proven.

***Eucalyptus tetrodonta***, commonly known as Darwin Stringybark; is a tree typically that typically grows to a height of 9–25 m (30–82 ft) and forms a lignotuber. It has rough, fibrous or stringy, grey over reddish brown bark on the trunk and branches. Flowering occurs between June and September and the flowers are whitish or cream-coloured. The fruit is a woody, cylindrical

Photo: Des Boorman

Photo: Des Boorman

capsule. The seeds are grey, flattened oval and 2–4 mm long. Palm Cockatoos also prefer these trees for nesting.

The genus, ***Corymbia***, commonly known as Bloodwoods; is a genus of about one hundred species of tree. There are about 15 of these species known to grow on Cape York Peninsula.

The most common form of this family that Palm Cockatoos feed in is *Corymbia intermedia*. This species is found over much of Cape York Peninsula. South of Port Stewart I have observed both Palm Cockatoos and Red-tailed Black Cockatoos feeding on these seed pods close to one another.

The second form of Bloodwood that Palm Cockatoos have been observed feeding in is *Corymbia clarksoniana*, commonly known as Clarkson's Bloodwood. It is a species of medium-sized tree that

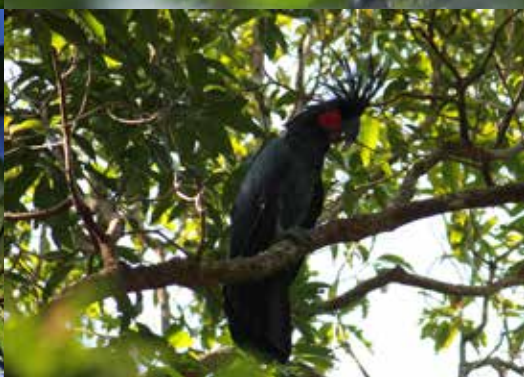
is native to Queensland and northern New South Wales. Des Boorman photographed Palm Cockatoos feeding in these at Iron Range National Park near the entrance to Rainforest Campground, site Number 1.

Palm Cockatoos use the same technique to open Bloodwood seed pods as they use to open Nonda Plums. They use their bottom mandible to chisel through the top, only with these seed pods the crown isn't separated from the main body. On the other hand Sulphur-crested Cockatoo chew the top off the nut to get to the seeds inside. (see photo previous page).

The seeds inside of Corymbia pods are extremely fine. These small seeds are high in protein, 40%. Palm Cockatoos feed on the pods when they are semi ripe. The reason for this is because when the nut dries out the seeds are released to blow away in the breeze. Corymbia seeds are an important food for Palm Cockatoos during the breeding season.

**Juveniles**; All juvenile Palm Cockatoos have horn colouring in their beak. They also have frayed tail feathers because of the way that they sit in the nest hollow. Some juveniles leave the nest with barring in their breast (first photo by Ken Cole).

Juvenile black palm cockatoo photographed by Ken Cole at Portland Roads. Cape York Peninsula


Canon

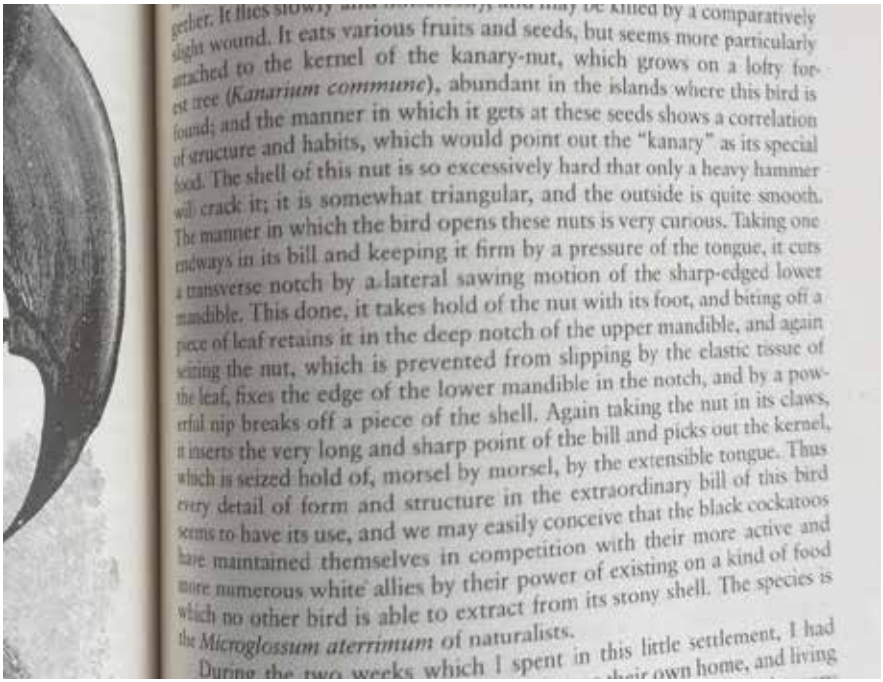
On fledging the juvenile Palm Cockatoo is guided to a gallery forest where it will spend their first 12 months.

At about 12 months of age the young bird starts to moult its tail feathers. Also at this time the juvenile bird has lost most of the horn colouring in its bill. It is along these gallery forests that the young Palm cockatoos experiment opening different nuts and fruit. During this time

other challengers that it will encounter later in life.

**How the Beak and Tongue Work**

In his book, "The Malay Archipelago" Wallace writes, "Thus every detail in form and structure in the extraordinary bill of this bird seems to have its use, and we may easily conceive that the black cockatoos (Palm Cockatoos) have maintained



gether. It flies slowly [illegible] may be killed by a comparatively slight wound. It eats various fruits and seeds, but seems more particularly attached to the kernel of the kanary-nut, which grows on a lofty forest tree (*Kanarium commune*), abundant in the islands where this bird is found; and the manner in which it gets at these seeds shows a correlation of structure and habits, which would point out the "kanary" as its special food. The shell of this nut is so excessively hard that only a heavy hammer will crack it; it is somewhat triangular, and the outside is quite smooth. The manner in which the bird opens these nuts is very curious. Taking one endways in its bill and keeping it firm by a pressure of the tongue, it cuts a transverse notch by a lateral sawing motion of the sharp-edged lower mandible. This done, it takes hold of the nut with its foot, and biting off a piece of leaf retains it in the deep notch of the upper mandible, and again seizing the nut, which is prevented from slipping by the elastic tissue of the leaf, fixes the edge of the lower mandible in the notch, and by a powerful nip breaks off a piece of the shell. Again taking the nut in its claws, it inserts the very long and sharp point of the bill and picks out the kernel, which is seized hold of, morsel by morsel, by the extensible tongue. Thus every detail of form and structure in the extraordinary bill of this bird seems to have its use, and we may easily conceive that the black cockatoos have maintained themselves in competition with their more active and more numerous white allies by their power of existing on a kind of food which no other bird is able to extract from its stony shell. The species is the *Microglossum aterrimum* of naturalists.

During the two weeks which I spent in this little settlement, I had [illegible] their own home, and living

the parents visit the fledgling at least once a day to feed it. There maybe not a lot of food value in these nuts and fruits but the experience gained practicing opening them is invaluable and will set the young bird up for

themselves in competition with their more active and more numerous white allies by their power of existing on a kind of food which no other bird is able to extract from its stony shell".

One can tell the quality of the food that a bird is eating by the time it spends feeding. When times are good and the nutrient value of the food is high they don't have to spend many hours eating. Palm Cockatoos don't spend a lot of time feeding during the day. Because of the select, small number of trees that Palm cockatoos have been observed feeding in, one can assume that the quality of the kernels and seeds that they are eating are in high in nutrition. We certainly know that the protein content of some of these foods is around 40%.
The Beak. The beak of the Palm Cockatoo is unique to all other members of the cockatoo family. It appears to have evolved to suit many of the fruits that they open to extract the kernel from. Fruits like the Nonda Plum fit neatly into the notch shape of the top mandible. The bottom mandible is shaped like a chisel and cuts the fruit in two so that the kernel is exposed.

**The Beak**
The beak of the Palm Cockatoo is unique to all other members of the cockatoo family. It appears to have evolved to suit many of the fruits that they open to extract the kernel from. Fruits like the Nonda Plum fit neatly into the notch shape of the top mandible.

The bottom mandible is shaped like a chisel and cuts the fruit in two so that the kernel is exposed.

**The Tongue**

Palm Cockatoos have a large unique tongue. It works in unison with the beak to manoeuvre fruit and nuts into position so that they can be opened. The main body of the tongue is red in colour with a black bulge on the tip which is used to extract the kernel from the fruit. When the

kernel is removed from the fruit or nut the tongue places the food on the roof of the Palm Cockatoos mouth.

The top of the mid-section of a Palm Cockatoos tongue is v-shaped with serrations along the outside edges. After the food has been placed on the roof of the birds mouth the tongue moves forward and up to catch the kernel and move it into the food passage then swallowing takes place. Mature Palm Cockatoos take less than 20 seconds to pick, then break into a fruit or nut, extract and swallow the kernel or seeds. Juveniles can take up to a minute. All part of a lifelong learning process for them.

References; “Plants of Cape York” by John Beasley.
“The Malay Archipelago” by Alfred Russel Wallace.
Special thanks to Des Boorman for help identifying plant species, and Wikipedia.

***About the author***

Who Am I? My name is John Griffith and I have been interested in birds (particularly Parrots and Finches) all of my life. I started keeping birds as a lad in the late 1960's.


During the late 1980's I realized that Aviculture was losing sub-species of our Australian Parrots so in 1990 I started to specialize in keeping and breeding the sub-species of parrots unique to Far North Queensland

where I live.


I am a carpenter by trade and worked for most of my life on remote communities throughout

Cape York Peninsula, the Torres Strait Islands and Western Queensland.

In 2012 I met Fulbright Scholar, Christina Zdenek who was doing her honors degree at the time on Palm Cockatoos at Iron Range. That started a working relationship (as a volunteer) with her and other


PHD students from the Australian National University that were also studding Palm Cockatoos on Cape York Peninsula.

For the last four years I have worked as a volunteer with the RARES unit (under the guidance of Dr Steve Murphy) at the University of Queensland helping with rot recovery and research on Australia's rarest raptor, the Red Goshawk.

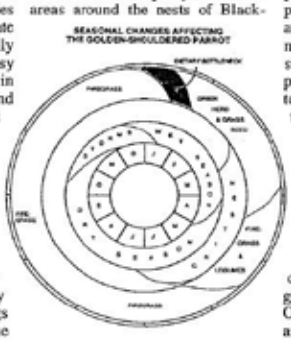
These days I run a small tour business that specializes in Cape York Peninsula and across the Top End of Australia.


I should add that for the last 25 years I have been interested in what birds (in particular parrots) feed on in the wild and how this can relate back to how we care for our captive birds.

## Life cycle of the Golden-shouldered Parrot

Nest searching, to begin the story, starts late in the wet season, the parrots, scratching away at termite mounds and chasing other birds from their territories. When food supplies become seliable, they rapidly excavate a chamber inside a mound, usually situated on the edge of a grassy drainage flat. The first eggs are laid in March, a female usually laying and incubating 5 or 6 eggs. Most eggs hatch; most hatchlings, raised by both parents on a diet that includes green legume seed, fledge. Peak egg laying occurs in late March and the last young fly between June and early August depending on the length of the wet season. For a few months the young remain near their nests. Then they start to range more extensively. Only a small proportion of the fledglings are seen again after they leave the nest.

During the dry season juveniles birds gather into flocks with unmated males at traditional sites near water, feeding on the abundant fallen grass seed. Adult pairs stay near their old nest sites. With the first storms the flocks move to equally traditional areas around the nests of Black-faced Woodswallows. The parrots feed near the woodswallows until these disperse as the real wet season sets in. The parrots themselves then disperse, seeking food which is now in short supply. Many young birds probably die after dispersing, particularly in years when heavy rains at the start of the wet season cause most seed to germinate simultaneously. Dispersal of both parrots and woodswallows appears to be delayed in areas burnt early in the wet season.




As the new season's food becomes available, pairs choose a termite mound in which to nest, birds with established territories returning to within a few kilometres of their previous nest site.

Such is the parrot's annual cycle but this simple description gives few clues to the species' rarity. Only by more detailed study of each aspect of the cycle has it been possible to develop a theory for why the Golden-shouldered Parrot has become so scarce and what can be done about it.


[Friends of Big Bear Valley Live Eagle Nest Cam]



Jackie and Shadow asked us to please explain all the differences between them, that according to them are so obvious. And since many of you have been asking also, here are some of the key points.

Of course, there is the size difference. Jackie appears to be quite proud of being much larger than Shadow and he seems to be just fine with that. This size difference is true for bald eagles in general.

Both Jackie and Shadow were gracious enough to pose for a few close ups this season. These pictures give us a better idea on how to tell them apart not only by their size and shoulder pads (Jackie is built more like a "linebacker"), but also by their heads. Jackie's head is overall a bit flatter on top, especially when her head feathers are not roused.

## *The Subtle Differences In Jackie and Shadow's Features*

Jackie is well known for her "fierce" or "stern" look. It's not because she is perpetually upset with Shadow (maybe only sometimes and only a little!), but because she has a more pronounced Supraorbital Ridge (the bony protuberance above the eye socket that shades and protects the eye). Shadow's Supraorbital Ridge is not that intense - he often looks "goofy" or "surprised" in comparison, which of course just makes him all the more adorable.

Bald Eagle Eyes are amazing! They have a better resolution and focus allowing them to see everything in great detail, with superior binocular vision and the ability to see more colors. Jackie and Shadow's visual acuity is 20/5, compared to 20/20 visual acuity of mere humans. They can spot a rabbit up to 3 miles away! So, no need to worry when you cannot see either of them on cameras. Jackie and Shadow have a much better awareness of their surroundings and each other's whereabouts.

Jackie's beak is overall larger and thicker than Shadow's from top to bottom. Her upper beak (Maxilla) is not only thicker but also a bit longer. Jackie's beak "runs for miles" while Shadow's curves down faster.
Jackie has a curvy wavy ridge on the bottom edge of the upper beak (the Tomial Ridge) that overlaps with the lower beak (Mandible) a bit more. Shadow's Tomial Ridge is a bit flatter in comparison, probably making him look not as threatening. This wavy curve is a common feature for raptors that helps them subdue prey quicker.

Take a closer look on their portraits below and let us know if you can spot more differences in the appearance of their Nares (nostrils), Cere (the fleshy region at the base of the beak that surrounds the nares), Lore (the region between the eyes and nostrils covered with short and stiff feathers) or Gape (the yellow corners of the mouth).



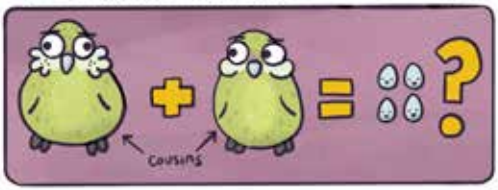
P.S. Jackie and Shadow have been diligently incubating their eggs for over two weeks. Pip Watch begins on February 15th. Watch them live on our YouTube Channel https://www.youtube.com/@FOBBVCAM that recently reached 100k subscribers thanks to all of our supporters worldwide! We greatly appreciate you all!

# Kākāpō Low Fertility Impacts and Findings at Kākāpō Recovery

Low fertility is a big issue for kākāpō, but what affects it most? Our new study analysed all breeding data since 1990 to find out!
The number of matings/mates a female has and whether her mate is hand-reared are the strongest factors influencing fertility, while their age, mating experience and the pair genetic relatedness have little effect. We'll use these results to tweak our management to help improve productivity. Thank you to Ngāi Tahu and Meridian Energy who make research like this possible through their ongoing support!
Check out the amazing artwork below by Sarah Maybe Little- Illustration for a summary of the findings from this new study.
You can read the full paper here: https://peerj.com/articles/14675/

SURPRISINGLY, WE LEARNT THAT SOME THINGS HAVE LESS IMPACT ON KĀKĀPŌ FERTILITY:


↑ AGE & PREVIOUS EXPERIENCE AREN'T SO IMPORTANT




↑ NOR IS PARENTAL RELATEDNESS

SO HERE'S HOW WE CAN **BOOST** FERTILITY:



Posted @withregram • @kakapo_recovery (Instagram)
We recently carried out our annual spring count of rimu fruit, to help us predict when kākāpō will breed next. As expected after a busy breeding season in 2022, the counts were very low, so we're not expecting breeding in the next year.

Sarah Maybe Little- Illustration

Flamingos Flocking to the Shore
Location: Lake Logipi, Kenya

The heavy concentration of pink amid the beautiful blue ocean is actually an immense gathering of flamingos. This remarkable drone image was captured in the skies of Kenya above Lake Logipi.

The saline, alkaline lake is often frequented by flamingos who come to the waters to feed on cyanobacteria and plankton. From the lens of the drone, the individuality of the flamingos and their shape fade away, creating a mesmerizing sea of pink.

Source: 24/7 Mirror

Dodo next in line for de-extinction by scientists reviving the mammoth

Toxins are turning off great egrets mating in the Everglades

Glenn Otto
Black Palm Nestbox

This nestbox is made in Australia and Glenn does his interpretation of a palm drumming on the nest box. I think you will enjoy.

video link: https://www.facebook.com/messenger_media?attachment_



Wayne Andrews' aviary.
Here are the answers for last quarter's guessing game. How did you do?


Yellow-shouldered Amazon *Amazona barbadensis*


YellowCollared Macaw *Primolius auricollis*


Blue Yellow-nape amazon pair *Amazona auropalliata*


Slender billed cockatoo *Cacatua tenuirostris*


Yellow-faced amazon *Alipiopsitta xanthops*


Lilacine Amazon *Amazona autumnalis lilacina*


Noble macaws *Diopsittaca nobilis*


Image credit: Ian Sane
CreativeCommons

According to a new study, crows possess the cognitive ability for one of the linguistic elements that make human language so complex.
In the early 2000s, Noam Chomsky and other linguists thought that if there was one thing that belonged specifically to human language, it was recursion, and that this was what distinguished human language from animal communication. As it turns out, this is not the case: a 2020 study proved that rhesus monkeys can do the thing too, and a newly published study shows that crows can also do recursion.

OK, so what's recursion? It's the capacity to recognize paired elements in larger sequences – something that has been claimed as one of the key features of human symbolic competence. Consider this example: "The rat the cat chased ran." Although the phrase is a bit confusing, adult humans easily get that it was the rat that ran and the cat that chased. Recursion is exactly this: pairing the elements "rat" to "ran" and "cat" to "chased".

Put somewhat more simply, similarly to humans monkeys and crows can recognize that a structure can contain other structures with meaning. But for decades scientists thought that humans, or at least primates, are the only animals capable of understanding recursion. Yet, following the discovery, about two years ago, that rhesus monkeys can understand the idea of recursion on a par with three- to four-year-old human children (albeit with some extra training), a team has now conducted similar experiments with crows, and they turned out to outdo monkeys in certain aspects!

Researchers from the University of Tübingen have studied crows using the same method as their

Photo: h.koppdelaney
CreativeCommons

colleagues used in the previous Wisconsin study with monkeys. In this one, the animals had to find a pair of symbols in a sentence of symbols, so they had to find out, for example, where in the <()> symbol sequence the pair of brackets was located.

When they did, the researchers created longer and longer sentences to see if the test subjects would still pick out the embedded ones.

As with the rhesus monkeys, the subjects could pick out the embedded characters in 40% of trials, but without the extra training that the monkeys received!

So, recursive capabilities are not limited to the primate genealogy, as it turns out. Which also helps reiterate just how smart crows are.

## Bread and Water

Ian Sane

Image credit: Ian Sane
CreativeCommons

The intelligence of Crows can be impressive. The one on the right is holding a stale piece of bread. In order to soften it, thus making it easier to eat, the Crow would place it on the watery spigot and then press down several times with its beak. The Crow did this a number of times while the one on the left looked on (Probably hoping to get a share of the bread).

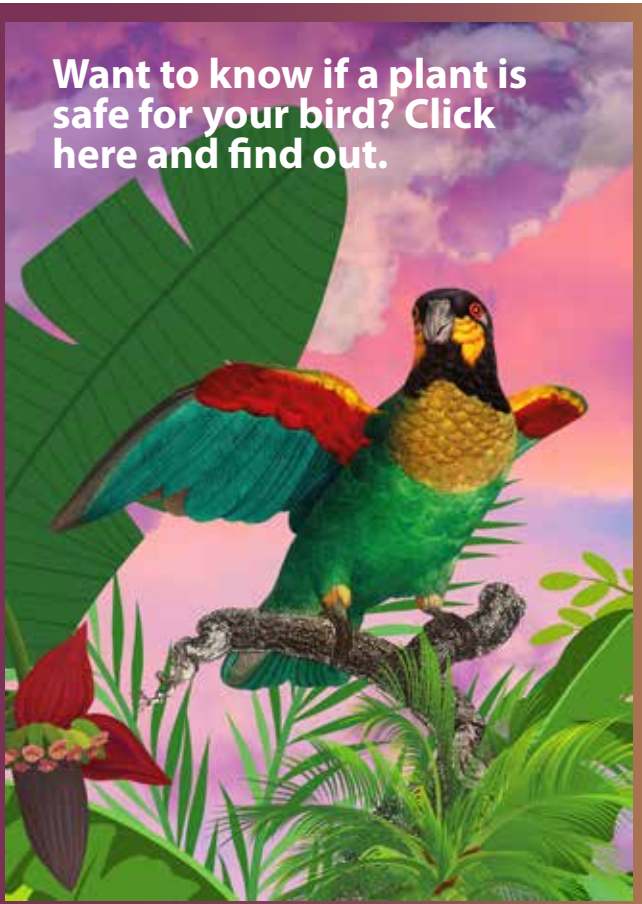
## Shipper's Certification and Journey Declaration

YOU MUST HAVE THIS 2 PAGE FORM PRIOR TO SHIPPING LIVE ANIMALS AT DELTA CARGO.

DELTA CARGO

Click on the logo above to access the form on Delta's website. You must fill out completely and take with you to the cargo counter. You will not be able to ship without this completed form and Delta is not your friend. They will not give you one to fill out at the cargo counter.

If you ship frequently, it might be a good idea to print several of these out and have them in your vehicle, just in case.




ULTIMATE LIST OF 1,400+ BIRD-SAFE AND TOXIC PLANTS

## Waterfowl Parasitism

*Beth Diggs*

Parasitism isn't something we usually consider when we think about ducks, but Hooded mergansers (this is a male) are one of several species that will lay eggs in other nests.
The only duck that is an obligate brood parasite is the South American Black-headed duck, which means that they do not build nests of their own at all to raise their young.

Additional faculative brood parasitic ducks (may build their own nest and parasitize others) that we have in the US include Wood ducks which are notorious for dropping eggs in other nests, along with Goldeneyes, Buffleheads, Black-bellied whistling ducks and the only non-cavity nester, Ruddy ducks and others.

Most of our waterfowl are intraspecific brood parasites which means that they lay only in nests of the same species, but the Redhead ducks are known for laying in other ducks' nests as well. Cuckoos and Cowbirds are the most commonly known brood parasitic birds, but there are several hundred species of birds in the world that are brood parasitic whether it is intraspecific (conspecific), interspecific, and obligate or faculative.

**About the author**
Beth Diggs is a Nature Photographer/ Black Belt/ Author including the children's book "Who Wants Dinner?"

You can find her on facebook at: https://www.facebook.com/bethdiggsphotography
and online at bethdiggs.com

## Birds and Geography

Levi Fuentes

Ever since I seriously started diving into bird collections in zoos, I've been going down a rabbit hole regarding exhibit ideas. This rabbit hole has lead me looking into a topic called zoogeography - how animal life is affected by the physical geography of the Earth. The man who is considered the "grandfather of zoogeography" is Alfred Russel Wallace.

Together with lawyer and zoologist Philip Sclater, Alfred Wallace defined the biogeographic realms that has long been the gold standard: the Nearctic (New World Arctic), the Neotropics (New World Tropics), Palearctic (Old World Arctic), the Ethiopian or Afrotropics, the Oriental or Indomalayan (Indian-Malayan), and the Australian or Australasian realms (the Oceanic and Antarctic realms were later add).

Published in December 20, 2012, the McGill University revisited Wallace's biogeographic map and updated it. In their abstract regarding the study [link about the study in the comment section]: "Modern attempts to produce biogeographic maps focus on the distribution of species, and the maps are typically drawn without phylogenetic considerations. Here, we generate a global map of zoogeographic regions by combining data on the distributions and phylogenetic relationships of 21,037 species of amphibians, birds, and mammals. We identify 20 distinct zoogeographic regions, which are grouped into 11 larger realms." I should note they excluded fish, marine mammals, and pelagic (open ocean) birds into this equation.

In this updated version of the biogeographic map, the Caribbean, tropical Mexico, and Central America are now labeled as part of the new Panamanian realm (formerly part of the Neotropics); North Africa, the Middle East, most of Iran, Afghanistan, and the western half of Pakistan make up the new Saharo-Arabian realm (formerly part of the Palearctic realm); northwestern and northeastern India, Nepal, Bhutan, Tibet and all of central China, and Japan make up the new Sino-Japanese realm; and Madagascar, the Seychelles, Comoros, and Mauritius make up the new Madagascan (I prefer calling it the Malagasy) realm.

Some boundaries were redefined and renames: the Oriental realm now extended its borders to end east of Sulawesi along with the Indonesian islands of Timor and Wetar; the Moluccan islands, New Guinea, Bismarck Archipelago, the Solomon Islands, Vanuatu, and New Caledonia are now grouped with the Oceanian (Oceanic) realm (formerly part of the now defunct Australasian realm); Australia, Tasmania, and New Zealand are now the only members of the Australian realm; and Hawaii is now part of the Nearctic realm (formerly part of the Oceanic realm).

In this post, I provided a screenshot of the map when you only account for avian diversity, genetic relationships, and diversity.

*** I should note that with the exception of the Moluccan islands, New Guinea, Bismarck Archipelago, the Solomon Islands, Vanuatu, and New Caledonia, along with Fiji make up a subregion of Oceania sometimes referred to as Melanesia. While on that topic, Oceania / Oceanian / Oceanic realm can be divided also by Micronesia (Northern Mariana Islands, Guam, Federated States of Micronesia, Palau, the Marshall Islands, and Kirabati) and Polynesia (Tuvalu, Wallis and Futunia,

Tonga, Tokelau, Somoa, American Somoa, Niue, the Cook Islands, French Polynesia, the Pitcairn Islands, and Easter Island).

This illustrates how in certain parts of the world, bird life is unique, sometimes endemic, and varied across countries and continents. This should further highlight how important conservation efforts are in order to preserve species that are unique to these biogeographic boundaries.


Wallace's century-old map of natural world updated

https://www.mcgill.ca/newsroom/channels/news/wallace's-century-old-map-natural-world-updated-219609


MOON POTOO

Urutau, meaning "ghost bird ". Picture was taken during the last full moon in Sacramento, Minas Gerais - Brazil.

Photo by Alessandro Abdala
facebook.com/alessandro.abdala

This spectacular photo took at least 3 tireless nights of watching not only the bird but also the moon. Alessandro and a friend stayed for days waiting for the best position of the moon and the luck of the bird to appear.

**Splayed leg treatment option**

This one comes from Patrik Bird..you can find him on facebook.

By shaping an appropriately sized cardboard tube about the chick, making holes for legs, then applying onto chick and taping legs in correct position on outside of cardboard tube.

Double Yolk Dusky Conure

Photos: David Garcia and Èlia Viader

**Bart Scott**
I have heard of people with double yolk and only one fertile yolk in the egg. Bacteria can set in from the dead/dying embroy in the egg and kill the living embroy, in the past others and i myself have injected eggs with Piperacillin and have had a successful hatch and usually an assist. Others have had success too.

**Chris Touchton**
99% failure rate. One embryo dies then the other. The only one that I ever had hatch was a red and blue lory and only

one yolk was fertile. Chick pushed the infertile yolk aside. Waiting for permission to use from Chris

**Bart Scott**
Tiny puncture hole is made in the air cell with a needle, meds in fast, Sealed immediately with Elmer's glue.

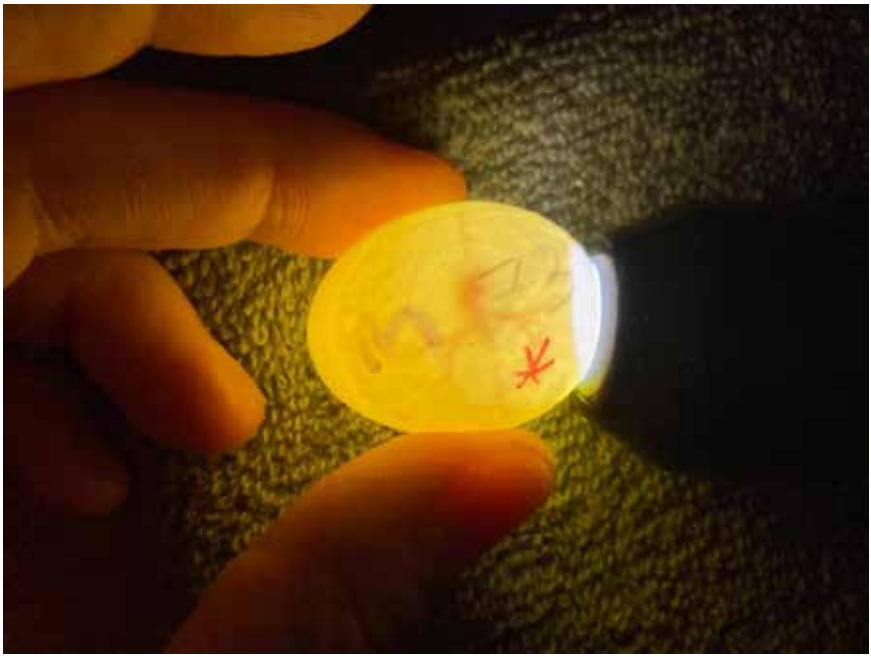
Pay attention to where the heads might land up..some can be upside down some side by side.

This is an avicultural nightmare. Eggs with pairs can attain 2 babies if the hen assists, some have reported 3 eggs 4 chicks hatching.

If chicks are opposite, the small end might pip first causing the larger celled chick to smother.

Twining happens a lot in blue and golds, eclectus, caiques, some species of Amazon's, budgies and py conure. There are others species of course but this is the most frequent of double yolks. Triple yolks, I have never seen it in parrots, ducks geese turkey yes, or that extra added leg on a chick. Good luck David Garcia, always wishing you well.

**Èlia Viader**
Update: it was embryoned yesterday and as Chris Touchton said, only one yolk.



Dot Rambin
There is lots of preening being done as the birds molt into their nuptial plumage or breeding plumage. You can see the tiny white feathers on this egret's beak. Also note you can only see the bird's right leg. Birds do not lie down so to rest a leg and keep it warm, they tuck the leg into their feathers.

---

Follicular choristoma in the third eyelid of an eclectus parrot (Eclectus roratus)
Click on AVMA to go to article online

click on photo to go to website

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click on graphic to go to website

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## Birds in Shoes

Jim Sorensen

In my memories today. My African crowned crane in riding boots. I've had this crane on my list for some time. They are beautiful birds with a distinctive black patch at the very top of their head and a very cool crown of stiff golden feathers. Another unique feature is their bright red inflatable throat pouch. The riding boots were inspired by a suggestion from Lynn Briody. www.jimsorensen.com


Thank you, Jim Sorensen for allowing ASA to share your beautifully creative images!

# Who's Your Daddy?

**Stumped? See answer on page 54**

Photo: Lisa Marun

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A National Animal Interest Alliance (NAIA) Initiative

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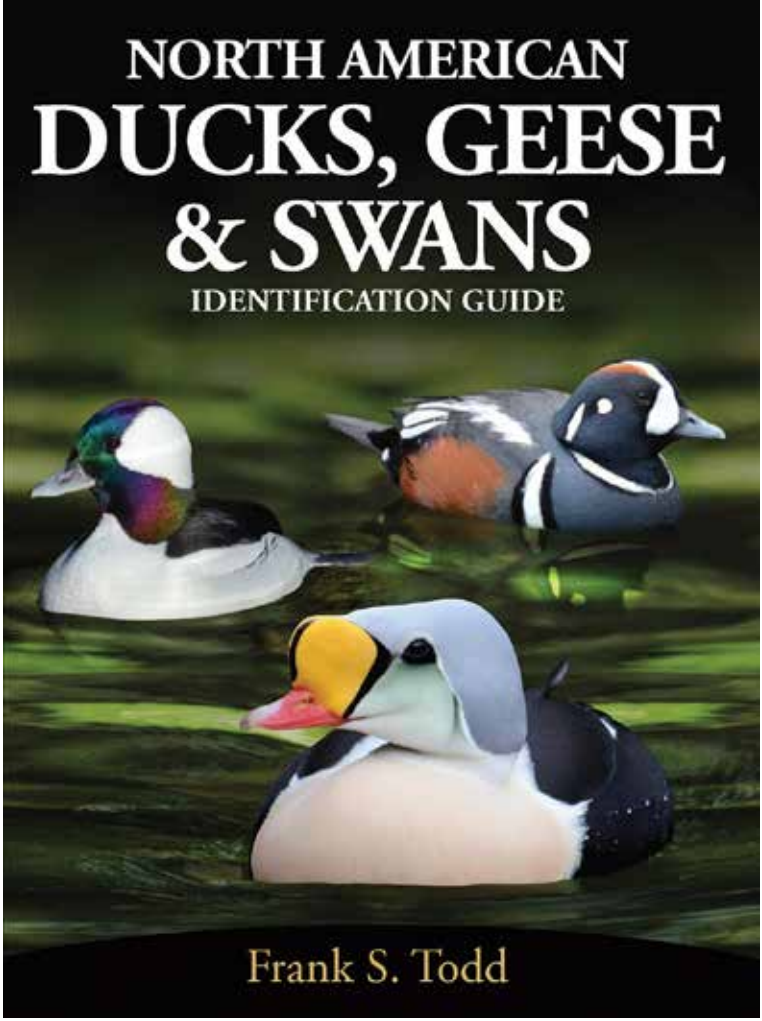


In honour of our friend, colleague, and author, Frank Todd, Hancock House is pleased to commit a percentage of all revenues of books sold through our website to the Frank Todd Memorial Foundation to continue to promote the work Frank spent much of his life striving towards wildlife conservation and education. You can purchase Ducks, Geese & Swans of North America: Identification Guide at: https://www.hancockhouse.com/collections/ducks-waterfowl/products/north-american-ducks-geese-swans

**PLEASE DONATE NOW** Help us keep Frank S. Todd's memory alive by continuing the tradition he started with the first Avicultural Society of America Educational Conference. Frank developed the conference and, for many years, arranged for speakers from around the world to attend and make presentations. Your donation will allow ASA to continue the tradition and help with travel expenses for our conference speakers. http://asabirds.org/frank-s-todd-memorial-fund/


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Black-necked aracari (*Pteroglossus aracari*)
By BraNewbs, Andrew Newberry - Toucan Sam, CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=2840837

## Who's Your Daddy?

From page 51, Answer:

Black-necked aracari (*Pteroglossus aracari*)
The black-necked aracari or black-necked araçari (Pteroglossus aracari) is a near-passerine bird in the toucan family Ramphastidae. It is found in Brazil, French Guiana, Guyana, Suriname, and Venezuela. [3]

The black-necked aracari is 43 to 46 cm (17 to 18 in) long and weighs 177 to 325 g (6.2 to 11 oz). Males and females have the same plumage and bill coloration, though the female's bill is shorter. Adults of the nominate subspecies have a black head, neck, and throat with chestnut-black ear coverts. Their brown eye is surrounded by blue-gray to black bare skin. Their upperparts are mostly green with a red rump. Their underparts are yellow with a wide red band across the lower breast and greenish thighs. Their bill has an ivory maxilla with a black culmen and base and a black mandible; a vertical white line is at the bill's base. Immatures' black and green plumage is sootier than adults' and the red and yellow paler. Their bill is browner without the "teeth" and has no basal white line.[11]

from Wikipedia

3. Gill, F.; Donsker, D.; Rasmussen, P., eds. (August 2022). "Jacamars, puffbirds, barbets, toucans, honeyguides". IOC World Bird List. v 12.2. Retrieved 15 December 2022.

11. Short, L.L. and A. Bonan (2020). Black-necked Aracari (Pteroglossus aracari), version 1.0. In Birds of the World (J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.blnara1.01 retrieved 22 December 2022

# EVENTS

## 2023 EVENTS

**AVICULTURAL SOCIETY OF AMERICA - ASA's 17th Annual Education Conference** September 2023
Combined conference with AFA - see below
www.asabirds.org

This year the AFA (American Federation of Aviculture) and the ASA (Avicultural Society of America) are combining our annual Educational Conference. Hilton Richardson, in Dallas, Texas from September 28 thru September 30, 2023

http://afabirds.org

## 2024 EVENTS

National Parrot Rescue and Preservation Society
January 26, 2024 - January 28, 2024
15747 JFK Blvd, Houston, TX 77032

https://www.parrotfestival.org/home

*If your group has an upcoming event, please submit it for inclusion here to:*
headbirdbrain@aviculture.tv

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longbeachbirdbreeders@gmail.com

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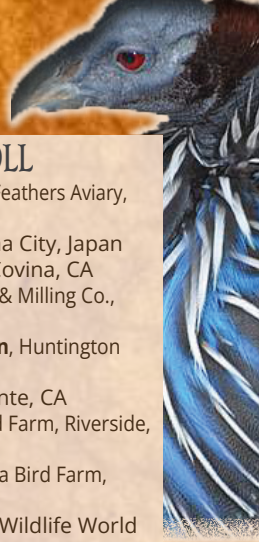

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