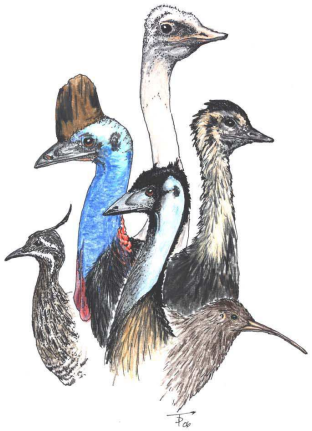
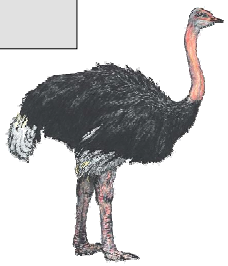
The Ratite Review



THE AZA RATITE TAG'S ANNUAL NEWSLETTER

Zoos Raising Money for Ratite Conservation in Fun and Unique Way! !

The Living Desert raises money for Sahara Conservation Ostrich project by Peter Siminski



The Living Desert through its Quarters for Conservation program supports six conservation projects each year. The projects are selected by staff based on our desert conservation mission and the interests of our staff. We try for a balance of local, regional and international projects. Each project is typically a real winner to start. The Sahara Ostrich project fit well and had a lot of interest from staff. The way it works is simple. We dedicate 25¢ of each park admission to these six projects, but our visitors select which project gets their quarter. Each visitor receives a token when they pay for their admission, then they take their token to a fun interactive booth at The Living Desert's entrance plaza. The booth contains a description and a photo highlighting each project. The visitor inserts the token into the slot for their preferred project, and then watches the token roll down a chute to a pot of tokens for each project. Sometimes visitors add additional coins. The Sahara Conservation Fund's Sahara Ostrich Project was one of these six projects in 2011/2012 and received over 21,310 tokens ($5,327.50). People like ostriches. Long live the Sahara ostrich!!

Brevard Zoo raises money for cassowary conservation
by Michelle Smurl

In January of 2011 Brevard Zoo launched a new initiative called Quarters for Conservation to help raise money for local and international conservation projects. Each guest receives a "quarter" token upon entering the zoo that allows them to vote for the conservation project that most inspires them. Rainforest Rescue was selected by our zoo's conservation team as a recipient of funds raised by Quarters for Conservation from January to March 2012. We specifically raised money to provide this organization with funds to apply towards saving habitat that cassowary need to survive. Brevard Zoo currently exhibits a pair of double-wattled cassowary and has worked with this species since 1997. Supporting cassowary conservation started with Rainforest Rescue and all came about when Paul Medici visited in 2011 with his family. Paul's job is to raise awareness and support for Rainforest Rescue projects and programs. He spent his vacation day with zoo staff and shared his knowledge of cassowary. Paul followed up with sending us a package full of educational materials. These materials are used by our conservation team during events and in our education camp programs. The guests clearly supported Rainforest Rescue and the need to help wild cassowary. Over the course of three months $3,000 was raised!

Inside this issue:

Dallas Zoo Installs a Ratite Egg Display!

Smithsonian National Zoo Has Solar Powered Carousel with Ratites!

The Speedwell Foundation Conservation Carousel http://nationalzoo.si.edu/animals/zooart/carousel.cfm is one of only a few solar-powered carousels in the world. And it features a cassowary and a North African red-necked ostrich!

Out and About with Ostrich

New Ostrich Feeding Experience at Blank Park Zoo by Jenni Dyer

In May, Blank Park Zoo will be opening a new ostrich-eland exhibit that will include an ostrich feeding experience. Two summers ago, we set up a trial feeding in their current exhibit to prepare. We used plastic shovels and their pelleted diet, with a trough to catch any spilled food – and there were plenty of spills! The ostrich were recall trained, using a dog squeaker toy as the cue, and an attendant helped smaller children hold the shovel since ostrich aren't known for their gentle eating habits.

The ostrich quickly picked up the cue and readily accepted the pellets as their reward. We are looking at possibly changing the food for the new exhibit, as the pellets don't hold up well on wet or rainy days, and modifying the shovels so the food doesn't spill out so easily. The people during our trial seemed to really enjoy the experience, and it got them to stop and focus on the ostrich when they would usually just pass by on their way to see the giraffe.

Meet Omlette! Our 2013 Ostrich of the Year! By Sharon Areen

To everyone believing that ostrich are just big, dumb, un-trainable birds...you need to hear about Omlette!

The Denver Zoo received a pair of adult ostrich 7 years ago. The female, "Omlette", came with health issues resulting in a bum leg and mobility discomfort. She spent a lot of time sitting flat on the ground causing a lot of wear and tear on her breast pad. As her primary keeper, I recognized that medical treatments may be needed, and started to desensitize her to tactile work.

I had already built a good relationship with Omlette early on, working free contact with her. She was a calm and submissive bird, and with continued positive interaction she would seek out my company. While escorting me around the yard as I cleaned, she would frequently pull back out waste items from the wheelbarrow I just shoveled in, humoring the zoo visitors.

The strong personal relationship we shared, and the incredible trust she showed played a key role in my ability to start hands-on conditioning. I began stroking her back and wings, and as her comfort increased, with time, I was able to rub her legs and underside pads with no reaction. This led to the ability of treating her damaged breast pad with ointments. The vet assisting me with Omlette's health issues, Dr. Deena Brenner, also very fond of this bird, was able to do regular "pad-a-care" sessions which included trimming and buffing the callous areas, and rubbing different ointments in the cracks and around the pad. I would keep Omlette still and occupied during these sessions, with toys, food and interaction. It was soon obvious the bird actually enjoyed this interactive treatments, as she would press her body against the stall door when she heard us, anxiously awaiting our company!

The vet wanted to start Omlette on oral meds for pain and joint repair, but needed to know her blood values to monitor her condition. Since this would require collecting blood, I was asked to train her for volunteer blood draws. With the bird already so tractable, trusting, and a joy to work with, I was eager to try. The vet requested it be done through an inside leg vessel, with the bird in a safer, sitting position to prevent unexpected kicking.

O.K., so how do I get an ostrich to sit, propped up, on command, and allow a needle jab? I knew Omlette well enough to recognize some common behaviors I could incorporate into her training. When she would return to the stall from the yard she would often sit down to rest, in the upright position necessary for the procedure. Each time I saw her do this I would quickly enter the stall and sit in front of her and interact with her. She clearly enjoyed this "play time", and it became the primary reinforcement. Any time she would get up or lay flat I would leave the stall. To help her make the connection, I would regularly go into the stall with her, bringing a favorite toy, squat down on the floor, extend an arm out and lower it down saying "down". When she walked up to me to interact, I would move away and repeat my position and command. Not until she sat down correctly would I start to interact with her. Eventually she understood well enough that I could go in with her, take my position and command, and she would sit down correctly, remaining so as we interacted.

The next step was adding a second person to play the vet's role. I had already desensitized Omlette to touching, rubbing and pressing on her inside legs. As I sat in front of her, keeping her focused on me with carrot pieces, shiny keys and other toys, the second keeper joined us and sat next to Omlette. The vet needed to draw blood from the inside vessel of the further leg, so we slowly got her used to that process. I would make extra efforts to keep Omlette's attention focused on me during more invasive steps, such as needle sticks and pressure points. Offering her piece after piece of diced apple worked the best. If she would lose her focus on me I would shake a collection of keys in front of her and regain it. After numerous practice sessions, our first actual blood draw attempt was successful, and it became a regular practice.

With her willingness, trust, and desire to interact with me I tried another procedure for her benefit. Her eye lashes would frequently collect debris, causing issues. While she was sitting down, I used a spray bottle to carefully spray water across her lashes to clean them. I started slowly, building up her tolerance and comfort level. I was even able to desensitize her to using a soft toothbrush to carefully brush her lashes as she kept her eyes closed, as well as rub eye ointment on her eyelids. She understood the difference between sitting up for blood draws, and laying flat for eyelash cleaning, where I could reach her better. The gentle spray of water was her cue to lay flat from the sitting position.

Our strong relationship and Omlette's trust and desire for keeper interaction were key to our success. Her gentle and submissive nature were necessary as well. But our male ostrich, Hamlet, was proof that if you take the time to work with a bird, recognize its behaviors and desires, you can condition any ostrich. Hamlet was a typical aggressive bird, charging the fence at strangers, puffing up, hissing and even kicking at other keepers. This behavior caused him to be difficult and dangerous to work with, and disliked by other keepers...something I needed to change!

Seeing how much he loved carrot pieces, I used that as reward for good behavior. He would not be offered any until he became calm and quiet. I was patient and persistent, and had other keepers and zoo personal interact with him through the stall window or fence. I had them stay in front of him as he acted aggressively, not walk away as they had before, reinforcing his hostility. Once he calmed down and relaxed I had them offer him carrot pieces. He soon made the connection that people, unfamiliar ones as well, bring good things like treats and socialization. It was not long before this once aggressive bird was peaceful and interactive with most people, and both eager and willing to participate in protective contact blood draw training himself! Through PC,we were able to rub his body and legs, and pull out each wing for blood draw practice.

Big dumb birds? I think not!! Just be observant, patient and persistent,...you'll be surprised what you can do with these amazing animals!

What do Earthquakes and Ostrich Have in Common? By Brenda Melton

In May 2012, the California Academy of Sciences opened a new exhibition: *Earthquake: Life on a Dynamic Planet*. The exhibition includes information about the earth's physical structure, speciation as a result of plate movement, a small planetarium show about San Francisco's earthquakes, an earthquake simulator and an earthquake preparedness gallery. From May – December 2012, a live animal exhibit showcasing ostrich chicks was an integral part of the exhibition. This presented a unique challenge for us, as live ostrich had not previously been displayed in a museum.

Steinhart Aquarium (a department within the California Academy of Sciences) staff incubated eggs and reared four groups of ostrich chicks over the duration of the exhibit. In addition to the indoor exhibit within the exhibition, an outdoor pen was constructed for daily exercise. We designed the facilities to accommodate birds up to 8 weeks old. At that age, the birds were either returned to the ranch the eggs were procured from or transferred to AZA-accredited zoos.

The live ostrich were an engaging lead into the larger story of how plate tectonics helps explain the evolution and distribution of life on earth, including ratites. The speciation gallery of *Earthquake* features the stories of marsupials, ratites and cycads. Three weeks after exhibit opening we implemented a user experience survey about the ostrich exhibit. Results indicated that visitors found the size and physical attributes of the chicks to be the most interesting component of the exhibit. A major factor of surprise was how small they are compared to adult ostrich. Utilizing this information, we capitalized on the presence of the chicks to educate visitors about ostriches, other ratites and evolution. Daily pubic programs featured the ostrich chicks, and staff and volunteers caring for the birds interacted with visitors throughout each day. Almost 600,000 visitors enjoyed seeing and learning about ostrich and other ratites while the chicks were on exhibit.

Ostrich Trained for Voluntary Ultrasound at North Carolina Zoo by Debbie Zombeck and Dana Urbanski

All three female ostrich that reside at the Forest Edge exhibit at the North Carolina Zoo have been in a training program for almost nine years now. Apple pieces have been the established reward for the entire time. The ostrich in this photo was unique in that she did not take the apple pieces out of hand so the apples had to be placed on the floor in front of her. In these photos the keeper is in front of the ostrich (out of sight) rewarding her for standing still and allowing the vets to ultrasound her. During the ultrasound procedure it was not uncommon for the bird to consume about three to four apples cut into quarter sized pieces.

The ostrich in this photo exhibited some health issues that our vet thought could be reproductive in nature. We initially trained this ostrich to accept ultrasounds, and then decided it would be useful to train all three birds to compare the images that were seen.

North African Ostrich Project Update

The North African race of the ostrich, *Struthio camelus camelus*, is one of the most threatened species on earth, having disappeared from over 95% of its former range (UNEP/CMS 1999, 2006). Once widespread across Northern Africa, its numbers have rapidly declined during the 20th Century and today only a handful are left in the wild. In 2004, the Sahara Conservation Fund (SCF) started an ostrich conservation program in Niger in close collaboration with the AZA Ratite TAG with the objective of in-creasing the North African ostrich population in captivity for eventual release back into the wild.

SCF partnered with a local NGO, CERNK, the biggest private ostrich owner in Niger, with a large breeding centre (22 hectares) at Kellé in the east of the country. Since 2009, SCF manages the centre, which today hosts 8 birds (4.4) and significant improvements have been made to the ostrich breeding pens. The local staff is composed by a site manager and two keepers.

Main progress

- The diet of the birds, which is a crucial element in overall success, has been vastly improved and adapted to the availability of local products by using sorghum, millet, cowpeas, limestone and local salt, in addition to the natural vegetation that grows inside the pens.
- Surveillance of the site was a major challenge for the local team in 2012. By reinforcing the perimeter fence of the ranch and by working closely with local traditional and administrative authorities, incursions of livestock and their shepherds into the ranch, which was disturbing the birds especially during the breed-ing season, has been brought under control. In the meantime, new infrastructure has been built, including a small house for one of the keepers in the western part of the site, formerly the main entry point for live-stock incursions. Other buildings on the site have been renovated and water tanks installed in the pens and near to the main storage rooms.
- In December 2012, fire breaks were built within the ranch to avoid fire propagation risks which is particularly high during the cold season due to strong wind.
- In 2012, the 3 breeding pairs **laid 45 eggs** in total which is a great progress in comparison with former years. In the past, reproduction was almost nil: 3 eggs in 2011 and nothing in 2010 and 2009. This was the result of poor infrastructure and management, and an inadequate and poorly formulated diet.
- In terms of awareness-building and outreach, the site manager undertook a mission in June with the Deputy Mayor of Kellé, the local forester and a traditional leader. During this mission, fifty traditional leaders and local people were sensitized to the importance of habitat restoration in the framework of ostrich reintroduction and local support was sought for the Kellé breeding center. The site manager took the initiative in close collaboration with the traditional leader of the region and the Mayor to create an association called "Friends of Nature" in Kellé. This association aims to promote wildlife conservation and will participate in awareness raising, environmental education and cleaning the breeding center several times a year.

Above: The pair Maria and Aoulaye eating the new diet

Below: Site manager Amadou and keeper Abdoulaye deliver food to incubating ostrich pair

Members of the association of Friends of Nature

- During 2012, the AZA Ratite TAG continued to run its **Adopt-an-Ostrich Program** to support the acquisition, care and feeding of the ostrich in Niger, to help maintain the breeding center facilities, and to improve capacity for ostrich management. To date 33,677 US dollars have been raised from 21 partner organizations and private individuals.

Main challenges

- Continue to develop infrastructure for improved ostrich management and breeding at Kellé. Solar panels will be installed at the site to provide enough power for an incubator, a hatcher, electricity for housing and office purposes. In the near future, a well will also be drilled and water storage tanks erected on the site.
- Train the site manager to improve husbandry in natural incubation, and chick rearing; improving the hatch rate and chick survival, and introducing techniques in artificial incubation and hatching. In 2012, the rate was very low with only two chicks hatched and they did not survived.
- Acquire additional founder stock from captive, pure-bred birds identified in Niger if they become available.
- Work closely with traditional leaders and the mayor of Kellé village to raise awareness amongst the local population in the perspective of future reintroduction in a pre-release site nearby Kellé but also to promote the support at local level of the breeding center needed to maintain ideal conditions for reproductive success.
- National and international attention over this program will encourage Nigeriens and empower them to embrace additional wildlife recovery and protection pro-grams that will benefit a wide variety of critically endangered Sahelo-Saharan species.
- Raise funds (US$ 100,000 for the next 3 years) to continue the implementation of the activities in order to reintroduce Saharan ostriches into the wild within 10 years.

On Behalf of SCF: Thanks for all your support!!

http://www.saharaconservation.org/?Ostrich-Conservation-Niger

For more information on how your zoo can support this project, please contact Sara Hallager at hallagers@si.edu

Stick Your Neck Out for Conservation by Sheri Horiszny

Inspiration is a funny thing…you never quite know where it will come from, when it will hit you, or where it will lead you. So, maybe I should not have been surprised when I came home from the second conference of the International Association for Giraffe Care Professionals (IAGCP) and spent the next few months learning about ostrich egg incubation and the cost of shipping cargo to Uganda. I had no idea what I was getting myself into!
While it may not be obvious, giraffes and ostriches have a few things in common:

1. They both have long necks
2. Their populations are both in dramatic decline in the wild
3. Both are highly sought after on the black market in Uganda
4. Both are being poached for food by hungry people, with the use of fire arms which have proliferated due to political unrest

Additionally, genetic research was presented at the IAGCP conference that indicated that the several different "sub-species" of giraffes are unique enough to be considered separate species. This has serious conservation implications as fewer than 700 Rothschild's giraffes remain, making their threat of extinction more serious than the threat for Giant Pandas. And this story is not being told to the public!

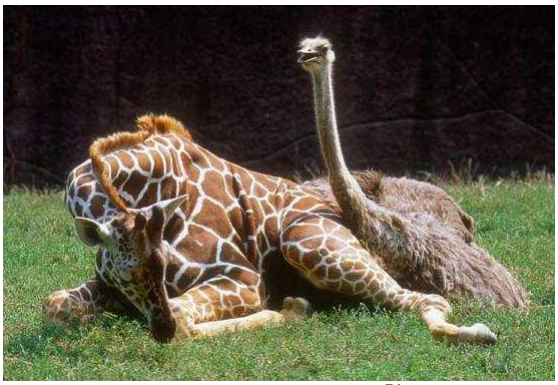


Photo courtesy Saint Louis Zoo

Both Rothschild's giraffes and ostriches are native to the Karamoja region in the north eastern corner of Uganda, and this region is the focus of a Local Farmer Program being developed by the Uganda Wildlife Education Centre (UWEC). At the IAGCP conference, a veterinarian from UWEC described their plan for an ostrich-farming project where local farmers would be trained to breed ostriches as an alternative source of food and income, ultimately reducing poaching pressure on both ostriches and giraffes. One critical component required to set this plan in motion was an incubator, and so the idea to donate an incubator to UWEC was hatched. A crash course in ostrich incubation and shipping costs began to shed light on the size of this undertaking, but after nearly a year, an incubator and hatcher have now been donated by The California Academy of Sciences in San Francisco (the two units together are worth over $13,000). The next steps are a trip from Santa Barbara to San Francisco to package up the incubator and hatcher (each the size of a stocky refrigerator), and a drive across country to Natureform in Jacksonville, Florida, to get them refurbished and ready for international transport. This trip (SB-SF-FLA) will occur this month, February 2013. The UWEC program is a way to quite quickly begin saving ostriches and giraffes, while also helping to feed and support local people who are living in ostrich/giraffe home ranges.

Funding is still needed to transport the units from Natureform in Florida to UWEC in Uganda, so please contact me if you are interested in being a part of this effort!

Sheri Horiszny

Director of Animal Programs, Santa Barbara Zoo

Photo Courtesy Stephanie Earhart, Zoo Atlanta

Catching Up with Cassowary

Cassowary body condition and mate-choice trials in the Australasia Region

By James R. Biggs

The continued quiescence of the Australian studbook remains the most significant issue facing the ZAA Regional captive Southern Cassowary population. A hypotheses relating to the lack of mate-choice offered to captive birds is being investigated however it is likely that additional factors such as mate quality and reproductive health are involved as there are several pairs of 'compatible' birds which remain unproductive.

Mate quality or fitness appears to be an important factor in determining the likelihood of birds to find a suitor and to reproduce. Cues used to assess mate quality differ among species but often are associated with body size, body condition (e.g., stored fat), singing rate, or traits displayed in the plumage or skin (Elphick *et al.* 1997). In nature, it is assumed that the female cassowary can choose a male with whom she will mate – likely to be dependent on the males' condition at any given time during the breeding season. It is assumed that the female will pick the male in the best condition at the time to ensure higher chance for offspring to be successfully reared and recruited into the breeding population. She may mate with one or more males in a given season.

Numerous residents living in cassowary habitat reported a reduction in the number of males with chicks in the breeding seasons post tropical cyclone Larry (2006) and Yasi (2011). Those males that were successful were said to have fewer than average chicks in tow. This may indicate that resource availability and hence condition of the male leading into the breeding season affects the male's capacity to invest in the rearing of offspring. As males eat very little while incubating, it is important that fat stores are significantly developed well prior to the breeding season and incubation period. Body conditioning in captivity should start immediately after the previous breeding season, and be guided by the appetite of the male.

In nature, the home range of a female cassowary may loosely encompass that of several males (eg. 2.1.0, 3.1.0, 4.1.0), however this observed social system has not been replicated in the captive setting, where traditionally one female is paired with one male. This unit is seldom encountered in the wild and has proven to be largely unsuccessful in captivity by limiting potential mate options to a single bird. Furthermore, birds housed at institutions have generally been kept as 'pairs' despite a number of years running without any signs of successfully reproducing.

At present, a number of institutions in the ZAA region are trialling a method using a three-enclosure configuration – three enclosures side by side, with a holding pen connected to all three. By placing the female in the middle enclosure with visual access to a male in each of the two adjoining enclosures, the female is given the opportunity to interact with two males simultaneously but on an individual basis, rather than offering her one male in perhaps sub-optimal condition. Such configurations facilitate safe rivalry and optimistically will lead to positive interaction between the female and one (or both) of the males. Pending close observation of positive interaction, keepers can then allow the female access to her chosen suitor. If the eggs hatch successfully, the remaining (unsuccessful) bird can then be made available for a new pairing recommendation with an additional bird, and the spare enclosure can be used to house the chicks once they reach independence from the sire. Likewise, as males occasionally pair with more than one female in a given season, a scenario where one male is given the opportunity to interact with two females simultaneously, on an individual basis is also being trialled. Again, the remaining (unsuccessful) bird is made available for a new pairing recommendation. Despite the infancy of such trials, preliminary results look like progressing towards the establishment of successful pairings.

The lack of spaces in existing participating institutions limits such trials to larger establishments with the capacity to redevelop existing enclosures, or new establishments with the capacity to build the recommended enclosure configuration of three adjacent exhibits with a shared holding pen. It has been recommended to institutions in the Australasia Region that assessment of existing enclosure dimensions and configurations be made to determine whether or not any minor adjustments might allow for mate-choice trials to occur.

In summary, we have the capacity to interfere with mating decisions, either by limiting which individuals are able to breed together, improving body condition of individuals, or by simultaneously offering auxiliary suitor options and hence increasing the probability of pair formation; however, we are confined by species fecundity, the goal to maintain genetic diversity, and to keep inbreeding coefficients below an agreed threshold. If successful copulation, oviposition or hatching does not occur in light of this combination of strategies after three years (particularly for birds in the 1.1.0 configuration) the pairing should be re-evaluated at the species coordinator/population manager level. At this stage it is recommended that the reproductive condition and fitness of both birds be assessed.

Other News from Australia

The Captive Management Guidelines for the Southern Cassowary are nearing completion and should be available online in the coming months. Notable topics covered include housing requirements, handling and transport, introductions, anatomy, reproduction, behaviour, nutrition and feeding, health evaluation and disease, artificial incubation, artificial rearing and body condition scoring. Forms have also been developed to standardise post mortem and egg necropsy data collection.

Elphick, C. S., Reed, J. M., & Delehanty, D. J. (2007). Applications of Reproductive Biology to Bird Conservation and Population Management, In: Reproductive Biology and Phylogeny of Aves (Birds). B. G. M. Jamieson (ed). Science Publishers, Enfield, New Hampshire.

Birmingham Zoo Trains Their Dragon! By Cindy Pinger

For the past year bird keeper, Paul Smith and bird curator, Cindy Pinger have had several training successes with our male cassowary. We have been able to crate-train him, get voluntary blood draws from the wing, hand-inject, put cream on his neck for a skin infection, and take him through surgery for a prolapsed phallus. The key to our success has been having him be very comfortable in the crate and to become habituated to having us touch him while he is in the crate. When he comes in the crate we shut the door behind him and fed him grapes and cut-up apples, pears, and kiwi. The blood-draw is done from the wing and he can be hand-injected just about anywhere on his body. We found out that by touching the middle top area of his back, he can be made to lie down in the crate.

Photo Courtesy Cindy Pinger

He prolapsed his phallus a few months ago and the training came in handy in two ways. First without the training, we would not have been able to discover this condition quickly. Second, we were able to transport him to the health center for surgery in the crate, hand-inject him with a sedative, mask him and get him to lie down calmly in the crate. While recovering from the surgery, we were able to get him in the crate and put cream on his cloaca and the vet could check on his cloaca. This training has empowered us to take the best possible care of this bird. Our next goal is to figure out how to get a good x-ray in the crate.

Cecil's Corner

Over the last couple of years we've seen some of the fun and quirky sides of Cecil, the Southern Cassowary at Zoo Atlanta. We've seen him find his own enrichment with the furry friends who see their way into his exhibit over night, and last year we saw a relationship form between him and the peahen next door. This year he wanted to show us he is not all about fun and games; he is actually a smart old bird too!

Following in the footsteps of Birmingham Zoo, Cecil's keepers have been working with him to get voluntary blood draws. A new chute was built and attached to his shed with panels on either side in order for keepers to access him. You might not be able to tell, but Cecil is a tad bit shorter than your average male cassowary! We needed to build him a step so keepers could reach his wing safely. However, Cecil is also 33 years old and has arthritis, so the step proved a little too much for him. It had to be pulled for his safety, but his keepers soldiered on!

As it turns out, as long as Cecil has access to food, he doesn't really care what's happening around him!

Keepers were able to manipulate and palpate his wing, and desensitize him to a blunt needle! Currently his keepers are waiting for vet staff to take the next step in his training, and hope to get an actual blood draw within the next year. Who says you can't teach an old bird new tricks!

Running with Rheas

Rhea Study Begins Relationship Between Zoo and Local University By Kelsey Kuhn

It's been a year since Sequoia Park Zoo began participating in the greater rhea behavioral study implemented at the Smithsonian National Zoo. When we decided to participate in the study I thought it would be a great way for our small zoo to be able to contribute, in a meaningful way, to the general pool of knowledge about rheas in captivity and as an added bonus we'd get some extra observation time for the rhea. While both of these expectations have come to pass the aspect of the study that gratifies me the most is the unexpected consequence of increased relationships between our local university and the zoo.

The study has received a very enthusiastic response from students at neighboring Humboldt State University. Each volunteer agrees to perform a 20 minute watch per bird (we have 1.1) twice a week for a minimum commitment of 4 months. Due to such a prolific response I was able to add two more time slots to the study. A side effect of recruiting volunteers from HSU is that students have been seeing the rhea watch posters and contacting the zoo to do their senior projects on other species. Our first senior did a study entitled "Effects of Age, Sex and Pair Bond Status on Aggression in Captive Chilean Flamingos (*Phoenicopterus chilensis*)" and gave us a copy of her paper and poster once the study was completed. Her advisor then sent another couple students to us. One set did a predator study on our cotton top tamarins and another is currently conducting a study on how visitors respond to differing types of signage and information presentation. Everyone who does a study at the zoo is required to give us copies of their papers and presentations as per our research policy. Although we have had projects completed here in the past, we have had more than usual this year. In this way the zoo is able to help students complete their senior projects while obtaining information that will help us to better understand and care for our animals.

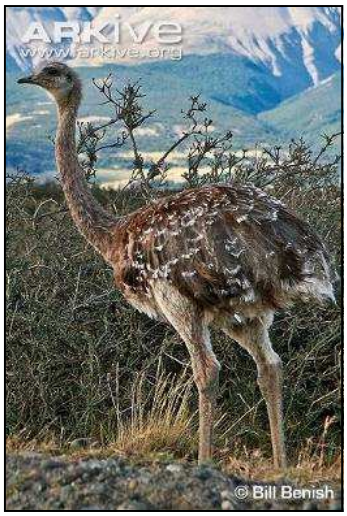
The rhea study is a great way for students to practice the wildlife observation skills they learn in the classroom. One of our newest rhea watchers, Mary-Lynn Gibbs, had this to say about her experience with the study: "I never expected to learn so much from watching these birds, they really are fascinating. This program has also taught me how to be a better observer and what criteria exactly are important when assessing animal behavior." I am pleased that through this study our zoo is able to provide future scientists with the opportunity to hone their skills and ignite their passion for wildlife. I encourage any zoo with greater rheas to join this study; especially those with the good fortune to be near a college or university. All of my past and present volunteers have cherished the opportunity to get to know our rheas and appreciate a species that visitors often overlook on the way to more "exotic" animals. It is my hope through this study our small zoo can make an impact in the scientific community not just by gathering data today but also by inspiring future behavioral biologists.

Status of Rheas in the Wild

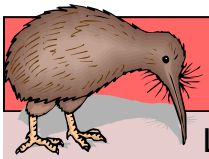
Greater Rhea: IUCN Status: Nearly Threatened. Population Decreasing

The greater rhea has undergone a marked decline as a result of hunting for meat, eggs and skins, and feathers. In recent years, these threats have been compounded by habitat loss as vast areas of grassland are converted for agriculture and cattle ranching. Farmers and ranchers often accuse rheas of eating crops and competing with cattle for food, and chase the birds off their land, although there is evidence that the greater rhea actually feeds on important weed and pest species. The greater rhea is listed on Appendix II of the Convention on International Trade in Endangered Species (CITES). Levels of both international and domestic trade in the greater rhea may need further monitoring, and restrictions on hunting and trade need effective enforcement. As increasing grain production within the species' range appears inevitable, education and outreach programs may be needed to help ensure the long-term survival of the greater rhea in agricultural areas. In recent decades, commercial farming of rheas for feathers, meat and skin has become increasingly popular, and studies into captive breeding of the species have led not only to improved production but also the possibility of reintroduction of captive-bred rheas into the wild. Captive breeding has therefore been suggested as a possible conservation tool as wild populations continue to decline. http://www.arkive.org/greater-rhea/rhea-americana/

Lesser Rhea: IUCN Status: Near Threatened. Population Decreasing



Rhea p. pennata is thought to still be fairly common, perhaps due to its often inaccessible and harsh habitat. However, all populations of lesser rhea have undergone marked declines, and R. p. tarapacensis and R. p. garleppi are thought to be in serious danger of extinction, with combined populations of only several hundred birds. The main threats to the lesser rhea are hunting, for meat, skins and feathers, and egg collection, as well as the taking of young birds for domestication. Habitat degradation, due to conversion to farmland, or desertification as a result of overgrazing, also threatens all three subspecies and their grassland habitats. The building of roads and fences further fragments lesser rhea habitat, as well as preventing the birds from dispersing. The lesser rhea occurs in some protected areas within its range. The species is also afforded a measure of protection under its listing on Appendices I and II of the Convention on International Trade in Endangered Species (CITES). Other conservation measures suggested include increasing awareness amongst farmers and the public, in an attempt to reduce illegal hunting and egg collection. It is particularly important to monitor the remaining populations of P. p. tarapacensis and P. p. garleppi . In recent decades, commercial farming of rheas has been expanding, and it is thought that in future this may serve as a source of individuals for reintroduction into the wild. http://www.arkive.org/lesser-rhea/rhea-pennata/



Keeping Up With Kiwi

Latest News from the kiwi SSP, Kathy Brader

Kia ora,

It's been another exciting year for the Kiwi SSP. We have grown to the highest number of kiwi kept overseas—54 birds!!! Congrats to all the zoos who have produced or raised chicks, Frankfurt Zoo, Columbus Zoo, Berlin Zoo, Smithsonian National Zoo, Smithsonian Conservation Biology Institute, Memphis Zoo, and Central Park Zoo. We had a total of 6 chicks (3.2.1) in 2012. The Columbus zoo allowed the SSP to ship out three fertile eggs last year to three zoos; this was the first time that the overseas zoos have shipped fertile eggs to hatch at other institutions. This is routinely done in New Zealand thru the Operation Nest Egg and we were confident following their protocols that we could do the same. This allowed staff to gain experience in incubation and rearing chicks. Although we lost one young chick (suspected genital issues) two were raised up and are doing extremely well. Each staff member of the respective zoos should be applauded for their efforts, as kiwi incubation and rearing is a bit different then most species of birds, well done folks! (SCBI, CPZ, Memphis). We are starting off 2013 with two zoos receiving eggs from Columbus Zoo. I cannot thank enough the staff at Columbus Zoo for having the confidence to try this and for all the training their staff has done for the perspective zoos. The Toledo Zoo and SCBI will be getting eggs this year. If any zoo is interested in this unique opportunity please contact me at braderk@si.edu.

The last bit of news that I would like to share is my gratitude and deepest thanks to the government of New Zealand for my inclusion to the New Years Honors list. Twice a year the New Zealand government submits names to the Queen of England for various honors. Being an American citizen I was made an Honorary member of the Order of Merit for my work for conservation efforts for the kiwi. I am deeply humbled and a bit stunned at this honor as I feel I could not have gotten this without the support of my organization and all of the staff at other kiwi zoos who have supported both the SSP and me for the betterment of Kiwi held overseas, so thank you!!!

The Kiwi Feather Project

This past fall was the official kick off for sending kiwi feathers collected from all the zoos (both European and the USA) to send back to New Zealand for Maori Cloak weavers to use. Although we sent back the first batch of feathers in 2011, this past years celebration was held with handover by the Smithsonian National's Zoo director Mr. Dennis Kelly doing the honors of the handover of the feathers for all the zoos. The ceremony was held at the Auckland Zoo in the newly opened Te Wao Nui. This new part of the zoo is all endemic species of New Zealand. Representatives from the Auckland Zoo, the New Zealand Government, Department of Conservation, Kiwis for Kiwi and various Maori were on hand to receive the feathers. The feathers are considered Taonga, which means treasure. The feathers were blessed and will be handed out to various weavers for use in repair or new projects of Kakahu kiwi (kiwi feather cloaks). The ceremony was over an hour long and mostly in Maori. Mr. Kelly stated that it was a very moving experience. This made national news on all the major TV, radio and newspapers in New Zealand. The reports I have had back from New Zealand were all full of praise and gratefulness for the feathers. Once a year, this project will hand off feathers to the New Zealand Embassy in Washington DC who has graciously agreed to send over the feathers at no cost. All of the keepers who picked up all those tiny feathers should feel very proud of their contributions to such a culturally important project. My wish is that someday each of you may be able to visit New Zealand and see for yourself the wonderful work that is being done by so many folks to save kiwi.

2013 Kiwi's of the Year!

Meet Koru from the Columbus Zoo and Aquarium! By Dana Lintner

After arriving at the Columbus Zoo and Aquarium in 2003, our current breeding male, Koru lived with an adult male on display in our Nocturnal Building. It wasn't until 2010, that he was moved up to our breeding facility and was introduced to Gruen, our breeding female. She had been with two different males prior to Koru, where she produced eggs, but none were fertile. We were all impressed by the introduction of the two birds, as Gruen is about twice his size!!! He was able to "woo her feminine wilds", and breed her. He has been game changer in our success for breeding kiwi and is now the resident Kiwi "stud." Since January 2011, Koru and Gruen have produced 10 eggs and all of them have been fertile! He is a VERY patient bird as he sat on eggs from January to July 2011! They now have passed their genes on to 5 Zoos; (Columbus, Memphis, SCBI, Toledo, and New York) housing 6 chicks. Koru is a sweet bird, who will allow you to hand feed him earthworms (his favorite) while he is incubating eggs or not. He will let you know when he has had enough, or isn't having a good day by giving you a firm kiwi kick to the hand. Koru is our favorite ratite!

A tribute to a lost friend and Ambassador Kiwi by Kathy Brader

On February 13, 2006 I had the privilege of hatching my first kiwi chick, "Manaia". I knew that his hatching was significant on many levels but little did I realize the personal impact Manaia would make in my life. Manaia became our Kiwi Ambassador in our Meet A Kiwi program due to his most docile nature and he also started our close relationship with the New Zealand embassy here in Washington DC. He hatched the same day that the new Ambassador Roy Ferguson landed in town to take up his position. Ambassador Ferguson and staff came to meet Manaia and led to close relationship with both the Ambassador and the embassy. Manaia was the second chick that our zoo hatched, almost 30 years after our first chick. This led to major press both here in the US and surprising major press in New Zealand.

I will never forget the day he hatched, some of you may not be aware of his fast and furious entry into the world, which gave us all of us here heart strain for a bit. Kiwi typically hatch after an incubation period of 68 (being early) up to 90 days, usually you see them hatch around day 78 to 85. Not Manaia; he always did everything in his own and special way. I was off work for a few days and as it was in the very early 60s of the incubation and after candling the egg, I was sure we were fine until I returned to work on day 64. I got a panicked call around 1 p.m. on day 63 from a keeper telling me the kiwi had hatched. She had to repeat it three times before it sunk into my brain. I rushed to my car and raced to the zoo (I live 26 miles away and broke many speed limits on the way in). I think that was the fastest I ever made it to the Zoo. The keepers had checked on the egg only about two hours before they got a call from our HVAC unit that an alarm had gone off that the incubator was out of range of the temperature settings. (All of our incubators are monitored by our HVAC staff remotely so they can call someone in if the incubator go out of range during the night.) Two keepers went in to look, and lo and behold

they saw from across the room a dark fuzzy object in the incubator. At first they thought it was dead and then they got closer and it moved! They called the vet staff and me, by the time I got there the vets had come and gone and pronounced all well. I sent out emails to some folks in New Zealand to ask if they had ever hatched out a kiwi at 63 days. They said no, but you could almost see them shrug their shoulders and say, "Well it's a kiwi, all bets are off." They said they wouldn't worry about it as long as the wee one looked good. Since this was our first kiwi chick at the zoo in about 30 years we were a bit concerned, so we spent a lot of time over the next two weeks just looking at him and praying all was well. It was, and Manaia was a very laid back bird right from the beginning and didn't seem to be fazed by all the attention from the staff and the media. He just took everything in stride.

We expected to see some media interest in our country, but we were taken off guard by the amount of press we got in New Zealand. Manaia's hatching made the press, TV, and radio over there. I was even interviewed over the phone for a live broadcast on a radio station in Auckland!

Over the years, Manaia met thousands of folks from all around the world, several celebrities and was featured on several TV news reports both locally and internationally. His unusual friendly and whimsical style he won over many "non-bird" people . Manaia could be trusted to be kind to children (as young as four months) up to the senior citizens. He won them all over by his sweet and unpretentious nature.

Kiwi generally are not too concerned with us humans. They can also be very aggressive toward us (we are just big kiwi to be kicked out of their territory), but not Manaia. I am not anthropomorphizing him, but Manaia did have a very unusual nature for a kiwi. They do not imprint like other birds or animals that are hand-reared. But you cannot work with any animal as intimately as we did with Manaia and not develop real feelings for them. I always understood that he was not my pet but a very special animal that I had the privilege to get know and work with. My life will be different without Manaia in it, but I also will have the wonderful memories that I got to share a part of his life. I will never forget the wonderful bird that was truly a one of kind, Haere ra my friend and may your wairua find its way to Aotearoa. Kei te aroha au ki a koe, Manaia.

Emu Encounters

Although the emu population as a whole is considered stable in Australia, the isolated population in the New South Wales North Coast Bioregion and Port Stephens Local Government Area is listed as an endangered population within Australia. The full story can be found at http://www.environment.nsw.gov.au/determinations/EmuPopulationNorthCoastPortStephensEndPoplisting.htm . The habitat of the emus in this area has been reduced and fragmented as a result of agricultural and urban development and local extinctions are now reported. The population is threatened by loss and fragmentation of habitat for development, inappropriate fire regimes, deliberate killing, predation of eggs and young by pigs, dogs and foxes, as well as road kill. This particular population in is of significant conservation value as the last known population in north coastal New South Wales. The Office of Environment and Heritage has identified a total of 20 proposed action items have been listed to help recover this particular population.

Enrichment

At the beginning of 2012 the AZA Ratite TAG enrichment feature went from monthly to quarterly. There were some great enrichment ideas using water, novel food and training. As well as some holiday or themed enrichment ideas using plastic eggs, ice blocks, pumpkins and veggie garland. I want to thank everyone who submitted ideas and pictures this past year and I hope to hear from more of you in 2013. Enrichment is important on so many levels. Improving the psychological and physical well being of animals is just one example. Enhancing animal environments and stimulating the animals are more examples. Enrichment can also be used with training to build trust and form better relationships with the animals under our care. Enrichment can also be just plain fun for the keepers and animals alike. I have enjoyed putting together the enrichment feature and networking with you all. I have compiled "master lists" for all the ratite species of enrichment ideas that have been sent to me over the last couple of years. If anyone is interested in these master lists please email me at dana.urbanski@nczoo.org.

Let's all get creative in 2013 and enrich our ratites!

Odds & Ends About the TAG and Our Feathered Friends

Ratite Awareness at the Smithsonian's National Zoo!

National Zoo keepers and volunteers staffed a ratite table at the annual Autumn Conservation Festival in October, located at the Smithsonian Conservation Biology Institute in Front Royal VA. Staff educated visitors about ratite biology and efforts of National Zoo in ratite conservation. Guests also enjoyed learning about the extinct moa and elephant bird!

Work Continues on AZA Animal Care Manuals

The cassowary AZA Animal Care Manual is nearing completion and plans are to submit to AZA soon for review. The kiwi ACM is also moving along. The steering committee has recently begun work on a joint ostrich, emu and rhea Animal Care Manual. This large undertaking is expected to take most of 2013 to complete but when done, will be a tremendous resource for large ratites in zoos.

The Dinosaur Company: Helping to Support the North African Ostrich and the Ratite TAG

The Dinosaur Company http://www.billingsproductions.com/ hosted the AZA Ratite TAG Mart Table in Phoenix at the 2012 AZA National Conference. In addition to hosting the Ratite TAG, they sold ostrich eggs which were graciously donated by the Phoenix Zoo. All money raised from the sale of the eggs went directly to the Sahara Conservation Fund to help support the North African Ostrich Program...over $600 was raised! The animatronic dinosaur pictured at right is called "Citipati" According to The Dinosaur Company, "Citipati is one of the best-known oviraptorids and is often used to highlight the link between non-avian dinosaurs and birds. Perhaps, its most distinctive feature was its tall crest, which is similar to that of a modern cassowary."

Education News from the Ratite TAG Education Committee, by Carrie Brooks

In 2013, the Education Committee is focusing on identifying institutions which provide cassowary education and are in need of materials for programming and interpretation.

Using previously collected surveys, the Education Committee is in the process of contacting institutions housing cassowaries which have expressed a need for additional materials. Our goal is to provide interpretive materials, primarily in the form of biofacts to institutions which currently deliver educational programming about cassowaries and have stated a need for materials to further their message. These materials will be purchased using a $1000 grant secured by Chad Comer at the Blank Park Zoo.

We are looking forward to sharing the Ratite TAG's knowledge and enthusiasm for cassowaries and all ratites with zoo educators, volunteers and visitors.

If your Education Department meets the above description and would like to discuss programming needs or you would like to share cassowary or ratite related information, suggestions or activities, please contact Carrie Brooks at cbrooks@birminghamzoo.com or 205-397-3864.

EAZA Update from EAZA Ratite TAG Vice Chair, Jo Gregson

- There are 40.42 Darwin's rhea in EAZA collections and seven birds were bred this year. They are proving less easy to manage than the Greater rhea and breeding success is generally poor. Many are kept in pairs though the most successful breeding comes from those maintained in groups. Husbandry research is planned this year before new recommendations are made.
- The Darwin's Rhea Studbook has been taken on by Paignton Zoo in the UK. Contact Peter.smallbones@paigntonzoo.org.uk
- The Cassowary ESB is working well and this year two new institutions have joined the studbook with newly built facilities. Unfortunately the most prolific breeding male died at Alphen Zoo. To his credit he had sired over 50 birds during his lifetime and last year reared four chicks from a single clutch. He arrived at Alphen in 1982. The ESB is run by Joost Lammers.
- The North African red-necked ostrich ESB is run by Maren.Frerkin@hanoverzoo.org . There are 6.5.0 birds held in EAZA collections made up of birds that were collected as eggs in Morocco during 2011. The young ostrich are starting to mature and are already showing a more difficult temperament than our average hybrid zoo ostrich. I must say that one of the things I miss about zoo animals is attitude.

A BIG Thank You from Rainforest Rescue & the Southern Cassowary!

On behalf of Rainforest Rescue and the Southern Cassowary, I would like to thank the AZA Ratite TAG for the Year End donation. All cassowary funding goes toward Rainforest Rescue's Daintree Rainforest Buy Back and Protect Forever Program and our Cassowary Corridor Restoration Program in the Cassowary Coast south of Cairns, Far North Queensland. The Southern Cassowary (aka the Rainforest Gardener) needs plenty of room to roam and thanks to partners like you, Rainforest Rescue is working hard to ensure that the cassowary always has a place in the wild to call home.

In 2012, Rainforest Rescue purchased and protected 5 Daintree Rainforest properties, 3 of them located adjacent to the (WHL) Daintree National Park. This past year has been our best year yet in regards to rainforest properties saved and we have already identified and staked out 5 new Daintree Rainforest properties for 2013-2014. This is precious cassowary habitat and development and forest degradation has no place in the oldest continually surviving rainforest in the world. Rainforest Rescue has also been busy re-vegetating and restoring the Cottonwood Cassowary Corridor in Mission Beach and this is an incredibly important transportation route for cassowary in an area that is experiencing major suburban sprawl. More corridors needing work have been identified in the Mission Beach/Cassowary Coast area and Rainforest Rescue is committed to working with great partners such as Liz Gallie of Mission Beach Cassowaries and other great community groups, and restoring these "lifelines" for the cassowary and other wildlife.

Education and Awareness are key to convincing local communities (and the world at large) that the Southern Cassowary is worth saving and that it plays a pivotal role in the diversity and beauty of Far North Queensland's one-of-a-kind tropical rainforests. Rainforest Rescue is proud to be able to call many great Australian & American zoos partners and it's going to take all of us, working together, to ensure that the Southern Cassowary remains the 'King of the Jungle' in Far North Queensland for generations to come. I would especially like to thank the Brevard Zoo and the Sedgwick County Zoo for their donations this year as well as all Rainforest Rescue's Facebook fans for "liking" and "sharing" Rainforest Rescue pictures, stories and updates with peers, friends and family. I would also like to thank James Biggs, Birds Department Supervisor at Cairns Tropical Zoo and Cassowary Coordinator for Australasia, for always putting in a good word on Rainforest Rescue's behalf, and thanks to the Taronga Zoo, Currumbin Wildlife Sanctuary and Wildlife Tropical North Queensland for their continued support.

I welcome all of you to visit our Facebook page at https://www.facebook.com/#!/pages/Rainforest-Rescue/50984851770?fref=ts to keep up-to-date on all the latest news. Our blog is also a great resource and highlights some of our best accomplishments, past and present- http://www.rainforestrescue.org.au/blog/category/rainforest-news/ . Thank you again everyone for the support and interest in Rainforest Rescue's mission. We all have important work to do and I wish everyone an exciting and successful 2013. If you ever have any questions about Rainforest Rescue, please feel free to contact me at (317) 445-3927 and medicipj2@yahoo.com .

Submitted by Paul Medici, American Rep to Rainforest Rescue

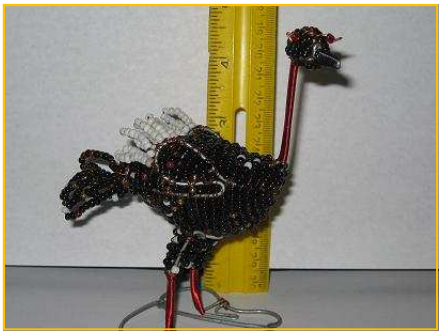
Now you can own all four of the large ratite key chains!

Rhea key chains are here – direct from Zimbabwe! Buy it to complete your set….. or buy the whole set!

Only $15 each!

Support the North African Endangered red-necked ostrich - beaded statues are here!

The conservation of the North African ostrich program now offers you a way to proudly show your support of this critically endangered race of ostrich! Through the same Zimbabwe company that makes the beaded key chains [cassowary, ostrich, rhea and emu] we now have beaded red necked ostrich statues available! At just $25, this is a super easy and affordable way to help the conservation of the red necked ostrich in Niger. All proceeds go directly to the care of birds in the breeding center in Niger. The picture doesn't do justice to these adorable and detailed statues which stand about 4 inches tall. I only have 50 of these statues so let me know soon if you would like one!



BLANK PARK ZOO
IOWA'S WILDEST ADVENTURE

The AZA Ratite TAG is grateful to the Blank Park Zoo for maintaining the TAGs account!

Photo by Kelsey Kuhn

Thanks for reading our annual newsletter! If you have an idea for next year or are interested in writing a piece please contact

Sara Hallager at hallagers@si.edu or
Monica Halpin at mhalpin@zooatlanta.org.

It's never too early to turn in your submission!

AZA Ratite TAG

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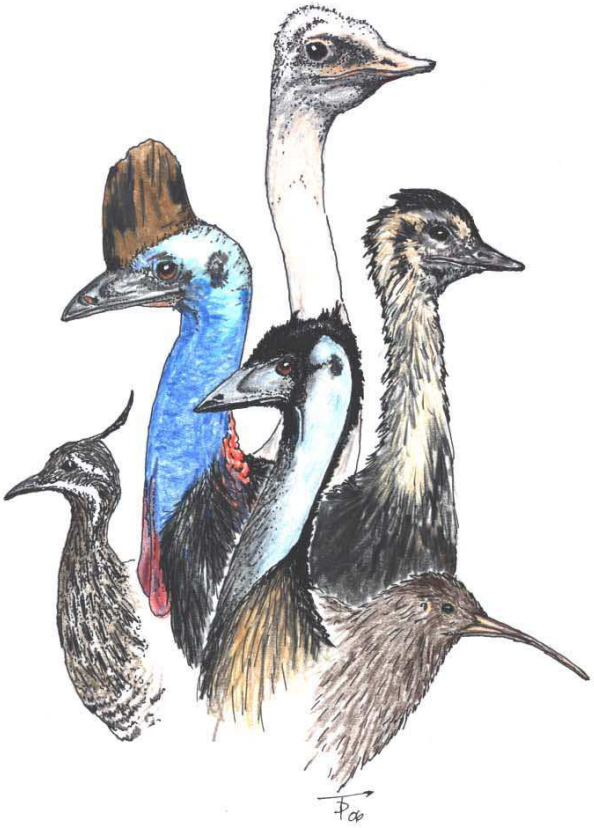

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