The Shorebird

The AZA Charadriiformes TAG'S Newsletter ***2013***

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TAG MISSION

The mission of the Charadriiformes Taxonomic Advisory Group is to coordinate management of captive Charadriiformes in North American collections, as well as participate in and support relevant conservation efforts.

AZA Charadriiformes TAG

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Stephanie Huettner, Atlantic Puffin, Omaha's Henry Doorly Zoo & Aquarium
Carmen Murach, Black-necked Stilt, Northeastern Wisconsin (NEW) Zoo
Sunny Nelson, Inca Tern, Lincoln Park Zoo

Species Champions:
Aimee Greenebaum, Snowy Plover, American Avocet, Monterey Bay Aquarium
CJ McCarty, Black Oystercatcher, Oregon Coast Aquarium

EAZA Charadriiformes TAG Overview

By: Nigel Simpson, EAZA Vice-Chair Charadriiformes TAG

The EAZA Charadriiformes taxon advisory group has been in existence since1998 and in its current format has10 members and currently runs only one programme for the Inca Tern *Larosterna inca*. A large part of this TAG is the wader group comprising a wide diversity of wading birds. With the changes in this TAG at chair and vice chair in recent years most of the current emphasis for the TAG work has been on the regional collection plan update.

The TAG has already established a working group for the seabirds and we are about to instigate a similar working group to focus on the waders. In its early years Achim Johann, previous TAG chair, published husbandry guidelines for some of the waders and another task for the working group will be to take these and develop them into new guidelines for these and other species. Over the years several waders have been monitored within the TAG, Kirsy Pynnonen-Oudman previous (vice) chair, showed several years ago that numbers and group composition are important with Ruff to encourage and implement breeding and chick survival.

Many species of wader are held in European zoos, but the most abundant are Black winged and black necked stilts, Pied Avocet, Blacksmith Lapwing, masked lapwing and Northern Lapwing all of which are breeding well in our zoos. Table 1 shows the numbers of some of our more common wading birds in European zoos taken from ISIS data. Although there has been an increase in the total number of individual birds being held in European zoos of these common species there does appear to be some concern for some of these species that are starting to decline. The increase in numbers could be accounted for by the greater uptake in European zoos with membership of ISIS.

Although none of the threatened species of wader are currently held in EAZA member zoos, we have been fortunate to have some links with the Wildfowl and Wetlands Trust (WWT) in the UK who have been invited to be part of our wader working group and who have been at the forefront of the spoon-billed sandpiper conservation programme holding a small number of these critically endangered birds in one of their centres in the UK. We have also been fortunate to have WWT staff present some of the results from their conservation efforts at our regional bird meetings.

Species	2003	2006	Change	% change	2013	Change	% change
Oystercatcher *Haematopus ostralegus*	71	97	26	27	93	-4	-4
Black-winged stilt *Himantopus himantopus*	35	46	11	24	107	61	57
Black-necked stilt *Himantopus himantopus mexicanus*	119	166	47	28	147	-19	-13
Pied avocet recurvistrostris avocetta	369	507	138	27	611	104	17
Cape Thicknee *Burhinus capensis*	37	48	11	23	49	1	2
Stone curlew *Burhinus oedicnemus*	76	90	14	16	16	-74	-463
Peruvian thicknee *Burhinus superciliaris*	10	9	-1	-11	7	-2	-29
Egyptian plover *Pluvianus aegyptius*	27	38	11	29	21	-17	-81
Southern lapwing *Vanellus chilensis*	16	39	23	59	26	-13	-50
Crowned lapwing *Vanellus coronatus*	25	27	2	7	35	8	23
Masked lapwing *Vanellus miles*	67	77	10	13	91	14	15
Spur-winged lapwing *Vanellus spinosus*	14	7	-7	-100	8	1	13
Northern Lapwing *Vanellus vanellus*	49	71	22	31	134	63	47
Blacksmith Lapwing *Vanellus armatus*	48	57	9	16	93	36	39
Redshank *Tringa totanus*	110	178	68	38	157	-21	-13
Ruff *Philomachus pugnax*	89	136	47	35	240	104	43
Bush thicknee *Burhinus grallarius*		14	14	100	24	10	42
Totals	1162	1607	445		1859	252	

Table 1: Most abundant wader species in European zoos from ISIS global database and the changes over 10 year period.

Amazing Exhibits

Saint Louis Zoo's Puffin Bay

By: Anne Tieber

The Saint Louis Zoo's Puffin Bay is part of the Penguin and Puffin Coast habitat that opened in May of 2003 and was conceived from the zoo's 2002-2006 Strategic Plans to incorporate penguins and puffins back into the zoo's animal collection. This state of the art, open air facility was designed with the following 2 criteria;

1) We wanted to maintain the zoo's taxonomic richness with the creation of a technologically modern facility capable of providing the husbandry requirements of penguins and puffins.
2) We also wanted to engage our guests in an innovative and experiential manner, to impress upon them the fascinating ways in which penguins and puffins have adapted to survive in extreme – and increasingly fragile marine environments.

After a twenty-two month construction period came a state of the art facility for the birds that immerses our visitors into their habitat. It is a cold, wet environment includes 1,725 square feet of exhibit space, and 11,000 gallon filtered, chilled pool. The air and water temperature is maintained at 45 degrees F. The air is filtered thru hepa filters at a rate of 12 times per hour. The lighting is digitally controlled and simulates the latitude and longitude of Kodiak Island. The habitat has 2 viewing areas and backs to a rocky cliff face where the nesting burrows are located. Behind this rock wall

is a room that staff accesses to check the nest burrows. The habitat currently houses our 19 horned puffins, 9 tufted puffins and King Eider duck.

Since they share a building with sub-Antarctic penguins we wanted our visitors to think about how penguins and puffins evolved in separate poles with many of the same traits such as black and white coloring, fish eating, excellent swimmers, spend much of their life out at sea. We engage them with colorful graphics and globes and in summer we have educational interpreters and docents to help with this.

Since the habitat is only glass fronted from about 5 feet up, it is monitored by our security staff at all times during visitor hours, so if a bird flies out of the habitat accidentally or is chased out by a conspecific, they will call staff to come down and catch the bird and put it back into the habitat. At night staff will put a ramp in front of the viewing glass so the birds can easily get back into the pool.

It is one of the most popular, if not **the** most popular attraction to see at the Saint Louis Zoo. If you haven't seen it yet please come out and visit and you'll see why it is the "coolest" place to be!!

Habitats and substrates for shorebirds.

By: Jo Gregson Paignton Zoo Environmental Park.

When The Living Coasts Collection in Torquay UK was first conceived it was decided that there would not be barriers for our shorebirds and that we would keep them in place by replicating their wild habitat choice. It turned out to be a true test of our designing skills and in particular of the substrate choices we made. If we got it wrong our shorebirds would be free to go to another area - leaving our exhibit empty. Understanding the choices that wild bird's make was the first step to getting it right. We only need to check a local estuary in winter to see how choosy shorebirds are; they use a very small part of the large space available to them. Our three main criteria for choosing a substrate; were how it works with the birds feet; how secure do the birds feel; and lastly, how it looks to the public.

We chose to work with species that live near brackish water, the kind of birds that live high up in the estuary, on muddy farmland, sewage farms or harbor inlets. We constructed a beach with gentle waves for avocets, a running stream for redshanks, a short grassy area for our ruff lek, and other tufty grass to provide shelter and secluded areas. We took a long hard look at substrate choices; some of the trickiest feet in aviculture are those of shorebirds. Finally, for the beach we chose very fine yellow sand, just like the kind of sand used in children's play pits. The avocets spend most of their time on the beach. To hold the banks in place at the back of the beach and along the stream edge we used puddling clay, a very useful substrate similar to potters clay, that can be molded when wet and will maintain shape for long periods. It is also an excellent salve for shorebird feet.

Often the reason our visiting public are uninterested in birds is because they don't see them in a dynamic way, in fact sometimes they don't see them at all. Birds can be stationed in front of the public by using the right furniture choices. Smooth colored pebbles are a good comfort camouflage substrate for shorebirds such as the ringed plover. Strategically placed posts are ideal for displaying male redshanks. An area of water tumbling over rocks is very tempting to most water birds.

All these kinds of materials have worked well for us; the birds feed, breed, parent rear, and freely show natural behaviors very close to the visiting public. Shorebird aviaries are a lot of fun to construct and are a valuable, lively addition to any bird collection.

Pied Avocet

Common Redshank

Training Alcids to Utilize a Footbox

Amanda Preece – Aviculturist I

Edited by Melissa Snyder

After acquiring alcids from various institutions and working with them for about a year, we felt the birds were comfortable enough with us to begin learning some husbandry behaviors. Our alcid exhibit includes 5.6 tufted puffins (*Fratercula cirrhata*), 1.3 horned puffins (*Fratercula corniculata*), 3.3 common murres (*Uria aalge*) and 4.0 pigeon guillemots (*Cepphus columba*).

We modified Miguel Santos' original footbox by creating an acrylic box with a slanted mirror on the inside to fit our species and allow us to see the bottom of our birds' feet. We began desensitizing the group to the footbox by setting it outside their exhibit, then we brought it into the exhibit and allowed them to investigate it. Other staff members had already trained the group to identify a bridge and were working on scale training, which helped hasten the footbox training. We added a ramp to our setup so it was easier for the tentative birds to become used to getting on to the scale and footbox, even though they can hop or fly on to them.

Photo courtesy of Randy Wilder of Monterey Bay Aquarium

We fed the birds in the morning with the ramp and footbox present, then began baiting the birds up the ramp to get their fish. We used positive reinforcement training, so the baiting is not a “horse-and-carrot” scenario. When they stepped closer or further up the ramp, they got a fish. Once birds were comfortable eating from the ramp, we used the bridge to fine-tune the action of walking up the ramp and stepping on to the box.

An essential part of all training sessions is to maintain a calm atmosphere. The top of the footbox is smooth with no traction, so the birds must calmly walk on to and off of the box without getting spooked. If they get scared while on the ramp or box, they will be reluctant to participate again.

Our Common Murres are now so happy to walk to the top of the ramp to get fish they’ll stay there, preventing others from having a turn. To address this, we are starting to cue them and reward their leaving the ramp after they get on it. It’s valuable to view the bottom of our birds’ feet without having to catch individuals in a large exhibit, which proves stressful for the birds and us. Training also provides more opportunities for the birds to build trusting relationships with the trainers. It also reduces the stress level of the entire group and makes them easier to work with.

SeaWorld San Antonio

By: Linda Weissenmiller

SeaWorld San Antonio is home to over 100 members of the Alcid family, including Atlantic puffins, tufted puffins and common murres. Having cared for puffins for approaching five years, I have come to appreciate not only their beauty and fascinating natural history, but their curious, bold personalities as well. When I was approached with the question “do you think a puffin could be trained for a media appearance?” I responded favorably – I knew a few of our birds would be great candidates.

The most pressing question was determining which bird in our collection to focus on. The goal was to ensure that the bird chosen for training continued its normal routine inside our Alcid habitat, and not be separated to control food intake. Therefore it was important to select a bird that was already hand-feeding, eager to approach keepers and naturally outgoing and confident. We decided to focus on a seven year old female Atlantic puffin named “Machias.” Machias has never taken a mate, but becomes increasingly interested in interacting with keepers during summer months and is always eager to hand feed. Progress with Machias was made quickly – she was quite willing to be picked up, and then was quite content to remain on the hand or shoulder.

She demonstrated no apprehension when placed near the kennel, and it only took three days to approximate her inside with silversides. We began bringing her first to areas such as our office, but quickly progressed to driving her to other buildings in the park to experience new people and surroundings. We also began bringing her in front of the exhibit to do short presentations to guests.

At about this time we got the word that she was officially requested to be on *The Today Show*. SeaWorld and Busch Gardens Animal Ambassador Julie Scardina was doing a segment featuring conservation stories, and she wanted to mention Project Puffin and the work SeaWorld has done to support it. To prepare we began having other people hold Machias and pass her off to others. We also waved brooms to simulate microphones, talked loudly, and touched her back and beak. For travel we lined the kennel floor with shelf liner wrapped ice packs and put a kennel cover on the exterior with panels that could be shut. Her kennel was seat-belted into the seat next to me, and once in the hotel was set up inside the tub, curtain closed, with ice at one end.

Her performance on the show was such a success that she was requested not long after to appear on *The Tonight Show* with Jay Leno. On this trip she was joined by a tufted puffin, and both did well in their segment. We were pleased to be able to share the beauty and conservation stories of both puffin species, and in turn increase the public's awareness of these charming seabirds.

North Carolina Zoo Alcid Training

By: Sara McCrory

The North Carolina Zoological Park is home to 54 Arctic seabirds, which include Horned Puffins, Parakeet Auklets, and Thick-billed Murres. In 2007, it was decided to start a training program with three of the birds, one from each species. Since 2007, many different behaviors have been trained. When training these behaviors we faced several challenges that require good training and problem solving skills. The overall numbers of birds that we have trained increased and our goals have broadened into an Animal Encounter program for visitors.

When the training program was initiated, the goals were to condition birds to display natural behaviors. These behaviors, such as flying or diving underwater, can be demonstrated to the visitors and help them understand how these birds can maneuver in their environment. In addition, basic behaviors such as target, station, and stay were trained. More behaviors for husbandry and medical were trained. Examples are foot lift to check the bottoms of feet or turn to get a 360-degree look at the bird. About a year ago, we reevaluated our training

program goals to try to give the visitors a more up close and personal experience with the seabirds. Therefore, the new goal is to kennel and transport a Horned Puffin and a Parakeet Auklet to our viewing area for an Animal Encounter program. Here the birds will come out of the kennel and spend time near the visitors.

Throughout the years, we have encountered many training challenges. When we are training a bird in the exhibit other birds, trained and untrained, are attracted to the training area because of the reinforcer that are used. This sometimes results in having an unsatisfactory training session. Our solution to this problem has been to reward those unwanted birds where we want them, not in the training area, or when they are walking away from the training area. As a result, they learn that if they stay away from the training area, they are rewarded. Another challenge is the nesting season. During this time, the birds are focused on their nesting activities. The resolution is to find a reinforcer that is powerful enough such that they will train. 2013 was the first time a pair of Parakeet Auklets were successfully trained during the nesting season. The Horned Puffins, from our observations, are more motivated once they have fledged. When they reach maturity and start participating in colonial nesting behaviors, such as soliciting to find a mate or defending the nest site, they disregard all training or start soliciting trainers. Over time, the birds find it more reinforcing to spend time with the colony than with the trainer.Overall, learning the natural history of the animal you will be training may help you understand their behaviors, especially when encountering challenges. Within the last year, we have made immense progress, not only with programming our birds but also with developing better training skills.

CONSERVATION PROJECTS

Captive Rearing for Release of the Western Snowy Plover at Monterey Bay Aquarium

By: Aimee Greenebaum

Since 2000, the Monterey Bay Aquarium has partnered with Point Blue Conservation Science and California State Parks Department to help restore wild populations of the western snowy plover, *Charadrius nivosus nivosus*, a federally threatened shorebird species native to the West Coast. Point Blue Conservation Science monitors the wild snowy plover population in the Monterey Bay area and periodically brings injured or abandoned eggs, chicks or adults to the Aquarium for care.

The Aquarium's Aviculture team will incubate the eggs and rear chicks and adults plovers behind the scenes. The Aquarium's Sandy Shore Aviary is home to two non-releasable adult snowy plovers. When an abandoned egg is brought to the Aquarium, one of these birds will be moved behind the scenes to foster the young chicks once they hatch. Newly hatched chicks reside in an intensive-care unit for a few days until they are dry and eating consistently. Then, the chicks are moved to an indoor tank until they are approximately 10 days old. During this stage, a biologist from Point Blue Conservation Science bands the chicks for tracking and monitoring in the wild. Once they are around 10 days old and weigh approximately 13 grams, the chicks are moved to an outdoor flight cage where they remain until they are ready for release, typically around 35 days of age. The Aquarium coordinates the release of the chicks with Point Blue Conservation Science biologists, who carefully choose release sites that support other juvenile plovers. To date, the Monterey Bay Aquarium has successfully released more than 100 snowy plovers to the wild.

Conservation of the Great Lakes Piping Plover Population: Perspectives from the Field

Sarah Saunders, University of Minnesota PhD student & Piping Plover Field Coordinator

THE GREAT LAKES population of Piping Plovers (*Charadrius melodus*) nests on wide, cobbled beaches along the shoreline of lakes Michigan, Superior, and Huron. Females lay four eggs in pebble-lined scrapes in the sand. The parents incubate for 28 days and once chicks hatch, it takes them about 23-28 days to learn to fly. Starting in July, chicks start heading to wintering areas stretching from South Carolina south to the Bahamas and as far west as the Gulf Coast of Texas.

When the population was listed in 1986, there were 17 known breeding pairs remaining. The primary threats to their recovery include habitat loss due to shoreline development, recreational use of nesting beaches, all-terrain vehicle use near brood-rearing areas, and predation associated with human presence (i.e. raccoons, gulls, crows). Recovery measures include nest protection using wire exclosures, daily nest monitoring, beach closures, and captive-rearing of young raised from abandoned eggs. Thanks to these efforts, 66 breeding pairs nested during the 2013 breeding season. But despite this progress, the population has yet to reach the recovery goal of 150 breeding pairs.

Surviving chick at Au Sable in 2011

One of many success stories helps illustrate the passion and dedication so many individuals have for these charismatic birds. In 2011, piping plovers nested along the Lake Huron shoreline at the mouth of the Au Sable River, after a long absence. Researchers exclosed their nest and the area was roped-off to prevent passerby from approaching the nest. In June, all four chicks hatched, but soon only one chick remained. This surviving chick was soon threatened by the township's 4th of July fireworks display, which was to occur in the same location that the chick and its parents were being observed. With the help of the U.S. Fish and Wildlife Service, local Audubon volunteers, and the township officials, the fireworks were moved. Within two weeks, the remaining chick was able to fly and headed south. In the summer of 2012, this chick (who had been banded by researchers soon after hatching so it could be re-identified) arrived back in the area at Tawas State Park, and was re-banded with a unique adult combination. She nested and fledged all four chicks! Then, in May 2013, she returned to Tawas, mated with the same male from 2012, and successfully fledged all four chicks for a second time.

With her newly hatched chicks in 2013

This bird's story demonstrates that helping to save a single bird can make a big difference to this small population—after all, she has already contributed eight individuals to the population! With more stories like this, the recovery goal can soon be reached.

American Oystercatcher Tracking Project

By: Lindsay Addison, Coastal Biologist, Audubon North Carolina

American Oystercatchers are colorful, conspicuous shorebirds that are found along the Atlantic and Gulf coasts and Central America. It breeds from Maine to Texas and winters as far north as New Jersey. As a flashy species that relies entirely on coastal areas, it is of conservation interest as human development and other impacts affect the shore—and it makes an excellent ambassador for issues affecting it and other species of shorebird.

The American Oystercatcher tracking project, a joint effort by Audubon North Carolina and North Carolina State University, and Toyota Together Green, has deployed 6 satellite transmitters on adult American Oystercatchers nesting in North Carolina. The biological objective of the tracking project is to learn more about the extent of habitat supporting breeding individuals, the spatial and temporal use of migratory stopover sites, and the extent of habitat used by wintering birds.

At the same time, the project is using the six tracked birds to introduce the public to the species and to educate beachgoers and others about the threats facing oystercatchers and related shorebirds. Because they winter in the U.S., the oystercatchers will be used to illustrate the needs not only of breeding, birds and but migrating and wintering birds too. Events in the oystercatchers' lives, such as the hatching of a chick or the disturbance of a nest by a beach-goer, as well as their movements, are reported on a website, www.oystercatchertracking.org. There visitors have already followed the hatching of chicks over a busy Memorial Day Weekend, the predation of eggs by raccoons, and territorial disputes with other oystercatchers.

The experiences of the specific oystercatchers—all of which are real observations—bring what would otherwise be abstract conservation issues to a more personal level. Habitat loss to development, coastal engineering projects, human disturbance, and predation by human commensal predators such as gulls and raccoons are major threats facing oystercatchers and other shorebirds, all of which the tracked oystercatchers have or will encounter.

The study birds were captured in the southern half of North Carolina, at Cape Lookout National Seashore; Lea-Hutaff Island, an undeveloped barrier island; Wrightsville Beach, a developed barrier island; and on a dredge spoil island in the Cape Fear River. The solar-powered transmitters report the birds' locations about every other day, and are accurate to within about 250 m. They are worn on the birds' backs and weigh 9.5 grams. After a year, the birds will be recaptured on their breeding territories and the transmitters removed.

The tracking project builds on over a decade of oystercatcher work in North Carolina by Audubon North Carolina and North Carolina State University, which has included color banding, large-scale productivity monitoring, disturbance and chick growth studies, and outreach on public beaches and has seen nesting numbers in the state increase over 12%. Anyone can visit the tracked oystercatchers at www.oystercatchertracking.org.

SeaWorld at the National Audubon Society's Project Puffin

By: William Robles

This year the SeaWorld & Busch Gardens Conservation Fund (www.swbg-conservationfund.org) gave team members the opportunity to assist in Fund-supported field projects around the globe. I was fortunate to be chosen to represent SeaWorld at the National Audubon Society's Project Puffin. I found it to be an experience of a lifetime.

Project Puffin is in its fortieth year of saving seabirds including razorbills, guillemots, common eiders, common murres and puffins. My assignment was Matinicus Rock (http://projectpuffin.audubon.org/matinicus-rock), an island about 25 miles off the east coast of Maine. Despite the often unpredictable weather, bird counts are conducted daily beginning at 6:00 AM from atop the historic lighthouse. Other daily routines include banding, weighing and measuring puffin chicks or "Puffin Grubbin" as the locals call it. This year's estimates show approximately 1000 breeding pairs and the numbers of successful fledging Atlantic chicks have improved.

The most incredible part of this trip for me was witnessing puffins in their natural environment, going about their lives, successfully raising chicks. Even so, nature can be intense; I had no idea how deep these birds must burrow in the wild or how tough it is for them to hide from predators. There is a reason the birds choose islands off the coast: no mammals! Puffins are incredible birds surviving incredible challenges and I am fortunate to have been able to live among them in the wild.

While the Atlantic puffin is not an endangered species it is rare in parts of Maine. Without help the puffins and other seabirds might struggle to nest and rear chicks. Project Puffin is currently working on five islands in the Gulf of Maine and continues to work to monitor and promote puffins and other seabirds nesting on these islands. I couldn't be more thankful for the opportunity SeaWorld has presented me.

Shorebird Banding Project

By: Lori Smith

In 1999, I answered an ad in Wildlife Conservation Magazine for a shorebird banding volunteer with New Jersey Fish and Wildlife. Little did I know at the time I would be participating in collection of data for one of the most studied species of shorebirds, as well as one whose population has declined so dramatically over such a short period of time that it could soon be facing extinction.

Red knots (*Calidris canutus)* are a small-medium sized shorebird. There are 6 subspecies of red knot. The subspecies I have worked with over the last 14 years are the *rufa* red knot. This subspecies winters in Tierra del Fuego (the southernmost point of South America) with its breeding grounds in the Canadian Arctic. They have one of the longest migrations of any bird.

During their migration, one of the most important stopover points is the beaches of the Delaware Bay. Here the birds have a 2-3 week period of time to refuel for the rest of their journey to their breeding grounds in the Arctic. The birds arrive in mid-May and leave in early June. Their migration is timed precisely with the spawning of horseshoe crabs. Horseshoe crab eggs are an energy rich, easily digestible food that birds can use to gain a lot of weight in a very short period of time. The decline in the population of horseshoe crabs over the last 30 years in the Delaware Bay has reduced the amount of eggs available for animals that depend upon them for survival.

In May, researchers from around the world gather on the Delaware Bay to collect data on the *rufa* red knot. The birds are trapped via cannon netting and held for a short period of time in order to band and collect very valuable information, such as weight, head, bill and wing measurements, all of which can tell scientists about the health of the population. I have worked alongside scientists from around the world and have gained very valuable field skills. Hopefully, the information that has been gathered throughout the years will help save the *rufa* red knot from extinction.

Adventures in Spotted Dikkop Breeding at Zoo Atlanta

By: Katie Bagley, Lead Keeper, Bird Department, Zoo Atlanta

Spotted dikkop enclosure at Zoo Atlanta. Photo by Katie Bagley

Zoo Atlanta's first pair of spotted dikkops arrived in the fall of 2009. This pair was placed in a mixed bird species exhibit (approximately 15'W x 20'L x 12'H) located on one of the main visitor walkways of the zoo. The exhibit is outdoors with access to an insulated building which the birds rarely enter. This pair produced 7 chicks between 2010 and 2012. Based on the success of this breeding space, and at the request of SSP coordinator Cindy Pinger, we sent our original pair to Birmingham Zoo and brought in two individuals on breeding loan to place in the same exhibit in 2012.

Our current male is the most genetically valuable male in the AZA population based on his mean kinship and his status as an unrepresented wild-caught founder. Our current female is the second most genetically valuable female based on mean kinship. Neither the male nor female had produced viable offspring prior to their arrival at Zoo Atlanta.

Pairing the birds proved very easy. Eleven eggs were laid between January and May 2013. Of those eggs, five were found broken, two were infertile, and another had shell calcification issues. The female also seemed to target egg-laying for cold or stormy nights and natural incubation was erratic. We suspected that a gold-breasted starling or Bali mynah were potential culprits in breaking the eggs. The two passerines were relocated to different exhibits but, just to be sure, we decided to artificially incubate the subsequent dikkop eggs and replace them with dummies. In March of this year, we successfully hatched their first chick that was artificially incubated. Unfortunately, the chick hatched with a slightly twisted neck which worsened as he aged. Despite physical therapy and laser treatment, the chick was barely able to feed itself unassisted and the decision was made to euthanize.

By their 6th clutch, we were happy to see that the dikkop pair was reliably incubating their eggs. They successfully incubated and hatched a chick on their own for the first time in June. These dikkop pair proved to be excellent parents. Their chick is now full grown and will be leaving Zoo Atlanta this fall. Subsequently the pair laid again but the eggs were abandoned when a service dog spent a few minutes in front of the exhibit (barely three feet from the incubating bird). These newly paired spotted dikkops reached a big milestone this year and we are crossing our fingers for additional successful breedings in late 2013 and into 2014.

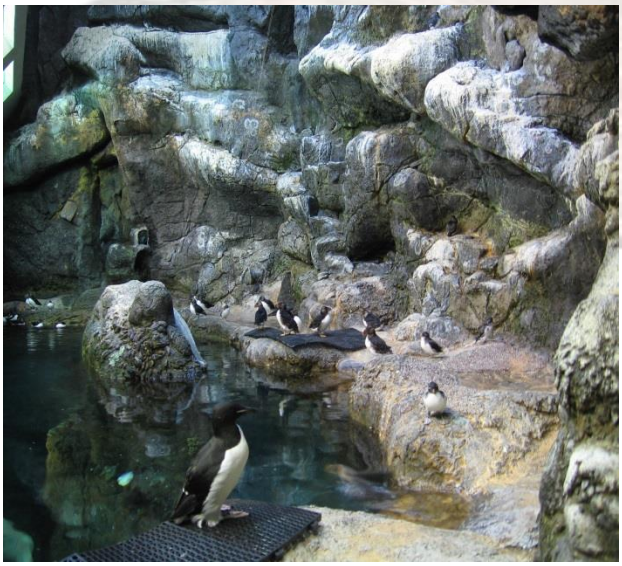
Spotted dikkop chicks hatched at Zoo Atlanta in 2011. Photo by Jenny Kvapil

Spotted dikkop chick hatched at Zoo Atlanta in 2011. Photo by Jenny Kvapil

Horned Puffin Activity Budget at the North Carolina Zoo

By: Melissa Vindigni, Alcid/Raptor Keeper 1

The Rocky Coast Seabird exhibit houses one of the largest captive colonies of Horned Puffins. Currently, we have 29 individuals ranging from 4-30 years old. As keepers, we always strive to improve and enrich the lives of the animals in our care. From 2002-2004 keepers conducted a study to determine how the birds were spending their time. With little information on wild Puffin activity budgets, keepers were interested to see if the birds here followed even the basic patterns of their wild counter parts: on land during the summer and in the water during the winter.



To conduct this study, keepers randomly selected 5 focal birds to monitor for 2 years. All birds were paired adult Puffins. Study years were broken into 4 time periods based on major annual activities: breeding season (summer), 2 non-breeding seasons (spring and fall), and winter. We have a very active enrichment program at the NC Zoo and this was considered. During the first study year, enrichment was given any time (the enrichment year). During the second study year, no enrichment was given at least 2 days prior to when activity observations were taken (the non-enrichment year).

Photo 1: photo of the Rocky Coast Seabird exhibit showing Thick-billed Murres, Parakeet Auklets, and Horned Puffins. All 3 species are housed in this exhibit.

Analysis showed that enrichment did not have an effect on the amount of time birds spent on land or in the water during the summer (chi-square test: $X^2 = 0.107$, df = 3, p-value = 0.9910) or in the winter (chi-squared test: $X^2 = 1.118$, df = 3, p-value = 0.9895). However, season did (chi-squared test: $X^2 = 661.228$, df = 3, p-value = < 0.001)! Birds spent more time in the water during winter (~57%) and more time on land during the breeding season (~89%) (Figure 1). Also, there was an increase in the amount of time birds spent participating in locomotor behaviors (i.e.: swimming, climbing, walking) in the winter (~86%) versus during the breeding season (~46%) (Figure 2). Even what types of locomotor behaviors birds participated in differed between seasons with more laying seen in the breeding season and more swimming and floating seen in winter.

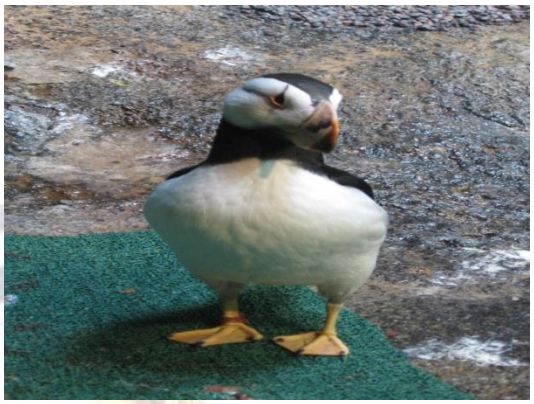
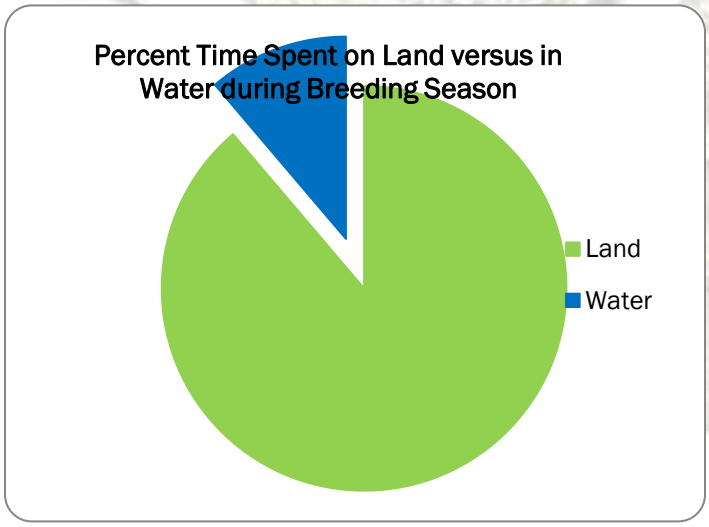


Photo 2: Horned Puffin in breeding (summer) plumage.

So what does this mean? In the wild, Horned Puffins are only on land during the breeding season and typically spend their winters "out to sea". Our birds, at least the ones in this study, seem to do the same thing. Each winter, keepers observe that the Puffins spend most of their time floating in the pool.

Also, the change in behaviors seen from breeding season to winter makes perfect sense as breeding birds would be very focused on breeding activites in the summer. However, we still don't know what our non-paired adult and juvenile birds are doing. Keepers have observed juvenile birds watching adults participate in breeding behaviors, even going so far as to stick their heads in occupied tunnels! But, this is a great start and it's rewarding to see that, even in captivity, our birds are behaving as wild as they can.



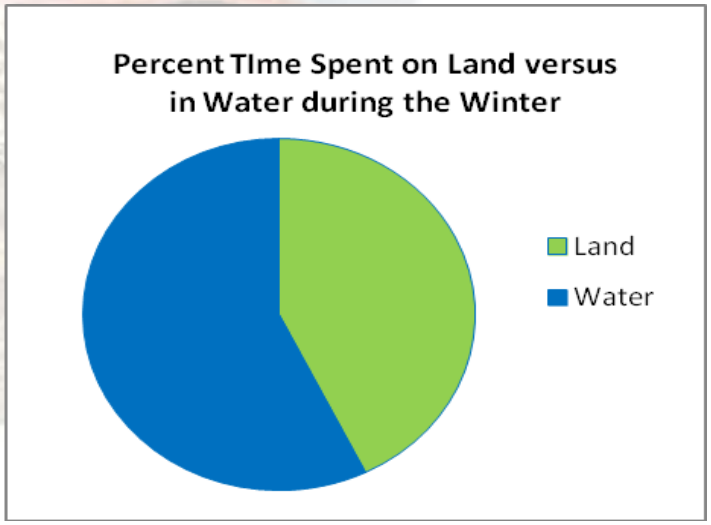
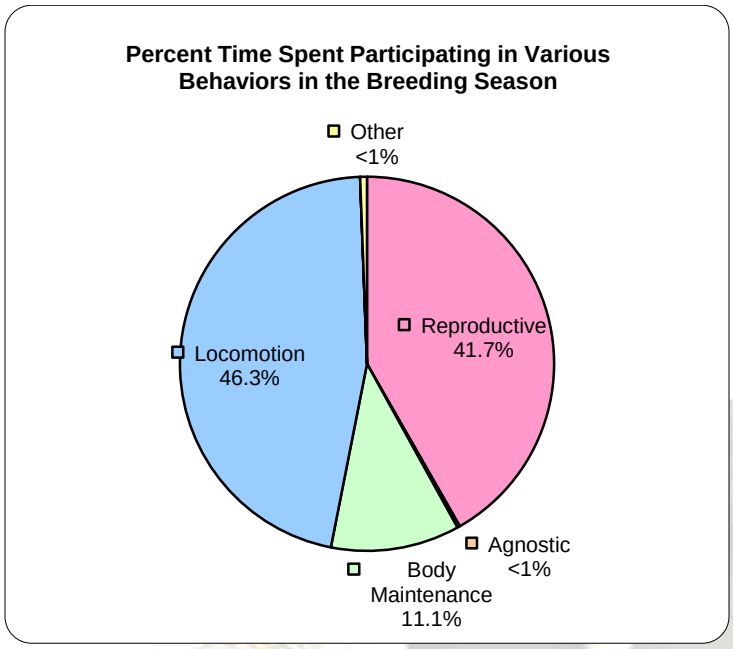


Figure 1: Time spent on land versus in water.



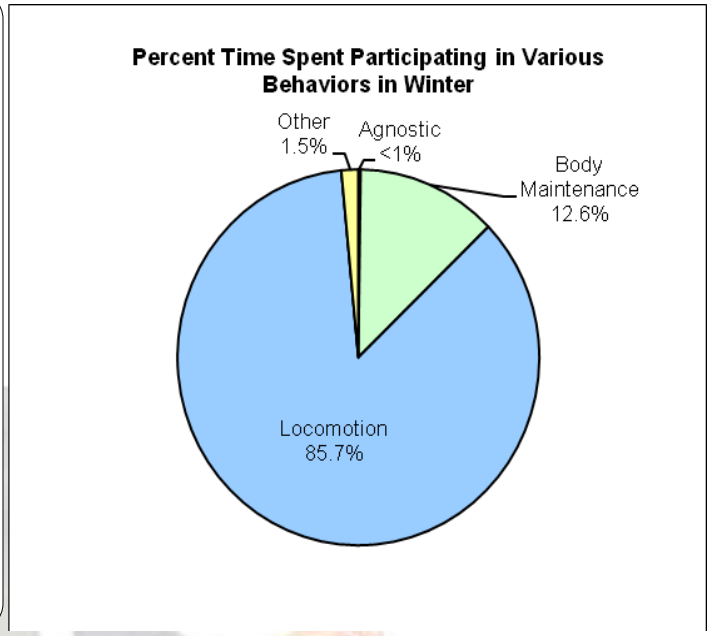


Figure 2: Time spent participating in various behaviors.

Special-needs care for Black-necked Stilts *(Himantopus mexicanus)*

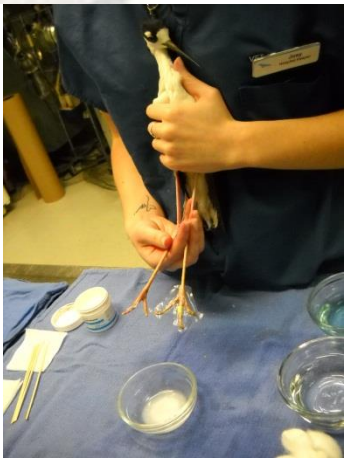
By: Sarah Shannon

Advances in animal husbandry, zoo nutrition, and veterinary medicine are having significant positive effects on the quality of life and longevity of animals in captivity. This article describes the care of a Black-necked Stilt *(Himantopus mexicanus),* who lived to 25 years old in the veterinary hospital at the National Aviary. The specialized care that was provided for this bird can be utilized for any shorebird or long-legged species.

Over the years, our stilt had chronic issues with pododermatitis (bumblefoot) and hyperkeratosis on his legs and feet. Shorebirds are especially at risk of developing serious orthopedic issues due to constrictions and complications from dry skin. In severe cases, these conditions can

sometimes require amputations or euthanasia. However, in most cases, if the skin conditions are caught early they may be treatable or preventable. To help cushion the feet, inside the enclosure we used rubber mats such as puzzle, exercise or anti-fatigue mats. We used multiple shallow trays to hold sand, fresh water and salt water (Instant Ocean brand) in which all items helped to act as exfolliants for the skin, provide shallow bathing areas, as well as replicating natural elements essential for shorebird health. Artificial plants were provided for visual security for the bird. Multiple heating sources were used such as heating pads underneath the enclosure, ceramic reptile heat lamps overhead and oil heaters nearby to keep the ambient temperature between 78-88 degrees Fahrenheit. The heat was very important to maintain his body temperature and by adding heat-support to the extremities, blood flow is increased and calluses are less likely to develop or worsen. Ultraviolet reptile lighting was provided for 12 hours a day for vitamin D production and a basking spot light was placed over his sand tray. The humidity was kept around 50% by using a small room humidifier. The added humidity helped tremendously with his skin conditions by providing moisture in an otherwise dry environment.

Multiple vitamin supplements were also essential to the overall health of the Stilt and for fish-eaters and geriatric birds in general. The following supplements were provided either orally or in food items; Mazuri Vita-Zu Fish Tablet, Flax Seed Oil (omega fatty acids), Vitamin B Complex and Vitamin E. Specialized skin care treatments were developed using Chlorhexadine Solution, Silver Sulfadiazine, Triple Antibiotic Ointment, Xeroform dressing, Tegaderm bandages and Vitamin E. A smooth-edged dental wax spatula was used to gently debride the dry skin to prevent constrictions.



This bird was held off-exhibit in the veterinary hospital in a large pen replicating a sunny, beach environment. He was a highly valued educational bird and was a true ambassador for his species. Visitors enjoyed meeting him and hearing his unique story. The husbandry and medical care that was developed over the years for this stilt were instrumental in maintaining his health and have since been used to improve the lives of many others. For additional information and photos contact Sarah Shannon, Supervisor of Hospital Wards, The National Aviary (sarah.shannon@aviary.org).

Program Updates

African Jacana

By: Diane Lavsa

African Jacana's are small but colorful birds that are a great addition to any large mix-species exhibit. Their mating and chick rearing practices are an interesting behavior to observe. They have a polyandrous mating system where a female will mate with several males, who then incubate and raise the young.

The first recorded African Jacana hatched at the Bronx Zoo in 1964 and there have only been about 300 individuals in AZA institutions recorded since that time. Ten years ago there were 79 individuals in 16 institutions, five years ago the number of individuals fell 46% to 36 in 11 institutions and today there are only about 12 individuals in 6 institutions recorded here in the US. If you search globally on ZIMS the numbers are even more surprising in that there are only about 8 individuals in 16 institutions.

It appears that the significant decrease comes from a variety of factors and successful breeding and chick rearing has proven to be a challenge. Only a small number of institutions, such as Disney's Animal Kingdom and Pinola Preserve in Louisiana, are continuing to work with this species to try and have more breeding success and improve hand-raising protocols. If your institution is interested in acquiring African Jacana's there are company's such as Feathered Wagon based in Miami Florida that occasionally have this species available.

Please feel free to contact me with any information or questions regarding African Jacanas.

Tufted Puffin, Atlantic Puffin and Common Murre Programs

By Sara Perry

The Tufted puffin, Horned puffin, and Common murre programs continue to remain stable at their respective SSP green and yellow statuses. Studbook and SSP updates are slated for 2014.

American Avocets Egg Collection Update from Monterey Bay Aquarium

The Monterey Bay Aquarium is working on a collection plan to collect eggs from the wild to help support a captive SSP program. Currently there are 5.1 American Avocets left in captivity according to ZIMS. At this time Monterey Bay Aquarium is waiting for permit approval from the Fish & Wildlife Service before they can proceed.

TAG UPDATES

2013 AZA Mid-Year Meeting - Charadriiformes Workshop

The Charadriiformes TAG held a successful and interesting workshop during the 2013 AZA Mid-year meeting in Charleston, SC. All the workshop presentations have been uploaded to the Avian Scientific Advisory Group (ASAG) website which can be found at aviansag.org. A complete list of the presentations is below:

- Auditory and visual threat recognition in captive-reared Great Lakes piping plovers - Sarah Saunders
- From rooftops to rafts. Floating Nesting Platforms for Least Terns: A possible antidote to sea level rise and loss of gravel rooftops – James Wilson
- Common tern habitat restoration in SE Michigan – Tom Schneider
- Red Knot Banding Project-A Volunteer's Story – Lori Smith
- Habitats for Shorebirds – Jo Gergson
- The Charadriiformes - population trends in North American ISIS institutions – Robert Webster
- The Saint Louis Zoo Penguin and Puffin Coast, The First Indoor Emersion Exhibit – Ann Tieber
- Scale and Crate Training with Tufted Puffins, Common Murres, and Rhinoceros Auklets. – Bob Lastovica
- Managing the Masked Lapwing, *Vanellus miles*, at Riverbanks Zoo and Garden – Sarah Faugno/Lisa Signorino

Shorebirds Animal Care Manual Update

The Shorebirds ACM is in its 30 day public comment period for the final draft. This document can be viewed on the Charadriiformes TAG animal program page on the AZA website during the comment period and progress continues on the Alcid ACM.

The Charadriiformes TAG would like to give out a HUGE THANK YOU to all the people who presented at the Mid-year Workshop and also who helped contribute the first of many newsletters!!

If you have any ideas for next year or are interested in writing a piece please contact Cody Hickman at hickmanjc02@gmail.com.