



Photo Credit: Heather Anderson



# THE DUCK POND

Association of Zoos and Aquariums Anseriformes Taxon Advisory Group  
Summer 2023 · Volume 1, Issue 5

## AROUND THE POND

Ian Shelley  
Maryland Zoo

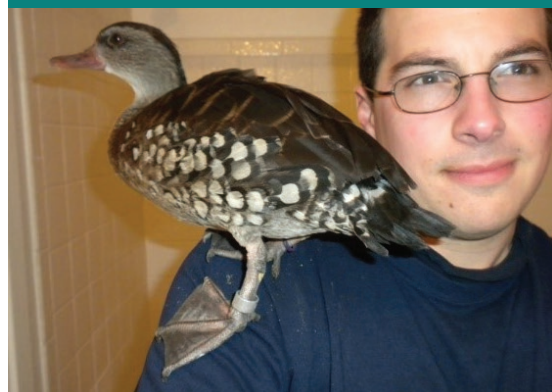
I used to be cool... by which, of course, I mean that I used to be a zookeeper who worked with a wide variety of species. Among my favorites were the thirty-odd species of waterfowl which I've had the pleasure of caring for over the years.

I started off working with animals at age 13 as a volunteer keeper aide at what was then called The Baltimore Zoo (today the Maryland Zoo in Baltimore). Since then, I've worked at several other facilities, including the Dallas Zoo and the Salisbury Zoo, before settling into my current job as Registrar at Maryland Zoo (right back where I started) in 2019. I may no longer have as much direct exposure to waterfowl, but I am still able to maintain some involvement in their management, both through coordinating the Zoo's animal transport program and participation in annual animal wellbeing assessments.

For the past 10 years, I've served as studbook keeper and Coordinator for the Spotted Whistling Duck SSP, and have enjoyed watching this once-rare species expand its population in North American zoos (I'm also the TAG Monitor for Cape Shelduck!). I've also been an active member of the Anseriformes TAG Steering Committee, responsible for managing the TAG Facebook page, co-managing the grants program, serving on the education committee, and acting as the editor of our TAG newsletter, The Duck Pond. I appreciate having the opportunity to help facilitate the TAG's goals of promoting best practices of waterfowl conservation and husbandry, as well as the chance to work with some of the best zoo professionals that I know and have met through the TAG.

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Cape (South African) Shelduck  
(L & R) Photo Credit: Ian Gereg

## CAPE (SOUTH AFRICAN) SHELDUCK

*Tadorna cana*

Range: Southern Africa

Program Status: TAG Monitored

Program Leader: Ian Shelley  
ian.shelley@marylandzoo.org

TAG Appeal: Due to its history of having been successfully housed with African penguins, the Cape shelduck is a species of interest to the TAG as a representative of the subfamily of waterfowl which has become less common in North American zoo collections.

Range Map

Photo Credit: Biodiversityexplorer.info

## SPECIES PROFILE: CAPE (SOUTH AFRICAN) SHELDUCK

Cape shelducks are found across southern Africa, mainly breeding in Namibia and South Africa. Both sexes have ruddy plumage, with the wings bearing markings of green, black, and (most notably), a striking white patch. Males can be distinguished from females by their grey head, while the head of the female is white framed with black. Body length is 15-24 inches with a wingspan of 3-4 foot, while weight is 3.5-5 pounds.



These large, goose-like ducks inhabit freshwater and brackish bodies of water, as well as the adjacent mudflat habitats. They nest in burrows dug by aardvarks and other animals, depositing their 7-15 eggs inside for shelter (the availability of burrows may be a limiting factor in their range). Several pairs of geese may share parenting responsibilities, forming crèches of up to 100 ducklings which are guarded by a few parents while the rest feed. Cape shelducks feed on algae, grains, and aquatic invertebrates; they are more omnivorous during the breeding season, more herbivorous during the rest of the year. They sometimes enter farms and feed on crops, which has led to some farmers branding them as agricultural pests.

Cape shelducks are listed as a species of Least Concern by the IUCN. Their range appears to be expanding due to the construction of new dams, which has increased their available habitat.

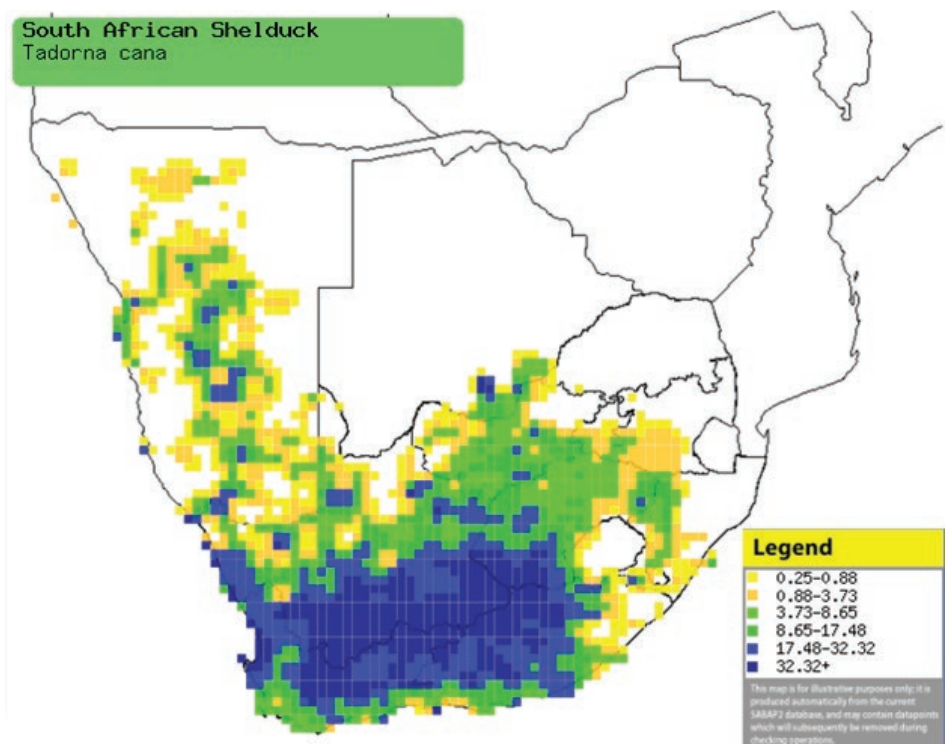




Photo Credit: Heather Anderson

## WHY DO AZA OR “PUBLIC” ZOOLOGICAL PARKS NEED A WASD PERMIT?

Rachél Watkins Rogers

Permit and Records Specialist/ Consultant

*Anseriformes* consist of three families, *Anhimidae* (screamers), *Anatidae* (geese, swans and ducks), and *Anseranatidae* (magpie goose), which includes 48 genera and 161 species. This article will focus on the waterfowl that zoos may acquire from the family *Anatidae* (geese, swans, and ducks), by use of the Waterfowl Sale and Disposal permit (WASD).

There are exemptions under this Migratory Bird regulation which may not be clear to some AZA or ‘public’ zoological institutions, so we attempt to explain them for the purposes of demystifying one (1) of ~24 permit types falling under the Migratory Bird Act Treaty (MBTA).

### **3-200-9: WATERFOWL SALE AND DISPOSAL**

*A federal waterfowl sale and disposal permit is required to sell, donate, or otherwise dispose of captive-reared waterfowl (including eggs) protected under the migratory bird treaty act. Waterfowl are defined as members of the family Anatidae (ducks, geese, and swans).*

*All waterfowl acquired, held, or transferred under this permit must be properly marked in accordance with 50 CFR 21.25. Each time you dispose of waterfowl, you will be required to complete a form 3-186, notice of waterfowl transfer or sale.*

To be clear, the current MBTA species list Final Rule was published in the Federal Register 04/16/2020 and this rule is effective May 18, 2020.

<https://www.federalregister.gov/documents/2020/04/16/2020-06779/general-provisions-revised-list-of-migratory-birds>



Photo Credit: Rachél Watkins Rogers

In this article, the only transfers I am discussing are species listed under the WASD transferred between AZA institutions, or between an AZA institution and a private sector institution, or an AZA 'public' (aka municipal, local or federal government, etc.) and a private sector institution. If you do not hold a WASD permit, you are prohibited from dealing with private sector institutions, but can deal with any institution that is legally allowed to use the exemption under 50 CFR 21.12(b).

**When transferring *Anatidae* species listed under the MBTA between AZA institutions, using the exemption under 50 CFR 21.12(b):**

- No WASD is required, and an AZA accreditation certificate can be used as proof of exemption.
- No WASD form 3-186 is filled out per regulations § 21.45(f).
- No report to the MBTA permit office is required.
- Both institutions are required to maintain records of the transfer.
- Both institutions are required to mark the birds and their progeny per the regulations § 21.45(b).

**When transferring *Anatidae* species listed under the MBTA between an AZA and/or a 'public' AZA institution and a private sector institution, both institutions are required to have a WASD permit because private sector institutions are not exempt:**

- A WASD permit is required for both institutions.
- A WASD form 3-186\* is required to be filled out by the sender per regulations § 21.45(f).
- The receiver/sender must send a copy before the end of the month of transfer.
- This goes to the MBTA permit office in each permittee's region.
- A report of transfer is required by both parties on their annual permit report.
- Both institutions are required to maintain records of the transfer.
- Both institutions are required to mark the birds and their progeny per the regulations § 21.45(b).

**\*Special note:** A copy of the WASD form 3-186 should always be kept with the bird after initial transfer and becomes the bird's permit. This is the proof of legal acquisition!

**When transferring *Anatidae* species listed under the MBTA between an AZA institution and a 'public' AZA institution, using the exemption under 50 CFR 21.12(b):**

- No WASD is required, and an AZA accreditation certificate can be used as proof of exemption.
- No WASD form 3-186 is filled out per regulations § 21.45(f).
- No report to the MBTA permit office is required.
- Both institutions are required to maintain records of the transfer.

Both institutions are required to mark the birds and their progeny per the regulations § 21.45(b).

Now that you know, are all your ducks in a row? Knowing the regulations keeps your institution in compliance and out of trouble, don't be a sitting duck and keep up to date on regulatory changes!

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Personal communication Carmen Simonton, Chief, Migratory Bird Permit Office - Region 4 (2013) / Carmen\_Simonton@fws.gov; Phone: 404-679-7049  
Title 50 Chapter I Subchapter B Part 21 - MIGRATORY BIRD PERMITS regulatory references (up to date as of 4/06/2023)

Do I Need A WASD Permit If I Am An AZA Zoo?" AZA Annual conference 2013 Rachél Watkins Rogers, Zoo Registrar and Records Coordinator.

**QUESTION AND ANSWER  
— WATERFOWL TRIVIA**

What sea duck is named after a character in Italian comedies, usually masked, dressed in multicolored, diamond-patterned tights?

Answer on Page 11





# A NEW WATERFOWL AVIARY AT THE SMITHSONIAN'S NATIONAL ZOO AND CONSERVATION BIOLOGY INSTITUTE

Sara Hallager  
Smithsonian National Zoological Park

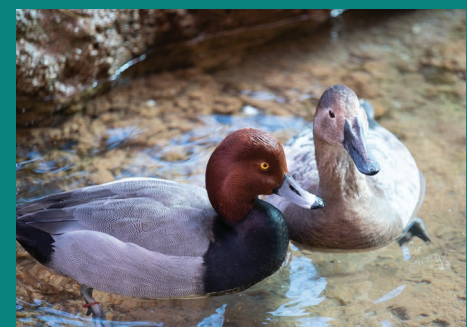
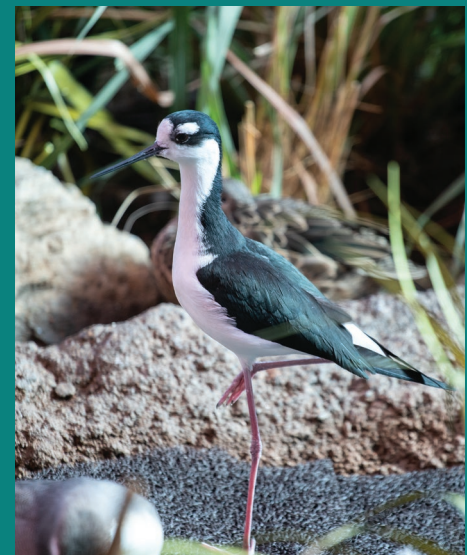
*\*Editor's Note: This article was previously published in the International Wild Waterfowl Association's 2023 Yearbook, and is being reprinted with permission of the author\**

After six years of renovation, the Bird House at the Smithsonian's National Zoo and Conservation Biology Institute has reopened! The new, remodeled exhibit teaches visitors about the important roles birds play in maintaining healthy ecosystems and invites them to protect migratory birds by taking simple steps to live bird friendly. Interactive exhibits, walk-through aviaries and an observation and tracking station immerse visitors in the phenomenon of bird migration and conservation. Ongoing community science activities and STEM-based curriculums for teachers encourage visitors to stay involved long after leaving the Zoo.

## The Aviaries

Three multi-sensory, interior walk-through aviaries highlight migratory birds of the Americas and the importance of preserving their habitats. In the first exhibit—the Delaware Bay—visitors learn about shorebird migration in the Western Hemisphere. North American shorebirds, horseshoe crabs, and native fishes tell the story of how the Delaware Bay is a prime stopover station for migrating birds, many of whom rely on nutrient-rich horseshoe crab eggs to refuel. Next, visitors enter the Prairie Pothole aviary, where they learn how dedicated conservation efforts in the Upper Midwest have enabled many waterfowl populations to rebound. In the third and final aviary, visitors are immersed in a Central American bird friendly coffee farm. They encounter neotropical songbirds—many of which can be spotted in North American backyards in spring and summer—flying among trees and coffee plants. Here, they learn the impact their choice of coffee can have on migratory birds' wintering grounds. Panels explain how shade-grown coffee can support as many bird species as undisturbed forests.

Photo Credits: Skip Brown



## Prairie Pothole Aviary

The Prairie Pothole aviary is a favorite among visitors, thanks in large part to our incredibly charismatic ducks! Forty full-winged ducks live in this aviary. As visitors enter the exhibit, interpretive panels explain how prairie potholes—which span five states (Montana, North Dakota, South Dakota, Minnesota, and Iowa) and three Canadian provinces (Alberta, Saskatchewan, and Manitoba)—offer critical nesting habitat for 50% of North American migratory waterfowl.

A beautiful mural and lush grasses create a stunning backdrop to the main aviary pool, where ruddy ducks dabble for greens and buffleheads dive for mealworms. The elevated pool allows visitors to enjoy an engaging, close-up view of the ducks. Underwater viewing gives them a glimpse of the animals as they paddle and dip beneath the water's surface. Opposite the main pool is a ground-level pond and embankment with logs and grasses where ducks—including canvasback, American wigeon, gadwall, Northern shoveler, Northern pintail, redhead, green-winged teal and blue-winged teal—can socialize, eat, nest and more. Songbirds such as red-winged blackbird, yellow warbler and grasshopper sparrow add movement and song to the aviary.

### Prairie Pothole Aviary structural highlights:

- Walk through interior exhibit about 900 square feet (83 square meter)
- One large overhead skylight 25 ft long x 12 foot wide (7.6m long x 3.6 m wide) constructed of ethylene tetrafluoroethylene (ETFE) allows beneficial UVB into the aviary. An additional glass skylight at the east side of the exhibit provides more natural light and is complimented by overhead Lutron LED lights. DMX-programmable lights mounted around the ceiling mimic the astronomical day length of Washington DC
- Two recirculating pools with a total volume of 1420 gallons and a flow rate of 30 gpm running through bead filters and a UV sterilizer help keep the pool clean, although daily dump and fill is still required to maintain the desired water clarity
- The pools are made of shotcrete and are designed to mimic the mud flats of a prairie pothole. The texture of the pool was carefully crafted to minimize pododermatitis
- Two acrylic windows at the larger pool, allow guests to view ducks diving
- A mix of artificial and live grasses are planted in the aviary. Soil surrounds the pool at the east side of the aviary and live plants offer privacy for nesting

### Off exhibit holding

As the aviary is a walk-through experience, we are mindful of ducklings getting under foot so do not intend to allow breeding in the aviary. Instead, off exhibit waterfowl facilities are available to propagate species for exhibit as well as hold replacement birds in the event a particular bird needs to be pulled off exhibit for any reason.

### Creating Connections

In each of the aviaries, bilingual panels—in English and Spanish—teach visitors about how migratory birds connect communities and contribute to pest control and pollination. In the Prairie Pothole aviary, guests can learn where to buy Federal Duck Stamps which help preserve habitat for waterfowl. Other signs and illustrations highlight the difference between diving and dabbling ducks, and a flip book shows the foods ducks eat as they grow from chick to adult. A charming bronze statue of a blue-winged teal and her ducklings adds a fun touch to the aviary.

Conserving the remaining prairie potholes is important to maintain North American waterfowl populations. Our hope is that this aviary inspires our visitors to do just that.



# DO DUCKS LIKE SWIMMING? THE TRIALS, CHALLENGES, OPPORTUNITIES, AND POTENTIALS OF USING NATURAL HISTORY INFORMATION IN WATERFOWL CARE

Dr. Paul Rose

University of Exeter and Wildfowl & Wetland Trust

The ducks, geese, swans, and screamers (Anseriformes) all share common characteristics that provide clues about, and insight into, their evolutionary relationships and evolutionary past. Such traits (bill morphology, foot structure, wing size and shape, plumage colour, and behaviour patterns) are the end result of selection pressures from the environment that make a species fitter. When a wild species is managed in a human-created environment, any mismatch between its ecology and adaptive traits and what is provided to the animal under managed conditions can result in chronic stress, abnormal behaviour patterns and long-term animal welfare challenges (e.g., experiences of poor wellbeing and reduced quality of life). This predicament is seen across taxonomic groups. For example, research on parrots has identified specific predictors of abnormal behaviours (e.g. feather plucking) and poorer welfare based on the ecology of different species (Mellor et al., 2021). Foraging ecology, being a browsing species, predicts higher rates of abnormal repetitive behaviour in zoo-housed ungulates (Lewis et al., 2022). And work on terrestrial carnivores indicates that spatial restriction caused by small zoo enclosures increases the propensity of stereotypical pacing behaviour in species that would naturally roam widely (Clubb & Mason, 2003).

Wild birds do not exist freely from challenges and daily survival is tough, however, opportunities to act in a species-appropriate manner can be enhanced for managed populations under human care when key aspects of the wild are replicated in an aviary or enclosure (Mellen & MacPhee, 2001). Our knowledge of ecological needs is improved when we observe the species that we are caring for out in the wild, and when we are well read on its natural history (Munday & Rose, 2022). Figure 1 examines the wider ecosystem of, habitats for, and specific niches of three different duck species to illustrate why evolution is an excellent foundation for correct care.

Three species of waterfowl within a wetland ecosystem using a specific habitat. The difference niche that each species is adapted to has moulded and shaped the bird's activity, anatomy, and morphology. Replicating habitat features for ex situ populations increases opportunities for naturalistic behavioural outputs that improve bird wellbeing.

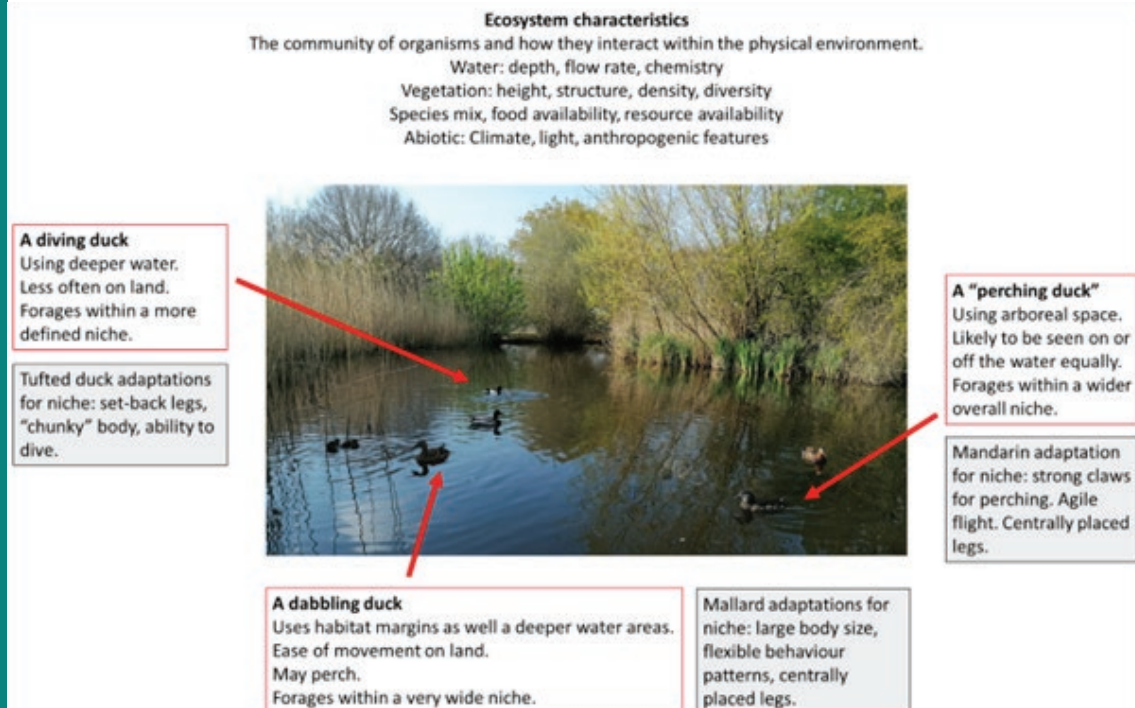


Figure 1 illustrates how these three species have evolved different traits that enable them to exploit, as advantageously as possible, different niches within an ecosystem. All three species are found in the same wooded wetland habitat, yet they avoid competition by doing slightly different things and utilising resources in slightly different ways. Such fundamental ecological characteristics are a foundation to evidence-based husbandry and care (to promote good health and wellbeing, harmonious social interactions) in our managed flocks.

If we consider contentious or potentially controversial aspects of bird management, e.g. space restriction in an aviary or flight restriction by feather trimming or pinioning, we can look at the wild ecology of a species or taxonomic group in question when attempting to evaluate such husbandry methods (Figure 2). For example, species such as swans and geese that are very terrestrial or very aquatic and may not rely on flight daily may, on balance, experience better welfare when housed in large, expansive paddocks or lakes but pinioned. Whereas perching species (e.g. mandarins *Aix galericulata*, pygmy geese *Nettapus sp.* or white-winged wood duck *Asarcornis scutulata*) that regularly fly and utilise arboreal-based behaviours are likely best housed, fully winged, in an aviary to provide maximal opportunities for flight.

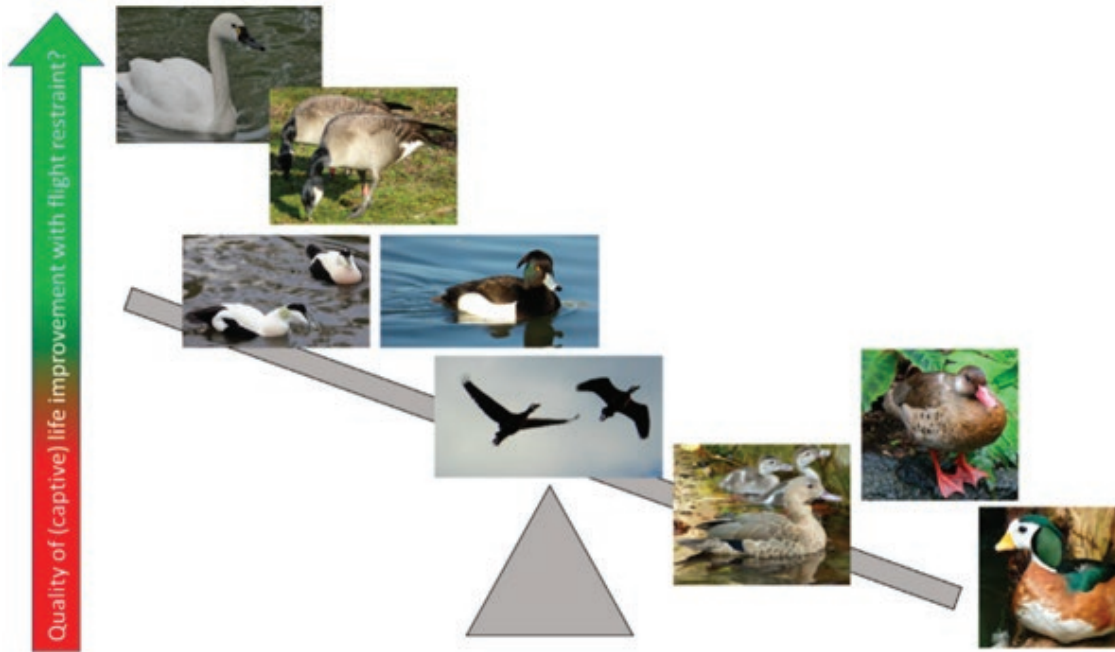


Figure 2: Taken from Rose and O'Brien (2020), a potential means of determining adverse effects of flight restraint on waterfowl wellbeing based on the degree of terrestrial activity performed by a species and their reliance on flight, perching, and other aerial or arboreal behaviours. Top of the seesaw, species where long-term wellbeing is probably not adversely impacted by flight restraint; middle of the seesaw species where not enough evidence is available to make an informed judgement; bottom of the seesaw, species that should not be kept flight restrained as welfare is likely to be poor.

Ultimately, housing and husbandry should be centred around a species' ecological needs and what behaviours (that are important to it) that we would like promoted in a managed situation (e.g., in a zoo's enclosure or aviary). Use of environmental enrichment, alongside of daily, species-relevant husbandry regimes, can provide extra opportunities for wider behavioural diversity and choice of behaviours to perform. A good example of a species-specific enrichment plan designed for a particular species of bird can be Mellen and MacPhee (2001); the specific types of behaviour that caregivers wish to increase in performance forms the basis for giving enrichment, and then the types of enrichment suitable for achieving these behavioural aims are then presented and their effect evaluated. Waterfowl are not often considered candidates for the use of enrichment, yet they will benefit from opportunities that diversify behavioural outputs. Research has shown that waterfowl under human care can be much more inactive than wild counterparts (Rose et al., 2022) and therefore using enrichment to enhance exploration, foraging or social activities is likely to have wide ranging benefits.

**Examples of enrichment for waterfowl can be found at these links:**

- Even wild duck may enjoy interacting with “enriching” aspects of their habitat; <https://youtu.be/tu3Cuylz6ws>
- Encouraging foraging with aquatic plants or supplementary vegetation provides outlets for physical activity and exercise; <https://youtu.be/sVHLHHfLwol>
- Consider how daily rations are provided. Utilise aspects of a species' foraging behaviour to make daily feeding more engaging for the birds; [https://youtu.be/61RNhH\\_vbXg](https://youtu.be/61RNhH_vbXg)
- Consider the widest range of behaviours that a waterfowl species will perform. For example, the whistling ducks (*Dendrocygna sp.*) may not appear to be divers, but actually they are very good at it! <https://youtu.be/DkJEce7HdY0>
- Not a waterfowl example, but to illustrate that enrichment does not need to expensive, complex or take hours to create. The overall design and layout of an animal's enclosure can, in itself, provide opportunities for natural behaviour; <https://youtu.be/DkJEce7HdY0>



To conclude, some key points for embedding natural ecology into waterfowl care would focus on:

- Knowing your species and keeping abreast of current developments to our understanding of their evolutionary and behavioural ecology. Biology can move on quickly, so access to current information helps husbandry remain relevant.
- Knowing what your species has evolved to do. Can it do this under current managed conditions? If not, how feasible is modification to housing or husbandry to promote any “missing” behaviours?
- Understanding the need for behaviours to be performed. Certain actions have a high motivational state (a drive for the bird to complete them) and others may provide adaptive benefits and so (from a conservation perspective) should be encouraged in captive flocks.
- Thinking about important aspects of habitat structure that should be provided to managed birds. An entire wetland ecosystem may not need to be replicated if the particular aspects of it can be recreated for the birds (Figure 3).
- This “functional substitution” as reviewed in Robinson (1998) provides further opportunities for choice and control, by providing evidence for what should be built or created or given to managed animals, and therefore enhances their welfare.
- Checking that an enclosure or management system is suitable for all species kept within it. Can all species interact with furnishings or resources, or have a relevant social experience too? Always ensure the husbandry is the best fit for the species; never try and fit the species to existing, generic husbandry approaches.



Figure 3: An example of “functional substitution” for diving sea ducks, such as the long-tailed duck (*Clangula hyemalis*). Wild ecology on the right as evidence for housing and husbandry on the left. The vast Arctic range of the long-tailed duck and its niche of foraging deep underwater would be impossible to fully replicate under managed conditions. But the opportunity for diving and underwater foraging can be provided to enable these important behaviours to be performed, such as in this example of the diving duck tank at WWT Arundel Wetland Centre in the UK. Wild long-tailed ducks

Wild long-tailed duck  
*Clangula hyemalis*  
Photo Credit:  
Wikimedia Commons

To answer the question in my title, do ducks like swimming? Given our knowledge of their size and shape, form and function, anatomy and physiology, and the aspects of science and research I have reviewed in this article, the answer is most likely a yes. But some species probably like swimming more than others, and some species probably have different reasons for swimming than other species do. So, the objective answer to this question is therefore a “yes with a but...” rather than a “yes, full stop.”

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# MIDYEAR UPDATE

This March, the Anseriformes TAG was proud to host another successful meeting at the AZA Midyear Conference in Oklahoma City. Nearly a dozen speakers from several zoos and aquariums presented on a variety of topics, from the incorporation of waterfowl into aquarium exhibits to trumpeter swan conservation education programs to overviews of new waterfowl exhibits that have opened recently.

TAG Chair, Keith Lovett, also presented an overview of the TAG's managed populations and how they were redesignated within the new AZA SSP definitions. Five species were designated as Signature SSPs, with an additional five designated as Provisional SSPs. Several other species will continue to be managed as AZA studbooks and have their populations monitored by the TAG with the goal of boosting their prevalence within AZA.



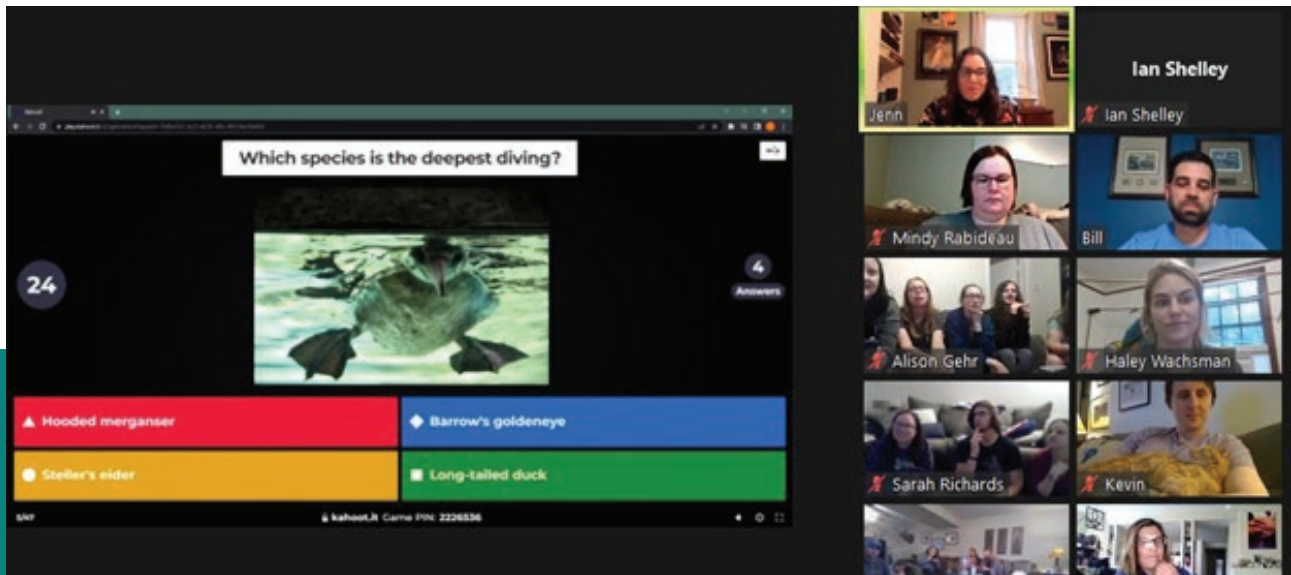
No mention of Midyear would be complete without discussing TAG Mart! Representatives from the TAG sold stickers and t-shirts to raise funds for the grant programs, supporting conservation, research, and professional development opportunities; the TAG earned hundreds of dollars from this effort. And, of course, we all enjoyed a great day at our host facility, the Oklahoma City Zoo, where we saw a wonderful array of animals, including southern screamers, trumpeter swans, and spotted whistling ducks!



Photo Credits: Ian Shelley

# TRIVIA NIGHT FUNDRAISER

On Tuesday, May 9, the TAG hosted its first ever virtual Waterfowl Trivia Night! We had dozens of participants match their wits on waterfowl for a great time and an awesome cause! With your help, we raised hundreds of dollars to support our conservation and professional development grant programs. Sad that you missed out? Don't worry - we're sure to have another event before too much longer. Thanks again!



## ANSERIFORMES TAG MISSION STATEMENT

The mission of the AZA Anseriformes Taxon Advisory Group (TAG) is to provide leadership in the captive management of ducks, geese, swans, and screamers in North America. The TAG is committed to maintaining sustainable captive populations, improving the welfare of waterfowl within AZA, and raising awareness for conservation of waterfowl worldwide.



## FUNDING OPPORTUNITIES AVAILABLE!

### ANSERIFORMES TAG GRANTS

Would you like to expand your knowledge of waterfowl care and husbandry? Do you have a vision for how to make a difference towards the conservation of ducks, geese, swans, or screamers in the wild? Do you wish you could do more for waterfowl, but don't know where to begin?

Here is your chance!

The AZA Anseriformes TAG is pleased to be offering not one, but two grants in the amount of up to \$500 US each. One grant is designated for Conservation and Research, the other one is for Professional Development.

For application materials, or to request more information, please contact TAG Steering Committee members Joanna Klass (Joanna.Klass@Zoo.org) and/or Ian Shelley (ian.shelley@marylandzoo.org).

Applications are accepted on a rolling annual basis.

## Trivia Anser: Harlequin

The International Wild Waterfowl Association is excited to announce the dates of the upcoming Waterfowl Conservation Workshop hosted in Seattle, Washington, USA!

The main conference will be from Oct 26-27, with a pre-conference option on Oct 25 and a post-conference option Oct 28-29.

Registration is now open!  
[www.wildwaterfowl.org](http://www.wildwaterfowl.org)



**2023**  
**waterfowl**  
**conservation**  
**workshop**

**Dates:**  
Oct 25-29, 2023

**Location:**  
Seattle, Washington,  
USA

international  
wild waterfowl  
association