

# The Ridgeline

NEWSLETTER OF THE BLUE RIDGE WILDLIFE CENTER

ISSUE 62 | SUMMER 2024

## Amphibian Medicine and Rehabilitation

*Spotted Salamander  
returns home after  
receiving care at BRWC.*





## Intricacies of Wildlife Care

People are always fascinated to learn about the intricacies of wildlife rehabilitation. The breadth of knowledge required by our wildlife professionals is immense—so vast, in fact, that much of it doesn't even exist yet.

Often, there is no textbook to guide our decisions. Many of our methods are based on field experience or adapting treatments from one species to another, hoping they prove effective. This is particularly true for amphibians, a group often overlooked in wildlife rehabilitation despite their crucial role in our ecosystem. Our team is dedicated to advancing the care and treatment of these unique animals, and the success we've seen is a testament to our commitment and the importance of ongoing research in this field.

Another often overlooked aspect is how we ensure the well-being of the animals under our care. Our animal ambassadors play a vital role in our educational outreach, helping to connect the public with wildlife and the importance of conservation. By using positive reinforcement and patience, we reduce stress and improve their overall health. This approach benefits the animals and enriches the experience for our staff and visitors, creating a more harmonious environment for everyone involved.

As we continue our journey, we are constantly inspired by the resilience of the wildlife we care for and the enthusiasm of our community. Each success story, whether it's the release of a rehabilitated amphibian or the calm cooperation of an animal ambassador during a training session, fuels our passion for this work.

I invite you to stay connected with us as we share more stories of triumph and innovation. Your support, in all its forms, propels us forward and strengthens our mission. Let's continue to work together to create a brighter future for wildlife!

With gratitude,

A handwritten signature in cursive script that reads "Annie Bradfield".

Annie Bradfield

## Annie's Eye View

**Where our Executive Director highlights her favorite photo and shares why it caught her eye!**

*When wildlife rehab starts to get you down, finding joy is essential. This Eastern screech owl took an unexpected dip in a pool and, as you can see, seems to be experiencing a bit of instant regret. After a few days of warming up and drying off at the Center, this little one's frown faded, but this photo will last forever!*



# Amphibian Medicine and Rehabilitation

Many people are surprised to learn that amphibians have the highest release rate of any taxonomic class at the Center with over 80% of the amphibian patients we treat surviving to release. This is even more surprising given the abnormally high rate of severe trauma (traumatic amputations, degloving, evisceration, etc.) that we see in these species. The myth that amphibians are hard or even impossible to rehabilitate is simply false. So why does this stereotype of amphibians being challenging to treat exist?

One thing that makes amphibian rehabilitation tricky is the extreme lack of scientific research regarding the husbandry and medical care of specific species. This is a valid problem and one that we are always working to improve. Common veterinary species (dogs, cats, horses, etc.) and humans have decades, centuries, and even millennia of medical research with significant sample sizes and meta-studies compiling that work to come to even stronger conclusions. Wildlife rarely has this benefit, even for the most common species we treat. In many cases, we must extrapolate from human and veterinary data to come up with reasonable treatments for wildlife species and this is true for amphibians as well.

Despite this knowledge gap regarding medical care of these species, the biggest challenge for amphibians is typically husbandry—the basics of keeping them alive and healthy in captivity. Keeping even a healthy amphibian alive in a captive setting can be a difficult task. This is why we generally do not recommend keeping them as pets or trying to provide care at home—it is difficult to create these ideal conditions and the ideal is not always known for each species! We put great time and energy into providing our patients with species-specific habitats including specialty lighting, temperature gradients within the enclosure, a variety of food

items, enrichment, and a variety of substrates so that each patient can find what makes them most comfortable. Once proper husbandry is provided and we know we can keep these patients alive in care, we can focus on the medical or surgical treatment of each individual.

## Causes of Admission

Like other species, amphibians are susceptible to infectious diseases including viruses, bacterial infections, fungal infections, parasitic infections, toxins, and more. However, 95%+ of the amphibians we see at the Center, like the majority of other species, come into care due to trauma.

Most amphibians that come in are found with traumatic injuries of unknown cause, but the most common known causes are cat attacks and lawnmower/weedwhacker

injuries. These often result in the traumatic amputation of limbs, lacerations, and deep puncture wounds.

## Diagnostics

Once in care, a full physical exam is performed. For tiny species, this may involve placing the patient in a clear specimen cup so that we can evaluate them without excessive or stressful handling. For larger species, this typically means sedation or even general anesthesia. Anesthetics can be inhaled or injected, as they are in many other species, or even applied topically or in a submersion bath. Amphibian skin is amazing and allows these drugs to work by being absorbed through the skin. Diagnostics, such as x-rays, bloodwork, ultrasound, and more, are performed just as they would be in any other species we treat.



In order to help sick and injured amphibians, it is essential to know the basics of caring for each species in captivity. Providing appropriate habitat, temperatures, and lighting, as seen for this American Toad, keeps the patient alive and healthy while receiving medical treatment.





Most amphibian x-rays are taken without sedation. We use thin, clear plastic bins or other containers to keep the patients in place on the x-ray plate.



Clear specimen cups can be used to get a better look at a healing incision (as you can see in this photo of the Green Frog with a herniation from page 6), or to perform an intake exam, without the stress of unnecessary handling.

## Surgery

Given the severity of wounds we see in so many amphibians, most of these patients will require surgery. Unlike most other species, we are generally not scrubbing and preparing the skin for surgery. This is because amphibian skin already has so many beneficial properties and we want to preserve that to help the patient heal after surgery! Amphibians produce various bioactive peptides that have been shown to aid wound healing with antiviral and antibacterial properties, collagen-producing activity, and even immunomodulatory activity. These properties of amphibian skin help wounds to close quickly and leave minor (if any) scarring.

Prior to surgery, we must ensure the amphibian is stable for anesthesia. We make sure they are medically stable and typically pre-oxygenate these animals by providing oxygen bubbled through their soaks. We often provide opioids in these soaks as well and may inject antibiotics or other medications at this time too. Amphibians generally tolerate anesthesia very well and recover quickly after being removed from anesthetic soaks and rinsed/soaked in regular water.

In addition to lacerations healing rap-



We use a doppler to monitor heart rate during anesthesia, as seen with this Pickerel Frog.



idly, many amphibians are able to survive and thrive with partial amputations in a way that many other species could not. Which body areas and how much can be safely amputated varies greatly by species based on their natural history, but an amputation is not necessarily a death sentence for amphibians. These patients can often adapt well to the loss of the limb or portion of a limb, and some salamanders are even known to regenerate them entirely!

### Post-operative Care

Post-operative treatment is often similar between surgically-repaired amphibian patients, consisting primarily of pain control and antibiotics. It is at this stage that excellent husbandry is paramount. Amphibians are amazing at self-healing, but they need to be kept at their ideal body temperatures, with appropriate humidity, and with appropriate lighting, hides, and more to heal properly. These husbandry aspects are even more impor-



This Wood Frog is receiving post-surgical oxygen in a clean water soak while recovering from anesthesia.

tant than any medical or surgical care we provide. Check out some of these example

cases from this past year to learn more about how we care for amphibians!



Patients heal better when they are in an enclosure that closely mimics their preferred environment and allows for natural behaviors.



## Green Frog



This Green frog came to the Center after suffering a traumatic amputation during an attack by a domestic cat followed by nearly two days of refrigeration. The finder contained the frog after witnessing the attack, but felt the wounds were too severe to survive. They had read that the frog could be placed in the refrigerator to humanely kill them. It's extremely common to find websites suggesting cooling or freezing reptiles and amphibians as a form of "humane" euthanasia. While this MAY be questionably humane in some species, it is NOT acceptable for the overwhelming majority of amphibians, and should not be practiced by the general public.



After days of stabilization, this frog was anesthetized and the traumatic amputation site at the left hind limb was cleaned and closed along with other lacerations this patient had suffered. The lacerations healed in a matter of days and the amputation site was fully healed within three weeks.

## Green Frog

This Green Frog suffered a herniation as a result of a cat attack. As you may be able to see in the photo, the intestines have come through the coelomic membrane and are sitting in the subcutaneous space, trapped under the skin after the cat's tooth punctured through. This type of herniation can be deadly if intestines get stuck in this subcutaneous space or get blocked by constriction at the site of herniation. Our veterinary team was able to replace the herniated intestines into the coelom and surgically close the hole that was allowing them to migrate to the subcutaneous space. This frog did great in care and was released after three weeks of treatment!



## Red Salamander

This Red Salamander was brought in after they were struck by a weed whacker. On exam, this salamander had amputations of the left front and hind foot. While many may look at this animal and consider them incapable of being rehabilitated, salamanders have amazing wound healing abilities. The traumatic amputation sites healed beautifully with just pain medications and antibiotics—no surgery was needed—and this salamander was able to ambulate well after healing. They could get around their enclosure, in and out of water baths, and eat on their own while in care. After completing medical treatments and healing fully, this salamander was successfully returned home!

# Join our Wild team!

If you're interested in a volunteer position, or a rehabilitation, veterinary, veterinary technician, or education internship with us you can find the application on our website at:

**[blueridgewildlifectr.org](http://blueridgewildlifectr.org)**





## Gray Treefrog

This frog came to us with a traumatic amputation of the tip of the left front leg, which we cleaned up and closed surgically. Just a few weeks later, this site was healed

fully! The tiny patient was ambulating well in care and was cleared for release after observation of this frog's competent climbing abilities.



## What You Need to Know

- Any amphibian that is bleeding or has obvious fractures will need care—please call ahead whenever bringing an animal into rehabilitation
- If you have concerns about an amphibian but there is no obvious trauma or history of being in a dog or cat's mouth, please **DO NOT** intervene until you speak with a professional.
- If containing an amphibian, wear clean, rinsed, latex/nitrile/vinyl exam gloves for their safety and yours.
- Keep the amphibian in a well-ventilated plastic container with moist paper towels (unbleached if possible) in a dark and quiet area while you speak with or await a call back from a rehabilitator.
- Many municipal water sources use chlorine to treat, so unless you have well water, plan to use bottled water to moisten paper towels for transport.
- Be sure to note the exact found location as amphibians (like reptiles) cannot be rehabilitated and released if they're found location is unknown!



# Unintentional Entrapments

## Great Blue Heron - Hook and Line Injury



These photos show the patient's wound healing at day 3, day 21, and day 28 of care.

This Great Blue Heron was rescued after being found with fishing line causing constrictions and a hook embedded in the left wing. Even after removal of the hook, the surrounding tissue was badly infected and required management with aggressive wound debridement, multiple bandage changes, and antibiotics. Luckily, this patient responded to treatment well and

even maintained a hearty appetite while in care, gaining needed weight as their wing healed beautifully. After just a few weeks in care and some time reacclimating in an outdoor enclosure, this heron was successfully released back home! If you are an angler, please mind your line and recover any lost fishing gear whenever possible to keep our wildlife safe.

## Eastern Hog-nosed Snake - Mesh Netting

Our second Eastern Hog-nosed snake of this year was brought in after being found stuck in mesh garden netting. Mesh garden netting is one of our top causes of admission for snakes, and can cause severe lacerations when netting twists and constricts as they attempt to escape. Thankfully this snake suffered minimal injuries, and after a few days of well-deserved rest and rehydration, they were released back home to continue their diligent maintenance of rodent (and other "pest") populations!

Do you use garden netting? Consider swapping out garden netting for finer insect-grade mesh so that snakes, birds, bats and others





cannot get entrapped. Alternatively, use sturdy wire so that even if a snake is unable to fit through the gaps, they can back out safely without the threat of material tightening around their bodies.

Even unused garden netting is a risk! Make sure when throwing it away or storing it that it's kept in a fully-sealed bag or bin where animals can't access it. If you do find a snake stuck in netting, **DO NOT** attempt to untangle them and release them yourself—instead, simply trim the netting around the snake and place them with the netting still attached into an appropriate container. Most of these snakes require rehydration and treatment for potential wounds, many of which take surgical intervention to repair, so entrapped victims should always be brought to a licensed rehabilitator for evaluation.



Like the Eastern Hog-nosed Snake, this Eastern Ratsnake was found entangled in netting.

## Downy Woodpecker - Glue Traps



This Downy Woodpecker was rescued after she was found on a glue trap. Unfortunately, following inappropriate internet advice, the finder believed they were doing the right thing by applying oil to the bird to remove the trap and then bathing her at home with Dawn dish soap. By the time the bird presented to us, she was dangerously hypothermic. Thankfully with proper supportive care, this bird stabilized overnight with heat and oxygen support, and we were able to properly bathe her the next day under sedation to prevent further stress and aspiration.

Contrary to what the internet may ad-

vise, animals should **NEVER** be removed from a glue trap at home by non-professionals, as this often causes further injury and even death. Oiling an animal can make matters worse, as oil prevents birds from thermoregulating appropriately and can poison them as they attempt to preen the oil (yes, even food grade oil) off. We have an excellent release rate for glue trap victims, however, we see a precipitous drop in survival rates of glue-trapped animals

that have been removed by the finders before bringing them to us for care. If you find an animal stuck to a trap, place something like dirt, breadcrumbs, flour, or even tissue paper on the sticky parts to prevent the animal from getting further stuck. Place the animal and trap in a box and keep them warm, dark, and quiet while working to get them to your nearest rehabilitator as quickly as possible!



We use dilutions of Dawn soap for bathing birds with a variety of substances on their feathers—this is **NOT** something that should be attempted at home by the general public.



# Interesting Patients

## Bats! Crows! Woodpeckers! Oh My!

This summer saw an influx of a few species that we typically only get a handful of: 17 baby bats, 7 young crows, and at one point, 9 woodpeckers (of 6 different species) in care at the same time! Many of these babies have already been raised to independence and released, or adults rehabilitated through their injuries, but we still have some in care maturing and preparing to go back into the wide wild world.



Baby Big Brown Bats.



Nestling Crow.



Fledgling Crow.



Hairy Woodpecker.



Red-headed Woodpecker.

## Lead Toxicity



This adult Bald Eagle was found down and unable to fly at a landfill in Stafford, VA. Thanks to the efforts of local animal control, this bird was contained and brought to us for evaluation, where we found the bird to be weak and depressed but with no palpable or visual injuries. Despite being outside of hunting season (which is when we see the majority of lead toxicity cases), this eagle came back positive for lead, meaning they had recently consumed something with lead in it. With chelation therapy, this bird improved, and after a second round of treatment, they had recovered well enough to start reconditioning in an outdoor flight enclosure. The eagle was released in late July. We often find lead poisoning in wildlife as a result of lead ammunition being used during hunting season or any time of year on “nuisance” wildlife. Scavengers and opportunistic animals like

eagles, vultures, and opossums then consume meat containing fragments of the lead ammunition used. If you're a hunter, make the switch today to **non-lead** ammunition to help prevent lead poisoning in our wildlife!





## Who's That Baby?

Check out this transformation from nestling to competent juvenile! This young Yellow-billed Cuckoo was found after they fell from their nest and renesting was not available. After being warmed and hydrated, this baby wasted no time telling us they were ready to be fed! Those markings inside the mouth may look like something out of a creepy crawly magazine, but it's theorized that these high-contrast markings help stimulate parents to feed them as they compete with their siblings. This baby grew up quickly in our care and was successfully released back into the wild.

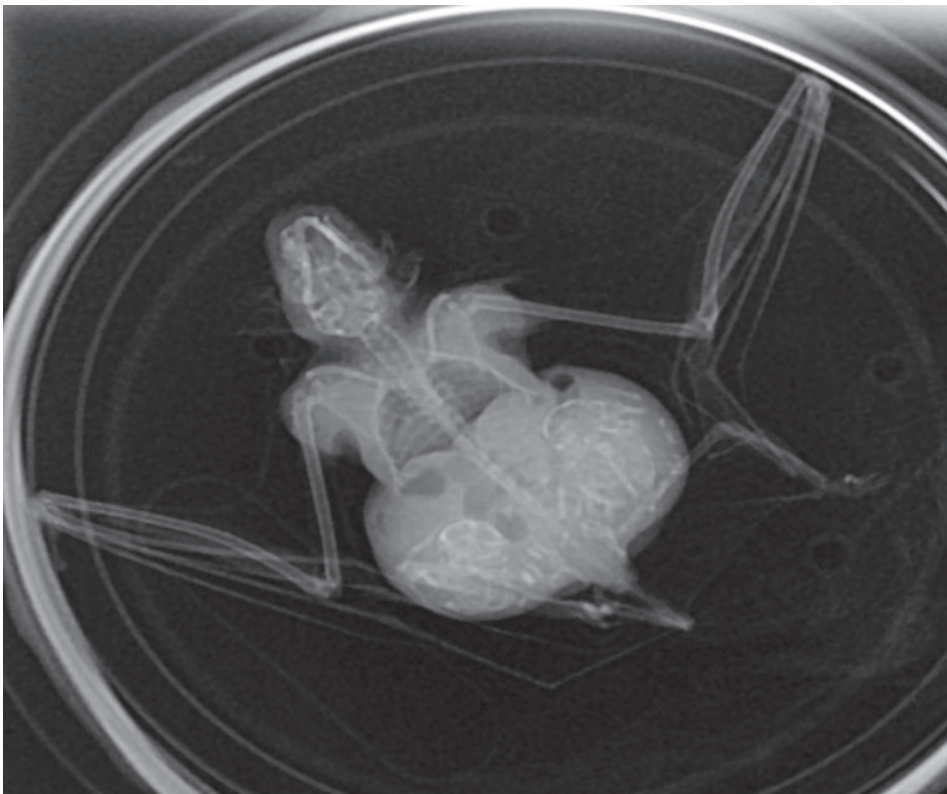


Yellow-billed Cuckoo transformation, from nestling to juvenile.

## Pregnant Eastern Red Bat

Earlier this summer we took in multiple Eastern Red Bats that were found stuck in pools, likely from trying to get a drink during the hot summer nights. One of these bats presented with obvious abdominal distension on intake, and after a quick x-ray, our staff confirmed this mama was pregnant and nearly ready to

burst! Thankfully she recovered well in an incubator with oxygen supplied overnight to make sure she had no respiratory issues caused from being in a pool, and after being cleared by our vet team, was released back home to hopefully give birth in peace!



## Baby Season Releases!

In a singular week in June, we released over **70** patients! Overall this summer, since the start of May, we've been able to release **hundreds** of animals. While May and June are our busiest months for intakes, June and July are our busiest months for releases as we work to get many of the youngsters raised at the Center back home for release!



# Summer Interns

This summer we were privileged to work with 14 veterinary student externs and 12 summer rehabilitation interns! Primarily a mix of college-aged individuals and veterinary students, they came in with a spectrum of previous experience—while some came to expand on existing skills, others were here to explore the field of wildlife for the first time.

We were also lucky enough to hire a previous summer intern as our Seasonal Rehabilitation Associate: Shelby Ramos. Shelby joined our staff this spring to help us prepare for “baby season”, and has continued to be of huge assistance to staff, interns, and volunteers during our busiest time of year!

*Thank you to all of our interns! Not pictured here: Eliza Dorsey, Oakley Esteban, Lillianne Fish, Katelyn Marsala, and Lexi Kurtz.*

## Veterinary Externs



Veterinary students Josie Knieriemen and Alexandra Chodzin performing an aural abscess surgery under the guidance of our veterinary staff.



Veterinary student Catherine Swinsky examines a sedated Eastern Copperhead who had been removed from garden netting.



Seasonal Rehabilitation Associate, Shelby Ramos, tube feeding a Virginia Opossum.

## Rehabilitation Interns



Rehab Intern, Kyle Lentz holds a patient for exam.



Returning intern Kristian Mahoney restrains a snake for exam.



Intern Nick Curtis feeds an infant raccoon.



Dr. Riley conducts a lecture with interns.



Intern Sage Miles examining an injured box turtle.



Intern Olivia Ondo feeds an infant raccoon patient.



Intern Lev Courtemanche restrains a snake for exam.



Intern Anna Brown provides care for our juvenile skunk patient.



# Wildlife Programs

So far this year our education department has presented over 70 programs to various audiences, including schools, summer schools, events, fairs, garden clubs, naturalist groups, churches, etc., reaching 8,100 people. Additionally, our education center and Wildlife Walk have welcomed 2,800 visitors!

Through these programs and information booths we strive to teach people about how amazing our local native wildlife is, things people can do to prevent accidents, and how to help wild animals when they need assistance.

If you are interested in having BRWC present a program at your school or event, please visit the "Education Programs" tab on our website for more details.



BRWC booth at Loudoun Pride event.



Turtle Takeover at BRWC.



Gus Bus Summer Camp hosted by JMU.



ABOVE: Attending the Earth Day event in Front Royal, VA. INSET: Banshee Reeks Summer Camp.



# Ambassador Wellness

## Jasper: Voluntary Injection Training

**O**ur red fox ambassador, Jasper, was purchased from a breeder and illegally brought into Virginia, where he was eventually surrendered to the Department of Wildlife Resources (DWR). He was placed with Wildlife Ambassadors, an education organization, for use as an education ambassador, and then was transferred to our care when that organization ceased operations in 2022.



To maintain his health, we have implemented voluntary injection training, led by trainers Alysa and Ashton, and including our Licensed Vet Technician, Chris. Jasper receives multiple annual vaccinations, including rabies, leptospirosis, and distemper. Over the past few months, staff have worked with Jasper daily, using positive reinforcement training and the gradual introduction of the vaccination process. This facilitates trust-building and the reduction of stress with vet staff and vaccinations, making the process a calm and cooperative activity rather than a stressful medical procedure.

The benefits of this training are monumental; Jasper experiences less stress and does not require unnecessary sedation, improving his overall health while mitigating the risks associated with excessive handling. This enhances safety for both Jasper



and our staff while strengthening the bond between him and his trainers.

Jasper's voluntary injection training is just one example of how we provide humane animal care and work to put our ambassadors' quality of life first. Alysa and Ashton's dedication shows that with lots of patience and positive reinforcement, animals can willingly participate cooperatively in their healthcare, promoting a stress-free and compassionate environment.

## Wednesday Addams: Crate Training

**O**ur black vulture ambassador, Wednesday Addams, came to us in 2020 with a unique backstory. Her egg was discovered abandoned after a shed collapsed. The finder illegally incubated and hatched the egg, and Wednesday quickly imprinted on humans as a result. Despite us taking every possible step to reverse this imprinting by placing her with conspecifics, masking while handling, and reducing handling unless absolutely necessary, Wednesday continued to seek human interaction, making it unsafe to leave her in the wild. Imprinting inappropriately meant she would seek out people for food and social interaction, leaving her vulnerable to predation, vehicle strikes, and dangerous humans that could interpret her behavior as a nuisance and cause her harm. We also only release competent animals that understand what they are—because of this malimprinting, Wednesday would never identify with

black vultures and would never reproduce and contribute to their population. She would also likely be subjected to bul-



lying or ostracization from her species.

To ensure Wednesday's continued well-being in captivity, crate training has become a vital part of her care. This training is essential for managing emergencies, allowing for safe and efficient transport with minimal stress. It also facilitates regular veterinary check-ups, making these visits less intimidating for Wednesday and easier for our staff. Beyond practical benefits, crate training provides Wednesday with mental enrichment, helping her feel secure and comfortable. As she continues to adapt, being crate-trained will be crucial for any future off-site educational programs, where she can serve as an ambassador for her species outside of her enclosure on our Wildlife Walk. Crate training plays a key role in maintaining every ambassador's overall comfort and enhancing their role in our educational outreach.





Education Director, CJ White, and Wednesday during a crate training session.

## ABOUT BRWC

**Address:** 106 Island Farm Lane, Boyce, Virginia 22620

**Wildlife Hotline:** (540) 837-9000

**E-mail:** [info@blueridgewildlifctr.org](mailto:info@blueridgewildlifctr.org)

**Web:** [blueridgewildlifctr.org](http://blueridgewildlifctr.org)

BRWC protects and conserves native wildlife by integrating veterinary medicine, rehabilitation, public education, professional training, and research.

BRWC is a 501(c)3 organization (EIN 54-1996991) and relies on private donations exclusively. Wildlife Centers may not receive payment to treat animals, nor do they receive state or federal funding. Contributions are tax-deductible.

BRWC is located on the Burwell-van Lennep Foundation (BVLFF) property in Boyce, Virginia. The mission of the BVLFF includes preserving the diverse ecology of this land, protecting wildlife, and environmental education. BVLFF generously provides the land to BRWC at no cost.

## THE RIDGELINE

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**Saturday, October 12 | 11:00 am - 3:00 pm**

**State Arboretum of Virginia at Blandy Experimental Farm**

This **FREE** event is a celebration of all things **WILD!** From the work that BRWC does to the many ways that our community can help wildlife and our shared environment.

The day will include presentations featuring our ambassadors, local conservation groups, fun activities, artists, and nature walks, ensuring it's going to be a fun afternoon!



TAIL END