

THE RAPTOR CENTER | *Ensuring the health of raptors and the world we share*

Raptor Release

Fall 2023



50TH ANNIVERSARY

COMMEMORATIVE SERIES

BUILDING THE NEST

Letter from the director

When do we say “mission accomplished” at The Raptor Center (TRC)? This question has been 50 years in the making, with no shortage of amazing answers. We feel successful in TRC’s mission of ensuring the health of raptors and the world we share every time one of our 30,000 (and counting) raptor patients has been rehabilitated and released to the wild. Each one of these grand victories sets in motion a domino effect expanding our mission with immense local, regional, and global impact.



Dr. Victoria Hall | Photo by Nathan Pasch

At its start in 1974, TRC ventured into uncharted territory to improve the welfare of a group of birds in desperate need of protection. Developing the field of medical and rehabilitative care for raptors quickly provided us with a lens through which raptors’ diminished health, cause of injuries, and behavioral changes revealed the rapid changes in our ecosystem caused, directly or indirectly, by humans. By the end of its second decade of operation, TRC was a leading raptor hospital wielding rich ecosystem health data to help impact positive change, not just nationally, but globally.

Our mission continued to blossom, activating the public to take part in fostering the health of our ecosystem, supporting a network of organizations to save endangered populations, and sharing our clinical expertise with an international audience.

This coming year marks the 50th anniversary of The Raptor Center. Now more than ever, our wild spaces are being encroached upon by human development, ecosystems are changing at a speed faster than wildlife can adapt, and the welfare of our raptors, while improved by some measures, continues to require round-the-clock stewardship.

In preparation for the exciting year ahead, we have taken time to reflect on our humble beginnings, noble work, and the people and birds that have made us who we are today. We see our mission reenergized once more by paving a more equitable path for the next generations to take action to save the health of our ecosystems, guaranteeing the welfare of our raptors. We view this as a responsibility moving forward, one we hope you will share with us.

In this issue, we invite you on a walk down memory lane of TRC’s early impact, sharing our mission successes in raptor medicine, conservation, and public outreach—the three pillars still at the core of our work today. This is the first of three 50th Anniversary *Raptor Release* editions, over the course of which we aim to take you on a journey into our past, through our present, and into a promising future.

Victoria Hall

- Victoria Hall, DVM, MS, DACVPM
Executive Director and Redig Endowed Chair
in Raptor and Ecosystem Health

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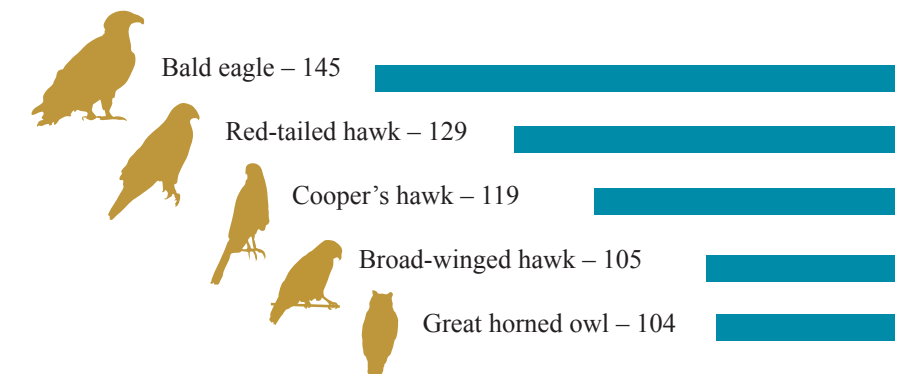
Cover design by Anthony Baffo
| Images courtesy of Canva

Clinic statistics

by Lori Arent

So far, the total number of raptors admitted to the hospital is similar to that of recent years. Looking back, this number has been at a slow but steady increase for the most common species found in Minnesota. In 2016, bald eagles jumped to the top of the leaderboard with 182 and have been in the top two ever since. As of August 14, 108 bald eagles were admitted, the same number received for the entire year in 1998.

Total raptor admissions for 2023 as of 10/8/2023 = 861
Top 5 species admitted so far in 2023:



The eaglet that got into a pickle



Eaglet safely returned to its nest | Photo by Jon Smithers

by Lori Arent

As intense storms darkened the skies over Chaska, Minn., one early summer evening in 1998, and straight-lined winds bent everything in their wake, a 6-week-old eaglet found itself in a pickle.

It was violently pushed from the security of its nest, fell 60 feet, and crashed to the ground. It was the lucky one—its sibling did not survive the storm. The good news was that its nest was located on Gedney Foods pickle factory property, and the then-endangered birds were closely monitored from afar.

Upon realizing what had happened, Gedney staff quickly responded by contacting The Raptor Center (TRC) and the

state Department of Natural Resources for assistance. A physical exam revealed the eaglet had fractured its pelvis; an injury that would heal fine in the nest. The youngster’s best chance to thrive would be to reunite it with its parents as soon as possible. It was fitted with a leg band and returned to the site. A new nest was constructed from the shell of a 5-foot-wide fan, elevated, and secured in the tree. Then the waiting game began. It took almost 48 hours for the adults to resume caring for their eaglet. Roughly six weeks later, the young raptor stretched its wings and lifted into the air.

Fast forward to 2012. John Smithers, a professional photographer, had been capturing images of a nesting pair of bald eagles for nine years in St. Peter, Minn., one of which wore a leg band. Every year, he got closer to being able to read the numbers on the band and in 2012, he was successful. It was the Gedney pickle eagle.

Between 2003 and 2012, that eagle had produced an estimated 20 eaglets, a major contribution to a species recovering from the threat of its extinction.



Leg band of the Gedney pickle eagle. | Photo by Jon Smithers

Rockstar ambassadors leave their mark throughout TRC history

by Gail Buhl

In May of this year, The Raptor Center (TRC) lost a beloved team member of its education program, a bald eagle called Maxime. She was a special eagle in temperament and poise who was always ready and willing to share with the public what raptors can teach. In her passing, Maxime joined a team of ambassadors who might not have been releasable back into the wild due to injury or illness but instead inspired over one million people with a love of raptors. TRC couldn't honor its history without honoring the legacy of a few of its most impactful raptor ambassadors.

Leuc: Bald eagle ambassador from 1983 to 2014

Leuc was one of the first TRC raptor ambassadors and became a rockstar in his own right. He traveled to Washington, D.C., with Dr. Pat Redig, one of TRC's co-founders and its first executive director, to help bolster a bill to ban the use of lead ammunition for hunting waterfowl in the '90s. During his tenure at TRC, Leuc played a vital role in helping share the importance of bald eagles in the ecosystem and the challenges threatening their existence.



Odie: Barred owl ambassador from 1991 to 2010

Odie was an endearing raptor ambassador whose name was short for ocular disorder, the permanent injury he sustained after colliding with a vehicle. For close to 20 years, thousands of people were enamored with Odie as he visited schools and public events. He instilled in people a great appreciation for owls and their roles in the wild.

Annie: Peregrine falcon ambassador from 1996 to 2017

Annie was part of the peregrine falcon monitoring project in the Midwest. During her first migration, she suffered a permanent injury while crossing Missouri and was transported back to Minnesota for care at TRC. Annie was full of personality and an amazing ambassador for her species during a critical time in its history.



Artemis: Peregrine falcon ambassador from 2004 to 2021

Artemis, often fondly referred to as Artie, was a crucial member of the TRC education team. She often was the first bird many new handlers held on the glove as she had a rare, patient temperament for a peregrine. It is estimated that she participated in more than 5,000 programs reaching more than 500,000 people.



Jamaica: Red-tailed hawk ambassador from 1987 to 2017

For the first 25 years of her life at TRC, Jamaica helped teach every new handler, both staff and volunteers alike, best practices in handling and interacting with raptor ambassadors. In exceeding her species average life expectancy by more than a decade, she also helped our knowledge grow in the developing field of geriatric raptor care.



Nero: Turkey vulture ambassador from 1996 to 2022

Nero was a charismatic vulture who taught many about the vital importance of scavengers. Nero hatched in 1978 and before joining TRC, acted as a model for a team of researchers at the University of Wisconsin who were developing wing bands and radio transmitters for the extremely endangered California Condor.



Photos by TRC staff



A place for all

Educational programs spark decades of love for raptors and fuel the curiosity of many

by Anthony Baffo

Remember for a moment the first time you encountered a raptor face to face. With more than 100,000 people participating in The Raptor Center's (TRC) educational programs, tours, and events every year, it's possible that raptor was one of its ambassadors.

TRC's mission to educate others about raptors didn't always reach that many people. In fact, The Raptor Center's first education initiative was designed to train veterinary interns, fostering a new generation to help protect wildlife species in great need. Unfortunately, a high percentage of patients are admitted to its hospital as a result of human activity encroaching on more and more wild spaces.

It became clear, the responsibility of protecting raptors and the world people share with them takes everyone. So, a plan was made to build a place where anyone with a hint of curiosity could not only learn about raptors and their ecosystems but also about the challenges they face and how to become their stewards.



The original education courtyard. | Photo by TRC staff



The Raptor Center cofounders Dr. Gary Duke and Dr. Pat Redig join education coordinator Daisy Ritter and Leuc at the groundbreaking ceremony for the Gabbert Raptor Center on Oct. 2, 1987. | Photo by

This was made possible by Don and Louise Gabbert, who donated \$2.38 million to construct and equip the Gabbert Raptor Center, which the organization continues to call home.

The doors to the center opened in 1988. The state-of-the-art facility allowed the public to enjoy informative exhibits and observe raptor ambassadors in its education courtyard.

Soon after its opening, requests for off-site programs poured in and TRC's ambassadors were inspiring people around the Midwest. Today, first-timers are still walking through its doors and the mission is stronger than ever—to be that first spark in a lifelong love and conservation of raptors.

TRC: The First 30

Saving endangered raptors

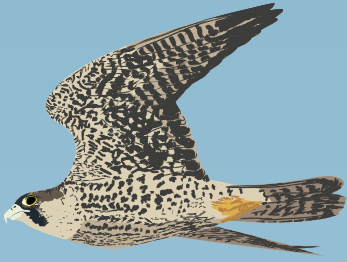
by TRC staff

2007
Dr. Pat Redig passes the torch as executive director to Dr. Julie Ponder.

2002
The first cases of West Nile virus infection admitted to TRC's hospital.

1990s and early 2000s
International veterinary residents complete rotations at TRC.

1999
Peregrine falcon came off the federal endangered species list.



Mid 1990s
TRC traverses the early information superhighway in order to track and map osprey migrations on flyways.

1993
TRC admits its 1000th bald eagle patient.

1988
TRC admits its 500th bald eagle patient.

1982
The last known peregrine falcon in MN was seen in 1963, Dr. Redig partnered with Dr. Bud Tordoff from the Bell Museum to release the first five of many captive-bred peregrine chicks.



1978
TRC admits its 1000th patient.

1974
TRC is Founded.

2007
Bald eagle removed from federal endangered list.

2005
TRC published *Raptors in Captivity, Guidelines for Care and Management*, a reference adopted by the USFWS as the gold standard for maintaining a collection of raptor ambassadors.

1999
The Patrick T. Redig Professorship in Raptor Medicine and Surgery was established (with a major gift from longtime supporters Doug and Wendy Dayton).

1998
An eaglet is thrown from its nest on the Gedney pickle factory property during a severe storm. It would survive and go on to produce around 20 offspring.

1997
TRC admits its 10,000th patient.

Mid 1990s
TRC staff reimaged a fracture surgical repair method that revolutionizes how these injuries are repaired in raptors.

1989
TRC admits its 5000th patient.

1988
The Gabbert Raptor Center opens to the public to provide a place for education about raptors and their roles in the environment.

1985
TRC staff developed a sensitive and accurate test for aspergillosis, the most common and fatal disease of raptors at the time.

1979
TRC admits its 100th bald eagle patient.

Working the net

TRC uses the early internet to map flyways and track migrations

by Anthony Baffo

In the early 1990s, the University of Minnesota (UMN) was pioneering an early adaptation of the internet. The Raptor Center (TRC) adopted this new technology as well as the innovative method of using satellite telemetry to track the flyway paths and patterns of raptor winter migration, specifically ospreys.

To accomplish this feat, satellite transmitters needed to be attached to raptors. TRC, along with expertise of the UMN's computer programming team, designed customized backpacks housing these transmitters for the ospreys to wear. Permitted bird bander Mark Mattell then outfitted ospreys across Minnesota, Oregon, and along the east coast from Maine to Florida.

As it turns out, osprey migration is complex. Osprey females start migrating mid-August and go farther south than males who leave late September, meaning



A student using the internet to participate in the Highway to the Tropics course. | Photo by TRC staff

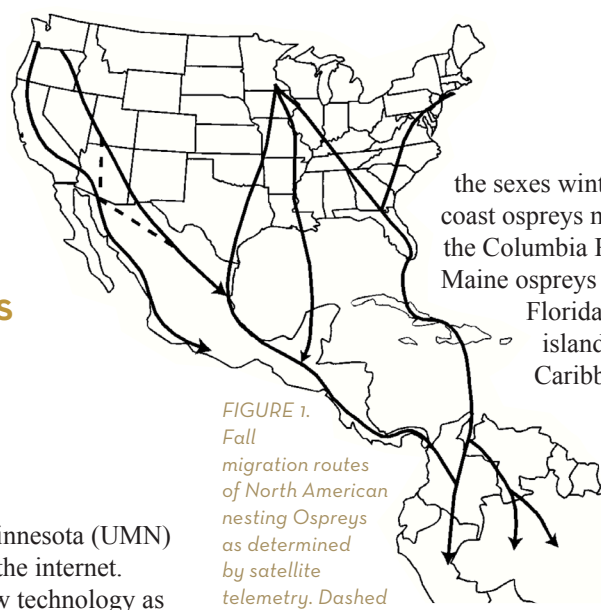


FIGURE 1. Fall migration routes of North American nesting Ospreys as determined by satellite telemetry. Dashed lines indicate movements of only one bird. | Image by Mark S. Martell Et. AL. - Fall Migration Routes, Timing, and Wintering Sites of North American Ospreys as Determined by Satellite Telemetry

the sexes winter separately. West coast ospreys mostly migrate along the Columbia River to Baja, Mexico. Maine ospreys mostly migrate to Florida, and Florida ospreys island hop through the Caribbean—most often to

Bolivia. Midwest ospreys migrate south through Florida and the Caribbean, straight over the Gulf of Mexico, or more west along the Gulf Coast and throughout South America.

With the ping of each new location data point, new questions emerged, including how to represent the data on a computer, and how to use it as a teaching tool for young students being introduced to this new technology.

With funding from the Minnesota Electronic Environmental Education Network of that time, TRC education specialists Carolyn Lane and Mike Kennedy created a 16-part online work course, called Highway to the Tropics. Students could access the website displaying the migratory data of ospreys, and teachers were provided lesson plans for students to learn about the environment and information technology at the same time.

You can view an archive of the original Highway to the Tropics website at z.umn.edu/TRC-Archive-HTTT.

From international student to mentor

Former medical resident reflects on time at TRC and its impact on her career

by Dr. Jalila Abu

In the 1990s and early 2000s, The Raptor Center (TRC) and Minnesota became a temporary home to veterinary medicine residents from around the world. One resident, Dr. Jalil Abu, reflects on her time at TRC and how it still impacts her work today.

I joined TRC from September 1996 to 2002 as a PhD candidate in avian surgery, anesthesiology, and radiology. Despite the challenges of my first experience abroad, experiencing different cultures and especially the Minnesota winter season, I had many great and supportive colleagues at TRC. Especially, Professor Larry Wallace and Dr. Patrick Redig to name a couple.



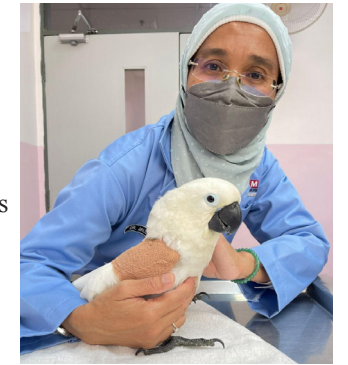
Dr. Jalila Abu (second from the right) and a few of her TRC colleagues. | Photo by TRC staff

Proudly, the TRC model is the guide I practice for myself when dealing with injured raptors submitted to the Universiti Putra Malaysia (UPM)Veterinary Teaching Hospital in Serdang, Selangor. Today, I am a professor in avian medicine and surgery at the Faculty of Veterinary Medicine, UMP, and researching avian orthopedic and avian diseases in poultry, pet birds, and wild birds.

My residency training has been immensely invaluable in my training of our undergraduates and post-graduates, as well as the public and fellow veterinarians in private practice, zoos, and wildlife departments.

TRC offered me my first international opportunity and now I speak at various international conferences and workshops in countries such as Mongolia, India, Indonesia, Thailand, and Bangladesh. In continuing this important exchange, my students are from a diverse array of countries—including Iran, Saudi Arabia, Mauritius, China, and Pakistan—and are prepared to both practice and teach these subject matters within their own nations.

Teaching remains a key priority for me. These individuals are our future stakeholders: veterinarians specializing in avian medicine. They play a crucial role in addressing the world's need for avian expertise, which encompasses ensuring food security, promoting the well-being and health of pet birds, and contributing to the protection and preservation of our nations' wild bird populations.



Dr. Jalila Abu examining an umbrella cockatoo. | Photo from Dr. Abu

INNOVATION SPOTLIGHT

A revolution in avian surgery

Method developed at TRC drastically increases orthopedic repair success

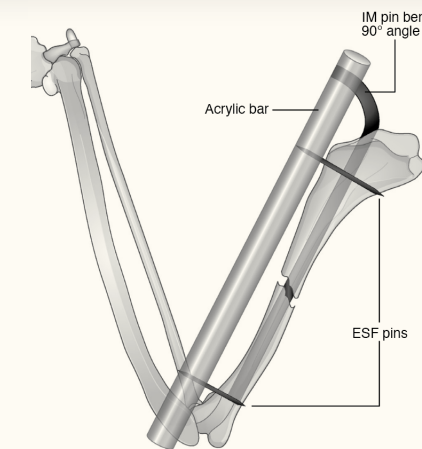
by Patrick T. Redig DVM, PhD

A large percentage of raptors admitted to rehabilitation centers world-wide have sustained traumatic fractures of their long bones. Bird bones are challenging to work with because of their thin, brittle walls, curvatures, and the need for post-operative patients to have full mobility.

For the first 20 years at The Raptor Center (TRC), intramedullary pins (pins placed into the “hollow” cavities of bird bones) or external fixators, often accompanied by some form of splinting, were the usual methods used to repair avian fractures. Success was had in some cases, but failures were all too frequent. In the early 1990s, the external fixator was re-imagined by a group of private small animal orthopedic surgeons. It was revolutionary and forever changed the way orthopedic surgery was conducted and trained at TRC.

Originally designed for small domestic animals, the “tie-in” fixator needed considerable modification to be utilized effectively in birds. This idea was envisioned at TRC, “tying” the external fixator components to an intramedullary pin using a bar made of heated flexible acrylic that would harden when cooled. This yielded an incredibly robust, durable, and well-tolerated mode of fixation.

The first case in which the new tie-in fixator was used was to repair a humeral fracture in a bald eagle. To the staff's astonishment, healing of



A completed tie-in fixator. Note the 90-degree bend in the intramedullary pin and its inclusion along with both external skeletal fixation pins into a cylindrical, acrylic connecting bar. | Figure from Avian Medicine, third edition

that fracture was complete in under three weeks—nearly twice as fast as anything previously experienced. Further refinement of this technique by TRC clinicians followed and the success rate of orthopedic repairs in birds soared from around 25 percent to more than 75 percent.

The method was and still is the primary approach to fracture repair at TRC and much of the world, leading to the recovery of many thousands of injured raptors globally.

The road to recovery TRC efforts instrumental in reestablishing the midwest peregrine population

by Patrick T. Redig, DVM, PhD

Today, there are some 200 nesting pairs of peregrine falcons in the Midwest pumping out more than 350 young peregrines each year. But it wasn't always this way. The North American population of peregrines was eliminated from most of the U.S. and Canada following a post-WWII introduction of the chemical Dichlorodiphenyltrichloroethane (DDT) into the environment to "control" insects for agriculture. The last peregrine pair attempted to nest without success in Minnesota around 1965 and DDT was fingered as the culprit.

DDT was banned by the Environmental Protection Agency in 1972 due to its harmful impact on agricultural practices, forests, and human health. Several peregrine breeding projects throughout the U.S. and Canada were soon formed. Bud Tordoff, ornithologist and then director of the Bell Museum, and myself, one of The Raptor Center's (TRC) co-founders and first executive director, were keen to see the peregrine restored to its rich habitat in the Midwest.

Tordoff was well associated with various supporters of conservation work in the region, including The Nature Conservancy and a cohort of supporters of the Bell Museum. Additionally, the Minnesota Department of Natural Resources nongame program was established under the aegis of Carrol Henderson in 1981. A Midwest consortium was formed that led to the establishment of a release site at Weaver Dunes, south of Kellogg,



Dr. Patrick Redig (left) and Dr. Bud Tordoff (right) examine a nestling peregrine falcon. | Photo by TRC staff



Juvenile peregrine falcon | Photo by TRC staff

Minn. In the spring of 1985, the first five young captive bred peregrines were brought to Minnesota for release.

From that humble beginning, over the next 16 years, close to a thousand young peregrines were released to the Lake Superior North Shore and metropolitan areas including Minneapolis, Minn.; Grand Rapids, Mich.; Madison, Wis.; Indianapolis, Ind.; Columbus, Ohio; Des Moines and Cedar Rapids, Iowa; and Louisville, Ky.; The population grew to the point where it exceeded the historical population by a factor of four. Owing to the success of this effort in the Midwest and others elsewhere in the country, the peregrine falcon was removed from the list of endangered species in 1999.

TRC played a central role in the entire recovery effort throughout the Midwest in coordinating the acquisition and distribution of peregrines, caring for young peregrines in-house until they were at the appropriate age for release, coordinating media coverage, providing medical care for peregrines injured during the acclimation process, and coordinating the banding of young peregrines.

Today, the coordination of peregrine monitoring and yearly banding and record keeping is conducted by the Midwest Peregrine Society, an affiliate 501c3 of TRC, of which I am president and CEO. More information about peregrines as well as annual reports on the status of peregrine populations in different states is available at: midwestperegrine.umn.edu.



Dr. Pat Redig (right) and Jackie Fallon of the Midwest Peregrine Society (left), banding young chicks at a cliff nest site in Minnesota. | Photo by Midwest Peregrine Society

30 years of volunteerism Longtime TRC volunteers share what drives their decades of dedication

by Tori Lafky

The Raptor Center (TRC) is fortunate to have the help of a phenomenal network of more than 300 active volunteers and more than 1,000 who have enlisted to help through the years. An elite group of volunteers has been supporting its work for 30-plus years, helping TRC become what it is today. What has fueled their 30 years of passion?

Gary Gehrman, volunteer since 1990—flight and rescue/transport

The best part is working with exceptional people from all backgrounds, sharing skills to respect and handle our national symbol (the bald eagle). My favorite memory was handing a beautiful bald eagle that my team had exercised to my son, releasing it in honor of his twin sister's passing.



Gary Gehrman (right) hands off a rehabilitated bald eagle to his son to be released.

Paul Fusco, volunteer since 1992—flight and rescue/transport

There is always an adventure awaiting, whether it is exercising a different bird, like a Northern harrier, or sharing a story no one would believe except fellow transport volunteers.

Sue Irby, volunteer since 1992—clinic, education, front desk, and rescue/transport

A funny memory, releasing an adult eagle where a man was talking about the crows on the frozen river. I told him they were actually immature eagles. He wouldn't believe me! I hope he was able to see the incredible release of a "crow."

Linda Wadsworth, volunteer since 1992—flight

I laugh to think that I managed to get through a master's degree without taking a Friday morning class that would interfere with my flight crew duties! Friday mornings are always reserved for eagles! I appreciate the respect shown toward the volunteers by staff.

Mary Larson, volunteer since 1989—clinic and rescue/transport

After a summer monitoring osprey in 1987, I became fascinated with raptors. It's been a wonderful learning experience. Throughout the years, I have helped in admissions, the clinic, flight crew, rescue, and research. TRC is my second home.



Marcia Wolkerstorfer handling a 3- to 4-year-old bald eagle following its treatment.

Marcia Wolkerstorfer, volunteer since 1987—clinic

A love of raptors brought me to TRC. Being able to handle raptors, especially eagles, is an adrenaline rush that never gets old. When my AM shift is done, I feel like I've been on vacation and it gives peace to my soul.

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