FRIENDS OF THE PHILIP L. WRIGHT ZOOLOGICAL MUSEUM

SPRING-SUMMER 2022 (No. 39)

FROM THE CURATOR

2022 BRINGS TWO MAJOR ANNIVERSARIES

We added two big words to our vocabulary this year, to celebrate two big anniversaries! The first is **quasquicentennial** for the 125-year anniversary of the founding of the UMZM, which is attributed to Dr. Morton Elrod when he arrived in 1897 as the first ever biology professor at UM. The second is **quarticentennial** for the 25-year anniversary of our dedication as the Philip L. Wright Zoological Museum in 1997. In this issue we delve into some of Dr. Wright's background and early years in the UMZM with the help of his children, and in the fall issue we'll look into the very first years of the museum under Dr. Morton Elrod.

Every day in the museum, we appreciate our rich history and the dedicated work of so many people who made the museum what it is today. Thanks to all of you for supporting the UMZM and being part of this history, and potential going forward!

Angela Hornsby, Ph.D., UMZM Curator

Get our 2022 general and anniversary stickers by donating (any amount!) through our website:

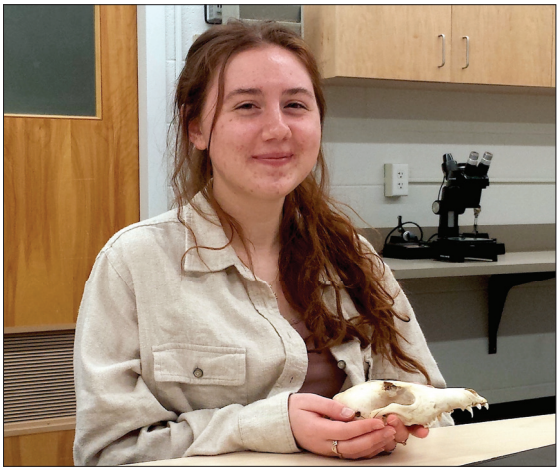
https://hs.umt.edu/umzm/support.php

INTERNS & VOLUNTEERS

OUR STUDENTS ARE GOING PLACES!

This summer, two of our wonderful student volunteers are headed to other museums to fill positions they earned through all of their time, curiosity, and careful work in the UMZM.

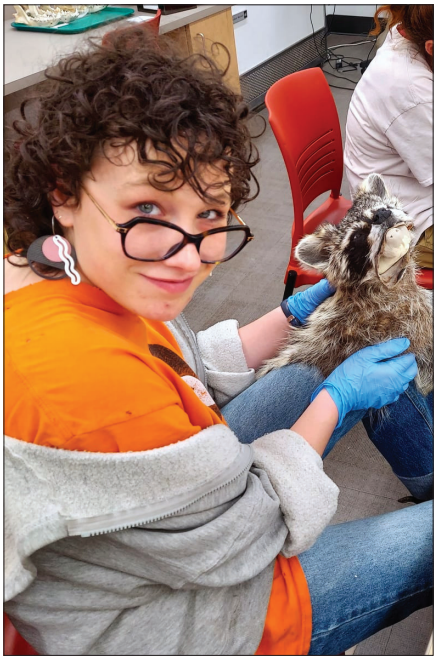
UMMZ iDigBio Integrated Digitized Biocollections



Madeline Kleeman is joining the **Chicago Academy of Sciences Peggy Notebaert Nature Museum** as a specimen preparator and public outreach specialist. This dynamic new position at the PNNM is a perfect place for Madeline to continue her journey in natural history museums after graduation!

Marissa Italiano is one of just ten students selected from a nation-wide pool for the **iDigBio Summer Internship Program**, which places undergraduate students in major natural history collections for training in curation and research. Marissa was placed at her first choice—the **University of Michigan Museum of Zoology** ichthyology collections—where she will learn about all things fish!

CHICAGO ACADEMY OF SCIENCES | PEGGY NOTEBAERT NATURE MUSEUM



CATCHING UP WITH THE WRIGHT CHILDREN

*Last spring, curator Angela Hornsby chatted with Phil Wright's children **Alden**, **Phil Jr.**, and **Ann**, to record some of their memories of growing up at the time their father was growing the UMZM. It turned into a wonderful opportunity to hear not only another perspective on their father's enduring legacy, but also to hear about their memories of nature and childhood in Montana. Thanks to the siblings for sharing these stories and photos!*

ABOVE: Phil's headshot from the 1948 UM Sentinel Yearbook.

RIGHT: Margaret and Phil at their wedding, and later in the 1940s.

Dr. Phil Wright grew up in New Hampshire, in a strict Baptist family. Maybe like any young person looking for their own way in life, by high school he resisted the frequent trips to church in favor of spending time in the woods. He learned to hunt from his uncle Alden (namesake of Phil's first son), but his curiosity in the natural world grew from within. **He had an enviable drive and focus to learn**—about birds in particular—and he once told Phil Jr. that he felt like he had known more about birds as a high school senior than anyone he met at the University of New Hampshire, where he received his Bachelor's degree. "He was very single-minded about his purpose," said Ann, with Phil Jr. adding, "I thought that happened to everybody, but it doesn't happen to very many people."

Phil continued his studies of the natural world, culminating in his dissertation work at the University of Wisconsin where he met his first wife, **Margaret**. In 1939, Phil and Margaret packed into a Ford Model A and made the move to Missoula, where he had been hired as the third member of the Zoology Department. While UM thought they were bringing in a newly-minted Ph.D., Phil was actually in the middle of his graduate work. So, Phil and Margaret's first year in Montana consisted of a big push to finish his research and degree. Margaret had a M.S. in zoology, was passionate about botany and gardening, adept at histology and slide mounting—and she was also a talented writer. "His PhD is probably as much due to her as to him," said Alden, and Ann and Phil Jr. agreed.

Phil is arguably best remembered for teaching Mammalogy each fall and Ornithology each spring, for decades running. **"Our father was a real teacher," said Ann, "he would do anything for any student."** He was a great storyteller who was dedicated to his students and generous with his time, often going well beyond the calling—such as holding early morning birding trips each week before class in the spring. His work as an instructor had wide-ranging influence, especially in Montana. As Phil Jr. remembers, "We would just run into people all the time—oh, your father is Phil Wright! The best teacher I ever had." Though the consummate collector, Phil was sensitive to his students and modified Mammalogy class in the 1980s to accommodate those who weren't as comfortable collecting or dissecting specimens. While he sometimes regretted not publishing as much as others, and he obligingly chaired the Zoology Department for some time, his passion wasn't as a researcher or administrator—it was as a teacher. "He relished being an expert and someone who people would turn to for advice," said Ann.

In addition to teaching, Phil had a passion for **physical activity and outdoorsmanship** that permeated his life. The importance of physical activity was imparted to his children, who picked up hobbies like hiking and cross-country skiing, and who helped to lead the whole family on a hike of Trapper Peak—a 10,000 ft prominence in the Bitterroots—to celebrate Phil's 80th birthday. Everyone made it at least 90% of the way, if not managing to scramble to the top! "We had this saying that finishing was winning," said Ann. In his later years, Phil continued to complete cross country ski races up to 30 km—at least once to an ovation for being the oldest finisher in the race, but often keeping up with racers much younger than himself. Part of Phil's enthusiasm for activity can be traced to a hunting trip in 1939-40, shortly after he arrived in Missoula. After hiking into the Bob Marshall Wilderness, not sleeping a wink through the night, and shooting a bull elk in the morning, Phil and his partner had hike out to find someone with pack horses. He was so deathly tired at the end of this effort that he realized he had to get in shape if he wanted to spend time like that outdoors. He was an avid hunter much of his life, and he was proud to have been invited to join the **Boone & Crockett Club** and serve as chairman of their Records Committee.

Phil's love of the outdoors extended naturally into field work and specimen collecting. Especially in the early years, he was always on the lookout for specimens, either by hunting, live-trapping, or salvage—it wasn't uncommon

to find some dead birds next to the ice cream in the family freezer. **With his love of the outdoors and of record keeping—writing down everything from species sightings to the time it took him (and unsuspecting family members!) to hike the M trail or Mount Sentinel—he was a born collector.** He had no reservations with collecting, as "he was more concerned with the preservation of the ecosystems and species than the individual animals," the siblings agreed. He was especially focused on biogeography—deceptively simple questions like whether a species had ever been seen at a given location. Alden mentioned reading an article recently, showing that "[the] study of butterflies is deteriorating, because butterfly collectors are no longer collecting, they're just recording." Indeed, Phil was working in the heyday of natural history collections, building a biodiversity resource that is all too easy to take for granted today. The UMZM held around just 200 specimens when Phil arrived, and now numbers over 20,000 in large part to his efforts and direction.

The family was often caught up in Phil's hunting and collecting adventures; as Ann put it, "every camping trip was a collecting expedition." Collecting trips for species like hoary marmots and rosy finches were common, and the siblings tagged along on ones suitable for children. Margaret liked all the activity, but she had a heart murmur and fear of heights, so she often held back. While Alden and Phil Jr. went on a few more strenuous backpacking trips, the big trips were reserved for Phil and his students. And so, it was only through their father's stories that the siblings heard about the somewhat ill-fated trip into the Mission Mountains, when one of the supply boxes dropped by helicopter turned out to be full of marten skulls that were included by accident! Of course, the only choice was to pack the skulls all the way back out.

Even more than family collection trips, the siblings fondly remember their nine or ten summers spent at UM's **Flathead Lake Biological Station**. They got to swim daily, run around everywhere, and occasionally assist as their dad taught Field Mammalogy. Trapping in the undeveloped area of the biostation, the siblings became acquainted with many species whose names still come to their minds quickly—*Microtus longicaudus*, *Peromyscus maniculatus*, *Sorex (Microsorex) hoyi*. With the kids roaming free, Margaret enjoying a break from cooking, and Phil trapping every day, it was a vacation for everyone. **"I've come to realize, with age and experience, what a wonderful childhood we had with our parents," said Phil Jr.** "I had no idea growing up how idyllic it was."

Among the many ways Phil influenced his children and students, the siblings remember him as an optimist. "He always had a very positive attitude," said Ann, "he just radiated that can-do attitude. He didn't complain about things, he just looked on the bright side of everything." They all flourished growing up in an intellectual family, and each has either earned a graduate degree or taught at UM through the years. They also adopted some of the same characteristics that shaped Phil's work in the museum and at UM. Alden continues to be an avid outdoorsman (now into his 80s!) and went on to earn a Ph.D. in mathematics; he has a continuing career in computer science and was drawn in part to evolution—"I got into the field of evolutionary computation. I continued that interest in evolution, and I'm still working hard on genotype-phenotype maps, which is an intersection of many types of evolution." Phil Jr. turned his own love of numbers and recordkeeping into a career in accounting, and he picked up a passion for nature and birding that turned into long-term participation with his local Audubon chapter—"I could have learned so much about birds when I was young, if I had listened!" And while Ann was drawn to French and a long career as an English Second Language instructor in places such as Algeria and Laos, her love of teaching and music both came in part from Phil—"Our father really loved music. He would sit at the piano and sing old Baptist hymn tunes that he learned as a kid," she remembered. "I love teaching, too, and I think I got a lot of that from him."

RIGHT: Dr. Wright (back row, right) poses with students in the biological honors society. Photo from UM Sentinel Yearbook, 1960s.

By his children's telling, Phil took the most pride in his career from teaching and growing the UMZM. While it's difficult to say what potential he thought the museum held, Alden noted that his father was beginning to understand the role that genetics would play in our understanding of isolated populations, such as hoary marmots scattered on high mountaintops in western Montana. He had a vision of analyzing genetic patterns to investigate the evolutionary differences in populations that he had seen with his own eyes, and in specimens that he had collected. As the wetlab and computational tools to tackle detailed questions like this have only recently become a reality, Alden has been working with UMZM curator Angela Hornsby to develop the ongoing "Marmot Madness" project as a first step toward this goal (you can learn more about this project on our website!).

Phil married his second wife, **Hedwig Vogel**, after Margaret passed away, and he is survived by Hedwig, his three children, and their families. If it's not overstepping, we here at the UMZM would add that **Dr. Wright is also survived, in a way, by his legacy as a teacher and collector**—by his dedication to nurturing generations of young biologists, and by the many thousands of specimens that he collected to help us learn about our species and environments, our past and our future.

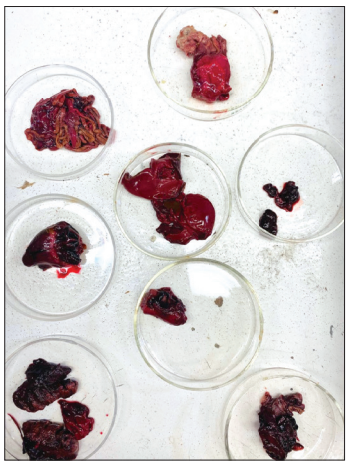
PARASITES: THE HIDDEN WORLD OF SPECIMENS

Kara Cromwell, Ph.D.
UMZM Friend & Parasite Enthusiast

When a museum preserves a specimen, it often focuses on skin and bones—the outermost and innermost layers of an organism. But tucked in between them is the more perishable machinery that sustains life. To a parasitologist this inner world is an ecosystem, where other organisms can forage and compete for resources, migrate, and reproduce. There is internal topography—the ridges and valleys of an esophageal wall, migratory passages through the hepatic vessels. **Even the most familiar animals have an undiscovered wilderness inside.**

Since 2019 I've been collaborating with curator Dr. Angela Hornsby at the UMZM, and other researchers at UM and beyond, to understand the cryptic inner world of one of Missoula's icons of the natural world, the osprey. We've used scalpels, probes, forceps and pipettes to venture our way through six salvaged osprey carcasses so far, along the way discovering a parasite species that's new to science.

After an osprey is carefully skinned for the UMZM to preserve as a traditional specimen, the body cavity is opened from sternum to tail, and organ systems are removed one by one—first the gastrointestinal tract, then heart, liver, kidneys. Eventually each organ swims in a separate Petri dish and the exploration can begin. Screening for parasites starts with teasing apart small bits of tissue to release the organisms from nooks where they may be hidden or attached, then methodically perusing the fragments under a microscope. What we typically find with this approach is parasitic worms, AKA helminths. "Helminths" is a catch-all term that includes creatures that, despite having a similar lifestyle and being constrained to the same habitat, sit on **widely separated branches in the tree of life**, and represent three different Phyla of animals. Differentiating between these broad categories is relatively straightforward, but recognizing what distinguishes one Genus from another, let alone each Species, takes special skill.



LEFT: Osprey organs sorted into petri dishes, awaiting parasite screening.

Missoulian **Dr. Mike Kinsella** is an expert in parasitic worms and one of just a few scientists to have previously documented internal parasites of ospreys. After the parasites have been pulled from the organs and spotted under a dissecting microscope, they are squirted into a tube of preservative and sent to Mike, who dyes and fixes them onto a slide to better see the fine anatomical details that distinguish species from each other. When Mike thought that we might have plucked a new species from the small intestine of one of our ospreys, we needed a second line of evidence from DNA. For this, Mike shipped specimens to collaborators **Dr. Tyler Achatz** and **Dr. Vasyl Tkach** at the University of North Dakota, and their genetic analysis confirmed what Mike had suspected at first glance. Mike, Tyler, and Vasyl claim that not everyone is excited to have an intestinal parasite carry their name (to my shock). Fortunately, we thought we knew someone with the good sense not to take this prejudicial point of view.

Dr. Erick Greene of UM is the face of ospreys in Missoula, and his distinguished research and teaching career has been paired with diligent work to engage the Missoula community with osprey ecology and conservation. In a career as varied and accomplished as his, not much was lacking—except the opportunity to have his name forever attached to a parasitic flatworm! We asked, and he accepted. Hence *Posthodiplostomum erickgreenei* made its way officially into the lexicon of life.

BELOW LEFT: Newly described species *Posthodiplostomum erickgreenei*. Image adapted from Achatz et al. 2021 (https://doi.org/10.1016/j.crpvbd.2021.100051)

BELOW RIGHT: The original Erick Greene, handling a young osprey.

WORMS ON THE WEB

This year we established a new collection of ecto- (external) and endo- (internal) parasites of birds and mammals. You can access this small but fast-growing collection through our database link below. Huge thanks to **Mike Kinsella** for helping us get this collection off the ground!

https://arctos.database.museum/SpecimenSearch.cfm?guid_prefix=UMZM%3APara

SPRING 2022 GRASLIE CURIOSITY INTERNS

We had the joy of two outstanding interns this spring semester. When they were selected from our pool of applicants in the fall, both Kyle and Oren were coincidentally interested in projects revolving around 3D imaging, printing, or modeling of specimens. This added some fun and fruitful synergy as their projects took shape!

OREN JAFFE (Natural History '23)

Coming into my internship this semester, my long term goal was to bring the micro world of tiny mammals into our large mammal awareness. For this project, I looked at bat and shrew skulls under a dissecting microscope in the UM ceramics studio. There, I created larger, sculpted models that could be digitally scanned with 3D technology. The sculptures were slow going, but were made easier with the aid of previous intern **Sky Gennette**'s shrew skull images for reference. Working together with Kyle, we learned how to blow these fingernail-sized skulls up to over the length of your hand! I helped Kyle present the mammal program that he created at the Montana Natural History Center and the public library. Seeing the small skulls that before were inaccessible to kids come to life in their hands because of my sculptures was an incredible feeling. With our scans, we were able to share skull models with the local community, and I've been working on expanding that scope of influence by sharing our scans on a website called Thingiverse. By doing so, the awesome sampler of UMZM 3D skull models that we created will be accessible for free to kids and teachers worldwide.

To me, this internship has felt like a real success furthering my own work in science and art, and I believe that my niche skill set has benefitted the museum as well. It was extremely meaningful for me to work on a team and begin to understand that **not only does art have a place in science, but is a pretty unique and absolutely invaluable asset to have as a science communicator**. With that takeaway, it is no wonder Emily Graslie is the namesake of this internship!

ABOVE: Spring 2022 interns Oren (left) and Kyle (right) tabling with their skull and coloring activities at the Montana Natural History Center in April.

ABOVE TOP: Oren's shrew skull sculpture in progress, next to the original (on top of the tiny white cap!)

ABOVE BOTTOM: Kyle's original elk specimen, and final 3D printed specimen. The elk was a fun specimen to show to kids, as it was a familliar shape for many of them, but in a very unfamiliar size!

KYLE WONDERS (Wildlife '24)

The majority of my work as a Graslie intern has been focused on designing an interactive outreach program featuring skulls of Montana mammals. I knew I wanted children to be able to get hands-on experience, which is where I turned to the work of previous intern, **Justin Ruby**. Justin had realized the potential of 3D-printed skulls for providing a safe way for specimen handling in outreach. I was able to pick up where he left off, and propel myself into the world of 3D scanning and printing.

After a few weeks of troubleshooting, I was able to develop detailed models of the species I wanted to focus on (two of which were based off of sculptures that my fellow intern Oren made!). The program I created utilizes these 3D models, but with all of them adjusted to be the same size. With species from elk to pallid bat, all the skulls I included have drastically different sizes. Bringing them all to one intermediate size allowed for some fascinating comparisons, as well as a fun and engaging little mystery. When children are presented with these models, they are not told the species or true size of each one; instead, they have to work together with their peers to identify features and ultimately develop a guess of the identity of each skull.

I had the opportunity to try out this program five times this semester. Each time came with slightly different circumstances and highlighted adjustments that have improved the program, but most importantly it showed how **much fun children could have learning in this way**. To come through this semester and leave with a finished product that has been tested by the public is amazing, but none of this would have been possible if it wasn't for the collaborative environment the UMZM offers. Whether it was ideating with Angela or Oren about structuring this program, or chatting with other museum volunteers about education tactics and strategies, I knew I was never working alone.

2021 BY THE NUMBERS

New specimens cataloged	220
Specimens loaned or data requested	276
Direct database queries (birds & mammals)	8921
Intern & volunteer hours	1056
Tour participants	222

WHO'S IN THE MUSEUM

GRAD STUDENTS: **Erin Keller** is working on an "exploded wing" display for the classroom, with different sections (primaries, secondaries, coverts, etc.) highlighted for their unique forms and functions. Anthropology student **Holli McDonald** defended her M.S. thesis (hurrah!)—to our benefit she is staying on for a Ph.D. and plans to continue helping with our ungulate skulls and skeletons. **Hila Chase** has been working on finishing off our display case on the second floor of Health Science, and we have been cleaning some broken pig bones in the bug colony for **Haley O'Brien's** research. **Ryan Mahar** (with undergrad assistant **Mat Lewis**) continued measuring fur traits in a variety of rodent specimens for his work on altitude physiology.

UNDERGRAD INTERNS: Our creative Graslie Curiosity Interns **Oren Jaffe** and **Kyle Wonders** were so fun to work with—see the previous page to learn about their projects!

UNDERGRAD VOLUNTEERS: **Marissa Italiano**, **Luke Johnson**, and **Solomon Ziegert** worked on cataloging, organizing, and repairing our Mammalogy teaching collection. **Kipp Stebbins** has been getting our taxidermy collection in order, including inventory, organization, and arsenic testing. As always, Carcass Club continues to meet each Friday and slowly clean out the freezers! **Madeline Kleeman**, **Dennin Holmes-Mora**, **Addy Flegel**, **Sawyer Vozka**, **Kevin Niehaus**, and **Sierra Fleischmann** put in lots of hours preparing new specimens in the last six months.

FRIENDS & VISITORS: We say it every time, but our fabulous post-grad **Samantha Getty** continues to be the right-hand-woman around the museum—we can't get rid of her, and for that we are thrilled! Parasitologist **Mike Kinsella** has been indispensable in helping us look for and ID parasites, coming to campus for periodic "parasite parties." Undergrad **Taylor Coon** is using our songbirds to ID the contents of many Alaskan raptor pellets for her senior thesis. Professional taxidermist **Autumn Evans** ran a beginners' workshop for seven of our students, undergrad **Tessa Van Ostrand** has been pulling bird humeri for a research project with Hila, several friends from **Montana Natural History Center** visited to try their hands at bird specimen prep, and **Larry DePute** worked with **Nick Ehlers** from Alberton School to mentor a group of students on their mountain lion skeleton articulation project! Finally, **Emily Graslie** joined by Zoom to say hi to our students and talk about her UMZM memories, museum love, and taking risks for creativity and fulfillment.

MISCELLANY

We received a nice group of new taxidermy from **Dennis Tate**, including a sandhill crane, unique redhead duck, and mallard set in a beautiful scene.

Jack Kirkley accessioned two interesting sets of data-rich specimens: a pair of great-tailed grackle nests, and three least weasel skulls. Both species are very rare where they were collected in western Montana.

Our citizen science marmot survey project, **Marmot Madness**, is running again this summer. If you love science, mountainous hikes, and outsized rodents, check our website for details on how to be involved!

CARCASS CLUB LEADERBOARD

Spring 2022 preppers (totals for all semesters)

Preparator	Tally	Known for
Sam	132	scared of eyeballs but not quills
Madeline	31	beautiful bunny prep
Erin	26	bird prep tips & knowledge
Dennin	21	impressive large owl skills
Addy	14	Zen in the art of tag tying
Sawyer	9	magnum badger opus
Kevin	9	great gray owl love
Sierra	6	so many skeletons cleaned!
Autumn	4	taxidermy & skeleton articulation

ABOVE: Beginning taxidermy students with their raccoon mounts. L-R: Kipp Stebbins, Sierra Fleischmann, Marissa Italiano, Sam Getty, workshop leader Autumn Evans, Sawyer Vozka, Madeline Kleeman, and Addy Flegel. In the front, "Soon Raccoon," made famous by Emily Graslie's *The Brain Scoop* series, watches over!

CONNECT WITH US

Instagram @umzm.bones

Facebook @plwzm

Twitter @UMZMuseum

Want to catch up on old newsletters? You can read them all at: **http://hs.umt.edu/umzm/newsletters.php**

UNIVERSITY OF MONTANA
COLLEGE OF HUMANITIES & SCIENCES

PHILIP L. WRIGHT ZOOLOGICAL MUSEUM

Philip L. Wright Zoological Museum
Division of Biological Sciences
Health Sciences 104
University of Montana
32 Campus Drive
Missoula, MT 59812

Phone: (406) 243-4743
http://hs.umt.edu/umzm/
umzm@mso.umt.edu

Curator: Dr. Angela Hornsby
Director: Dr. Jeff Good

OUR MISSION

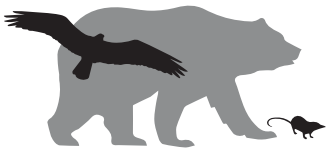
The Philip L. Wright Zoological Museum, a unit of the Division of Biological Sciences of the University of Montana, is committed to the collection and preservation of zoological specimens for the purposes of research, education, and community outreach. We work for both current and future generations, sustaining these irreplaceable resources representing our natural heritage in Montana and beyond.

Return this form with check to:
University of Montana Foundation
P.O. Box 7159
Missoula, MT 59807-7159

You can also donate online at:
http://hs.umt.edu/umzm/support.php

Contact UM Foundation for questions about planned giving or contributing to our endowment for long-term support.

All donations are tax deductible to the extent provided by law.



FRIENDS OF THE PHILIP L. WRIGHT ZOOLOGICAL MUSEUM

SUPPORT ALL WE DO BY DONATING TO THE UMZM!

Name: _____

Address: _____

_____

Email: _____

Phone: _____

- ☐ $25
- ☐ $50
- ☐ $100
- ☐ $500
- ☐ $1,000 UM President's Club
- ☐ Other: _____

Checks payable to: **University of Montana Foundation**
Memo: **59V - Friends of the PLWZM**