

AWI Quarterly

SPRING 2022 • VOLUME 71 • NUMBER 1



SPOTLIGHT

AWI Aids Animals Impacted by War in Ukraine

The Russian invasion of Ukraine has triggered a monumental humanitarian crisis. It has had devastating impacts on animals, as well, which is why AWI is committed to supporting animal welfare groups that are working tirelessly to house, feed, and care for animals affected by the ongoing crisis. AWI has distributed over \$65,000 to 12 organizations in Ukraine and neighboring countries that run or support shelters, veterinary clinics, zoos, and rescue and rehabilitation centers providing desperately needed care.

The organizations we have funded are Animal Society, Asociatia Save Our Paws, Casa lui Patrocle Animal Rescue, Four Paws International, Gyvūnų Gerovės Iniciatyvos, Happy Paw, ROLDA, Sirius, Speranta Shelter, UAnimals, Viva! Poland, and White

Paw Organisation. These organizations are meeting critical needs on the ground—purchasing and delivering food to restock shelters and wildlife rehabilitation centers' dwindling supplies, providing vaccines and other medical services to animals in Ukrainian shelters and to animals crossing with their families into neighboring countries, and coordinating sheltering and fostering services for animals remaining in Ukraine.

We welcome additional donations to aid animals impacted by the war. These funds will address critical short-term needs and assist longer-term efforts to rebuild. You can donate in three ways:

- Through our Facebook fundraiser (visit @animalwelfareinstitute)
- Through our website (visit awionline.org, click on the “donate” button, and in the Comments section, designate your gift for “Ukraine”)
- Mailing a check to AWI with “Ukraine” noted in the memo (900 Pennsylvania Avenue, SE, Washington, DC 20003)

We will send 100 percent of these designated contributions to verified organizations. Thank you to all who support this effort. Your gifts help ease the suffering of these animals and strengthen hope that they can experience a stable, peaceful future beyond the current crisis—a fervent hope we extend to all Ukrainians. 🐾

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ISSN 1071-1384 (print)
ISSN 1930-5109 (online)

Tax ID# 13-5655952
CFC# 10474



Animal Welfare Institute

www.awionline.org

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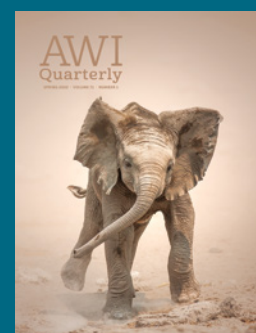
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ABOUT THE COVER

A playful young elephant in northern Namibia. In March, 22 wild-caught elephants, including young calves, were sold and shipped from Namibia to the Al Ain Zoo in the United Arab Emirates, sparking international outrage. In total, Namibia plans to sell 170 elephants, claiming their removal from the wild is necessary to lessen elephant-human conflicts. An independent investigation, however, revealed that Namibia is exaggerating the frequency and severity of such conflicts and that its wildlife management program is plagued by corruption and largely ineffective in its aims. For the full story, see page 14.

Photograph by Johan Swanepoel.

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📷 @AWIonline



A tiger shark swims in the Northwestern Hawaiian Islands' Papahānaumokuākea Marine National Monument. This year, Hawaii became the first US state to ban shark fishing.

but this is a significant step forward for shark conservation.

Sharks have special significance in native Hawaiian culture and are vital components of healthy marine ecosystems. Many shark species mature slowly, have slow reproductive rates, and produce few offspring, which makes them extremely vulnerable to extinction once their numbers become depleted due to overfishing. Losing these apex predators throws marine ecosystems out of balance and threatens ocean productivity.

Sharks caught accidentally in Hawaii must be released, and fishers are being advised to avoid areas frequented by sharks, especially pupping areas. They are also being advised to use barbless circle hooks when fishing and not to bring a shark on board a vessel if caught, but to cut the line as close to the shark's mouth as possible in order to release the animal.

Violation of the new law is a misdemeanor, but there are significant financial penalties for offenders: \$500 for a first offense, \$2,000 for a second offense, and \$10,000 for a third or subsequent offense, as well as additional fines of up to \$10,000 for each shark captured or entangled—whether alive or dead—and potential seizure and forfeiture of captured sharks, commercial marine license, vessel, and fishing equipment.

OVERHUNTING THREATENS GREENLAND NARWHALS

AWI and more than 30 other animal protection and conservation organizations have called on the government of Greenland to immediately cancel hunting quotas for 50 narwhals from three populations in Southeast Greenland that face imminent extinction due to hunting pressure. Our concerns echo repeated warnings by scientists from Greenland's own Institute of Natural Resources and from the North Atlantic Marine Mammal Commission (NAMMCO, a regional intergovernmental organization for the management of marine mammals in the North Atlantic). In October, a NAMMCO working group stated unequivocally that the quota should be reduced "to avoid the extinction of these stocks in the near future."

The warnings, however, were rejected by the Ministry for Fishing and Hunting, which insists that canceling the quota would "threaten food

supply and cultural continuity for the communities in East Greenland." This argument is undermined, though, by recent studies suggesting that overhunting in the East is driven not by local need but by high demand and increasing prices paid for narwhal mattak (skin and blubber) in the larger communities of West Greenland.

Efforts to convince Greenland to end the three hunts will continue at the May meeting of the International Whaling Commission's Scientific Committee, to be held virtually.

HAWAII FIRST US STATE TO BAN SHARK FISHING

On January 1, Hawaii became the first US state to make shark fishing illegal. The law bans anyone from knowingly capturing, entangling, or killing any shark species in the state's marine waters. There are certain exemptions, such as for specially permitted activities and to protect public safety,

ICELAND'S LONE FIN WHALER PREPARES TO STRIKE AGAIN

Hvalur, Iceland's sole remaining fin whaling company, announced in March that it intends to resume hunting this summer for the first time since 2018. Its two aging whaling vessels are currently being prepared, and the company is planning to hire up to 150 people to work on the ships, at the whaling station, and at a processing plant where the meat is frozen in preparation for export to Japan.

This comes just weeks after Iceland's minister of food, agriculture and fisheries stated that there is little reason for the country to continue whaling. Two years ago, IP-Utgerd, Iceland's last remaining minke whaler, called it quits after its managing director indicated that hunting minke whales in Iceland was no longer financially viable.

The current whaling regulations, which expire in 2024, allow up to 251 fin whales to be taken a year. The government is preparing to conduct an assessment of the potential economic and social impact of whaling. AWI hopes that falling demand for whale meat

and the high political costs of a globally abhorred industry will convince Iceland not to renew its whaling regulations beyond the current expiration date, and finally end this cruel and unsustainable practice for good.

KAZAKHSTAN WILL PHASE OUT CAPTIVE DOLPHIN DISPLAYS

Yet another country has concluded that keeping cetaceans in captivity for human entertainment is an archaic practice that should end. After a two-year effort by activists in Kazakhstan, as well as international efforts by AWI and other organizations, the country's president signed a bill into law at the end of 2021 that will close the country's two remaining dolphinariums over the next seven years. This phase-out period is to allow the facilities to find adequate homes for their animals and transition their business model to one that does not rely on exploiting these wide-ranging, socially complex marine mammals.

AWI worked closely with Kazakhstani activists to effect this change in the

law, in particular helping fund the work of Free Dolphins Kazakhstan. This grassroots group undertook amazing public outreach (especially involving children, the main audience for dolphin shows), which helped lead to this historic result. We will continue to support the grassroots efforts of local organizations to end the brutal exploitation of cetaceans globally.

FROM BAD TO WORSE AT MIAMI SEAQUARIUM

In September 2021, a damning inspection report prepared by the US Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) was released for Miami Seaquarium. (See *AWI Quarterly*, winter 2021.) The report chronicled a number of extremely troubling incidents at this outdated marine theme park, including a performance-related injury to 56-year-old orca Tokitae (a.k.a. Lolita); an unusual number of marine mammals dying in less than two years; poor water quality issues; inadequate record-keeping, which resulted in incompatible individuals being housed together, leading to fights (some deadly); and, worst of all, records and interviews with staff that showed that Tokitae and other animals were fed rotting fish. Then, within a three-week period at the end of 2021, a dolphin, a harbor seal, and a manatee died.

Despite all of these disturbing developments, APHIS chose to issue the facility's new owner a license in early March, specifically omitting Tokitae's enclosure from the license's jurisdiction. AWI is considering its options for responding to this unprecedented and potentially illegal decision.

A USDA inspection of Miami Seaquarium revealed, among other things, that elderly orca Tokitae suffered a serious jaw injury after being forced to perform tricks.



LEONARDO DASILVA



To Best Protect Humans from Domestic Violence, We Must Protect Nonhuman Animals Too

by Andrew M. Campbell

Domestic violence continues to impact households and communities around the globe. With an estimated 1 in 3 women and 1 in 4 men suffering physical abuse at the hands of an intimate partner, this far-reaching public health issue claims the lives and well-being of many each year. In addition to risk of harm to humans in homes where this abuse occurs, nonhuman animals (referred to as “animals” for remainder of article) often share in these risks and can become the target of a domestic violence perpetrator.

Animals may be targeted by domestic violence abusers to discourage humans in the home from reporting abuse, ending

the relationship, and/or seeking shelter. While much of the research on harm to animals in domestically violent homes focuses on companion animals, in more rural environments, horses, cattle, sheep—any animal with whom human victims find support or comfort—are also likely at risk. Humans impacted by abuse may rely on animals for emotional support when contact with their family and friends becomes limited (domestic violence abusers often work to isolate victims). Animals can become an emotional lifeline for these victims—and this may be particularly true for children in such homes.

An analysis I conducted of children’s involvement in cases of animal cruelty¹ indicated that children and animals often share similar circumstances (i.e., abuse victimization or poor health) in homes where abuse occurs. The study reinforced

the urgency of removing children from homes in which animal abuse occurs. Among other negative outcomes, children who reside in homes where abuse of animals occurs may be more likely to commit acts of animal cruelty now and in the future.

Failure to protect animals from domestic violence can result in failure to protect the humans connected to them. Victims of domestic violence are unlikely to leave trusted animals behind in a dangerous home environment, and they shouldn't be forced to choose between their own safety and the well-being of their animals. Domestic violence victims may choose to become homeless or remain in an abusive home environment if no safe place exists to bring their animals.

It is estimated that fewer than 20 percent of domestic violence shelters in the United States currently allow protection for pets on site. While barriers exist to sheltering pets, these barriers do not appear insurmountable. Several organizations are equipped to support domestic violence shelters that are in the process of becoming "pet-friendly." In the United States, Red Rover and Sheltering Animals and Families Together (SAF-T) are two such organizations that can assist in ensuring domestic violence shelters no longer have to turn animals away. Federal grants under the Protecting Animals With Shelter (PAWS) program are helping service providers expand their assistance to survivors with companion animals.

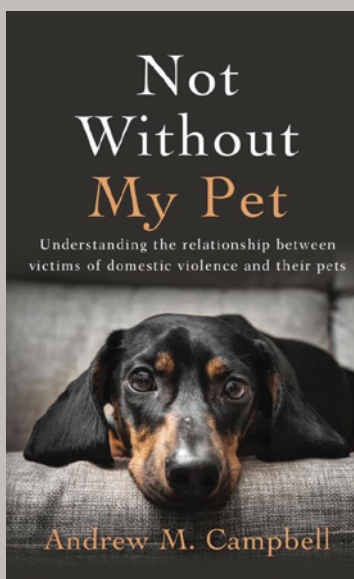
Among shelters where restrictions do not allow for pets on site, fostering options must be considered. While less optimal

than sheltering people and pets together, pet fostering programs still remove an important barrier to victims fleeing an abusive home. Reuniting these pairs as soon as possible is key to ensuring that the healing process will not be disrupted. Continued contact during the foster period can also be of great comfort to victims of abuse—assuring them that their trusted animal companion remains safe as they eagerly await reunification.

While more shelters are opening their doors to companion animals (for a searchable list, see AWI's Safe Havens Mapping Project), many more are still missing an opportunity to best serve families impacted by abuse. Creating space for animals in domestic violence shelters is critical in getting people-pet pairs to shelter that would otherwise never come. Communities cannot best protect humans from abuse unless they include the animals connected to them in the process. 🐾

Andrew Campbell is an expert on family violence and the associated risks of harm for adults, children, and animals residing in homes where this violence occurs. His book Not Without My Pet, covering the pet aspect of family violence, was released September 2021. In addition to being an author, researcher, and educator, Andrew also speaks as a survivor of family violence in childhood.

1. Campbell, A. M. (2022). The intertwined well-being of children and Non-Human Animals: An analysis of animal control reports involving children. *Social Sciences*, 11(2), 46. <https://doi.org/10.3390/socsci11020046>



Not Without My Pet

Pets provide unconditional love—often supporting us during our most vulnerable moments. Too often, however, pets are left out of family violence prevention, detection, and intervention initiatives—including the provision of shelter. Individuals experiencing domestic violence often choose to remain within an abusive home, fearing to stay but afraid to leave a beloved pet alone to face continued abuse and violent acts of retribution.

As a child, author Andrew Campbell survived his own familial abuse in large part due to the support and unconditional love of his pet. His compelling personal story inspired his groundbreaking research about the role that pets play in protecting victims of family violence. Campbell explains how inclusion of pets in family violence prevention plans provides critical support at the very time victims need it most.

USING AWI CHILDREN'S BOOKS TO TEACH ANIMAL CARE AND COMPASSION

Stories can be a powerful way to share lessons with children about kindness and proper companion animal care. They provide children with an opportunity to consider new concepts and practice perspective-taking in a way that is fun and engaging. The SPCA Serving Erie County (a Buffalo metro area nonprofit that is the second-oldest humane society in the country) has been using AWI's books, *Pablo Puppy's Search for the Perfect Person* and *Kamie Cat's Terrible Night*, for their in-school programs since spring 2021. Humane educator Katherine Gillette-Cockerill notes that the books help teach the role of shelters in the community while also representing diverse voices. "Teachers and families really love the resources," she says.

AWI recently elected to increase the number of free copies of our children's books available to humane societies and teachers. By providing larger quantities at no cost, AWI is helping to support humane education programs such as the Johnnycake Corners Kind Kids program, developed jointly by Ohio Animal Advocates (OAA) and elementary teacher Krista Hyme. The program combines service-learning projects, reading, and age-appropriate discussion of animal welfare issues. In January, OAA's executive director, Vicki Deisner, read *Kamie Cat's Terrible Night* aloud to students in the program. "The book truly expressed the feelings Kamie had being lost, and showed compassion through the kind people that helped Kamie find her way home," she

explained. Each student then received their own copy of the book to keep.

AWI also continues to support literacy programs across the United States by providing shipments of books to national organizations such as Lisa Libraries and Kids Need to Read. Since 2020, AWI has donated over 60,000 books to literacy groups and humane education programs, reaching children throughout the country.

If your school, shelter, or literacy organization would like to receive AWI's children's books, please email us at publications@awionline.org and describe your need and intended use. English and Spanish versions are available, and PDFs of the books (as well as accompanying lesson plans) can be downloaded from our website at no cost.

AWI SCHOLARSHIP RECIPIENTS PURSUE EDUCATION WITH ANIMALS IN MIND

The ever-rising cost of a college education can be daunting—particularly if you plan to enter fields

involving animal care, conservation, and/or advocacy, where love of animals and dedication to the cause are greater draws than earning potential. In an effort to alleviate some of the financial burden young people face as they enter college and pursue careers that will help animals, AWI launched its scholarship program.

This year, we chose 15 scholarship recipients who exemplify the future of animal welfare through their engagement and perseverance, both in and out of the classroom. The recipients' goals range from hands-on work through veterinary clinics or wildlife rescue organizations, to protecting animals through sound policy-making and legal efforts. Please join us in congratulating the following students: Arianna Camacho, Meleah Eckels, Iris Gillespie, Jesus Hadad, Sage Hall, Emily Keller, Weslyn McLaws, AnaVictoria Garcia Medina, Alexis Meiklejohn, Weslyn McLaws, Skyler Nahouray, Cassandra Price, Christopher Reigel, Lily Thomas, Haley Walker, and Tylar Zingerella. The next AWI Scholarship application period opens in December 2022. For information on the program, see awionline.org/scholarship.

Vicki Deisner, executive director of Ohio Animal Advocates, reads *Kamie Cat's Terrible Night* to students at Johnnycake Corners Elementary in Galena, Ohio.





Four researchers received AWI Refinement Grants this year for studies aimed at improving the lives of animals in research. One study seeks to reduce social stress in captive marmosets.

CONGRATULATIONS TO THIS YEAR'S AWI REFINEMENT GRANT RECIPIENTS

Every year, AWI awards grants of up to US\$10,000 to support research projects aimed at developing or testing new and creative ways to improve the welfare of animals in research. We are pleased to announce this year's grant recipients:

- Dr. Becca Franks, assistant professor at New York University, for a study using videographic evidence to assess the degree to which play behaviors are observable across fish species, to document which factors encourage fish play, and to investigate how play can be used to assess fish welfare.
- Alexander Greig, research assistant at Texas Biomedical Research Institute, for studying the behavioral and physiological effects of implementing visual barriers in the housing of captive marmosets to reduce social stress.
- Dr. Julie Menard, assistant professor at the University of Calgary, for testing a noninvasive alternative to endoscopy when sampling the small intestine microbiome in dogs.
- Dr. Cathy Schuppli, clinical veterinarian and clinical assistant

professor at the University of British Columbia, and co-investigator Dr. Amelia MacRae, a certified animal trainer (KPA CTP), for developing positive reinforcement and counterconditioning training protocols for laboratory-housed mice and pigs to improve human-animal interactions in a research setting.

CONVENTIONAL RODENT HOUSING IS HARMFUL TO ANIMALS AND SCIENCE

A meta-analysis recently published in the journal *BMC Biology* (Cait et al., 2022) found that rats and mice housed in conventional laboratory cages have higher mortality rates and greater disease severity compared to rodents housed in "enriched" environments. This finding suggests that conventional laboratory housing causes chronic stress.

Previous research has already shown that conventional housing for rodents—which consists of barren or nearly barren shoebox-sized cages—restricts many natural behaviors and is associated with reduced welfare. Here, researchers tested whether conventional housing causes chronic

psychological stress. To test their hypothesis, the team analyzed the results of numerous animal studies that compared mortality and disease outcomes in rodents housed in conventional versus "enriched" cages that better meet rodents' behavioral needs. (From an initial 10,096 articles, 214 met the inclusion criteria, such as use of rats or mice and publication in English.)

The researchers focused on seven maladies that can affect both humans and rodents. In humans, it is known that these afflictions are exacerbated by chronic psychological stress. The researchers also looked at lifespan, which chronic stress is known to shorten in humans.

The results were clear: Conventionally housed rodents have a 50 percent higher probability of dying and a 9 percent lower median lifespan; they also have increased risk of developing cardiovascular disease, increased severity of cancer and stroke, and increased signs of anxiety and depression. (For two of the afflictions initially targeted—asthma and viral infections—the researchers did not find enough studies involving rodents to allow comparisons.)

The widespread and sanctioned use of laboratory housing that produces chronically stressed animals is alarming. Research industry assertions that they consider animal welfare a primary concern fall flat when the animals' welfare is deliberately compromised at the outset. Moreover, the use of chronically stressed animals raises serious concerns about the generalizability and the validity of the data they generate.



Breaking Up the Fight Before It Begins: *Detecting Early Signs of Inter-male Aggression in Mice*

by Amanda Barabas, PhD candidate, Purdue University and
Brianna Gaskill, Assistant Professor, Purdue University

Inter-male aggression in mice continues to challenge laboratory animal husbandry personnel, as intervention strategies are typically applied at the cage level without a good understanding of how individual behavior is affected. Aggression mitigation may be improved if individual interactions were better understood.

Male laboratory mice often form despotic hierarchies, where one dominant individual attacks all the other cage mates. If fighting is observed, mitigation strategies targeting the dominant mouse would likely be the most effective in reducing conflict. Unfortunately, it is unknown if this dominance structure is the same across different types of mice or group sizes. The ability to identify signs of aggression early would improve our understanding of social dynamics and greatly improve the welfare of victimized mice. But it presents a challenge. Groups plagued by aggression are typically identified by the presence of a wounded mouse. By the time tissue damage is visible through the fur, aggression has already escalated. To improve our ability to detect early signs of inter-male aggression, interactions between male mice in stable social groups were examined.

In this study, which was funded by an AWI Refinement Grant, social behavior was continuously recorded over two 24-hour periods in two mouse strains of known tendencies housed in groups of 3 or 5: SJL (high aggression) and B6N-*Tyr^{c-Brd}* (moderate aggression). All instances of aggression, submission, and allo-grooming (a positive social interaction) were recorded, while the actor and recipient mouse of each interaction was noted.

Aggression data were used to calculate (1) the social rank of each mouse within a cage, (2) aggression density (the proportion of possible interactions between individuals in a cage), and (3) directional consistency (DC, a measure of how often attacks occur without retaliation). Welfare checks for severe wounding were conducted daily, and if any mice exceeded our humane endpoint criteria, they were euthanized. Unfortunately, mice in four cages met this criteria, leaving 19 cages. Additionally, the proportion of time spent active, sleeping in a group, and sleeping alone were collected for each individual mouse.

Overall, aggression density was low, and individuals within a cage differed in the amount of aggressive behavior they exhibited. Typically, 1–2 mice per cage were responsible for the majority of aggression, and DC was generally high, with victimized mice failing to retaliate against an attack. Based on these data, despotic power structures appear to be maintained across multiple strains and group sizes.

In terms of early indicators of aggression, the amount of allo-grooming performed and received was not related to aggression. This suggests that a lack of positive interactions does not necessarily correlate with high levels of aggression. However, dominant mice who displayed more aggression were more active in the cage and slept by themselves more than subordinate mice. So, while allo-grooming was not predictive of social dynamics, sleep location could potentially be used as an early indicator of conflict in group-housed male mice, and male mice observed resting away from the group could be monitored more frequently. Careful monitoring of this nature could contribute to strategies to prevent or reduce inter-male aggression; effective solutions are urgently needed. 🐾

Behavioral Patterns of Goldfish (*Carassius auratus*) Exploring a “Fish Tower”

by Sasha Prasad-Shreckengast, MA student,
CUNY Hunter College

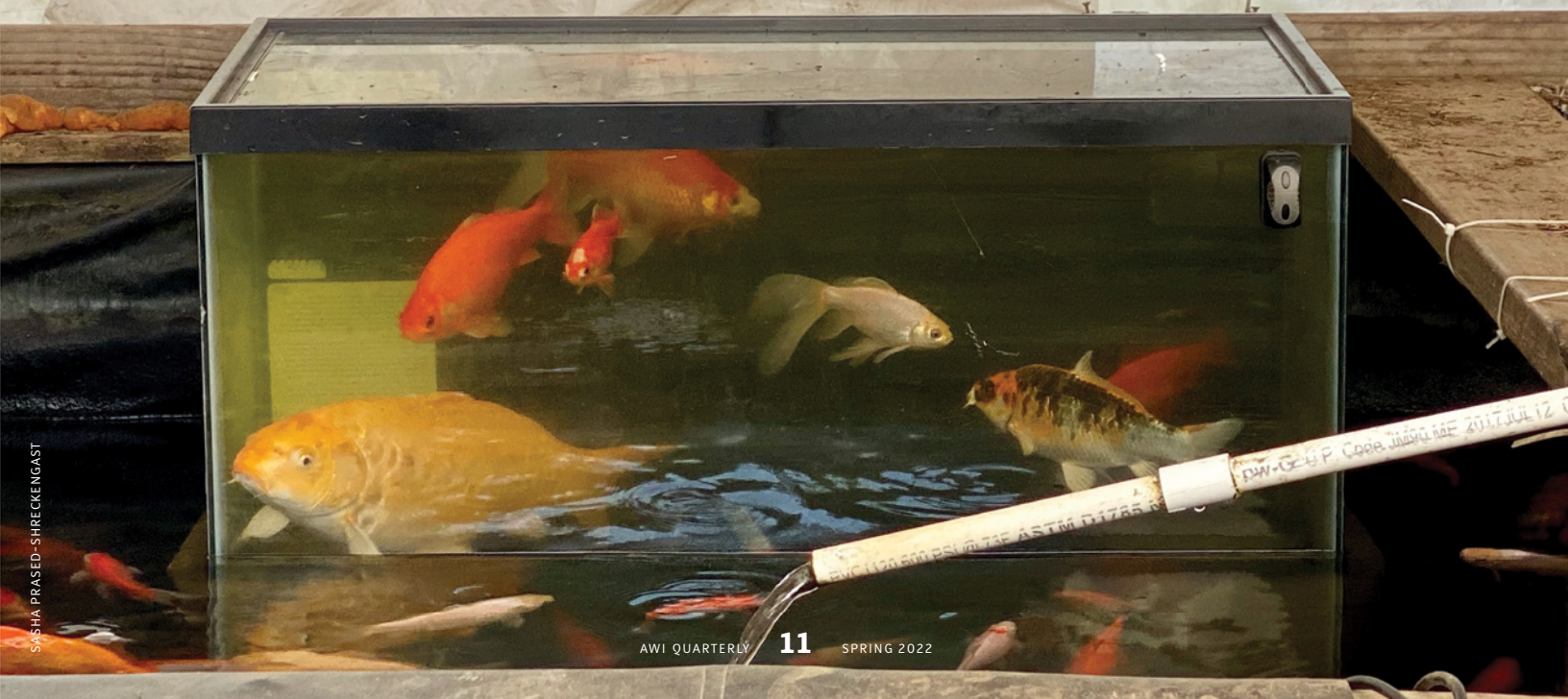
Curiosity—the drive to gather information—is considered a fundamental motivation throughout the animal kingdom. As such, providing opportunities to satisfy that curiosity may be essential for animals to have good welfare in captivity. Fish are held in captivity at some of the highest numbers of any taxa, but their curiosity is rarely studied or accommodated. It is estimated that upwards of 1 million individuals of the Cyprinidae family, which includes carp and true minnows, are used annually in research on human development and physiology. Yet, housing plans for laboratory fishes have been modeled from the aquaculture industry, prioritizing production and functionality over welfare, resulting in barren tanks and minimal cognitive stimulation for the animals residing in them.

With this study, which was funded by an AWI Refinement Grant, we investigated the presence and nature of curiosity in goldfish (*Carassius auratus*) via novel free-choice exploration opportunities. To achieve this, we created a “fish tower”—a filled and inverted glass aquarium that extended above the surface of the water at a community aquaponics pond that housed approximately 100 goldfish. The fish tower thus represents an unusual and potentially risky novel environment, but if utilized by the fish, could be useful

in future curiosity research and could promote cognitive stimulation and agency for fish in captivity.

We filmed the fish tower for five weeks, beginning immediately after installation, and coded total occupancy every hour for 5–10 hours per day, 3–4 days per week. For 18 easily identifiable individuals, we also recorded the time it took them to first enter the tower (latency) and the total number of entries. Despite its physical characteristics—transparent, well lit, above the surface—that go against their known preferences, goldfish voluntarily explored the novel fish tower. Fish were seen in the tower in 70 percent of all scans; of those scans, two was the most common number observed in the tower, and seven the maximum. Furthermore, there was variation in latency to enter the fish tower and total number of entries for the 18 identifiable individuals who explored the fish tower, which suggests individual differences in interest and information gathering.

Overall, these results indicate that the fish tower may be a suitable method for providing free-choice exploration opportunities and visual stimulation for fish in captivity. Additionally, it could be a useful tool for further studies of curiosity and its effects on fish welfare. By showing that fish will readily explore an unusual and risky novel environment, the present work contributes to the ongoing research examining the interests and abilities of fish. While additional research is needed to determine the welfare benefits that exploration opportunities offer for goldfish, the fish tower presents an option for enrichment that is often lacking in captive environments and can be implemented in a variety of settings, including those research laboratories with more stringent restrictions on what can be added to the aquatic environments. 🐾



FIGTOGRAPHY



ANIMAL WELFARE WINS AND WHIFFS IN OMNIBUS SPENDING BILL

Program oversight

With nearly half the fiscal year over, Congress finally finished work on the fiscal year 2022 spending bills. The good news is that they contain several important provisions aimed at improving animal welfare.

For one thing, Congress expressed concerns about “the ongoing mismanagement” of the US Department of Agriculture’s Animal Care Program, which is supposed to ensure the humane treatment of animals covered by the Animal Welfare Act (AWA). Citing media reports about the department’s “inexplicable delays ... in acting against blatant violations of the Animal Welfare Act,” lawmakers said they intend to monitor the program’s “fulfillment of its statutory and regulatory responsibilities with respect to animals.” The USDA was further instructed to make certain inspection and enforcement reports publicly available through a searchable database. Congress also continued its long-standing prohibition on the

licensing under the AWA of Class B dealers who seek to sell dogs and cats acquired from random sources for use in experimentation.

The US Fish and Wildlife Service was told to report to Congress on its current policy for allowing trophy hunting imports. (Congress has been asking for this report for several years, but the USFWS has failed to comply.) The agency was also directed to evaluate trapping practices on USFWS lands, as well as the nonlethal options that could serve as alternatives to lethal wildlife management.

Congress also used the bill to alert the State Department that one of its programs remains under scrutiny. In 2019, the State Department’s Office of Inspector General released a report documenting the unconscionable mistreatment of dogs sent overseas under the Explosive Detection Canine Program. This situation came to light only after a whistleblower—a veterinarian who had worked for the private contractor that trained the dogs—raised alarms about their health and welfare. (See *AWI Quarterly*, fall

Congress has directed the US Fish and Wildlife Service to evaluate trapping practices on USFWS lands, as well as the nonlethal options that could serve as alternatives to lethal wildlife management on such lands.

2019.) Frustrated with the lack of transparency and accountability in this program since the report came out, Congress told the department to submit a report detailing how it has met, or plans to meet, the OIG’s recommendations. It must also provide “an update on the status of dogs currently in, and retired from, the program since June 2019.”

Funding

Research and conservation efforts protecting critically endangered North Atlantic right whales received \$21 million—\$16 million more than the previous year. This includes at least \$4 million for measures such as enforcement and monitoring, and at least \$2 million to support an existing pilot program to develop, refine, and test innovative fishing gear aimed at reducing entanglements—a major cause of death for the whales. Much of the funding (\$14 million) will be allocated to states to cover costs for the fishing industry to comply with a 2021 federal rule that aims to reduce right whale mortalities and serious injuries from fishing gear. (The rule itself, unfortunately, insufficiently reduces the risks to the whales and should be strengthened.)

The federal Marine Mammal Commission received more money to continue its essential oversight functions. Both the USFWS and the National Marine Fisheries Service received funding to continue coordinating a nationwide emergency response initiative—the Prescott Grant Program—for stranded, sick, injured, distressed, or dead marine mammals. Additionally, the USFWS was directed

to use conservation and restoration funds to help manatees. This species has faced unprecedented challenges, with more than 1,100 dying last year due to habitat degradation and declining seagrass—a critical food source for manatees.

Funding for grants to enable domestic violence service providers to create or expand programs to assist survivors with companion animals was increased from \$2.5 million to \$3 million.

Conversely, Congress provided only minimal funding increases for the implementation of the Endangered Species Act (ESA), a significant disappointment given the global extinction crisis. A United Nations report warns that 1 million species are now threatened with extinction, yet Congress continues to deprioritize funding for this essential conservation law. A backlog exists, with approximately 400 species awaiting protection under the ESA. For at least 47 US species, time has run out—awaiting protection, they went extinct. Turning a blind eye to catastrophic biodiversity declines by depriving the ESA of sufficient funding is dangerous and irresponsible.

PROGRESS FOR ANIMALS ACHIEVED IN STATE LEGISLATURES

Two AWI-supported state bills recently became law and another is on the cusp. In March, Governor Eric Holcomb of Indiana signed HB 1248 into law, prohibiting public contact with lions, tigers, leopards, snow leopards, jaguars, cougars, big cat hybrids, and bears. This means that exploitative activities such as cub petting operations—which stress the animals and fuel an endless cycle of breeding—will no longer be allowed in Indiana.

Also in March, Utah joined the nationwide effort to provide greater protection to domestic violence survivors who have companion animals when Governor Spencer Cox signed HB 175, a bill to allow the inclusion of pets on protection orders. This makes Utah the 37th state (along with the District of Columbia and Puerto Rico) to have recognized that pets can also become victims of domestic violence.

Finally, AWI testified twice in recent months in support of a Maryland bill (HB 52/SB 381) that would restrict

the sale of parts and products from elephants, rhinos, tigers, giraffes, sea turtles, and other imperiled species. The bill passed both chambers of the Maryland General Assembly and, as this issue went to press, awaited the governor's signature.

BIRDS FINALLY IN LINE FOR ANIMAL WELFARE ACT PROTECTIONS

It only took 20 years, two lawsuits, and prodding from Congress for the US Department of Agriculture to finally propose regulations to extend Animal Welfare Act (AWA) protections to birds not bred for use in research. Such regulations would impose minimum care standards and oversight with respect to bird exhibitors and breeders of birds for the pet trade, where many have been denied basic needs and subjected to mistreatment. We were glad to see that the proposed rule requires enrichment that is essential to their welfare, prohibits the sale of unweaned birds, does not exempt birds used in falconry, and requires anyone with four or more breeding females to be licensed—the same threshold applied to dog and cat breeders. AWI submitted comments endorsing these provisions but also noted the need to make accommodations for flight, restrict public contact, and prohibit the use of tethering as a primary means of containment. Further, because birds are not domesticated like dogs and cats, we argued that they are “wild and exotic” animals, thus necessitating regulation under the AWA of pet stores that sell them.

An AWI-supported bill in Maryland to restrict the sale of parts and products from giraffes, elephants, tigers, and other imperiled species passed the state legislature in April.



EUGEN HAAG



NAMIBIA'S ELEPHANTS:

Victims of Mismanagement and Broken Promises

On March 5, the lives of 22 African elephants—mothers, juveniles, and young calves—changed forever. No longer free to roam the vast open spaces of northwestern Namibia's Kunene region, they were loaded onto a cargo jet, bound for captivity in the United Arab Emirates' Al Ain Zoo. This sale, which Namibia claimed was needed to reduce elephant-human conflicts, triggered international condemnation by animal advocates, scientists, and governments, as well as a harsh response from the European Association of Zoos and Aquaria (EAZA), of which the Al Ain Zoo is a member. EAZA found no justification for this sale and revealed that the zoo may be subject to disciplinary actions, while the World Association of Zoos and Aquariums (WAZA) promised an

investigation of the zoo's potential violation of WAZA's Code of Ethics and Animal Welfare.

In December 2020, Namibia published a tender in the government-controlled *New Era* newspaper advertising the sale of 170 wild elephants, claiming it was required to reduce elephant populations due to drought and human-elephant conflicts. Conservation and animal welfare organizations from around the world pleaded with authorities not to permit further captures, to release elephants already captured, and to prohibit exports in light of international law and the increasingly known physical and psychological toll of captivity on elephant welfare.

This call was supported by the International Union for Conservation of Nature's African Elephant Specialist Group, which stated in 2003 that it did not endorse the removal of African elephants from the wild for any captive use, as such use provides no direct benefit to in situ conservation (i.e., conservation of the species within its native range).

Namibia's elephants (like those of Botswana, South Africa, and Zimbabwe) are listed on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), while other African elephants are listed on Appendix I. An annotation to the listing text indicates that these Appendix II elephants can only be exported to "appropriate and acceptable" destinations. A subsequent amendment to the annotation states that elephants from Namibia and South Africa can only be traded to in situ conservation programs. Further, at the 2019 meeting of the CITES Conference of the Parties, a majority of CITES parties agreed that, barring exceptional circumstances, the only "appropriate and acceptable destinations" for *all* Appendix II-listed African elephants are in situ conservation programs.

Despite this language and two separate legal analyses concluding that Namibia can only trade live elephants under Appendix II rules, the country exported them under *Appendix I* rules to avoid the restrictions attached to the Appendix II listing. Disconcertingly, the CITES secretariat defended this action.

An AWI-supported November 2021 report by Dr. Adam Cruise and Izzy Sasada—*Investigation into the Efficacy of Namibia's Wildlife Conservation Model as It Relates to African Elephants* (*Loxodonta Africana*)—reveals that this disingenuous interpretation of CITES standards is only part of the story. Among the eye-opening revelations from the report: Namibian authorities have overstated the frequency and severity of wildlife-human conflicts, and removal of elephants via trophy hunting or live capture from much of Namibia, including the Kunene region, is likely not sustainable. Through literature reviews, wildlife population data analysis, extensive field work, and interviews with dozens of local citizens, their findings indicate that the 22 elephants exported to the UAE, like others before them, fell victim to a management system that has largely avoided any substantive analysis of its efficacy.

Since 1998, Namibia's wild lands have been carved into 86 Community-Based Natural Resource Management conservancies (CBNRMs), which ostensibly promote sustainable management of game animals and allow lucrative consumptive and nonconsumptive uses, including eco-tourism and trophy hunting by wealthy foreign visitors.

CBNRMs are supposed to increase the income of impoverished rural Namibians while permitting the recovery of Namibia's wildlife populations that were decimated prior to the country's independence, thereby incentivizing the sustainable use of natural resources by giving them an economic value. CBNRM-generated funds (over US\$10 million per year) are meant to provide income and in-kind benefits to local communities—funding anti-poaching operations, wildlife management, education and health initiatives, and other programs.

While CBNRMs have been promoted as a model for wildlife conservation, the report states that the purported benefits to wildlife and rural communities is "predominantly a fabrication rather than a fact." Although a number of CBNRMs do contain a large diversity of wildlife species, including elephants, data indicate that in many, elephant numbers are decreasing—in some cases to dangerously low numbers—raising concerns about the veracity of elephant-human conflict reports and the sustainability of trophy and other hunting activities.

For humans living in or near the conservancies, many of the promised benefits of the CBNRM program have not been realized. While there have been some donations of meat, direct cash payments, and other benefits, a majority of the locals interviewed indicated that the conservancy program is riddled with corruption, nepotism, insufficient or no compensation for livestock lost to wildlife, delay or nonpayment of promised funds for living with wildlife, restrictions on traditional uses of wildlife, ethnic discrimination, inaction against illegal land use, and outright takeover of conservancy lands for livestock grazing, mining, oil drilling, and logging.

Such evidence led Cruise and Sasada to conclude, "Far from being a success-story, Namibia's much touted wildlife conservation model and its adherence to sustainable utilisation of wildlife through community-based management has, in fact, achieved the opposite of what is commonly presented. Overall wildlife numbers are declining, and elephant populations in the Kunene Region are collapsing, while rural communities within the CBNRMs are as impoverished as ever, in many cases, more so."

The saga of Namibia's elephants is ongoing. The elephants exported to the UAE are likely lost forever from Namibia's wild lands, but another 148, including some already captured, will be subject to the same fate if Namibia continues to prefer profit to protection. Similarly, unless the conservancy program is fully reevaluated and either replaced or restructured to address its glaring shortcomings, Namibia's vast wildlife bounty will continue to decline, and the program's promise to support the well-being of the local people will remain illusory. 🐘

TREVOR SCOUTEN



Many young wombats, orphaned during Australia's catastrophic wildfires of 2019–2020, have been taken in by Southern Cross Wildlife Care in New South Wales. AWI funded construction of an outdoor recreation area for the animals.

AWI is happy to support these efforts to provide long-term care to animals impacted by the wildfires.

STUDY HIGHLIGHTS IMPORTANCE OF RESTORING LARGE MAMMALS TO LANDSCAPES

A new study published in the journal *Ecography* (Vynne et al., 2022) identifies key opportunities for improving ecosystem health through restoration of large mammal assemblages across terrestrial ecoregions. Large mammals, which include top predators and large herbivores, play an outsized role in their habitats, influencing everything from vegetation to soil invertebrates. Yet less than 16 percent of Earth's terrestrial surface still contains intact large mammal assemblages, resulting in widespread ecosystem instability.

The study found that reintroducing just 20 species across various ecoregions would restore complete assemblages across 54 percent of the world's lands. The proposed reintroductions include bison, beavers, reindeer, wolves, and lynx in Europe; wild horses and wolves in Asia; hippos, cheetahs, wild dogs, and lions in Africa; and brown bears, bison, wolverines, and black bears in North America. The study highlighted 30 ecoregions in particular where, within a relatively short time, feasible reintroductions would lead to the most significant ecosystem benefits. These recommendations come at a vital time as nations work to address the unfolding biodiversity crisis.

COURT RESTORES FEDERAL PROTECTIONS FOR GRAY WOLVES

In a much-needed win for gray wolves, a federal court recently scrapped a rule issued by the US Fish and Wildlife Service in 2020 that removed Endangered Species Act (ESA) protections from wolves across most of the contiguous 48 states. The court held that, among other missteps, the USFWS had failed to adequately assess threats such as habitat loss and inadequate legal protections for wolves on federal public lands. The decision was the latest in a long string of legal defeats the agency has suffered over the past two decades in its attempts to hand wolf management back to the states.

The effect of the court's ruling was to return wolves in most states to the ESA's list of threatened and endangered species. Consequently, wolves may no longer be hunted in places such as Wisconsin, which allowed 218 of the animals to be shot and trapped during a three-day sport hunt last year. The ruling did not affect wolves in the Northern Rocky Mountains. This population was delisted in 2011 and has since been subjected to increasingly aggressive hunting

and trapping seasons. However, the USFWS announced in September that it was reviewing the status of Northern Rockies wolves to determine whether relisting may be warranted.

AWI AIDS WILDLIFE IMPACTED BY AUSTRALIAN FIRES

The wildfires that raged across Australia in late 2019 and early 2020 were unprecedented in scope and severity. Nearly 3 billion animals, it is estimated, were killed or displaced, including numerous young wombats. Many were orphaned when their mothers, attempting to cross roads to escape the fires, were killed by motor vehicles.

Some of these young wombats have found a home at Southern Cross Wildlife Care, a wildlife hospital and rehabilitation center. To provide the animals with fresh air and the opportunity to engage in natural behaviors, AWI funded the construction of a new, secure outdoor enclosure for daytime play. In it, they can explore, run through tunnels, and dig. Recovery from a disaster of this magnitude can take years and even decades, and

Assessing the Usefulness of Blood Samples to Monitor for Exposure to Anticoagulant Rodenticide in Red-Tailed Hawks

by Maureen Murray, DVM, Cummings School of Veterinary Medicine at Tufts University

Anticoagulant rodenticides (ARs) are rodent poisons that have been widely used globally for decades for the control of commensal rodents (those who live off what they obtain from human communities). Deaths due to exposure to these rodenticides have been documented in several bird of prey species, and an increasing number of studies from countries around the world have found residues of ARs in predatory wildlife. Due to the persistence of ARs in the tissues of animals who ingest them, ARs bioaccumulate, and their detection in numerous wildlife species indicates that they are likely pervasive in the food chain.

ARs concentrate and persist to the highest extent in the liver, making it the tissue of choice for AR analysis. Therefore, most monitoring studies use liver tissue from deceased animals. It would be advantageous, however, to use blood samples to test for exposure to ARs, as blood can be collected in the field from live animals. However, the sensitivity of blood for detection of ARs has not been well examined.

This study, supported by a Christine Stevens Wildlife Award and published in the journal *Environmental Toxicology and Chemistry*,¹ addressed whether blood samples can be used to detect exposure to ARs in red-tailed hawks. Birds in the study were admitted to Tufts Wildlife Clinic and either died or were humanely euthanized due to AR poisoning or injuries. No birds were euthanized to serve the study.

Blood and liver samples collected from each bird were analyzed to determine if birds positive for ARs in the liver would have detectable residues in their blood. Forty-three red-tailed hawks were included in the study. Fourteen of the birds died due to AR toxicosis; in these 14, ARs were present in both blood and liver. In the remaining 29 birds—who died from causes other than toxicosis—ARs were found in the liver but not in the blood.

The findings indicate that analysis of blood is not a reliable way to monitor for exposure to ARs in red-tailed hawks who do not have signs of AR toxicosis. Therefore, blood sampling within a select population would underestimate exposure. These data can inform future studies and risk assessments on AR exposure in birds. In addition, given that 100 percent of the hawks sampled for this study were positive for ARs in liver tissue, this further demonstrates that exposure to ARs in this species remains pervasive despite regulations enacted by the Environmental Protection Agency within the last decade intended to reduce the risk of ARs to wildlife. 🐾

1. Editor's note: *Environmental Toxicology and Chemistry* included this study (doi.org/10.1002/etc.4853) in its annual list of exceptional papers for 2020.



BIG TROUBLE FOR THE GREAT BEAR

The grizzly bear—sometimes referred to as the “great bear”—is a study in contrasts: powerful yet vulnerable, long-studied but mysterious, admired and feared. Grizzlies have inhabited North America for tens of thousands of years, persisting through the end of the last ice age even as many of their competitors—such as the giant short-faced bear and saber-toothed cat—went extinct.

In the early 1800s, some 50,000 grizzlies roamed most of the western United States. However, the combination of westward expansion by European settlers and state and federal predator extermination campaigns slashed the grizzly bear population in the contiguous 48 states to less than 2 percent of its pre-settlement population size and range. By 1975—the year they were listed as “threatened” under the Endangered Species Act (ESA)—as few as 700 animals remained. Although the population has grown

slowly in the decades since, as of last year, there were only about 2,000 individuals occupying around 6 percent of their historical range.

Today, most grizzlies in the contiguous 48 states live in one of two regions: the Northern Continental Divide Ecosystem (NCDE) in northwestern Montana, and the Greater Yellowstone Ecosystem (GYE) surrounding Yellowstone National Park. Twice in the last 15 years, the US Fish and Wildlife Service has removed ESA protections from Yellowstone-area grizzlies—despite the threats posed by climate change, high mortality levels due to conflicts with humans, and the prospect of diminished long-term genetic health due to more than a century of isolation from other grizzly populations. Twice, federal courts have intervened and restored those protections.

That hasn’t stopped grizzly bear detractors from trying again. Last year, Montana legislators adopted a resolution calling on the USFWS and Montana’s congressional delegation to delist all grizzlies in Montana. Federal lawmakers from both Montana and Wyoming introduced legislation that would remove protections from NCDE bears, GYE bears, or both, and exempt those actions from judicial review. Separately, in December, Montana’s governor petitioned the USFWS to delist bears in northwestern





Montana. And in January, Wyoming's governor submitted a request to remove federal protections—yet again—from the Yellowstone population.

Montana, Wyoming, and Idaho also recently approved an agreement governing how many GYE grizzly bears each state would be allowed to kill through hunting and other management activities if ESA protections are removed. A desire to allow grizzly hunting is one reason why some legislators and state wildlife agencies want to see the animals delisted and their management handed back to the states. Some believe that hunting would reduce human-grizzly conflicts or make bears more wary and frightened of people. There is little evidence for either of these claims. For example, studies of grizzly bears in British Columbia and Norway, American black bears in Wisconsin and Ontario, and Asiatic black bears in Japan have found no correlation between numbers of bears killed by hunters and numbers of human-bear conflicts. The study authors offered several possible explanations.

First, bears killed by hunters often live in remote areas, so bears targeted by hunters are often not the same individuals as those involved in run-ins with humans. Second, even if some of the bears in a hunted population were involved in conflicts, it is unlikely hunters would be able to distinguish them from nonconflict bears. Third, even if a “nuisance” bear is killed by a hunter, it is likely that another bear will move into the vacated territory, starting the problems anew.

There is also little evidence that hunting bears would teach them to be more frightened of people. As numerous bear biologists have pointed out, dead bears cannot learn. On the contrary, hunting grizzlies could actually increase rare attacks on people: More hunters in grizzly bear country, moving slowly and silently, and often alone, could result in more startled bears, which could result in more human injuries and deaths.

Another important reason why grizzly bears should not be hunted is that the states where grizzlies live have already foreshadowed how reckless their management of the bears

would likely be. For example, months after the 2018 temporary delisting of Yellowstone-area grizzlies, Wyoming proposed to allow more than 20 of the animals to be gunned down—over bait in some areas. Bear baiting is highly problematic because any bear lured to a bait site and not killed by a hunter could learn to associate the scent of humans with food and come into more conflict with humans as a result.

In another telling example, last year the Montana legislature passed a raft of bills designed to dramatically reduce the state's wolf population through measures such as allowing the use of neck snares and night hunting, extending the trapping season, and authorizing the equivalent of a bounty program to reimburse wolf trappers and hunters for their expenses. As a group of 35 prominent Montana state, federal, and tribal wildlife biologists opposed to grizzly delisting explained in a widely published op-ed, “It doesn't take a lot of imagination to realize that if grizzly bears were delisted and turned over to state management, that the Legislature and governor would do the same thing to grizzlies that they are currently doing to wolves.”

As we monitor federal and state actions affecting grizzlies, AWI is also working to reduce human-bear conflicts on the ground. We've helped purchase dozens of bear-resistant garbage containers for residents of rural communities in grizzly habitat, and we are working with officials in Bozeman, Montana, to reduce encounters between residents and bears (both black and grizzly) in town. This work is important because it demonstrates the effectiveness of nonlethal measures to keep both people and bears safe—and helps refute claims that delisting and hunting are necessary.

Grizzly bears inspire awe and stir our appreciation for what remains wild and primal and free. After four decades of federal protection, grizzlies still occupy only a tiny fraction of their historical habitat in the contiguous 48 states. As the great bear continues to recover, it deserves our help, not premature removal of federal protections or senseless hunting seasons that could wipe out decades of progress. 🐾

Honoring Senator Robert Dole, a Staunch Champion for Animals

Senator Robert Dole (R-KS), who died in December at age 98, was a steadfast and skilled advocate of federal protection for animals. As a member of the House of Representatives in the 1960s, he served on the Agriculture subcommittee that approved the Laboratory Animal Welfare Act. This 1966 law—later renamed the Animal Welfare Act (AWA)—set minimum standards for the handling, sale, and transport of dog, cats, nonhuman primates, rabbits, hamsters, and guinea pigs held by animal dealers and research laboratories and included measures to prevent pets from being stolen and sold for experimentation. After he moved to the Senate, Dole was responsible for a 1970 amendment that expanded AWA coverage to all warm-blooded animals in research and required appropriate use of anesthetics and other tranquilizing drugs during experiments.

Dole also sought to protect farm animals at slaughter, stating, “Our national morality and concern for other living creatures demand legislation to prevent needless suffering by the animals that provide such an important part of our food supply.” He and Representative George Brown Jr. (D-CA) sponsored a 1978 amendment to the Federal Meat Inspection Act that expanded coverage to imported meat and gave inspectors the authority to stop the slaughter line to prevent inhumane practices.

But Dole’s greatest achievement on behalf of animals was securing the 1985 adoption of the Improved Standards for Laboratory Animals (ISLA) amendment to the AWA—prompting AWI to award him the Schweitzer Medal the following year.

On this legislation, Dole once again worked with Rep. Brown, with Dole sponsoring the Senate bill and Brown sponsoring the House version. It took five years to achieve, and industry opponents fought it every step of the way, but Dole stood firm. He noted during debate that the legislation was intended “to minimize pain and distress suffered by animals used for experiments and tests. In so doing, biomedical research will gain in accuracy and humanity. We owe much to laboratory animals and that debt can best be repaid by good treatment and keeping painful experiments to a minimum.”

The ISLA amendment requires research labs to have Institutional Animal Care and Use Committees that inspect the facility and include a veterinarian and someone unaffiliated with the lab to represent the community’s interest in the welfare of the animals. Primates must be provided with a physical environment that promotes their psychological well-being, and dogs must be provided with exercise. Pain and distress must be minimized, and alternatives to painful procedures considered.

Dole continued to advocate for animals after he retired. In response to the lab animal industry’s continued—and thus far successful—efforts to block AWA protections for birds, mice, and rats, Dole stated, “As someone deeply involved with the process of revising and expanding the provisions of the AWA, I assure you that the AWA was meant to include birds, mice and rats. When Congress stated that the AWA applied to ‘all warm-blooded animals,’ we certainly did not intend to exclude 95 percent of the animals used in biomedical research laboratories.”

After decades of stalling, the US Department of Agriculture has finally proposed regulations to cover birds—but in the pet and exhibition trades only. (See page 13.) Protecting birds, mice, and rats in research, meanwhile, is long overdue. Doing so would not only fulfill Congress’s intent, but also provide a fitting coda to Bob Dole’s remarkable legacy. 🐾

Senator Bob Dole being presented with AWI’s Schweitzer Medal by AWI’s founder, Christine Stevens, and her husband, Roger Stevens, AWI treasurer and founding chairman of the John F. Kennedy Center for the Performing Arts.



Dr. E.O. Wilson (left) and Dr. Thomas Lovejoy at a New York Botanical Garden board of trustees meeting in New York City in 2014. For decades, these luminary scientists championed the preservation of precious biodiversity. Both passed in late December. They will be sorely missed.

E.O. WILSON (1929–2021)

Born in Alabama, Dr. E. O. Wilson spent his formative years exploring forests and tidal pools, an activity that inspired a lifetime of inquiry and discovery.

After completing his studies at the University of Alabama and receiving a PhD from Harvard, Wilson set off on a global expedition to study ants in Cuba, Mexico, New Guinea, and the islands of the South Pacific. His travels led him back to Harvard, where he served as an esteemed professor for 46 years, studying insects, natural selection, biological diversity, and animal behavior. Later in life, Wilson became a fierce advocate for the protection of wild places and endangered wildlife.

During his career, he authored hundreds of scientific studies and several books, including two, *On Human Nature* and *The Ants* (the latter coauthored with Dr. Bert Hölldobler), that won the Pulitzer Prize. His 1967 book, *The Theory of Island Biogeography*, written with Dr. Robert MacArthur, predicted how many species an island would possess based on its size and vicinity to the mainland—a theory that underlies the science of conservation biology.

Wilson was a stalwart defender of the planet's wild places. In reference to humankind's destructive tendencies, Wilson declares bluntly in his 1992 book, *The Diversity of Life*, that "Earth has at last acquired a force that can break the crucible of biodiversity." In 2008, he unveiled the Encyclopedia of Life, an online resource that will



COURTESY OF THE NEW YORK BOTANICAL GARDEN

eventually include information about every known species on the planet—educating current and future generations of what has been lost and, hopefully, inspiring them to save what remains.

THOMAS LOVEJOY (1941–2021)

The life and career of Dr. Thomas Lovejoy—who coined the term "biological diversity"—was dedicated to the protection of the planet. After Lovejoy obtained a bachelor's degree and PhD from Yale, an interest in birds led him to the Amazon, a fateful decision. For over 40 years, he would study the adverse impact of deforestation and habitat fragmentation on rainforest ecology and biodiversity.

From Camp 41, a 620-square-mile research area near Manaus, Brazil, Lovejoy advocated the protection of biologically diverse forests as a tool to combat climate change. In a 2021 *New York Times* essay, Lovejoy and economist

John Reid explained that our failure to protect forests "challenges all of our other climate efforts because unless forests remain standing, the world will never contain global warming."

Lovejoy was a key contributor to the seminal *Global 2000 Report to the President: Entering the 21st Century*, a 1980 publication commissioned by President Jimmy Carter. In this report, Lovejoy accurately predicted that 20 percent of all species on Earth would be extinct by 2020, primarily due to habitat loss. As a countermeasure, he invented debt-for-nature swaps, a device that has channeled billions of dollars of funding toward environmental protection.

Despite his warnings, Lovejoy was an optimist. In a 2018 editorial in *Science Advances*, Lovejoy and climate scientist Dr. Lee Hannah wrote, "We still have tools and opportunities to effectively manage the living planet and its biodiversity for the benefit of humanity and all life on Earth." We can only hope humankind will heed Lovejoy's warnings and merit his faith in our capacity.

HUNDREDS OF THOUSANDS OF ANIMALS PERISHED IN BARN FIRES LAST YEAR

IN EARLY JANUARY, AWI once again reported on the number of animals killed in barn fires across the United States for the preceding year. In 2021, more than 681,000 farm animals are known to have suffered horrific deaths in these incidents, bringing the total number of farm animals killed via fire in the last two years alone to a staggering 2.3 million.

As we have indicated before, these numbers—shocking as they may be—likely fail to represent the full scale of the problem. Fire departments and municipalities are not required to report fires to the US Fire Administration, and even when they do, they don't acknowledge animal deaths. Our tallies of such deaths, therefore, must come from local media reports—which almost certainly do not include every barn fire across the nation that involves animal mortalities.

Of the 113 fires tracked by AWI in 2021, the greatest number—for the second consecutive year—were reported in New York (14) and Pennsylvania (13); these were followed by Iowa (9) and Michigan, Ohio, and Minnesota (8 each).

Fires on industrial-scale, concentrated animal feeding operations (CAFOs) account for most of the deaths. Consistent with previous years, the overwhelming majority of farm animals killed in fires were chickens. As in 2020, the three largest fires last year involved egg-laying hens in massive cage-free (but still overcrowded) facilities; collectively, these three incidents took the lives of 433,000 hens, or nearly 64 percent of the reported number of animals killed in barn fires in 2021.

Though the number of animals killed in fires is certainly highest within the poultry industry, other farm animal

species are no strangers to the destruction of barn fires. In 2021, for example, more than 40,000 pigs confined on CAFOs are known to have died in fires.

In conjunction with our end-of-year statistics, AWI also released an update to our original report, *Barn Fires: A Deadly Threat to Farm Animals*. The update points to the increasing devastation caused by barn fires from 2018 through 2021. Among the major findings:

- During the four-year period, 539 fires killed nearly 3 million animals.
- The average number of animals known to have perished each year in barn fires was more than 748,000—a 36 percent increase from the number of annual deaths reported in the previous study period (2013–2017).
- Nearly 98 percent of the reported deaths were poultry, with egg-laying hens accounting for the largest share of fatalities, followed by chickens raised for meat.
- Certain fires had particularly catastrophic consequences. The 10 largest barn fires—roughly 2 percent of the total number of reported fires—were responsible for 75 percent of reported deaths.
- The majority of barn fires occurred in colder weather, with more than twice as many fires occurring during the winter compared to summer and more often in colder states: As in the previous report, barn fires happened most often in the Upper Midwest and Northeast. The five states with the highest number of reported barn fires were New York, Ohio, Pennsylvania, Michigan, and Wisconsin. 🐾





HAWAII ANIMAL TRANSPORT STANDARDS DEVELOPED, BUT SEVERELY LACKING

After a delay (extended by COVID-19), the Hawaii Department of Agriculture (HDOA) has finally proposed regulations to protect animals transported between the Hawaiian Islands. While the draft regulations are a good start, they unfortunately omit critical components for ensuring animal well-being. Due to stress and environmental factors that can exacerbate existing conditions, animals are extremely vulnerable during transport. Therefore, the HDOA's final regulations should take special care to address key animal welfare indicators.

The draft regulations rely on standards that have proved ineffective in preventing animals from suffering and death: In 2019, for example, 21 cattle died on a barge that was traveling from Honolulu to Kauai. Although the animals were inspected at the port in accordance with Hawaii regulations for preventing the transmission and introduction of diseases, no inspections were made of the barge or containers to ascertain whether they were suitable for transporting animals. Because of the lax shipping practices, the containers holding the animals were placed too closely together, limiting ventilation and causing the cattle to slowly suffocate during their journey. The only animal care standards in use at the time were the voluntary standards of the Hawaii Cattlemen's Council—which are what Hawaii's regulatory proposal is largely based on. These standards did not keep those cows safe then, and they will not keep cows safe going forward.

AWI is proposing to the HDOA that the rules be revised to incorporate provisions that would help prevent animals from dying or experiencing needless suffering. Specifically, we suggest the standards be modified to better protect animals from heat stress—which farm animals being transported by sea in containers are particularly susceptible to and which has been identified as a major contributor to poor welfare and death. We propose that the HDOA revise its ventilation requirements, impose limitations on load density, improve loading practices, and restrict cow container locations on ships so that animals are not placed in areas with excessive heat.

Further, we are strongly encouraging the HDOA to prohibit transport of animals that are too sick, lame, injured, or young to be transported. Animals in compromised physical condition are far less likely to cope well with the stress of travel, and are thus far more likely to experience pain, discomfort, and even death during transport. Further, the World Organisation for Animal Health and the US government recognize that transport of animals in these conditions should be prohibited. In 2016, federal regulations adopted “fitness to travel” standards for international travel, but animals on ships traveling between or within US states are not covered.

While the HDOA is taking an important step toward addressing the welfare of animals transported between the Hawaiian Islands, it is clear that major revisions are still needed. AWI encourages our members and others to comment on the HDOA's draft document when it is made available for input. To be notified when the comment period opens, visit AWI's Action Center (awionline.org/action-center) and sign up to receive action alerts via email. We make it easy: Just click on the link in the email to submit your comments—we'll even provide text that includes the key animal welfare points the HDOA needs to address. 🐾

AWI REQUESTS ENFORCEMENT OF NEGLECTED ANIMAL TRANSPORT LAW

This February, AWI and Animal Outlook (formerly Compassion Over Killing) submitted a request for enforcement of the Twenty-Eight Hour Law to the Department of Justice. The Twenty-Eight Hour Law generally requires that, for every 28 hours of interstate transit, animals (pigs, cows, horses, goats, and sheep) must be offloaded for at least five hours and given food, water, and the chance to rest. The act imposes a duty upon the attorney general to bring a civil action to collect fines upon learning of violations.

As indicated in a 2020 AWI report, *A Review: The Twenty-Eight Hour Law and Its Enforcement*, violations of the law are likely quite frequent but tend to go unnoticed and unpunished. No monitoring is required under the law and no single agency is responsible for tracking the journeys of millions of

farm animals transported each year for feeding, breeding, and slaughter. In fact, AWI is aware of no prosecution of violators of this law since the early 20th century. Mere warnings have been the only actions taken following investigations of carriers that have repeatedly flouted the law, and there is no indication that this has altered the behavior of carriers that ship animals great distances.

In summer 2021, an incident occurred involving pigs transported for over 32 hours via truck from Nebraska to California. At no point during this journey did the driver offload the pigs to provide rest, food, or water—a clear violation of the law.

Pigs transported for this length of time without a break are highly likely to experience immense suffering. On top of being deprived of food and water, the animals often experience pain, road sickness, heat stroke, discomfort from being unable to adjust their

body position, and aggression from other animals frustrated by the poor conditions.

We have requested that the attorney general investigate and prosecute this carrier for violations of the law. AWI will update its members about the status of this inquiry as the situation develops and will continue to advocate for improved enforcement of laws that are intended to protect farm animals.

AWI CHALLENGES AVMA TO IMPROVE FARM ANIMALS POLICIES

Earlier this year, AWI sent letters to the American Veterinary Medical Association regarding three of its policies open to comment. Specifically, we submitted comments requesting that the AVMA improve its policies relating to castration and dehorning of cattle and its policy relating to misleading labeling on animal products intended for human consumption, as well as a comment requesting that animal welfare be considered as an integral part of contingency planning in emergencies. AVMA policies represent the guiding principles of the association and its members with respect to the practice of veterinary medicine. While the policies are nonbinding, the AVMA encourages veterinarians to follow them in their practice and in advocacy on behalf of animals. Gwendy Reyes-Illg, DVM, AWI's veterinary advisor and an AVMA member, submitted the comments on AWI's behalf.

AWI is urging the American Veterinary Medical Association to strengthen various policies that affect farm animal welfare—including policies regarding provision of pain relief during dehorning and castration of cattle.



CATHERINE ECKERT



CONGRESS REQUESTS BRIEFING ON BIRD MISTREATMENT AT SLAUGHTER

After years of monitoring records generated by US Department of Agriculture inspectors that document horrific mistreatment of birds inside poultry slaughter plants, AWI is lobbying Congress to require increased oversight of bird handling at slaughter. We hope doing so will lead to better compliance with humane bird handling practices and, ultimately, less suffering. Absent federal protections for birds under the Humane Methods of Slaughter Act, the only protections for poultry at slaughter are the industry's voluntary "good commercial practices" (GCP) for bird handling. These practices are primarily intended to prevent adulteration, but also provide guidance on treating birds humanely at slaughter. Based on USDA enforcement records, however, it is clear that both compliance with GCP and the USDA's oversight of bird handling vary significantly among plants, and birds suffer as a result.

Thanks to AWI's efforts, Congress—for the first time—has signaled an interest

in the treatment of birds at slaughter and has directed the USDA to brief the House Appropriations Committee on instances where slaughter plants failed to comply with GCP. In response to this directive (included in a committee report incorporated by reference into the omnibus appropriations bill for fiscal year 2022), AWI provided the committee with a list of 212 documented incidents that demonstrate bird mishandling and noncompliance with GCP. This list was based on USDA enforcement records generated between January 2019 and September 2021 and involved significant welfare concerns, including death due to drowning in the scald tank, severe injury or death due to equipment malfunction, and death due to exposure, overcrowding, or extended holding periods, among other issues.

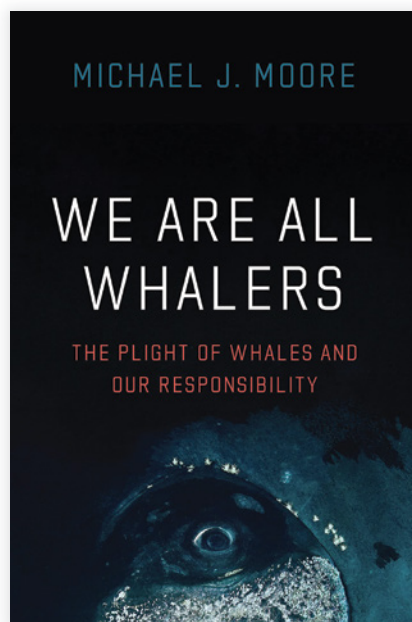
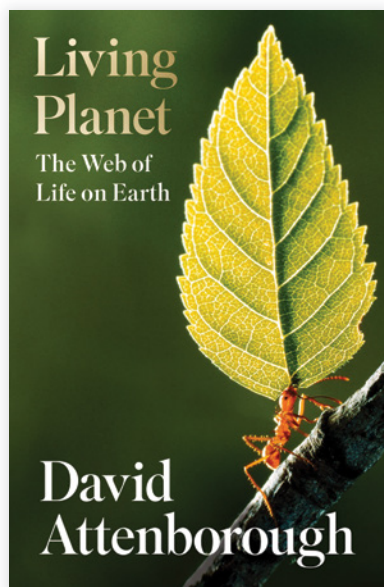
This information clearly shows both the repeated failure of establishments to comply with GCP and the inadequacy of the USDA's current approach to monitoring bird handling, and AWI is calling on Congress to further examine the USDA's oversight and take steps that will lead to better compliance with GCP.

During avian flu outbreaks, producers must "depopulate" infected flocks, and millions of birds on factory farms are summarily dispatched. It is difficult, if not impossible, to humanely kill that many birds quickly.

INFECTIOUS BIRD FLU RETURNS

Highly pathogenic avian influenza (HPAI) last struck the poultry industry in the United States in 2015, when 48 million backyard and commercial birds were confirmed infected. The US Department of Agriculture generally orders the immediate destruction (or "depopulation") of flocks testing positive for HPAI to reduce the risk of transmission of the disease to nearby flocks (and, presumably, to end the suffering that occurs with the HPAI subtype, H5N1). According to the USDA, the 2022 H5N1 outbreak is expected to be less severe than the 2015 outbreak because of recent improvements in biosecurity, testing, and preparation.

Nevertheless, as of early April, more than 20 million chickens and turkeys in multiple states had been killed to halt the spread of this year's outbreak. The intensive nature of animal agriculture in the United States means that, in some locations, more than 1 million birds may be culled. It is difficult, if not impossible, to kill this number of animals humanely within a short period of time. Through Freedom of Information Act requests to the USDA, AWI is monitoring how the birds are currently being killed, and we will continue to encourage government officials to use the least inhumane depopulation methods available to deal with the disease.



LIVING PLANET

David Attenborough / William Collins / 338 pages

In *Living Planet: The Web of Life on Earth*—a fully updated edition of Sir David Attenborough’s 1984 book that accompanied the BBC’s *Living Planet* documentary series—the famed naturalist takes readers on a journey through the interconnected web of life on Earth. From the mutual relationship between algae and fungi (setting the stage for the colonization of plants), to phytoplankton’s support of species from tiny zooplankton to great whales, to guano of guanay cormorants fertilizing human crops, we are all interdependent.

Through dreamlike imagery, Attenborough brings art to science. Female leatherback turtles are described as “sweeping showers of sand” during nest creation. If you are left in any doubt as to the diversity of life, you need only turn to the breathtaking pictures.

Attenborough’s interdisciplinary approach provides a detailed explanation of the operation of life. For instance, “The Baking Deserts” chapter uses geographical concepts to explain how atmospheric circulation determines the creation of the hot deserts. The chapter then turns to biology to highlight how this

extreme environment has caused diverse species—from the jackrabbit of the American Southwest to the fennec fox of the Sahara—to develop huge ears with large capillary networks close to the skin’s surface to enable effective heat loss.

Species are not static—they change over millions of years along evolutionary pathways that twist and turn as environments slowly change or the species adapt to exploit a particular niche. Such changes continue—and some pathways double back. Attenborough writes, for example, that the “procession of mammals into the sea has not yet ceased” and conjectures that polar bears may be on an evolutionary path that “could lead its descendants in a few million years’ time to a fully marine existence.”

However, Attenborough always provides an overarching caveat for any species’ prospects for survival: the interference of humans. For the polar bear, it is the specter of climate change causing sea level to rise faster than the species can adapt. Many species—such as the great auk of the Atlantic coast, the quagga of South Africa, and the great tortoise of Réunion Island—have already been extinguished by humans.

But for species that remain, hope is not lost. In the final chapter, Attenborough outlines the basic principles by which we should live in our environment. He argues powerfully for the protection of biodiversity. Humans must rely on the natural world for our own survival—but, says Attenborough, “We have no moral right to exterminate forever the creatures with which we share this earth.”

WE ARE ALL WHALERS

Michael J. Moore / University of Chicago Press / 224 pages

With *We Are All Whalers: The Plight of Whales and Our Responsibility*, Dr. Michael Moore proves definitively that he is no ivory tower scientist. He speaks with passion about his decades-long research on whales and his fascination with these intriguing animals. At the outset of the book, Moore issues readers a challenge, admitting that he is hoping to convince us that the welfare and very survival of the fewer than 340 remaining North Atlantic right whales are in our hands.

There is no one better suited to take on this task. Moore has solid academic credentials, including a veterinary degree from Cambridge University and a doctorate from Woods Hole Oceanographic Institution and the Massachusetts Institute of Technology. In addition to having studied whales for more than 40 years, he has an in-depth knowledge of the whaling industry. One of his early jobs was as an International Whaling Commission observer on an Icelandic whaling vessel, monitoring the time it took harpooned fin whales to die.

Able to thread the needle between science and activism, Moore paints a vivid, heart-wrenching picture of the lingering suffering that whales—the critically endangered North Atlantic right whale, in particular—experience when they become entangled in fishing gear or are struck by ships. While many researchers shy away from emotion, Moore openly moves into the minds of individual right whales, inviting the reader to feel both a whale’s despair and his own. Moore’s absolute honesty helps build his case as he directly links the plight of the North Atlantic right whale to the choices individuals make regarding seafood products and maritime industry services.

Despite the oft-times grim reading, Moore provides the reader with a list of actions that they can take, thus providing cause for hope. He remains optimistic that the right whale can be saved, if we whalers demand meaningful changes in the seafood and maritime industries.

FINDING THE MOTHER TREE

Suzanne Simard / Knopf / 368 pages

To care about animal welfare is to care about the environment in which animals live. In *Finding the Mother Tree: Discovering the Wisdom of the Forest*, Dr. Suzanne Simard puts it simply: “Mistreatment of one species is mistreatment of all.”

Today, Simard is an accomplished, well-respected forest ecologist. But how did she get to where she is in her career—and in life? *Finding the Mother Tree* recounts Simard’s professional and personal paths—paths forged by her willingness to challenge the status quo. Whether questioning forestry management policies or testing the limits of her own physical capabilities, Simard’s life is defined by her tenacity and commitment to land stewardship, rather than land domination.

The book opens with Simard as a young adult, recalling summers on her family homestead in the woodlands of British Columbia. A new recruit for a logging company, Simard quickly discovers the challenges of being a woman in a male-dominated field, where she experiences an alarming disconnect between the standard forestry practices of the time and her implicit understanding of the forest. With unwavering childlike wonder and increasing wisdom, Simard walks readers through decades of research, relationships, loss, healing, and discovery, leading us to question our role as individuals within our own community—just as singular trees participate in their own interconnected forest ecosystem.

Ecologists, environmentalists, and animal advocates alike will enjoy Simard’s narrative, as will any proponent of ecosystem-based science and science-based policy. This thought-provoking book will challenge readers to consider the ability of plants to communicate with one another—and with us.

Bequests

If you would like to help assure AWI’s future through a provision in your will, this general form of bequest is suggested: *I give, devise and bequeath to the Animal Welfare Institute, located in Washington, DC, the sum of \$ _____ and/or (specifically described property).*

Donations to AWI, a not-for-profit corporation exempt under Internal Revenue Code Section 501(c)(3), are tax-deductible. We welcome any inquiries you may have. In cases in which you have specific wishes about the disposition of your bequest, we suggest you discuss such provisions with your attorney.



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PHILIPP-PILZ



EAGLES POISONED AT HIGH RATES BY LEAD AMMUNITION

A recently published study in the journal *Science* (Slabe et al., 2022) documented alarmingly high levels of lead in bald and golden eagle populations across the United States. Nearly half of the animals tested from both species had lead concentrations in their bones above the threshold for chronic poisoning, suggesting repeated exposure to the toxin over a long period. Additionally, feather, liver, and blood samples indicated that approximately 35 percent of bald eagles and 7 to 35 percent of golden eagles sampled had experienced at least one acute lead poisoning event, indicating a high level of exposure from a single source.

While levels were elevated in populations across the country, eagles living in the Central Flyway—which spans the Rocky Mountains, Great Plains, Southwest, and western Gulf Coast—had higher rates of lead poisoning than populations located in either the Atlantic or Pacific Flyways. The authors

concluded that lead poisoning was suppressing population growth rates by nearly 4 percent for bald eagles and nearly 1 percent for golden eagles.

Lead bullets used by hunters are the primary source of lead ingested by the eagles. Eagles often scavenge the remains of hunted animals, which frequently contain bullet fragments, and the authors found that use of lead ammunition during hunting season corresponds directly with acute poisoning events. Poisoning from lead bullets has been documented in a wide variety of species, including red-tailed hawks, sandhill cranes, coyotes, black bears, and California condors, an endangered species. Lead exposure is also a concern for humans who consume wild meat, as studies have linked the regular consumption of game meat to elevated levels of lead in the blood, which—particularly in children—can negatively impact health and cognitive functioning in a variety of ways. Cost-effective, nontoxic alternatives to lead bullets are widely available, and AWI is working to encourage adoption of these safer options. 🐾