

AWI Quarterly

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SPOTLIGHT

AWI Gears Up for Important Caribbean Conservation Meetings

AWI has long been involved with the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention), a regional agreement signed in Cartagena, Colombia, in 1983. The treaty comprises three protocols (technical agreements) concerning Specially Protected Areas and Wildlife (SPA), Combatting Oil Spills, and Pollution from Land-Based Sources and Activities. AWI is most closely involved with the SPA Protocol, and is a recognized expert and observer at its meetings.

In late January/early February, AWI attended the 10th meeting of the Scientific and Technical Advisory Committee

(STAC) of the SPA Protocol (held virtually) to discuss and negotiate various proposals and documents presented by parties and the secretariat in preparation for the 12th SPAW Conference of the Parties (CoP) later this year in Aruba. A packed three-day agenda centered on proposals to designate protected areas and list various species on the protocol's three annexes (which establish certain protections for the species), the Marine Mammal Action Plan (MMAP) update, efforts to combat invasive species, the proliferation of *Sargassum* seaweed wreaking havoc on fisheries and tourism in the region, establishment of a Marine Mammal Regional Activity Network (RAN), and the work plan and budget for the next two years.

AWI was particularly engaged on the listing proposals (which included several shark species), MMAP update (for which we are on the Expert Working Group), and establishment of the Marine Mammal RAN. We are also working with other groups to establish a consortium to support effective implementation of the SPAW Protocol by the parties to the agreement. An intervention by AWI's Susan Millward to introduce a concept paper on the consortium proposal received support from some country delegates and the secretariat. A report on the SPAW CoP and other Cartagena Convention meetings will appear in an upcoming *AWI Quarterly*. 🐾

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ABOUT THE COVER

A mother and baby common loon. In 2011, Dr. Mark Pokras of Tufts University received a Christine Stevens Wildlife Award from AWI for a study testing the use of digital image software to identify individual common loons. The award program, launched in 2006, provides grants to researchers seeking to develop innovative strategies and tools to humanely resolve human-wildlife conflicts and conduct wildlife research in a way that causes minimal disturbance to the animals being studied. Turn to page 12 to learn more about the award program and some of the research it has supported over the years. Photograph by Donald M. Jones/Minden Pictures.

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CLOSING THE BOOK ON 117TH CONGRESS

Two of the 117th Congress's final pieces of legislation that made it into law included many provisions affecting animals—both positively and negatively. The National Defense Authorization Act included provisions banning the domestic sale of shark fins, improving the Marine Mammal Health and Stranding Response Program to help sick and injured marine mammals, and establishing grant programs to combat ocean noise, pollution, and vessel traffic injurious to marine mammals.

The Consolidated Appropriations Act, an omnibus spending bill needed to fund the federal government for the rest of fiscal year 2023, continues long-standing prohibitions on licensing Class B dealers who sell “random source” dogs and cats for use in laboratories and on the operation of horse slaughter facilities on US soil. It provides \$3 million for the grant program to assist domestic violence survivors and their pets, \$4 million for Horse Protection Act enforcement, and \$11 million for humane fertility control

methods to keep wild horses and burros on the range.

The omnibus also directs the US Department of Agriculture to (1) provide training to Food Safety and Inspection Service personnel in humane handling regulations, (2) reissue a proposed rulemaking related to the care and handling of marine mammals, (3) reform its process for approving animal-raising claims, and (4) report on its monitoring for COVID-19 infection on mink farms. It directs the US Fish and Wildlife Service to review Trump-era trophy hunting policies. The bill also fully incorporates the Driftnet Modernization and Bycatch Reduction Act, which will phase out large mesh drift gillnets in federal waters off the coast of California.

Unfortunately, insufficient funding was included to address the backlog of endangered species listing decisions, and a last-minute decision gave the lobster fishing industry six more years to avoid taking key conservation steps aimed at preventing North Atlantic right whales from becoming entangled in fishing gear, vastly diminishing the

chances for this critically endangered whale to avoid extinction. (See page 17.)

AWI-BACKED BILLS INTRODUCED IN 118TH CONGRESS

Two animal welfare bills championed by AWI were among the first introduced in the 118th Congress. HR 208, the Pet Safety and Protection Act (PSPA), was introduced by long-time sponsor Rep. Chris Smith (R-NJ), who was joined by new lead cosponsors Reps. Earl Blumenauer (D-OR), Brian Fitzpatrick (R-PA), and Josh Gottheimer (D-NJ). The PSPA would amend the Animal Welfare Act to prohibit the sale of dogs and cats acquired from random sources for use in research, teaching, or testing—eliminating the need to address this through annual spending bills.

Rep. Steve Cohen (D-TN) has introduced the Emergency and Disaster Preparedness for Farm Animals Act (HR 243). This legislation would ensure that producers undertake precautionary measures to protect livestock from the harmful impacts of adverse weather events as a prerequisite for receiving federal aid funded by taxpayers. HR 243 builds upon language that AWI worked to secure in the fiscal year 2023 omnibus encouraging the US Department of Agriculture to assist producers in developing contingency plans, given that “extreme weather events are occurring at increased frequency, putting additional livestock at risk.” AWI is also pushing to incorporate this bill into the 2023 Farm Bill (see page 22).



Wild burros in Nevada. An omnibus spending bill signed into law December 29 includes \$11 million for research on reversible immunocontraceptive fertility control for wild horses and burros.

Long-delayed regulations will finally establish some measure of protection under the Animal Welfare Act for birds in the pet trade and on exhibition in zoos and other venues.

VIRGINIA LEGISLATURE WEIGHS BILLS AFFECTING ANIMAL WELFARE

An outpouring of opposition helped defeat a bill in the Virginia General Assembly that would have impeded the confiscation of animals found suffering in inhumane conditions at poorly run zoos. HB 2331 would have required notifying the state veterinarian before the seizure of an exhibit animal could take place—a step that is not currently required. Not only would this have added an unnecessary layer of bureaucracy, it was also acknowledged in the bill’s legislative summary that the state veterinarian’s office does not have expertise in the area of “zoological medicine and USDA Animal Welfare Act regulations.” Virginia is a leader in enforcing its anti-cruelty laws. Abused animals must be removed from their abusers as quickly as possible; the only ones who would have benefited from HB 2331 would have been those who fear being held accountable for their mistreatment of animals.

The Virginia General Assembly passed a bill in February that requires certain research and testing facilities to post their USDA annual reports and inspection reports on their websites. Animal testing facilities affiliated with institutions of higher education are further required to notify their parent institutions of any “critical noncompliance” of the federal Animal Welfare Act for which they are cited. (Earlier versions of the bills would have required facilities to file an annual report with the Virginia Department of Agriculture and Consumer Affairs detailing the total number of animals used for research, testing, or education.)



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This legislation follows enactment last year of several new laws placing conditions on the sale of dogs and cats, including for use in research. These laws were in part responses to the USDA’s abysmal failure to end the suffering of animals at a facility in Virginia that bred beagles for use in research. (See *AWI Quarterly*, fall 2022.)

BIRDS IN PET TRADE AND EXHIBITS GAIN ANIMAL WELFARE ACT PROTECTIONS

After 20-plus years and multiple lawsuits, the protections afforded by the Animal Welfare Act will apply to birds in the pet trade and in exhibitions. The final rule is long and complicated, but our initial review reveals both good and bad news. The good: Certain breeders and exhibitors will have to be licensed and inspected and must meet care standards that include, most notably, providing psychological enrichment for their birds. The bad: Standards are not as rigorous as the animal protection community had urged them to be (e.g., no provisions for flight are required) and coverage

is not as complete as it should be. By exempting breeders who annually sell 200 or fewer small pet birds (of species with an average adult body weight < 250 grams) or 8 or fewer larger pet birds (of species with an average adult body weight > 250 grams), it leaves thousands of birds unprotected.

TAKE ACTION!

A lot of issues compete for the attention of members of Congress, so it is crucial that they hear from their constituents on animal welfare legislation. Urge your representatives to cosponsor HR 208 and HR 243 (see previous page) through AWI’s online Action Center (awionline.org/action-center). Prefer paper and pen? Address your letters to The Honorable [full name of your US representative], US House of Representatives, Washington, DC, 20515.

Making Positive Changes for Animals in Laboratories:

A LAREF DISCUSSION

AWI's Laboratory Animal Refinement and Enrichment Forum (LAREF) is an online discussion forum where individuals working with animals in research share their ideas and experiences related to improving the welfare of animals under their care. Recently, Dr. Joanna Makowska, AWI's laboratory animal advisor, asked members a question that generated a lively discussion, reproduced below. The conversation has been edited for brevity and clarity.

Could you please share what change/improvement you have made at your current or previous institution that you are most proud of? This could be related to changes for animals or changes to staff that resulted in a cultural change. I look forward to your stories!
(Joanna Makowska)

I am most proud of two things: (1) Introducing enrichment to caged rabbits. Long ago, we had five rooms of single-housed rabbits who had no enrichment other than the brief human interaction when they got hay. There were a lot of behavioral problems, as you can imagine (growling, stomping, charging at staff). I purchased canning jar lids and gave each one the ring portion. The lids were a huge hit! That was the tipping point, and now rabbits, and our other USDA species, all have a large variety of toys and items to manipulate. (2) Revamping the training program. On my first day as a care tech, I was handed a badly drawn map of the facility and a written room assignment. That was essentially my training. Today we have

a wide variety of training videos with quizzes that each staff member (not just care staff) are assigned before they even begin to work with their group. **(Lorraine Bell)**

Enrichment as a standard. Almost 30 years ago, I started not giving principal investigators (PIs) a choice: they had to have enrichment in all cages. I am fortunate now to be a consultant and get many new companies started off with robust enrichment as standard. **(Michele Cunneen)**

We have a few long-term resident cats at our facility. Though they have lots of enrichment, they would often lie around, and we worried about managing their weight. I introduced a giant cat wheel, which included a gradual introduction to the group as well as rewards for coming close and investigating it. It was a great success, and you can hear the cats using it throughout the day. It was so successful during the training process, when the cats would hear the technician coming down the hall they would jump on it and begin using it, sometimes two at a time! **(Jackie Watson)**

When starting to care for a large colony of single-caged rhesus macaques and a small colony of single-caged stump-tailed macaques in 1986, it was very clear to me that I had to find ways to address the behavioral and emotional needs of these social animals. I developed two protocols based on simple ethological facts, and—over a period of about four years—transferred 668 of 728 single-caged rhesus macaques

and 40 of 40 single-caged stump-tailed macaques to compatible pair-housing without any assistance.

Up front, I encountered a lot of opposition, mostly due to concerns about aggression and injuries. I did not get intimidated because my pairing protocols clearly showed that these concerns were not based on facts but on traditional beliefs. Rhesus monkeys do get along with each other as paired cage companions if they are introduced to each other in considerate ways and then housed in considerate ways. I collected data and presented my findings at numerous national and international scientific meetings and published them in various scientific journals and books. My efforts helped turn pair-housing into a standard-housing arrangement in most primate facilities/centers/laboratories. This made me—and many animals—happy. **(Viktor Reinhardt)**

The improvement that I am most proud of is reducing the amount of single-housed primates in my facility. In my 4.5 years here, I have paired over 1,500 animals and placed several others in group housing. I have made it my mission to leave no stone unturned when it comes to socialization options for the animals under my watch.

Viktor helped pave the way for people like me. Even though the evidence is extremely clear, a lot of people still hold an old school view of how science “should” be done. It is a constant uphill effort, but one that I find the most rewarding. I continue to be the squeaky wheel, updating standard operating procedures and policies to enact change. Luckily, most people have eased up and now trust me to do my thing. I love that my job allows me to make positive

changes in our animals’ lives every day. I still see a long way to go for improvements. There is no ceiling when it comes to welfare; we can and should always be working to improve our practices. **(Lace Lively)**

I started working with rhesus in 1993. All the monkeys were single-housed. I had heard of this person, Viktor Reinhardt, who was encouraging the research community to at least pair-house these animals. Thank goodness the researcher I was working for agreed that the first animals we purchased should be paired and that we would get new caging that allowed for pair-housing. I called this new cage “the apartment.” It was lovely because it could be divided when needed, yet the animals could live together. We were the first research group at the university to pair-house rhesus macaques. I’m proud of the fact that the researcher I worked for was open to Viktor’s ideas and so very glad that the rest of our group joined in. The Animal Care services department jumped in with both feet in pair- and group-housing the monkeys. Now, the facility has some of the best caging created for these animals, and more complex enrichment went hand in hand with this improved environment.

(Ann Lablans)

Amazing! This conversation prompt is a fantastic exercise in seeing how refinement and advocacy have worked over the years. It takes a village. These are two of my contributions:

(1) Designed and implemented a positive reinforcement training (PRT) program for our nonhuman primates (NHPs). The pushback I got included that the animals aren’t with us



CAT: HENK VRIESELAAR; MACAQUES: ZANE MICHAEL COOPER



ANNA RATUSKI

long enough to justify the time spent on training and that the techs are already overworked so they will not want to be responsible for this, too. I overcame these obstacles by doing a literature review and creating a report on the status of its use in research and its value, visiting neighboring facilities that have it as a standard, and training myself to reliably perform PRT—all off the clock. I presented my findings at the weekly conference with the director, veterinarians, and PIs working with NHPs. The program has been very successful and remains so after eight years. I've trained 10 vet techs to do the initial PRT, and over 30 animal care techs to maintain that training in the NHPs.

(2) Running an in-house study on rodent nesting material for our 60,000-cage facility. Troubleshooting improvements based on results. Implementing new optimal

material for our facility and achieving buy-in from husbandry staff, vet tech staff, and management (this took three years).

Pushback came from everywhere and on every level, except the director and veterinarians. Making positive change for these animals is intoxicating. I can't get enough.
(Jeannine Rodgers)

I'm most proud of finding a new, cheaper, and more optimal way to house our mole-rats. I was having trouble finding a master's thesis topic many years ago. I wanted to do something that could hopefully lead me down a path to becoming a behavioral husbandry manager in the future. One day I overheard one of the PIs saying that he was struggling to optimize the housing of the mole-rat colony and that all of the students (mostly undergrads) who tried the project

walked away from it. Said PI had been a professor of mine when I was an undergrad, so he had known me, at that point, for half a decade. We got to talking and I realized this was a much bigger project than any undergrad should take on.

Starting with a natural history deep dive, I found that most institutions are unintentionally lackluster in the way we care for mole-rats—naked mole-rats, especially. These animals are made for underground engineering—they can live in pure gypsum stone—and yet we give them loose cellulose or cob as substrate. I wanted a better way, but obviously, it needed to be lab friendly. After much Pinterest board surfing, enrichment-Facebook-group polling, and brainstorming, I came across compressed paper-pulp briquettes for fireplaces and it all fell into place.

First, we tried small blocks of the stuff and eventually worked up to a 2.5-ft-high, 0.5-ft-wide column of compressed paper. And for the first time, we were able to see the naked mole-rats being themselves. It was incredible! And it proved to the rest of the staff that it was worth investigating this further and trying to shift over to a mostly paper pulp-based system—something we are still working on now!

(Jouvay Pantophlet)

This is brilliant. Did the PIs have any concerns about a fireplace-type material being used in the animals' cages? Contaminants, etc.? I love this. (Michele Cunneen)

The PI and I worked closely for many years trying to find something appropriate, and, to be honest, he was more ready to just try it out than I was. I wanted to do contaminant testing and all that well before we tried even a small block of it. The saving grace with these guys is that they are highly resilient, and there aren't many pathogens that they seem able to catch. In the process of making the compressed column, I soak the newspaper in a bleach solution as I'm processing it. The solution gets thoroughly washed out before compressing everything, so we assume the bio-burden is reduced in that way. We were actually just awarded an AWI Refinement grant to check for pathogenic threats and contaminants, as well as just to get more insight into the type of microbiome these guys live in at our facility. Will report back when we know more! **(Jouvay Pantophlet)**

This is great and important work! I wonder if your work is published somewhere and could be referenced. We have a few researchers using naked mole-rats in Canada; my CCAC colleagues and I could help them improve the welfare of their rats by informing them about your work during our assessment visits. Thank you! **(Sylvie Cloutier)**

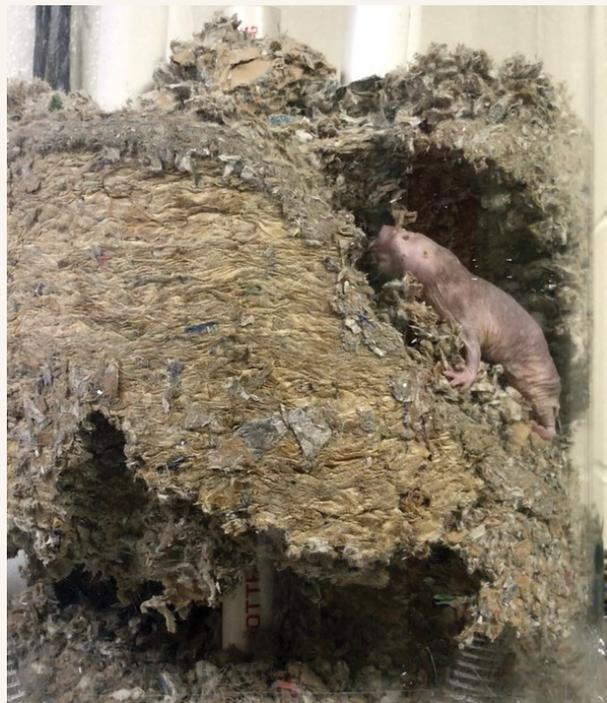
Thank you so much for the kind words! Everyone's reaction has really made my week and it's ultra encouraging. I

published one article that explains how to make the paper column, and another article describing the resulting modular housing system. The cool thing with it is that you can use the same process (which is basically just paper maché) to make all sorts of shapes—I've so far played around with it for rodent huts and stuff for our mice. **(Jouvay Pantophlet)**

I am most proud of being one of the driving forces in replacing two horrible mouse toxicity tests when I was attending veterinarian. It took perseverance (13 years!), taking the concerns of the animal technicians seriously, learning an insane amount about a niche topic, gaining the support of the folk whose products were being tested, pushing the animal use regulators to accept that there could be refinements and alternatives (frankly, it was pretty acrimonious at times), and never giving up.

The lessons I learned were that key people can make a big difference, whatever their seniority in an organization. Caring and wanting to make a change is the driver—if no one cares, nothing ever happens.

You guys are all those key people—people with a vision to make things better and drive things to improve for the animals—whether we make it better for one animal or 100,000; every little thing is a step forward. Being a welfare “champion,” encouraging team work, not being put off by the knock backs (there are always some) and continuing to believe and persevere for however long it takes—that's how change and improvement happen. **(Ngaire Dennison) 🐾**



NAKED MOLE-RAT: JOUVAY PANTOPHLET

In a recent study, bluestreak cleaner wrasse—a tropical reef fish—were able to differentiate between images of themselves and images of others of their species.

CAMBODIAN PRIMATE PIPELINE DRAWS MORE SCRUTINY

In a February Securities and Exchange Commission filing, Charles River Laboratories (CRL) disclosed that the US Department of Justice and the US Fish and Wildlife Service are investigating CRL's conduct regarding several shipments of nonhuman primates (NHPs) from Cambodia and that CRL received a grand jury subpoena requesting "certain documents related to such investigation." CRL added that the USFWS has "denied clearance to certain shipments" of NHPs the company received from Cambodia and that CRL has "voluntarily suspended planned future shipments" of NHPs from Cambodia until the company and the USFWS "can agree upon and implement additional procedures to reasonably ensure" that CRL's NHPs from Cambodia come from breeding facilities and are not sourced illegally from the wild.

This comes three months after a federal grand jury indicted Cambodian government officials and employees of Vanny Resources Holdings, Ltd. for an alleged conspiracy to smuggle thousands of wild-caught long-tailed macaques into the United States for research, passing them off as animals born in Vanny's Cambodian breeding facilities. Over 2,000 of the NHPs apparently ended up at US facilities now owned by Inotiv and Worldwide Primates, the largest and third largest US importers of NHPs for research, respectively. (See *AWI Quarterly*, winter 2022.) Shortly thereafter, CRL (the #2 NHP importer) declared to the SEC that, while Cambodia was its primary source for NHP imports, it had no



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"direct supply contracts" with Vanny. This latest investigation, then, would seem to indicate another Cambodian NHP conduit is under intense scrutiny.

Meanwhile, the National Association of Biomedical Research (NABR), an industry group that has long fought government oversight of animal research, is urging industry insiders to complain to federal legislators that the USFWS—in denying import permits for Cambodian NHPs—is creating a "disruption" to the "drug development pipeline." Shady sources or no, NABR wants that spigot kept wide open. AWI hopes that the USFWS holds the line and takes all necessary steps to ensure that smuggled animals are not undergirding research and testing in this country.

FISH RECOGNIZE THEMSELVES IN PHOTOGRAPHS

A new study published in the *Proceedings of the National Academy of Sciences* has shown that bluestreak cleaner wrasse (*Labroides dimidiatus*) recognize themselves in

photographs (Kohda et al., 2023). The fish first showed that (like chimpanzees, dolphins, elephants, and magpies) they can recognize themselves in the mirror—as evidenced by moving their own bodies to better examine an unusual mark they can see on the body in the mirror. This is considered evidence of self-awareness.

Animals in the mirror test may understand that the image before them is a reflection of "me" because it mimics their own movements. This study, however, went one step further: Fish who recognized themselves in the mirror were subsequently shown photographs of themselves and other wrasse. The wrasse could apparently differentiate between the two: They acted aggressively toward photos of other wrasse but not photos of themselves. Additionally, they rubbed themselves after seeing a mark on photos of themselves but not on photos of other wrasse. We hope that this and other recent studies highlighting the mental abilities of fish (see *AWI Quarterly*, summer 2022) compel lawmakers, scientists, and others to treat them with the care and compassion they deserve.

AWI AIDS EFFORT TO SAVE HAWAIIAN HONEYCREEPERS

Last summer, AWI launched a partnership with the American Bird Conservancy and Kaua'i Forest Bird Recovery Project to save Hawaiian honeycreepers from extinction due to avian malaria, a disease transmitted by non-native mosquitoes. (See *AWI Quarterly*, summer 2022.) Thus far, we have supported multiple projects to build public support for conservation measures, including the development of a K-12 curriculum, a mobile app to help residents and visitors explore the birds' natural history, a documentary showcasing the birds' biological and cultural importance, and kits for public education and outreach events. Each such kit contains life-size, three-dimensional models of 10 honeycreeper species, as well as stickers and FAQ sheets, to enhance community connection to the birds.

PARK SERVICE PLANS WILD HORSE PURGE

The National Park Service is seeking to remove the entire herd of wild horses from Theodore Roosevelt National Park (TRNP). According to a preliminary plan released in December, the NPS is proposing the "active capture of horses with the methods best suited to reducing the population to zero." An estimated 186 wild horses reside within the 70,000-acre park. These equines—the only wild herd in North Dakota—are a significant tourist draw and have inhabited the park's badlands since long before TRNP was established.

When the NPS solicited public input on its proposed removal, AWI rallied supporters to submit comments opposing this troubling plan. In addition, the North Dakota legislature passed Senate Concurrent Resolution 4014, introduced by Senator Brad

Bekkedhal (R-1), urging the NPS to allow for the continued presence of wild horses in TRNP, given their historical significance to the park.

CITES EFFECTIVE... IF ENFORCED

Does the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) protect wildlife? Yes, according to a study in the *Journal of Environmental Economics and Management* (Heid & Márquez-Ramos, 2023)—so long as the convention's rules are strictly enforced. Scientists from the University of Adelaide in Spain found that populations of species listed on CITES Appendix I (banning commercial trade) and Appendix II (restricting trade) increased by 22 percent within 6–10 years after listing and by 66 percent after 20 years in countries that strenuously enforce the convention. CITES-listed species were more likely to benefit in high-income countries, which, according to the authors, "may indicate a lack of funding for proper enforcement in low-income countries."

SCIENTISTS DETECT PATHOGEN INVADERS NON-INVASIVELY

Scientists are finding more creative—and less invasive—ways to identify dangerous pathogens in wild and domestic animals. According to a report published in *Science*, portable air samplers, ropes, and electrostatic dust-collecting cloths are among the tools increasingly being used to collect biological samples without subjecting the animals to stress. Preliminary studies indicate these methods can be simpler, faster, cheaper, and safer to use compared to traditional techniques, which can involve capturing, handling, drawing blood from, and/or anesthetizing animals. University of California, Davis scientists, for example, found four viruses from saliva samples obtained from wild primates offered ropes lathered with jelly and banana baby food. In the Netherlands, dust-collecting cloths revealed pathogens in a chicken barn. Such methods could have numerous applications, including collecting samples from bat caves using drones equipped with air sampling devices.



CHERI ALGUIRE



The Christine Stevens Wildlife Awards:

ADVANCING WIN-WIN SOLUTIONS FOR WILDLIFE + PEOPLE

It was a simple gesture. In 2006, a single donor to the Animal Welfare Institute offered a \$10,000 grant to support the development of new tools and strategies to prevent, reduce, or mitigate human-wildlife conflicts in North America. This offer became the cornerstone of the Christine Stevens Wildlife Awards, a grant program established that same year and named after AWI's founder and longtime president, who was an ardent champion of humane, nonlethal solutions to human-wildlife conflicts.

The program has since become an annual event, with individual grants now increased to \$15,000. It continues to support studies that address human-wildlife conflicts, as well as efforts to identify more humane, less intrusive methods of wildlife research.

BACKGROUND

Over time, as human numbers increased and our geographic footprint expanded, conflicts with wildlife became inevitable.

All too often, real or perceived threats to human safety or property have resulted in animals being eliminated—singly or en masse—with ruthless efficiency. Even when humans don't engage in such lethal control, animals are often harmed by our ever-expanding incursions into their territory, as when birds fly into skyscraper windows or seismic testing in the ocean has debilitating effects on marine mammals.

Conflicts continue today with a host of animals—wolves, coyotes, deer, bears, beavers, raccoons, birds, bats, and mice, to name a few. Such conflicts have spawned a multibillion-dollar industry involving federal and state agencies and private pest management companies that continue to resolve conflicts through lethal means. While there are few reliable statistics on the number of wild animals killed by private companies or state agencies, we do have some indication of the federal toll: In 2022, the US Department of Agriculture's Wildlife Services program reportedly killed more than 1.85 million animals.

Humans throughout history have also been intensely curious about wild animals. We want to know what makes a particular species unique and to understand its behaviors, physical characteristics, and relationship to other organisms. Often, however, individual animals have been sacrificed in pursuit of this knowledge. But even ostensibly nonlethal methods of obtaining data can be harmful. For example, while the advent and ongoing improvement in the design and functionality of radio collars revolutionized wildlife research, capture and handling remains inherently risky (to both people and wildlife). The use of traps or other methods (e.g., net-gunning from the air, tranquilizers) may cause extreme distress and injury to the captured individual, compromising their welfare and sometimes resulting, however unintentionally, in their death.

Can human-wildlife conflicts be resolved or prevented without harming the wildlife? Can wildlife be studied without unduly disturbing the animals? The goal of the Christine Stevens Wildlife Award program is to help scientists demonstrate affirmative answers to those questions.

OVERVIEW

Since 2006, over 560 scientists from academia, nongovernmental organizations, government agencies (federal, state, and tribal), and others (e.g., private citizens, museums) have applied for an award, with 91 recipients selected through 2022. The award is limited to studies conducted in North America, and most of the funded research has taken place in the United States (82), followed by Canada (6), and Mexico (3). Of US studies funded, research has been conducted in 30 states.

Every proposal must meet specific criteria to qualify for an award, including that any proposed study methods must, at worst, be only minimally invasive and that any domestic or captive wild animals used in the research (e.g., scent detection dogs, livestock guard dogs) must be humanely sourced and treated. Each application is subject to an initial review by AWI staff. The strongest proposals are also reviewed by experts independent of AWI.

Of the award recipients, 58 percent have been from academia, 37 percent from nongovernmental organizations, and 5 percent from government and other entities. Nearly 60 percent of awardees have been women. In total, over a million dollars has been invested in these innovative and important research initiatives. Many projects have been featured in the *AWI Quarterly*, and several awardees have had their studies published in peer-reviewed scientific journals.

A sampling of the proposals funded over the history of the award program demonstrates the great diversity in species studied and the novel efforts to develop new and humane methods to remedy wildlife conflicts and study wildlife.

PROTECTING PROPERTY WHILE ALLOWING WILDLIFE TO BE WILD

A number of studies have focused on nonlethal ways to keep predators away from livestock. Funding was provided in the program's first year to Dr. John Shivik and Nathan Lance of Utah State University to assess the use of turbo-fladry (a fencing system that incorporates streamers or flags and an electric current) to ward off gray wolves. Another study led by Camilla Fox assessed the efficacy of the livestock and wildlife protection program of Marin County, California. The study helped provide the impetus for Fox to launch the nonprofit Project Coyote the following year to promote peaceful coexistence with coyotes and other wildlife.

Dr. David Ausband of the University of Montana received funding in 2011 to examine whether wolf urine and scat could be used to create a "biofence"—a scent line to mimic the presence of an unrelated pack and thereby dissuade resident wolves from crossing the line. Ausband expressed his appreciation for the grant: "Some funders shy away from new ideas and techniques, but your program recognized the potential impact and took a risk by funding the work."

Suzanne Stone (formerly of Defenders of Wildlife, now head of the International Wildlife Coexistence Network) expressed a similar sentiment after we funded her effort to evaluate the use



of “foxlights” to reduce predation by gray wolves on livestock in 2014. Foxlights—which, as their name suggests, were originally designed for use with foxes—are lights that produce random flashes to fool predators into thinking humans are on guard, thereby potentially deterring predator-livestock conflicts. Stone stated, “Our research was the first conducted on this deterrent in North America and now this tool is being used across the world. AWI’s support was essential to advancing nonlethal deterrent research at the time when few believed these methods would work. Not only do they work, if applied properly, they are among the best methods for protecting livestock and predators available today.”

One of the awards in 2012 went to Beaver Solutions, Inc., a company that works to develop and implement effective ways to control flooding and other adverse effects while allowing beavers to continue engaging in natural behaviors and contributing valuable ecosystem services. Company founder Mike Callahan (who also founded the nonprofit Beaver Institute), says that AWI’s assistance has enabled them to launch programs that have saved “thousands of beavers and countless numbers of other animals that depend on beaver ponds.”

AWI has long supported efforts to use immunocontraceptives to enable wild horse herds to remain on the range rather than be subjected to more draconian methods of population control—typically brutal roundups leading to a lifetime of captivity for most (and fatal injuries for some). So we were happy to provide funding in 2016 and 2021 for Dr. Karen Herman of the Sky Mountain Wild Horse Sanctuary to develop new, less stressful methods to survey horses and to evaluate refined Porcine Zona Pellucida fertility control vaccines for wild horses in the Carson National Forest in northern New Mexico. Herman reported that the funding has been “critical for moving forward all our work for wild horses staying healthy on their home range and sustaining other wildlife and range health as well.”

UNDERSTANDING OUR OWN IMPACTS

The negative impacts on wildlife from human activities are sometimes unforeseen initially. Understanding those impacts is the first step toward mitigating them. A study funded in 2006 involved an investigation by Dr. Maureen Murray of Tufts University’s Cummings School of Veterinary Medicine of the effects of anticoagulant rodenticides on birds of prey, including red-tailed hawks, barred owls, eastern screech-owls, and great horned owls who had been admitted to the

Tufts Wildlife Clinic. Similarly, Dr. Laurel Serieys Klein from UCLA received funding in 2012 to assess anticoagulant exposure in bobcats. Dr. Serieys called the award a “game changer” for her and for bobcats, as the research results provided support for two successful lawsuits against the State of California and informed legislation to reduce mortality and suffering of predator species across California.

AWI also awarded a grant in 2016 to Working Dogs for Conservation to demonstrate the use of scent-detection dogs to locate kit fox scats in the wild that could then be analyzed for evidence that the foxes had ingested prey poisoned by rodenticides. This was not the first study we funded that employed the keen noses of these dogs: An earlier study had the dogs enthusiastically hitting the field to ferret out river otter and mink scats along waterways in Montana and surrounding states. The scats were then tested for evidence of heavy metals (e.g., mercury, lead, and arsenic), pharmaceuticals, and flame retardants.





Sometimes the dangers we pose to wildlife are physical, not chemical: In 2019, we funded a study by Dr. Timothy Boycott of William & Mary College assessing the use of acoustic signals to reduce bird collisions with human-made structures. Dr. K. David Hyrenbach of Oikonos Ecosystem Knowledge received funding this year to assess how light pollution interferes with the flight behaviors of wedge-tailed shearwaters in O'ahu, Hawai'i, and to evaluate mitigation strategies.

WILDLIFE RESEARCH THAT DOESN'T IMPEDE WILDLIFE

Too often, our insatiable desire to *know* about animals has come at individual animals' expense—killing them to dissect their inner workings or, even when we intend no lasting harm, capturing them to collect biological samples and attach tracking devices. AWI-funded studies to address these harms have focused on how to obtain valuable information (often to benefit species conservation) without subjecting individual animals to undue stress and risk of injury or death.

Dr. Randall Davis at Texas A&M University at Galveston received funding in 2007 to show how sea otters could be identified by analyzing photographs of the scars on their noses. Dr. Mark Pokras of Tufts University used digital images in 2011 to identify individual loons in Maine. Jason Holmberg of Wild Me used a computer algorithm in 2017 to analyze photographs of hawksbill sea turtles in Hawai'i to identify individuals from the unique patterns on their shells. With this initial funding, the sea turtle identification project has evolved into the Internet of Turtles, an online, multi-species sea turtle monitoring platform (iot.wildbook.org) where, currently, nearly 14,000 sea turtles are being tracked.

In 2013, Dr. David Bird and James Junda of McGill University used drones to survey raptor nests in Canada. Bird says the success of their study “stimulated countless others all over

the world to adopt the use of drones for nest censuses of not just birds of prey but many other species like seabirds.” Dr. Christine Proctor from Harrisburg University used drones in 2018 to survey eastern massasauga rattlesnakes in Pennsylvania.

At least two awards allowed scientists to take “tracking” to a new level: In 2018, Stacy Cotey of Michigan Technological University used DNA collected from river otter tracks in the snow to identify individual otters. Cotey commented, “Due to the increasing environmental stresses on wildlife, it is important to ... develop noninvasive techniques to reduce or even eliminate the stress from research.” That same year, Dr. Andrew Von Duyke of the Alaska Department of Wildlife Management, North Slope Borough, collected DNA from polar bear tracks to gain critical information on the population. He noted that the award “had a disproportionately big impact on this project (and) has been a significant part of its success.”

While you can't follow footfalls of oceangoing mammals, you can collect their breath: Dr. Janet Mann of Georgetown University used a 2014 award to be the first to obtain DNA from wild dolphin blows using a minimally invasive technique, securing a tremendous amount of information about the dolphins' lung microbiome, resulting in three scientific papers and stimulating a new area of research.

These are just a few of the studies made possible by the Christine Stevens Wildlife Awards. All in all, the diversity of the research being undertaken by scientists globally to mitigate human-wildlife conflicts and develop humane methods for studying wildlife is astonishing. AWI is pleased to support this important research in North America while continuing to honor the legacy of Christine Stevens and her fervent desire to find “win-win” solutions, embrace coexistence, and prevent animal suffering. 🐾



WILLIAM A. MORGAN

RESTORATION PROJECT IS DEATH KNEEL FOR BARATARIA BAY DOLPHINS

In December, Louisiana finally received permits from the Army Corps of Engineers to proceed with a massive project to divert Mississippi River water to Barataria Bay in an unprecedented effort to slow land loss in the Gulf of Mexico. (See *AWI Quarterly*, fall 2021.) In February, the project was awarded \$2.26 billion in funding.

The goal of the project is laudable (although models predict only 1 percent of eroded lands will be restored via this diversion method). Since levees stopped the river's annual flooding—with its subsequent deposition of silt and mud—the Gulf Coast has lost a Delaware-sized area of land. This leaves Gulf states in peril when faced with severe weather (e.g., Hurricane Katrina) and has damaged natural habitat for coastal wildlife.

The problem? Over the 50-year lifespan of the project, it will kill approximately 2,000 bottlenose dolphins now living

in Barataria Bay. The project is designed to produce a huge influx of freshwater to the bay, decreasing its salinity. Dolphins cannot tolerate low salinity, yet are unlikely to leave, as they are strongly faithful to their natal habitat, even if it kills them. These dolphins will suffer lingering deaths, as freshwater ultimately causes multiple organ failure. Oyster beds are also at risk from the lower salinity. AWI feels there must be a better way to restore the Gulf Coast.

AS DEMAND SINKS, WHALING COMPANIES SCRAMBLE TO STAY AFLOAT

There were high hopes at the beginning of 2022 that fin whaling in Iceland had ended for good. No whaling had been conducted since 2019, and Iceland's fisheries minister signaled in February 2022 that the current whaling regulations—which expire at the end of 2023—may not be renewed. Sadly, however, 2022 saw a resumption of the hunt.

The Mid-Barataria Sediment Diversion—a plan to channel sediment and freshwater into Louisiana's Barataria Bay in an effort to rebuild coastal land—will change the bay's salinity and doom the dolphins who reside there.

Before the summer whaling season commenced, Iceland's only fin whaling company, Hvalur, reached an agreement to sell all the whale meat from its 2022 hunt to Japan's remaining whaling company, Kyodo Senpaku. Hvalur subsequently killed 148 fin whales and shipped 2,576 metric tons of frozen meat and blubber to Japan for a reported price of over US\$20 million.

Nevertheless, the interdependent prospects of whaling in Iceland and Japan look increasingly precarious. There is no domestic demand for fin whale meat in Iceland, and Japan is the only significant legally available market. Kyodo Senpaku expected the Japanese government to underwrite the meat purchase, but officials unexpectedly rejected its request right as Hvalur was making final preparations to begin the hunt, leaving the Japanese company scrambling to secure private loans for the purchase. At the same time, it has borrowed heavily to construct a replacement for its aging, dilapidated factory ship, at a cost of ¥6 billion (~US\$44 million).

Kyodo Senpaku must repay these loans from sales of whale meat from its own hunts in Japanese waters and its massive import from Iceland. The 6 billion-yen question is whether the declining Japanese market is large enough, and can sustain a high enough sales price, for Kyodo Senpaku to pay its creditors and buy the whales Hvalur is planning to kill this summer without significantly overreaching and defaulting on its debts.

CETACEAN CAPTIVITY: USDA WALKS AWAY IN MIAMI, DOLPHIN SHOW SHUTTERED IN VEGAS

In March 2022, the US Department of Agriculture issued an exhibitor's license under the Animal Welfare Act to the new owners of Miami Seaquarium that omits the Whale Stadium and its residents—the orca Tokitae (Toki) and the Pacific white-sided dolphin Lii. This means USDA inspectors no longer evaluate this part of the facility. This was alarming, but Miami Seaquarium did subsequently agree to allow an independent team of professionals to examine and care for Toki. Since May 2022, the organization Friends of Tokitae has been publishing monthly assessments of Toki's health and welfare, prepared by James McBain, DVM (retired) and Stephanie Norman, DVM, PhD. Toki has undergone various veterinary treatments, as her health has repeatedly oscillated from stable to poor and back again. Her health is currently stable and the new owners have agreed to send Toki to another location, once all stakeholders agree where that should be. AWI continues to monitor this situation closely.

In other captivity news, Siegfried & Roy's Secret Garden and Dolphin Habitat at The Mirage in Las Vegas is closing following the sale of the famed casino from MGM Resorts to Hard Rock International. After a string of dolphin deaths at the facility—Bella (13) in April 2022, Maverick (19) and K2 (11) in September 2022, and Duchess (48) in January 2023—three of the remaining six dolphins, Karli,

Sofi, and Osborne, were sent back to SeaWorld San Diego, from which they had been on loan. AWI celebrates this closure, as it results in one less facility with captive dolphins on display and no more US dolphins in the desert. Thankfully, it is also occurring prior to the commencement of major transformational construction on the property, which would have been highly disturbing to the dolphins. AWI would prefer that the three dolphins still in Las Vegas go to a sanctuary, and has recommended this option to Hard Rock. We will report on their final disposition when we know.

LOBSTER AND CRAB GEAR CONTINUE TO THREATEN RIGHT WHALES

The millions of lines tied to the pots and traps used by lobster and crab fisheries in the western North Atlantic region continue to pose a considerable entanglement risk to the critically endangered North Atlantic right whale. An adult male right whale—dubbed “Argo”—was spotted in late January

dragging 157 feet of line and two wire mesh traps from his tail and flukes. The gear was later confirmed to have come from a fishing area off Nova Scotia. Although Argo was eventually freed, concerns remain about his health, as well as the health of three other right whales known to date to have become entangled in fishing gear this year.

AWI and allies are calling on the lobster industry to move toward ropeless fishing gear to prevent the suffering caused by entanglement and help avert the extinction of the North Atlantic right whale. In conjunction with NRDC, AWI has launched a “Future Is Ropeless” website (thefutureisropeless.org) to educate consumers on the issue and encourage them to call on retailers and fish buyers to support the transition to ropeless fishing gear. The campaign kicked off in mid-March in Boston during Seafood Expo North America (SENA)—among the world's largest seafood industry trade shows. During the expo, a mobile billboard was prominently displayed throughout the area surrounding the convention center where SENA was held.



A mobile billboard outside the Seafood Expo in Boston urges a transition to ropeless gear. The pictured North Atlantic right whale died off Canada's coast after dragging snow crab traps for days.

IN REMEMBRANCE

Along with so many in the marine animal protection community, AWI is grieving the loss late last year of three outstanding advocates. Each of these professionals played a role in helping to shape the careers of one or more members of AWI's marine team. We will miss them dearly.



Ken, at home in his element on the Salish Sea. (Stefan Jacobs)

was also a fierce advocate for the southern residents, fighting authorities who neglected them. Humans targeted these orcas for aquarium display, polluted their habitat, and caused a catastrophic decline in their primary prey—Chinook salmon—by damming and otherwise damaging the salmon's spawning rivers. Ken was having none of it and did all he could to keep extinction at bay. Ken was also very involved with protecting whales and dolphins from human-caused noise in the ocean, including from military sonar—work that brought us back into contact after I moved into the marine mammal policy arena. The whales—and the world—have lost a warrior.

—Naomi Rose

KENNETH BALCOMB III, 1940–2022

Kenneth Balcomb III died on December 15, 2022, from prostate cancer, at the age of 82. I first met Ken in the 1980s, when I was a graduate student studying orcas off British Columbia. He was already a legend by then—having initiated, in 1976, a long-term photo-identification project in Washington's Salish Sea of the southern resident orca population. Three years earlier, Canadian researchers had started a similar project with the northern residents (my study animals). Every year, Ken and other researchers took high-resolution black-and-white photos of the dorsal fin and back of the whales as they swam through coastal summer habitats. Markings on the skin—including pigmentation patterns, scars, and nicks—are unique to each individual and allow scientists to follow the lives of every orca in the Pacific Northwest, from birth to death. Ken

MICHAEL DONOGHUE, 1949–2022

Mike Donoghue, who died on November 29, 2022, following a stroke, was a giant of the Save the Whales movement. In 1978, he contributed to the Frost Inquiry into Whales and Whaling, which brought commercial whaling in Australia to an end. I first met Mike at the 1984 meeting of the International Whaling Commission. He would go on to attend 22 IWC meetings in all, eventually serving as alternate commissioner for New Zealand and head of the country's scientific delegation. A bit of an epicure, Mike would send reminders to me in advance of a meeting to bring New England maple syrup in exchange for kiwi fruit.



Mike (at far left) at a 2014 IWC/SPREP whale disentanglement training he arranged in Tonga. (David Mattila)

He was always ready with a smile and a colorful turn of phrase. Although born in England, Mike was a proud New Zealander, having moved there in the early 1970s. He joined the New Zealand Department of Conservation in 1987 and was instrumental in developing the country's marine mammal policy, including plans to manage whale strandings, mitigate marine mammal bycatch, and establish the Banks Peninsula and Auckland Islands marine sanctuaries. Mike later joined the Secretariat of the Pacific Regional Environment Program (SPREP) as a threatened and migratory species advisor. While at SPREP, he advised governments on the development of responsible whale-watch tourism and the creation of numerous whale sanctuaries. In 2017, Mike helped organize the milestone Whales in a Changing Ocean conference, which AWI helped support.

Mike's enthusiasm and kindness were without bound, and he was a mentor and friend to many, including AWI's marine team. Deeply respectful of Pacific Island cultures, Mike once shared a Maori proverb with me: The ocean gives and sustains life for the worthy. Michael Donoghue was truly among the worthy, and he will be missed.

—Kate O'Connell

DONALD C. BAUR, 1954–2022

Renowned attorney Don Baur passed away on December 15, 2022, at the age of 68 after a tough battle with cancer. Don was a long-time partner in the Environment, Energy and Resources practice at Perkins Coie LLP, and a staunch advocate for animals and the environment. Earlier in his career, Don served as general counsel to the Marine Mammal Commission and as an attorney with the Department of the

Interior. Don also taught at Vermont Law School, Golden Gate School of Law, and the Environmental Law Institute.

I had the great privilege of working for Don at Perkins Coie; one of the foremost experts on the Marine Mammal Protection Act and Endangered Species Act, he was the person who introduced me to the world of marine animal advocacy. I continued to work with him on a number of marine issues after I moved on to AWI, right up until just before his death. Don was an incredible attorney, with a memory and institutional knowledge that amazed everyone who worked with him. Not only that, but he was a kind and truly good human, wise and even-tempered.

Over the course of his career, Don trained and mentored an untold number of attorneys, and spent countless pro bono hours advocating protection of marine mammals, oceans, national parks, and the environment. He always wanted to know how he could help, right up until his last days. It is because of Don that I know so many good people in the environmental, conservation, and animal law communities. As much as he loved connecting like-minded folks, he also loved bringing together parties who might otherwise be at odds, which is often a much tougher feat.

Our world will never be the same, but his legacy will live on through so many of us.

—Georgia Hancock



Don kayaking on Vermont's Silver Lake in 2020. (Heather Rally, DVM)

EXPANDED PORT PORTENDS DOOM FOR TAIWANESE WHITE DOLPHIN

IN 2002, a subspecies of Indo-Pacific humpback dolphin was identified in the coastal waters of western Taiwan: *Sousa chinensis taiwanensis*, now known as the Taiwanese white dolphin (TWD). Their skin, gray at birth, loses pigmentation as they age and turns white, but flushes bright pink from exertion. Their entire world is a narrow strip of water—only 3 kilometers wide—that hugs Taiwan’s west coast, one of the most highly industrialized in the world. Scientists and policy experts have outlined management steps needed to recover these imperiled dolphins (see *AWI Quarterly*, winter 2019), but to date, the government and industries have done little, if anything, to save them.

The TWD population is precariously small—almost certainly numbering fewer than 60 individuals (2017 surveys gave a population estimate of 60, and all indications are that the population has been declining). Despite this, the Taiwanese government has recently approved the Taichung Outer Port Area Expansion Project, intended to expand one of its largest west coast ports to provide support for the continued industrialization of TWD habitat. As with prior port construction, this will involve land reclamation, a process that destroys nearshore marine and river mouth habitat—in this case almost directly in the

center of the TWD’s distribution. In short, it will cut their only known home in half.

The expansion would force the animals farther offshore as they attempt to travel to and from waters north and south of Taichung Port; research has shown that nearly all the remaining individuals do move through this area frequently. TWD avoid deep water; thus, the expanded port may very well keep some of the dolphins permanently on one side or the other of this point. This could prove the death knell of the subspecies, as vital breeding opportunities would be missed and food resources cut off. Rather than protecting and restoring TWD habitat, the Taiwanese government is approving projects that further damage and destroy it.

The TWD is fast going the way of the Yangtze river dolphin (baiji)—now believed extinct—and the rapidly disappearing vaquita in Mexico. The increasing number of wind turbines being constructed along Taiwan’s west coast (see *AWI Quarterly*, fall 2017) was concerning enough, but port expansion could be the final blow. There is no way to mitigate its impact, either—to at least some of these dolphins, it will likely prove an impenetrable wall.

AWI led the effort that prompted the National Marine Fisheries Service to list this subspecies under the US Endangered Species Act in May 2018, but has since been disappointed by the lack of US support for efforts to stop the TWD’s demise; our government can certainly do better. Regardless, AWI implores the Taiwanese government to forgo this port expansion. It has done the right thing in the past, choosing not to build a massive petrochemical plant on the west coast after substantial public protest. This tiny dolphin population is Taiwan’s gift and responsibility, and its government should do all it can to recover the TWD’s numbers so the subspecies can thrive in all its pink and white glory for generations to come. 🐬





AHAVELAAR

AVMA STRENGTHENS PAIN RELIEF RECOMMENDATIONS

Last fall, the American Veterinary Medical Association accepted comments on its policy governing the common cattle industry practices of dehorning and castration. Veterinary consultant Dr. Gwendy Reyes-Illg submitted comments on behalf of AWI that encouraged adoption of a policy supporting routine pain relief for the procedures. The AVMA recently announced a revision, replacing its combined castration/dehorning policy with two separate policy statements.

The dehorning policy has been strengthened considerably. Previously, pain control was recommended only for dehorning, but it is now the standard of care for both dehorning and disbudding, which involves creating third-degree burns via a hot iron or caustic chemical. The AVMA also calls for research leading to approved analgesics for the procedure. The revised castration policy encourages veterinarians to train clients to recognize pain and “advocate for the use of procedures and practices that reduce or eliminate pain and distress,” including pain medications and low-stress handling.

AWI PETITIONS FOR MEANINGFUL OVERSIGHT OF CUSTOM SLAUGHTER

In January, AWI submitted a petition for policy change in response to the US Department of Agriculture’s consistent failure to respond to animal welfare violations at custom-exempt slaughter facilities, resulting in animals being beaten, held in deplorable conditions, and deprived of food and water for extended periods. (See *AWI Quarterly*, fall 2021.) Custom-exempt plants slaughter animals for anyone who wants meat for personal use and are excused from continuous inspection—unlike facilities subject to federal or state inspection, where government officials are on the premises whenever slaughter is being conducted.

The petition calls on the USDA to revise its directive on custom-exempt slaughter to better protect animals, report suspected animal cruelty to state authorities, and close loopholes that allow facilities suspended for egregious humane handling violations to continue slaughtering animals under their custom status.

At custom-exempt slaughterhouses, egregious animal welfare violations are all too common. AWI has petitioned the USDA to take steps to end this abuse.

BIRD FLU CONTINUES TO THREATEN DOMESTIC AND WILD ANIMALS

As of February, the 2022-23 outbreak of highly pathogenic avian influenza (HPAI) had affected 770 poultry flocks and led to the “depopulation” (mass killing and disposal) of 59 million farmed birds in the United States alone. One of the primary depopulation methods has been “ventilation shutdown plus” (VSD+), which involves turning off the airflow in a barn and turning up the temperature, in effect killing the animals by heat stroke. The increasing use of VSD+ has created an ethical controversy within the US veterinary community, as described in a recently published paper in the journal *Animals* co-authored by AWI veterinary consultant Dr. Gwendy Reyes-Illg.

Industrial farms confine tens or hundreds of thousands of genetically similar birds in a single building, often in unhygienic and highly stressful settings. Such conditions—in addition to encouraging inhumane depopulation methods—provide the perfect breeding ground for viruses such as HPAI.

In addition to the outbreak in commercial and backyard poultry, HPAI has been detected in more than 6,000 individual wild birds, as well as several mammal species in the United States, including gray and harbor seals, bobcats, brown and black bears, skunks, red foxes, raccoons, and opossums. Detection in mammals has increased concern among scientists that the virus could mutate into a strain that is more easily transmitted to humans, leading governments around the world to reconsider once-shunned vaccines as a means of reducing spread of the disease.



AWI Seeks Animal Welfare Measures in 2023 Farm Bill

The 118th Congress is gearing up to tackle the Farm Bill, a massive omnibus bill that must be reauthorized every five years or so and is a key driver of food and agriculture policy in the United States. The current version is set to expire in September, putting immense pressure on Congress to finalize a new version before then. As negotiations continue, AWI is pushing for inclusion of the following measures to improve the welfare of farmed animals:

PROTECTING FARMED ANIMALS FROM EXTREME WEATHER

Each year, hundreds of thousands to millions of farmed animals suffer terrible deaths during extreme weather events. Congress and the US Department of Agriculture have created various disaster assistance programs over the years—including the Emergency Loan Program and Livestock Indemnity Program (LIP)—to compensate producers for such losses. Under LIP alone, over \$500 million has been distributed to farmers and ranchers since 2008. Despite the large price tag associated with these programs, farmers are not required to demonstrate that they took any steps to protect their animals from extreme weather before receiving compensation. The Emergency and Disaster Preparedness for Farm Animals Act, recently introduced by Rep. Steve Cohen (D-TN), would reform these programs by requiring producers to have disaster preparedness plans in place in order to receive federal assistance for the loss of farmed animals during extreme weather events.

PROHIBITING INHUMANE METHODS OF DEPOPULATION

As avian influenza continues to wreak havoc across the country, the number of birds that have been depopulated

(killed en masse) is nearing 60 million since the start of the outbreak. Unfortunately, ventilation shutdown plus (VSD+)—a horrific depopulation method that involves inducing heatstroke over several agonizing hours—is widely used despite resounding denunciations of it from many veterinarians and animal welfare advocates. Of the 57 million+ birds depopulated in 2022, at least 44 million were killed at locations where VSD+ was used, either alone or in combination with another method. To make matters worse, taxpayers foot the bill for a majority of these brutal mass killings, as producers are able to apply for compensation to cover their losses and depopulation expenses.

While there has been much greater focus on the use of VSD+ during the influenza outbreak, this method was also used to kill healthy poultry and pigs during supply chain disruptions prompted by COVID 19–related slaughterhouse closures. During this crisis, the National Pork Board also funded studies looking at sodium nitrite poisoning as a potential depopulation method for pigs. The research found that this method causes prolonged respiratory distress and other adverse reactions such as vomiting, retching, and vocalization, with times to death ranging from 31 minutes to nearly three hours and only 50 to 80 percent of the animals killed.

Given the significant welfare concerns associated with these methods, AWI is urging Congress to prohibit the use of federal funds to cover any costs associated with their use and to facilitate the use of more humane, “preferred” methods by (1) requiring producers to have contingency plans in place

for the humane depopulation of animals in order to receive aid under compensation programs and (2) allocating funds to ensure access to more humane depopulation methods through the National Veterinary Stockpile.

PROTECTING FARMED ANIMALS DURING TRANSPORT

Transport can be very stressful for animals, as they are subjected to increased handling, temperature extremes, and long journeys involving food and water deprivation and overcrowding. High-risk groups, such as very young animals and those debilitated and slated for culling, are particularly vulnerable to the negative impacts of transport. Unfortunately, there are no federal laws requiring that animals subjected to long journeys be fit and healthy enough to withstand such journeys. As a result, according to AWI research, tens of thousands of calves under one month of age are regularly shipped long distances despite being at high risk of injury, infection, and mortality due to the stress associated with transport.

Absent federal requirements that address fitness for travel and other transport conditions, the only source of protection for farmed animals in transit is the Twenty-Eight Hour Law. This law requires animals to be offloaded for food, water, and rest if traveling for 28 hours or more. Unfortunately, AWI research shows that the law is not actively enforced. In fact, over the past 15 years, the USDA has only made 12 inquiries into possible violations of the law, just one of which was referred to the Department of Justice for enforcement action.

To improve the health and welfare of farmed animals during transport, AWI is advocating changes to the Animal

Health Protection Act to ensure that animals transported domestically are healthy and fit for travel, as is currently required for live animals transported internationally. AWI is also pushing for the establishment of an enforcement mechanism to ensure that potential violations of the Twenty-Eight Hour Law are actively monitored and investigated by the agencies charged with doing so.

IMPROVING USDA OVERSIGHT OF POULTRY SLAUGHTER

The USDA is required to ensure that poultry products entering the food supply are not “adulterated” (i.e., damaged or unsafe). The mistreatment and inhumane handling of birds at slaughter can lead to adulterated carcasses and food safety problems. Therefore, in federally inspected slaughter plants, inspection personnel monitor compliance with good commercial practices (GCP) for bird handling. However, extensive research has found that this approach is insufficient when it comes to protecting birds. Thousands of USDA records obtained by AWI demonstrate serious, ongoing inhumane handling in plants, including birds drowning in scalding tanks, live birds disposed of under piles of dead birds, birds dying due to suffocation and/or prolonged exposure to extreme weather, and mechanical problems resulting in serious bird injury and/or death. These records also reveal agency oversight varies significantly across plants, as there is no evidence of USDA verification of GCP compliance in 35 percent of federally inspected poultry plants between 2017 and 2019. To protect food safety and prevent further egregious humane handling problems within plants, AWI is advocating improvements to USDA oversight of bird handling within plants, as well as the establishment of additional standards for humane treatment of birds. 🐾



AWI PROPOSES SLAUGHTER REFORMS TO HELP PROTECT POULTRY AND PUBLIC HEALTH

Food poisoning. We've all experienced it. A few hours after enjoying a meal, you suddenly find yourself vomiting—or worse. Each year, according to the Centers for Disease Control, foodborne illnesses send an estimated 128,000 Americans to the hospital and cause about 3,000 deaths.

A major culprit in foodborne illnesses is the bacteria *Salmonella*. And a major contributor to *Salmonella* illness is poultry—particularly chicken. In fact, when government-sponsored researchers tested thousands of packages of uncooked chicken from grocery stores in 2019, they found about 1 in 6 contaminated with the pathogen.

The US Department of Agriculture does not require raw poultry products to be free of *Salmonella*. To avoid food poisoning, consumers are expected to cook poultry at temperatures sufficient to kill off pathogens and to avoid cross-contamination through inadvertent touching of other food or food prep surfaces after touching raw chicken or turkey. Given this, it is no surprise that nearly one quarter of the approximately 1.35 million human *Salmonella* infections in the United States each year are attributable to poultry consumption.

In recent years, the USDA's Food Safety and Inspection Service (FSIS) has implemented policies to reduce the

prevalence of *Salmonella* in poultry products. However, the annual number of *Salmonella*-caused illnesses has remained about the same. In a renewed effort to reduce infections, the agency has outlined a potential new initiative that would enhance testing and monitoring of *Salmonella* during the poultry slaughter process and set an enforceable *Salmonella* standard for final products.

AWI supports the initiative and appreciates the FSIS's work to develop it. However, the proposal fails to consider an important factor that contributes to *Salmonella* illness in humans: the frequent mistreatment of birds during the slaughter process. Through a variety of mechanisms,

the stress and injuries that birds endure can increase the risk of infection and contamination of live poultry, processing equipment, and carcasses. This, in turn, can increase the likelihood that *Salmonella* will be present in raw poultry products, putting consumers at greater risk.

In extensive comments submitted on the proposal, AWI urged the USDA to consider adopting four policies related to the slaughter of poultry that we believe would both improve the welfare of the birds and reduce the risk of *Salmonella* poisoning in humans.

First, the FSIS should require that poultry spend as little time as possible—and no more than four



ANDREA MANGONI



hours—in holding areas awaiting slaughter. Birds trucked to slaughter are typically crammed into crowded transport crates. Upon arrival, they may remain in these cages for hours or even days without food or water, until the plant is ready to process them. During that time, the birds—under extreme stress—continuously brush and flap against each other, defecate on one another, and peck hungrily at litter and feces on the crate floor. Feathers, dust, litter, and feces can all harbor *Salmonella*, and high stress levels render birds even more susceptible to infection. That means that the longer the birds remain in holding, the greater the risk of infection or contamination. In fact, a University of Montreal study (Arsenault et al., 2007) found that waiting in crates at the plant for four or more hours increased the proportion of *Salmonella*-positive carcasses. Minimizing holding times would therefore improve conditions for the animals and help reduce the number of *Salmonella*-contaminated products that reach consumers.

Second, the USDA should require that poultry in holding areas be protected from severe environmental conditions. All too often, poultry awaiting slaughter endure extreme heat, cold, and lack of ventilation. According to publicly available records, hundreds and sometimes thousands of birds have been found dead in unventilated holding areas on 90-degree days, or

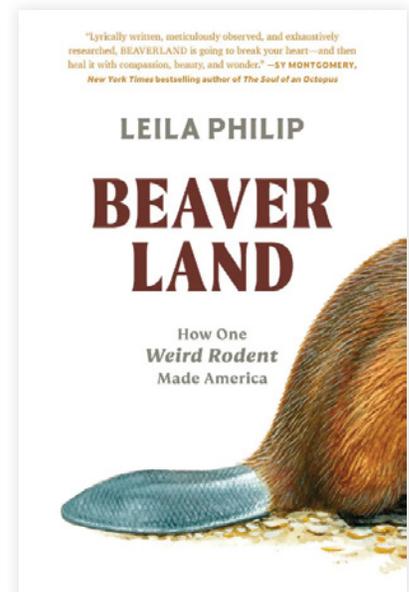
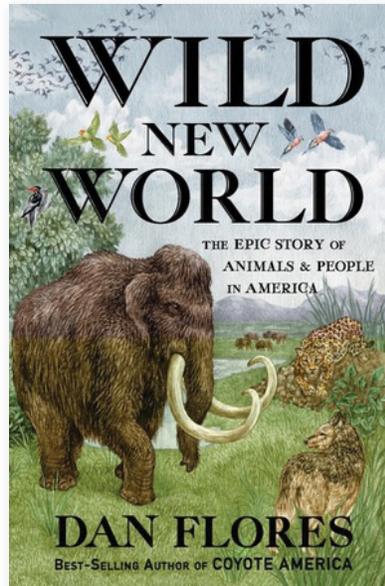
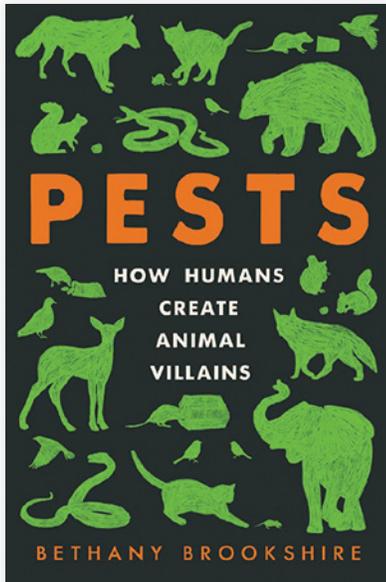
frozen to the sides of transport crates in below-zero conditions. For birds that survive, heat stress increases their susceptibility to *Salmonella* infection, and cold stress can increase the amount of *Salmonella* shed in feces (which other birds may consume). Thus, protecting birds from the elements not only would improve their welfare, but also could reduce their susceptibility to *Salmonella* infection and contamination.

Third, the USDA should require that poultry be moved and handled, and equipment be maintained and operated, in a manner that minimizes stress, bruises, broken bones, dislocations, and other injuries. Every year at slaughter facilities across the country, hundreds of incidents involving equipment malfunction and/or improper treatment of birds result in severe injuries. These injuries can promote *Salmonella* infection by raising stress levels and increasing the risk that *Salmonella* bacteria in a bird's intestines will be transported to muscle (the part we eat) via the bloodstream. Also, *Salmonella* bacteria can survive and replicate far more easily in bruises than in healthy tissues, and small bruises are not removed from carcasses during processing.

Finally, the USDA should require that electrical stun baths used to render poultry unconscious prior to slaughter be designed and operated in a way that

prevents pre-stun shocks. At the start of the slaughter process, poultry are shackled upside down to an overhead conveyor system. This “kill line” then carries the birds to electrified troughs of water, where their heads are dunked into or dragged through the water in order to stun and immobilize them for the slaughter knife. But sometimes another body part, such as a wing, will contact the water first, resulting in a severely painful shock that may cause the bird to flap, struggle, and defecate. If the bird is contaminated or infected with *Salmonella*, this panicked reaction can contaminate the water and neighboring birds on the kill line. Requiring that water baths be designed to ensure that the water does not overflow at the entrance, and that shackle lines descend quickly enough toward the bath to avoid delivering a pre-stun shock, would improve bird welfare and help mitigate the spread of *Salmonella* bacteria.

Of course, even if implemented, these measures would not end the appalling suffering endured by poultry in slaughter plants, nor eliminate the risk of food poisoning as a result of consuming contaminated poultry products. The best way to protect yourself, and birds, is to avoid consuming poultry products altogether. But these recommendations represent reasonable, practical measures that the FSIS should adopt as a meaningful first step toward improving poultry welfare while protecting public health. 🐾



PESTS

Bethany Brookshire / HarperCollins Publishers / 348 pages

Bethany Brookshire begins her engrossing book, *Pests: How Humans Create Animal Villains*, with an eastern gray squirrel named “[expletive] Kevin” who is decimating her tomato plant.

It is an illuminating anecdote, since Brookshire—an award-winning science writer and host of the podcast *Science for the People*—fully acknowledges that whether an animal is considered cherished wildlife, pet, or pest is all about perspective (i.e., how much of an inconvenient irritant they are). Squirrels scampering in the forest are a delight, while the squirrel christened Kevin, who is using her garden patch as a smorgasbord, must be eradicated.

Brookshire incorporates an array of perspectives into her deeply researched work that explores the nature and treatment of pests, including historical, religious, Indigenous, ecological, and ethical viewpoints. She focuses on vertebrates, she says, because humans have fewer moral qualms about destroying insects.

In Western culture, the concept of a pest is born from a misguided notion that nature exists to serve people; animals,

therefore, must know their place. “Pests,” such as coyotes who attack livestock, “challenge our sense of control, revealing that human power over the landscape is an illusion,” according to Brookshire.

Fear of disease motivates humans to label rats and pigeons (denigrated as “rats with wings”) as pests. Many humans feel this absolves them of any guilt associated with killing these animals in the most inhumane ways. We seem to forget that humans are the ones who generate the food waste that urban rats and pigeons dine on, or that pigeons were once revered for carrying important messages during wartime that saved lives.

Brookshire reminds us that much-maligned pests, in fact, are resourceful animals who have demonstrated evolutionary success amid habitat destruction and climate change. And as much as their enterprising ways turn them into pests from our perspective, we cannot exterminate our way out of the predicament. As long as humans continue to encroach on and pollute wild spaces—while presenting alternative food sources and living spaces that adaptable species will learn to exploit—we contribute to pest proliferation.

Perhaps we are the worst pests of all.

WILD NEW WORLD

Dan Flores / W. W. Norton / 448 pages

Dan Flores' *Wild New World: The Epic Story of Animals and People in America* presents the story of extirpation in the United States—or more precisely, of humanity's insatiable thirst for animals (and animal habitat).

Presented in roughly chronological order, Flores's sweeping and comprehensive tome begins with prehistory and looks at how a wide range of megafauna (e.g., saber-toothed tigers and woolly mammoths) vanished from the North American continent. In modern times, we've eliminated the Carolina parakeet and the passenger pigeon—the latter of which once numbered in the billions.

Of course, no account of extinction or near extinction in the United States would be complete without examining our society's relentless assault on predators—wolves in particular—with an enormous assist from the federal government: The Bureau of Biological Survey and Eradication Methods Laboratory detailed in the book morphed into Animal Damage Control and eventually into the benign-sounding Wildlife Services—the federal program that even today routinely eradicates millions of animals each year in the name of “managing problems caused by wildlife.”

Flores does a commendable job of conveying the intense longing that so many now feel for a lost world that was far richer in biodiversity. As the author notes in the epilogue, while there is still potential to stem the tide, humanity as a whole habitually regards “living creatures as mere resources” and tends to frame losses in terms of “big abstractions... things beyond our control” when, more often than not, we were the perpetrators directly responsible for pushing species to (and over) the brink. As Flores bluntly notes, “since 1500, we Americans have managed to commit the largest single destruction of wild animals discoverable in modern history.” Ultimately, the book is an exhortation to rethink our relationship with wildlife lest we continue this destructive legacy.

BEAVERLAND

Leila Philip / Twelve / 336 pages

Part narrative, part reference source, Leila Philip's *Beaverland: How One Weird Rodent Made America* provides incredible information about beavers—from their physiology and behaviors to their entwined history with humankind in the United States and the threats they now face.

Philip starts by relating an Algonquian tale of how her home state, Connecticut, was formed after an argument between the Earth's creator and Ktsi Amiskw—the Great Beaver. She describes the beaver lodges near her home, the time she spends around them, and the changes to the landscape she has witnessed over time because of the beavers. The book is full of interesting facts—for instance, that beavers only eat the bark (not the wood) of trees felled for branches to build their dams and lodges; and that during the Lewis and Clark Expedition, Merriweather Lewis was struck by the fact that beavers in Montana—where they were not heavily hunted—were active during the day. In contrast, beavers in the East had become nocturnal and crepuscular, presumably, he wrote, in an effort to steer clear of human hunters.

Philip recounts how people have made fortunes on beavers—John Jacob Astor, in particular, who monopolized the burgeoning fur trade to Europe in the late 1700s and early 1800s, helping him to become the first US multimillionaire. Philip spends time with a local trapper dealing with “nuisance” beavers—describing the heartache she felt over his activities even as she acknowledged his skill and particular respect for the beavers and their environment.

Whether killed as commodities or simply as inconvenient wildlife, by 1842, beavers had been extirpated in Connecticut. They were reintroduced in 1914, and by the 1950s, enough beavers were back that the state opened beaver trapping seasons. Philip applauds how—despite this renewed pressure—beavers have managed to persevere with the help of farsighted naturalists, who understand their essential role as keystone species in the ecosystem; innovators (e.g., the Beaver Institute, which AWI supports), who are devising clever tools to foster peaceful beaver-human coexistence; and beaver fanatics like Philip, who simply admire and love them for who they are.

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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STUDENTS: RAISE YOUR VOICE FOR ANIMALS!

The annual “A Voice for Animals” contest is open now through May 21. As in past years, AWI has partnered with the Humane Education Network to offer students around the world an opportunity to explore animal welfare issues that are important to them and showcase their own animal welfare efforts. For this year’s contest, a special category has been added encouraging students to focus on challenges that directly impact animals in their local communities. While we can all agree that living creatures in all parts of the world deserve our attention and our help, sometimes there are animals in our own backyards who we inadvertently overlook. Examples could be endangered species in a state or region, construction projects that impact animal habitat, or human-wildlife interactions that have become worrisome. Students will still have the choice to examine other topics more broadly in the categories of Wildlife in the Oceans, Wildlife on Land, Farm Animals, or Companion Animals.

As always, the judges will be looking for students to share creative solutions and ways that others can get involved. Some past winners have employed technology, such as developing mobile apps to facilitate pet adoptions and using forensic science tools to curtail wildlife tracking. Others have found education to be a promising avenue, creating lesson plans to share with younger kids or planning awareness events for those in their community. Facilitating connections between like-minded peers and local groups by starting school clubs or engaging in service learning projects is another substantial way that students have shown their commitment to improving the lives of animals. Students wishing to enter this year’s contest can do so at hennet.org, where they can also view contest guidelines and winning submissions from past years.

We look forward to seeing what this year’s contestants have in store for us. Regardless of which entries receive a prize in the end, everyone wins when young people apply their talent and energy toward improving animal lives—especially the animals. 🐾

