

AWI Quarterly

FALL 2020 / VOLUME 69 / NUMBER 3



SPOTLIGHT

Continuing Assault on Wildlife Protections

Our country's vital wildlife protections are facing ongoing attacks that have unraveled decades of progress.

In August, two federal agencies proposed yet another change to the Endangered Species Act (ESA) regulations, the effect of which would be to restrict areas that can be designated as critical habitat. This would represent a severe setback, because critical habitat is essential for stabilizing populations of threatened and endangered species. This proposal follows three changes to the ESA regulations made last year that, among other harmful things, curtailed protections for threatened species, made it easier for companies to build projects in critical habitat, allowed economic considerations to be weighed when deciding

whether a species merits listing, and made it more difficult to protect species impacted by climate change.

Federal agencies have further harmed threatened and endangered species by shelving a rule limiting the number of endangered whales, dolphins, and sea turtles that could be killed as bycatch, as well as by prioritizing the downlisting or delisting of species protected under the ESA, including the gray wolf. Agencies have also made scientifically unsupported listing decisions, such as denying ESA protections to the Pacific walrus and the Northern Rocky Mountain fisher.

This is in addition to the reversal of policies that protect wildlife from various types of toxins, including lead ammunition, pesticides, and coal mining runoff, as well as new actions that opened vast areas of wildlife habitat to oil and gas drilling.

Failing to protect species and the areas they need to survive goes against the sentiments of the American public—80 percent of whom support the ESA and continued protections for public lands, according to a recent study led by researchers at Ohio State University. In a time of unprecedented wildlife extinction and habitat destruction, we should be working to strengthen—not weaken—vital protections for our nation's wildlife. 🐾

FOUNDER

Christine Stevens

DIRECTORS

Cynthia Wilson, Chair

Jill Carey

Caroline A. Griffin, Esq.

Mary Lee Jensvold, PhD

Alan E. Kessock, CPA

Cathy Liss

Chris Miller, DVM

William S. Stokes, DVM

OFFICERS

Cathy Liss, *President*

Cynthia Wilson, *Vice President*

Alan E. Kessock, CPA, *Treasurer*

Caroline A. Griffin, Esq., *Secretary*

SCIENTIFIC COMMITTEE

Gerard Bertrand, PhD

Roger Fouts, PhD

Roger Payne, PhD

Samuel Peacock, MD

Viktor Reinhardt, DVM, PhD

Robert Schmidt, PhD

John Walsh, MD

INTERNATIONAL COMMITTEE

Aline S. de Aluja, DVM, *Mexico*

Ambassador Tabarak Husain, *Bangladesh*

Angela King, *United Kingdom*

Agnes Van Volkenburgh, DVM, *Poland*

STAFF AND CONSULTANTS

Nadia Adawi, Esq., *Executive Director/General Counsel*

Alexandra Alberg, *Senior Graphic Designer*

Nancy Blaney, *Director, Government Affairs*

Kate Dylewsky, *Senior Policy Advisor*

Sue Fisher, *Marine Animal Consultant*

Marjorie Fishman, *Public Relations Manager*

Allie Granger, *Farm Animal Policy Associate*

Joanna Grossman, PhD, *Equine Program Manager*

Johanna Hamburger, Esq., *Director and Senior Staff Attorney, Terrestrial Wildlife Program*

Sydney Hearst, *Digital Advocacy Manager*

Dena Jones, *Director, Farm Animal Program*

Eric Kleiman, *Researcher*

Allison Ludtke, *Policy Advisor*

Joanna Makowska, PhD, *Laboratory Animal Advisor*

Susan Millward, *Director, Marine Animal Program*

Carly O'Beirne, *Membership Coordinator*

Kate O'Connell, *Marine Animal Consultant*

Mary Lou Randour, PhD, *Senior Advisor, Animal Cruelty Program*

Naomi Rose, PhD, *Marine Mammal Scientist*

D.J. Schubert, *Wildlife Biologist*

Erin Sutherland, Esq., *Staff Attorney, Farm Animal Program*

Regina Terlau-Benford, *Executive Assistant*

Dave Tilford, *Writer/Editor*

For subscription inquiries or other information, contact:

Animal Welfare Institute
900 Pennsylvania Avenue, SE
Washington, DC 20003
(202) 337-2332
awi@awionline.org
awionline.org

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

Tax ID# 13-5655952
CFC# 10474



ANIMALS IN LABORATORIES

- 20 USDA Photos Document Horrific Suffering at Chinchilla Research Supplier
- 23 VA Told to Reduce Reliance on Dogs in Research
- 23 Lab Oversight Lapses During Covid-19
- 23 Grant Opportunity to Improve Lab Animal Welfare

COMPANION ANIMALS

- 24 Expanding Safe Haven Resources for Domestic Violence Survivors with Pets
- 28 All US States Now Allow Vets to Report Suspected Animal Abuse

FARM ANIMALS

- 4 Tyson, Perdue Tout Progress on Chicken Welfare
- 4 UN Report: Agricultural Practices a Prime Factor in Pandemics
- 5 Colorado Going Cage-Free
- 5 OIG Audits USDA Label Approval Process
- 5 AWI Creates Extreme Weather Resources for Farmers
- 6 Monitoring International Transport of Farm Animals

HUMANE EDUCATION

- 17 Students Lift Voice, Take Action for Animals
- 17 Lesson Plans Now Available for Popular AWI Books
- 18 Dissection Alternatives: Superior Learning Opportunities that Spare Animal Lives

MARINE LIFE

- 14 International Conservation Agenda in Flux amid Pandemic
- 16 Fingers Crossed for Famous Orca in Family Way
- 16 Cetacean Fabrication: Could Robot Dolphin Fill the Bill at Theme Parks?
- 16 Back to Briny Sea for Two Captive Belugas

WILDLIFE

- 2 Continuing Assault on Wildlife Protections
- 10 Keeping "Track" of Northern River Otters
- 11 Predator Protection Is Just Ecologic, Economic Logic
- 12 Light Bar on Car Helps Deer Steer Clear
- 12 Preserve the Wild, Prevent Pandemics
- 12 Scientists Suggest Concrete Target to Curb Extinction
- 13 USDA Admits Negligence in Cyanide Poisoning
- 13 Tiger King's Zoo Finally Shut Down

GOVERNMENT AFFAIRS

- 8 House Includes Animal Welfare Measures in Spending Bills
- 8 Rep. Lieu Leads Effort to Get the Lead Out
- 8 Rep. Huffman: Ban Drilling near Bear Dens
- 9 NEPA Rollback Endangers Communities and Wildlife

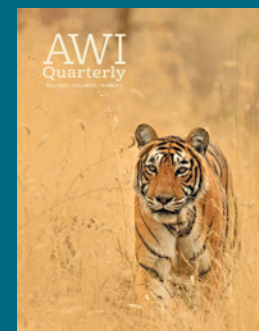
REVIEWS

- 26 *Every Penguin in the World*
- 26 *Stress and Animal Welfare*
- 27 *The One and Only Bob*



Animal Welfare Institute

www.awionline.org



ABOUT THE COVER

On page 14, AWI examines the challenges during the COVID-19 pandemic as the world's nations attempt to shape and enforce international marine life and wildlife protection agreements without the benefit of in-person meetings. As for endangered tigers, more exist in captivity in the United States than in the wild around the globe. Captive big cats suffer from neglect and abuse in backyard cages or tourist traps such as the zoo featured in *Tiger King* (which finally shut down—see page 13). Such facilities breed cubs incessantly for petting and photo ops, but serve no conservation purpose—none of these animals ever end up in the wild. Photograph by Andy Rouse/Minden.



PIDJOE

Massive factory farms are contributing to the increased emergence of zoonotic diseases, says a recent UN report.

UN REPORT: AGRICULTURAL PRACTICES A PRIME FACTOR IN PANDEMICS

Across the globe, animal advocates and public health officials are working to prevent the next pandemic by making policy recommendations and implementing laws to identify and curb the transmission of zoonotic diseases. By addressing circumstances that lead to disease spread, governments can stop pandemics and improve the welfare of farm animals and wildlife.

The United Nations Environment Programme (UNEP) has released a new report, *Preventing the Next Pandemic: Zoonotic diseases and how to break the chain of transmission*. UNEP identified seven trends driving the increasing emergence of zoonotic diseases, including increased human demand for animal protein and unsustainable agricultural intensification. The report also identified the need for nations to adopt animal welfare standards for the care, housing, and transport of live animals along the entire supply chain to reduce disease transmission.

Live animal markets, which can facilitate the spread of zoonotic disease, have also been targeted by lawmakers and advocates (see *AWI Quarterly*, summer 2020). In New York, a member of the state legislature has introduced a bill to ban live animal markets pending a review by a panel of experts regarding the associated public health risks. China is also reportedly working to limit human and animal interactions by gradually ending the sale of live poultry and restricting the sale of certain wildlife species.

TYSON, PERDUE TOUT PROGRESS ON CHICKEN WELFARE

Over the past five years, a few major US poultry companies have committed to working toward improving the lives of chickens raised for meat. These commitments address the breeding of chickens and their treatment on the farm, including more space per bird and an enriched environment to encourage natural behaviors. Also included in many of the commitments is transitioning to a less inhumane method of slaughter.

According to its 2020 company stewardship report, Perdue Farms—fourth largest chicken processor in the United States—has made progress toward its animal welfare goals. The report claims that 52 percent of its poultry houses now have windows to allow for natural light, 26 percent provide some form of enrichment, and 25 percent offer birds the opportunity to go outdoors. In addition, Perdue reports that it

has completed the conversion of its largest slaughter plant from electrical stunning to the less stressful controlled atmosphere stunning (CAS), using gas to render chickens insensible before slaughter. The company says it also has conducted research into breeds of chickens that grow slower and have better health and welfare than conventional, fast-growing breeds.

Tyson Foods, the nation's largest chicken processor, is also making advancements in the care of its chickens. The company has implemented remote video auditing at 33 of its poultry slaughter plants and is launching a project to assess its process for catching birds on the farm. Tyson, which already uses CAS at its turkey plant and two of its chicken plants, reports plans to convert four more plants to CAS in the next few years.

While AWI does not consider either of these companies' animal care protocols to be high welfare, these are promising moves in the right direction.

COLORADO GOING CAGE-FREE

In July, Colorado Governor Jared Polis signed HB20-1343 into law, making Colorado the ninth US state to pass egg-laying hen confinement restrictions. The new law requires egg farmers with more than 3,000 hens to provide caged birds with at least 1 square foot of floor space by 2022, and to convert to cage-free housing by 2024. Additionally, the law prohibits the sale of eggs produced in violation of these standards and requires farmers to provide hens with enrichments such as scratch areas, perches, nest boxes, and dust-bathing areas that allow them to exhibit natural behaviors.

Colorado wasn't the only state eyeing anticonfinement legislation this session. Similar bills were introduced and made headway in Arizona, Hawaii, and Maine, before the COVID-19 outbreak became the focus of most state legislatures. Pressure from states, consumers, and the over 200 companies that have committed to sourcing cage-free eggs has pushed the egg industry to ramp up its transition to cage-free housing. Recent data published by the US Department of Agriculture shows that roughly 27 percent of the nearly 320 million egg-laying hens in the United States are housed in cage-free systems, up from 12 percent in 2016 and 4 percent in 2010.

OIG AUDITS USDA LABEL APPROVAL PROCESS

The US Department of Agriculture's Office of Inspector General (OIG) recently published an audit report relevant to AWI's efforts to improve the accuracy of meat label claims. The report, *Controls Over Meat, Poultry, and Egg Product Labels*, investigated the label approval program of the Food Safety and Inspection Service (FSIS).

In the audit, the OIG found that 9 of 60 label approval packages were either incomplete, inaccurate, or unsupported. AWI suspects the problem is far worse, however, given that the OIG only assessed *approved* labels. AWI has found that many animal-raising claims on meat products may never have been approved by the FSIS. In *Label Confusion 2.0*, AWI reported that the FSIS was unable to locate documents for 8 of 19 (42%) product labels investigated.

AWI CREATES EXTREME WEATHER RESOURCES FOR FARMERS

AWI recently launched a new "Extreme Weather" page on its website to bring awareness to the detrimental impacts adverse weather events can have on the welfare of farm animals. In 2019 alone, over 927,000 animals died as a result of adverse weather. In recent years, millions of farm animals have been killed in hurricanes and the resulting floods.

This tragic loss of life can be reduced by proactive development of disaster preparedness plans that include options for evacuating animals or providing emergency shelter, ensuring access to feed and water, and working with a veterinarian following a storm. To help producers prepare for upcoming adverse weather events, AWI has created four factsheets focused on severe storms, extreme winter weather, and extreme heat (one factsheet for ruminants and another for birds and pigs) that highlight the dangers these events pose to farm animals and provide tips for keeping them safe and comfortable throughout.

To learn more, visit awionline.org/content/extreme-weather.

Farm animals may enjoy basking in the sunshine, but farmers must provide adequate shelter and water on hot days to prevent heat stress.



TEAM JACKSON

Monitoring International Transport of Farm Animals

International transport by sea vessel can threaten an animal's welfare, particularly for long-distance journeys, such as from North America to Asia. The toll on farm animals during international transport is likely to be exacerbated by the COVID-19 crisis, given the potential for longer journeys and delays in entering import countries—both of which would entail extended confinement under stressful conditions for these animals. Such prolonged stress can result in higher rates of disease and death.

AWI has been monitoring international export of farm animals from the United States for more than a decade, and last reported on this issue in the fall 2018 *AWI Quarterly*. Since then, we have received updated information on the US Department of Agriculture's enforcement of its 2016 animal export rule. This article focuses on data from 2017 through the end of 2019.

The new rule, which responded to a rulemaking petition AWI filed in 2011, requires animals to be inspected prior to departure to ensure that they meet the World Organisation for Animal Health's fitness-to-travel standards. The standards deem animals unfit if they are unable to stand or bear weight on all four legs, are blind in both eyes, have unhealed wounds, are extremely young, or are pregnant and in the final stage of gestation. The rule also includes animal accommodation standards for sea vessels and a requirement that operators submit reports at the conclusion of each voyage documenting the length of the trip and occurrences of "morbidity and mortality" (i.e., disease and death).

Since the rule went into effect, AWI has monitored animal shipments by submitting Freedom of Information Act (FOIA)

requests for records relating to the USDA's enforcement of the rule. Records we received indicate that from 2017 through 2019, an estimated 382,549 live mammalian farm animals (e.g., cattle, pigs, sheep, goats, rabbits, hares, and equines, but not birds) were exported from the United States to countries other than Canada and Mexico. An estimated 48,122 of these animals were shipped by sea vessel—nearly all of them cattle. (Others, such as pigs, sheep, and goats, are typically sent via airplane.)

Of the many countries that import farm animals from the United States by sea vessel, only a few import them in large numbers. For example, the top five countries importing cattle by sea (see figure 1) account for 87 percent of the total.

While the biggest spike in farm animal exports from the United States by air or sea occurred between 2011 and 2013—482,747 animals—the nation continues to export large numbers of farm animals, as shown in figure 2.

Figure 1: Top 5 Countries Importing Large Numbers of Cattle by Sea Vessel (2017-2019)

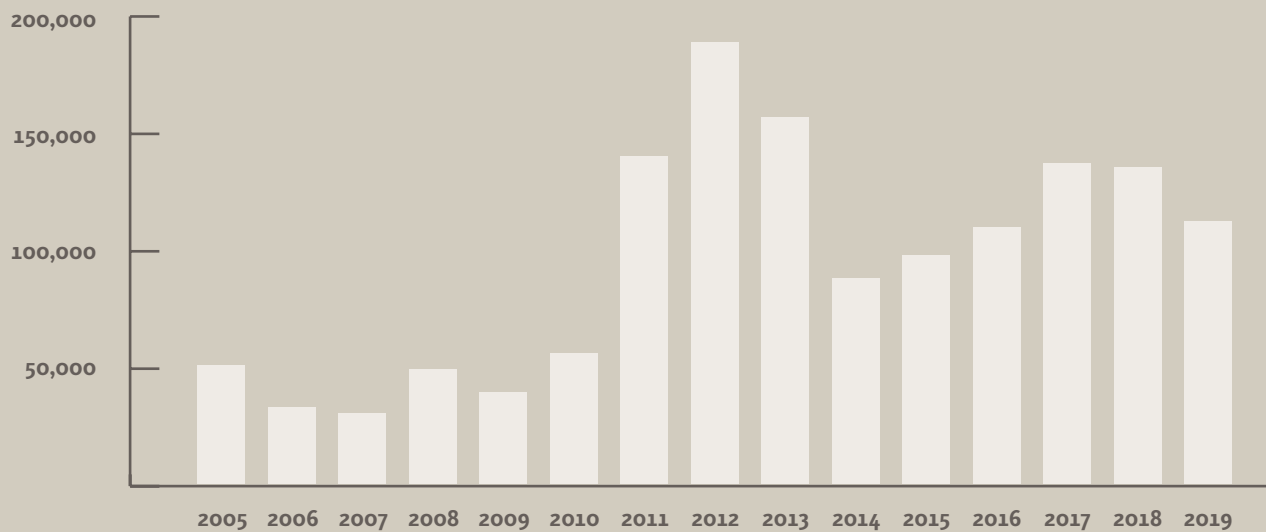
COUNTRY	NUMBER OF ANIMALS
Qatar	11,727
Kazakhstan	9,494
Vietnam	8,477
Turkey	7,498
Egypt	4,478

Data source: Operator Reports and Export Reports, obtained by AWI via FOIA from USDA-APHIS





Figure 2: Number of Live Mammalian Farm Animals Exported from the United States to Countries Other than Canada and Mexico (2005–2019)



Data Source: Department of Commerce, US Census Bureau, Foreign Trade Statistics, available at <http://www.fas.usda.gov/gats/default.aspx>.

The USDA’s FOIA responses to AWI contained 37 export health certificates for animals shipped by sea 2017–2019, but only 24 had corresponding operator reports documenting the number of animal deaths during the voyage. A number of records appear to be missing relating to the export of goats, sheep, and lambs. According to the US Census Bureau’s Foreign Trade Statistics, from 2017 through 2019, approximately 59,000 goats, sheep, and lambs were exported internationally (excluding those sent to Canada and Mexico), but the records we received document only 1,001—less than 2 percent of the total.

The records we did receive indicate that, from 2017 through 2019, 287 farm animals died during international transport by ocean vessel. Given the volume of missing records, however, the actual number is likely higher. For these 287 animals, the leading causes of death include injury due to bad weather, pneumonia, gastrointestinal issues, and pregnancy-related conditions. Only one record reported on disease occurrence, even though this information is required by the regulations.

Cattle were stricken with disease due to pregnancy-related conditions during several shipments. The USDA’s rule prohibits transport of pregnant farm animals “in the final 10 percent of their gestation period at the planned time of unloading in the importing country.” We have contacted the USDA to encourage it to better enforce this provision to prevent avoidable deaths during transport. We also asked the department about the lack of operator reports for some shipments and about some operators’ failure to report on morbidity.

As it stands, the records indicate that the volume of animals being exported from the United States by sea is comparatively low. Although the mortality rate for one journey exceeded 3 percent, the average rate of mortality was far below that, at just 0.6 percent. No especially egregious incidents appear to have taken place in the wake of the 2016 amendments to the USDA’s live animal export regulations, but continued investigation is necessary, particularly in light of the missing records. 🐾

HOUSE INCLUDES ANIMAL WELFARE MEASURES IN SPENDING BILLS

As of mid-August, the US Senate as a whole was getting very little done, but the Commerce, Science, and Transportation Committee reported out three bills: the Shark Fin Sales Elimination Act (S 877), the Driftnet Modernization and Bycatch Reduction Act (S 906), and the SAVE Right Whales Act (S 2453). The full Senate passed S 906, and the others await floor consideration.

On the other side of Capitol Hill, however, the House of Representatives has passed almost all of its appropriations bills for fiscal year 2021, which begins in October. Many of them contain important provisions to improve animal welfare, and efforts to weaken animal welfare were defeated. Several of the major provisions:

- The full amount authorized by law (\$3 million) is allocated for grants to assist with providing housing for domestic violence survivors with companion animals.
- A prohibition continues on the licensing of dealers who sell

dogs and cats acquired from random sources (“Class B” dealers) for use in research.

- Funds are to be redirected to combat trafficking in endangered species.
- Additional funding (\$1.5 million) is allocated for research and monitoring of North Atlantic right whales.
- The Department of Health and Human Services is encouraged to include animal abuse as a caregiver risk factor in a national child abuse database.
- The National Institutes of Health is reminded of its obligation to retire chimpanzees to sanctuary and admonished for renegeing on that obligation.

In addition to these strides, stand-alone bills to benefit animals have also been introduced. (See items below.)

REP. LIEU LEADS EFFORT TO GET THE LEAD OUT

AWI has been working closely with Representative Ted Lieu’s (D-CA) office on the Lead Endangers Animals Daily

(LEAD) Act, which was introduced on July 9. Rep. Lieu is determined to prevent the needless poisoning of wildlife by prohibiting hunters from using toxic lead bullets on lands managed by the US Fish and Wildlife Service. An estimated 10 to 20 million birds and other animals, including threatened and endangered species, die of lead poisoning every year after ingesting bullet fragments or contaminated carcasses. Humans are also at risk for lead poisoning. The Centers for Disease Control and Prevention has determined that there is no safe level of lead exposure for humans. This dangerous metal has been banned in most products, such as toys and paint, but it is still regularly used in bullets, which are the largest source of lead knowingly discharged into the environment. Comparable alternatives, such as copper and steel ammunition, are widely available, and many hunters, even, advocate for lead shot restrictions. Given these alternatives, it is irresponsible to litter natural spaces with lead bullets.

REP. HUFFMAN: BAN DRILLING NEAR BEAR DENS

On July 30, Rep. Jared Huffman (D-CA) introduced the Polar Bear Cub Survival Act (HR 7876). Polar bears are one of many species facing ongoing threats from the oil and gas industry. As the Trump administration continues its war on the environment by finalizing its plan to open the Arctic National Wildlife Refuge to drilling, this bill would increase protections for critical polar bear denning habitat by prohibiting oil and gas activities within one mile of such habitat on the coastal plain of the refuge.



CHERYL STRAHL



NO107

NEPA Rollback Endangers Communities and Wildlife

In mid-July, the Trump administration finalized its overhaul of the National Environmental Policy Act (NEPA), enacting new regulations that weaken this key environmental law. Unprecedented in significance and scope, these changes undermine informed agency decision-making, reduce transparency, and limit critical public involvement. Moreover, they fundamentally erode the purpose and intent of NEPA by denying the public the democratic process at the heart of the law. AWI strongly opposed the changes, submitting comments on two rounds of notices and testifying at two public hearings.

NEPA, which was passed by Congress in 1969 with overwhelming bipartisan support and signed into law by President Nixon in 1970, has been described as the basic charter for the protection of the environment. Fifty years later, it still stands as one of the most important environmental laws in the United States. Congress enacted the law to “promote efforts which will prevent or eliminate damage to the environment and biosphere” in order to “fulfill the responsibility of each generation as trustee of the environment for succeeding generations.”

The three basic principles of NEPA are informed decision-making, transparency, and public input. The law requires federal agencies to consider the environmental impacts of projects—such as new power plants, highways, oil and gas development, and logging—and to explore alternative approaches to achieving its objectives. It also provides opportunities for communities across the country to voice their concerns about how these proposals may threaten public health and ecosystems. AWI routinely relies on this law to

provide input during administrative rulemaking proceedings and to engage in litigation involving wildlife management.

Federal decisions regarding land and ocean management, mining and drilling, and infrastructure will now be able to move forward without full consideration of their environmental impacts and without a requirement that a broad range of safer, more ecologically sound alternatives be considered. The new regulations also exempt many projects from the public review process required by NEPA. Moreover, agencies can now issue permits for projects such as coal mines and oil pipelines without considering the project’s adverse climate change impacts, despite numerous court rulings requiring agencies to conduct climate evaluations under NEPA.

This misguided approach will undoubtedly lead to destruction of wildlife habitat and loss of biodiversity, declines in air and water quality, and harm to public health, particularly in communities of color, which for decades have disproportionately shouldered the burden of toxic pollution in their neighborhoods.

The new rules are inconsistent with both the letter and spirit of NEPA. Far from achieving the administration’s stated purpose of “streamlining” NEPA, the changes unduly restrict agency decision-making on complex matters of critical importance to communities. They also sow greater uncertainty by upending established case law, policies, and procedures. This will lead to more confusion for regulated industries and the public, which will take years—if not decades—to resolve. 🐾

KEEPING “TRACK” OF NORTHERN RIVER OTTERS

The live capture of river otters is notoriously difficult, which explains the dearth of information about the ecology of the species. Traditional traps, including leghold and cage traps, can be used to capture otters for research, but they can result in injuries and stress to the animal. In addition, many traps set for otters can capture nontarget species.

What if a method could be found that would negate the need to trap otters for research purposes? With support from an AWI Christine Stevens Wildlife Award, a novel and noninvasive method for sampling river otters using DNA collected from otter tracks left in the snow was tested in the western part of Michigan’s Upper Peninsula. The study sought to determine if there was enough nuclear DNA in snow tracks to identify individual otters and assess what factors influenced the ability to acquire DNA from tracks.

Between January and April 2019, otter tracks in the snow were collected and placed in individual sample bags. Snow samples without otter tracks were also collected to use as a control. In

the laboratory, the snow was melted and filtered. Then nuclear DNA was extracted and amplified using a quantitative polymerase chain reaction protocol, or qPCR. (PCR involves copying, or “amplifying” small pieces of DNA to create sufficient quantities for genetic analyses; qPCR is a method for detecting results during the early phases of the reaction, when more precise measurements can be made.)

The 87 tracks collected resulted in 159 filters potentially containing DNA. Out of the 159 filters, DNA was found in 94 (66%). The ability to find DNA in track samples was positively correlated, predictably, with the number of track samples collected but negatively correlated with the number of days the samples were stored in a freezer.

Age of the track, snow sample volume, and temperature did not appear to affect DNA collection. We were able to identify multiple genetic markers (microsatellites) in the DNA from the snow samples and are continuing analyses to determine if enough genetic markers were amplified in each sample to differentiate individual otters.

If successful, the DNA results obtained from this pilot study, along with additional sampling, will be used to estimate population numbers using mark and recapture techniques, evaluate genetic diversity, and measure the gene flow of otters in the western Upper Peninsula of Michigan. The methods developed in this project would potentially work for genetic and mark-recapture studies from the tracks of other wildlife species living in areas with snow. Otter tracks are easy to detect, and collecting them causes the animal little, if any, stress—especially when compared with traditional mark-recapture methods, in which an animal is physically captured and recaptured using traps. Identifying individuals from tracks could inform scientists about population demographics, habitat use, movement behavior, dispersal patterns, genetic diversity, and gene flow—not only for otter populations but also for many other elusive species with large home ranges. 🐾

This study was conducted by Stacy Cotey, PhD candidate at Michigan Technological University





PREDATOR PROTECTION

Is Just Ecologic, Economic Logic

Historically, predators such as wolves, mountain lions, and bears were scorned and hunted with little remorse or restraint. They have been vilified as threats to livestock, companion animals, and us. State and federal wildlife management policies continue to treat many predators as unwanted species, rarely imposing science-based or humane restrictions on their killing. Archaic attitudes advocating for the removal of predators to protect livestock and boost populations of prey species that are seen as more financially valuable—particularly deer, elk, and other ungulates—continue to hold sway.

The global slaughter of predators is unrelenting, despite a growing body of scientific literature documenting their immense value as integral species in properly functioning ecosystems. Among many benefits, predators keep prey populations from overrunning natural landscapes and croplands (and target the sick and weak, in stark contrast to trophy hunters seeking the most impressive individuals), reduce disease transmission, provide food for scavengers such as California condors and bald eagles, and keep smaller mesocarnivores (e.g., coyotes, foxes, martens, skunks) in check—thereby preventing cascading negative impacts to other species.

Globally, the decline in apex predators, whether terrestrial or marine, has had direct and indirect deleterious impacts on biodiversity and habitat. Conversely, the return of predators to native lands and waters has been a boon: In Yellowstone National Park, wolf reintroduction has changed ungulates' use of the landscape in response to the risk of predation. The changes in elk movements, distribution, and habitat use patterns have reduced browsing pressure on cottonwood and aspen saplings, improved the health of riparian areas, and benefited multiple species. In the Pacific Ocean, the recovery of some sea otter populations has reduced urchin numbers,

allowing kelp forests to recover and benefiting a diversity of species that rely on kelp as food and habitat.

The value of predators need not be described solely in terms of their positive ecological effects, however. Recent studies have endeavored to calculate their economic benefits. Historically, predators were seen as having monetary value only in terms of hunting/trapping license and pelt sales. Today, economists include nonconsumptive recreational benefits and ecosystem services in calculating predators' role in the economy.

Bats, for example, consume massive numbers of insects that damage crops. This saves US farmers tens of billions of dollars each year, potentially, in pesticide applications alone; bats also pollinate plants, a service valued at \$200 billion globally (Kasso & Balakrishnan, 2013). A single bobcat in Yellowstone has an estimated wildlife-watching value of \$308,000 over a single winter season, compared to an exploitive value of \$315 for a bobcat hunted or trapped in Wyoming over the same season (Elbroch et al. 2017). As for sea otters, an analysis published this year in *Science* estimated their value in restoring kelp forests, increasing fish production, sequestering carbon, and enhancing ecotourism at 53.6 million Canadian dollars (~40.6 million US dollars)—far more than their C\$7.3 million (~US\$5.5 million) cost to the marine invertebrate fishing industry (Gregg et al. 2020).

The ecological and economic value of predators demands that we discard old prejudices against these species and promote their protection. As Dr. William Ripple of Oregon State University and colleagues stated in a 2014 study, “promoting tolerance and coexistence with large carnivores is a crucial societal challenge that will ultimately determine the fate of Earth’s largest carnivores and all that depends upon them, including humans.” 🐾

Scientists at the USDA's National Wildlife Research Center say that a strategically placed light bar on vehicles can drive deer off roads—ensuring vehicles don't drive into them.

LIGHT BAR ON CAR HELPS DEER STEER CLEAR

According to State Farm, over 1.9 million animal-vehicle collision insurance claims were filed between July 1, 2018, and June 30, 2019. Of those, the vast majority that resulted in human injury involved deer struck at night. With the exception of expensive fencing and wildlife underpasses or overpasses, few strategies have reliably reduced animal-vehicle collisions.

Dr. Travis DeVault and colleagues from the US Department of Agriculture's National Wildlife Research Center found that a rear-facing LED light bar, affixed to the vehicle in between the headlights (so that it illuminates the grill area of the vehicle), reduced deer-vehicle collisions. In their study, published in *Ecosphere*, when the light bar was deployed, deer-vehicle collision risk decreased from 35 percent to 10 percent of the times vehicles approached deer. The scientists concluded that use of the light bar produces "a more reliable looming image to deer" and is therefore more likely to trigger predator avoidance (rather than freezing-in-the-headlights) behavior.

PRESERVE THE WILD, PREVENT PANDEMICS

The value of human lives lost to the current COVID-19 pandemic is incalculable; meanwhile, the purely economic losses we can put a price tag on have been staggering. The International Monetary Fund estimates



SEAN THOMFORDE

a global loss of \$5.6 trillion in gross domestic product in 2020 alone. According to a newly published analysis in *Science* (Dobson et al. 2020), the cost of preventative measures that could stave off a future pandemic—partly via protection of wild animals and habitat—could be dramatically less.

Specifically, the researchers recommend investing in efforts to prevent forest loss and fragmentation, curb and better regulate wildlife trade, detect disease outbreaks earlier, and improve farm biosecurity. All told, they estimate that the costs associated with 10 years' worth of such preventative measures would amount to only 2 percent of the price we are paying to deal with the current pandemic.

Another recent study (Gibbs et al., 2020), published in *Nature*, indicates just how the destruction of wildlife habitat increases our exposure to deadly zoonotic diseases. The extensive study of 7,000 animal communities across six continents found that conversion of wild places into farmland or settlements often wipes out larger species, increasing opportunities for smaller, more adaptable creatures that carry more pathogens dangerous to humans.

SCIENTISTS SUGGEST CONCRETE TARGET TO CURB EXTINCTION

It has been estimated that the current global species extinction rate is 100 extinctions per million species per year—1,000 times higher than the normal background rate (De Vos et al. 2014). Dr. Mark Rounsevell of Germany's Institute of Meteorology and Climate Research and colleagues recently proposed in an article in *Science* a biodiversity protection goal of fewer than 20 species extinctions per year over the next 100 years for all major groups (fungi, plants, invertebrates, and vertebrates) across all ecosystem types (marine, freshwater, and terrestrial).

The simplicity of this goal makes it easy to communicate, understand, and measure. To be effective, the goal must trigger biodiversity targets and commitments by policymakers to reduce the drivers of extinction rates nationally (through better protection and management of biological resources) and internationally (via trade agreements, financial aid, and other strategies to reduce consumer demand for wildlife products).

USDA ADMITS NEGLIGENCE IN CYANIDE POISONING

Over three years ago, 14-year-old Canyon Mansfield and his dog, Kasey, stumbled upon an M-44 “cyanide bomb” while playing near the family’s backyard outside Pocatello, Idaho. The spring-activated device sprays sodium cyanide. It was placed by Wildlife Services, an arm of the US Department of Agriculture’s Animal and Plant Health Inspection Service tasked with protecting livestock through “predator control,” which often involves killing animals such as coyotes. This incident changed their lives forever, resulting in Kasey’s tragic death, a slew of health problems for Canyon, and the lasting trauma of watching his beloved dog die.

Since then, the Mansfield family have been vocal advocates for the Chemical Poisons Reduction Act (also known as “Canyon’s Law”), sponsored by US Representatives Peter DeFazio (D-OR), Matt Gaetz (R-FL), and 19 other members of Congress. HR 2471 would

prevent the use of sodium cyanide and sodium fluoroacetate (used in livestock protection collars) in predator management devices nationwide. The Mansfields’ determined efforts recently led to a victory in their lawsuit against the USDA, which agreed to pay them \$38,500. Of utmost importance is the fact that the government also admitted negligence in placing the M-44 on public lands. A 2016 environmental assessment stated M-44s were *only* to be placed on private lands.

TIGER KING’S ZOO FINALLY SHUT DOWN

The Netflix series *Tiger King: Murder, Mayhem and Madness* brought unprecedented public attention to the activities of roadside zoos such as Greater Wynnewood Exotic Animal Park (GW Zoo) in Oklahoma. This zoo, formerly owned by “Joe Exotic” and later by Jeff Lowe, has long been a site of deplorable animal cruelty and exploitation.

As shown in *Tiger King*, wild animals were kept in barren cages, fed expired meat that grocery stores couldn’t sell, and paraded before the public for profit. The zoo bred big cats incessantly, ripping newborn cubs away to send the mother back into heat and using them as props for numerous people to handle day after day. When the cubs outgrew their use after a few weeks, the cats were caged, killed, or sold.

After years of looking the other way, the US Department of Agriculture finally took action. An inspection in June found geriatric wolves with pressure sores, a barely responsive 16-week-old lion cub, emaciated bears, and decomposing big cat carcasses in a woodpile. Inspectors also observed several cases of severe fly strike—a painful condition caused by flies biting and laying eggs on an animal, and the hatched maggots then eating the animal’s flesh. The inspection report chronicles a consistent failure to consult with a veterinarian or provide needed medical care to the animals.

In August, the USDA suspended Lowe’s exhibitor license for 21 days, and Lowe announced that the GW Zoo was permanently closed to the public. In September, in settlement of a lawsuit, the property will be transferred to Carole Baskin, the CEO of Big Cat Rescue in Florida and Joe Exotic’s main nemesis in *Tiger King*. The animals at the zoo, unfortunately, will remain with Lowe, who is transferring them to his new facility in Thackerville, Oklahoma. According to Lowe, the facility will not be open to the public (thus shielding him from USDA oversight), but will serve, rather, as a set for his own *Tiger King* spin-off reality show.

The infamous Oklahoma zoo featured in the popular docu-series Tiger King closed its gates for good in August, after the USDA suspended its owner’s exhibitor license.



PATRICK SCHRÖDTER

INTERNATIONAL CONSERVATION AGENDA IN FLUX AMID PANDEMIC

The COVID-19 pandemic and the restrictions in place to prevent its spread have had a profound impact on the environment, in positive and negative ways: Greenhouse gases have declined sharply amid reduced industrial output. Commercial fishing and shipping vessels have remained in port, giving marine life a welcome respite. Conversely, food shortages, financial instability, and a decline in law enforcement activities have spurred a tragic surge in poaching and illegal fishing in developing countries. Meanwhile, restrictions on global travel and in-person gatherings have reduced the ability of governments and civil society to create, monitor, and enforce conservation measures. As the pandemic has progressed, global and regional conservation meetings have been canceled, postponed, or converted to virtual events. In some cases, such disruptions are adversely affecting species in acute peril.

The vaquita porpoise is one such species. The World Heritage Committee has yet to reschedule its June 2020 meeting where it was to discuss, among other important topics, the corrective measures Mexico must implement to save vaquita from extinction after the committee designated vaquita habitat to be “in danger” in 2019 (see *AWI Quarterly*, fall 2019). At its May 2020 virtual meeting, the Scientific Committee of the International Whaling Commission (IWC)

expressed “disappointment and frustration that, despite almost three decades of repeated warnings, the vaquita population hovers at the edge of extinction because of gillnet entanglement and ineffective fisheries management and enforcement measures in the Upper Gulf of California.”

Similarly, the Standing Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was to consider a number of important compliance matters at its October 2020 meeting, including a decision on whether Japan must confiscate sei whale meat that was landed in Japan for 18 years in violation of the treaty (see *AWI Quarterly*, winter 2018). While the 2020 CITES Animals and Plants Committee meeting has been postponed until 2021, the October Standing Committee meeting remains in limbo. Nevertheless, the CITES secretariat has correctly observed that suspending action on compliance matters could have negative impacts on species conservation. This is especially concerning with respect to elephants, rhinos, grey parrots, and certain tropical hardwoods.

In the long term, due to the inevitable financial fallout from COVID-19, many governments may be unable—or less inclined—to pay their membership fees to international and regional bodies that protect wildlife and their habitats.

The IWC is a prime example. It recently conducted a mail-in vote to adopt an interim budget to sustain its work until the next meeting of parties, which has been postponed to September 2021. However, a significant number of its member governments already have unpaid annual fees and have thus lost their voting rights. With annual fees due again in 2021, some countries will accrue another year of debt before the next meeting, making it much harder to settle their arrears and restore their voting rights.



Moreover, voluntary contributions by governments and nongovernmental organizations that sustain many global conservation initiatives may dry up, leaving important work unfunded. AWI is working with other NGOs to encourage governments and other stakeholders to maintain these donations to the IWC to sustain its important conservation and welfare work.

Before the disruption caused by the COVID-19 pandemic, the United Nations was calling 2020 “a ‘super year’ for the environment—a make or break year in which key international meetings will set the tone and agenda for environmental action in the decade ahead.” A number of critical conservation issues were to be discussed at the IUCN Conservation Congress (now rescheduled for January 2021). The parties to the Convention on Biological Diversity were to negotiate a new global framework to safeguard all life on Earth. And at the second UN Ocean Conference, nations were poised to seek new solutions to ocean acidification; marine litter and pollution; illegal, unreported and unregulated fishing; and the loss of habitats and biodiversity.

As these and other key meetings are postponed or conducted virtually, and governments redirect funds and personnel to COVID-19 responses, it is critically important not to lose momentum for vital conservation work. For example, UN efforts to establish a Global Ocean Treaty (originally scheduled for April 2020) to conserve and properly manage the biodiversity of the high seas must continue. The high seas—international waters covering half the globe—include some of its most biologically important and critically threatened ecosystems, yet are among the least protected regions on the planet.

Countries must not rely on the postponement of the UN Climate Change Conference from November 2020 to November 2021 as an excuse for not committing to stronger emission cuts to meet the goals of the Paris climate accord. As the UN climate change executive

secretary warns, “COVID-19 is the most urgent threat facing humanity today, but we cannot forget that climate change is the biggest threat facing humanity over the long term.” Similarly, the pandemic cannot be an excuse for Arctic Council states to neglect their commitments to protect the Arctic environment and biodiversity, or for the 27 member states of the European Union failing to fulfil their legally binding commitment to improve the state of the EU’s ocean ecosystems pursuant to its Marine Strategy Framework Directive.

Governments must ensure that the pandemic does not cause or excuse setbacks in meeting our critical priorities for the planet. In particular, when international negotiations resume, the meetings must be transparent and inclusive. Virtual meetings must provide simultaneous translation in multiple languages without time lags, ensure reliable connectivity, and be scheduled to maximize participation regardless of time zone. The United Nations has recently approved funding for eligible developing countries to boost their bandwidth in order to connect to virtual meetings, but it is inevitable that problems will occur. Limiting the duration of working sessions to accommodate global participation will inevitably result in less time for meaningful negotiations. And, while there are online options for informal conversation, a virtual format hinders the valuable in-person discussions that happen spontaneously during breaks in formal meetings—discussions that build trust and often help participants find consensus.

Despite these challenges, there are significant benefits to a more virtual world, including the reduced impact on the environment by limiting air travel. As the world has adapted to teleworking, it is clear that we could have traveled less and “Zoomed” more, with minimal impact on productivity. When life returns to “normal” after COVID-19, we will all have learned some important lessons and hopefully adopted more sustainable working practices that were unimaginable less than a year ago. 🐾

FINGERS CROSSED FOR FAMOUS ORCA IN FAMILY WAY

In 2018, a female Southern Resident orca off the coast of Washington captured hearts and minds around the world with her apparently grief-stricken reaction to the death of her newborn calf, who lived less than 30 minutes. The mother—identified as “J35” and informally referred to as “Tahlequah”—bore the body of her infant for 17 days and 1,000 miles, unwilling to let go.

This summer, drone images of Tahlequah show a body profile that is much rounder than it was the same time last year—a reliable sign of pregnancy. Orca scientists and fans now watch anxiously, hoping that this time, Tahlequah and her family are able to welcome a healthy calf into the fold.

The Southern Resident orcas are critically endangered, due to toxic pollutants in their tissues, heavy shipping traffic, and declining salmon. They need every birth to succeed. Best of all would be a baby girl; this struggling population needs as many new females as possible to produce more offspring in the future.

CETACEAN FABRICATION: COULD ROBOT DOLPHIN FILL THE BILL AT THEME PARKS?

Technology entrepreneurs have designed an animatronic dolphin so lifelike that volunteers who swam with it were unaware it was not alive until told the truth. Its battery lasts 10 hours, and it is resistant to saltwater for up to 10 years. This innovation, described in May by the website Interesting Engineering, could completely upend traditional live cetacean exhibits. The drive many people feel to interact with wildlife is strong; convincing them to suppress it so wildlife species do not have to suffer in captivity has proved difficult—especially when the message visitors receive from entertainment facilities is that the animals are happy in their limited environment.

But what if no animals had to suffer to satisfy this urge? Could a robot substitute for the real thing for entertainment purposes—educating and eliciting empathy without exploiting a living being? The expanding cetacean industry in China may be the testing ground for this idea; the creators intend to debut the new robot dolphin there in the near future.

According to a 2019 report by the China Cetacean Alliance, of which AWI is a founding member, there are over 1,000 cetaceans in captivity in China. Among these are more than 500 bottlenose dolphins and more than 200 beluga whales.

BACK TO BRINY SEA FOR TWO CAPTIVE BELUGAS

Two captive beluga whales who had been held at an entertainment facility in China have just been given a chance to stretch their flippers in a new sea pen sanctuary. The two 12-year-old females, dubbed “Little Grey” and “Little White,” had been performing at Chengfeng Ocean World in Shanghai. They were taken to China from a Russian research center in 2011.

Last year, they were flown to a quarantine facility in Heimaey, an island off the southern coast of mainland Iceland. In August of this year, they were moved to a bayside care pool within the island’s Klettsvik Bay for a short period in order to acclimate to their new surroundings. Following this, they were to be released into the wider bay—the world’s first open water sanctuary for belugas. Unlike their tiny pools in China, their new ocean home stretches 32,000 square meters (an area equivalent to nearly 8 acres on land), with a depth of 9 meters (30 feet).



AARON CHOWN/PA WIRE/PA IMAGES

The beluga called Little Grey is transferred to the bayside care pool, to be acclimated before she is released into the open water sanctuary in Iceland’s Klettsvik Bay.



FUNTAY

STUDENTS LIFT VOICE, TAKE ACTION FOR ANIMALS

The 2020 “A Voice for Animals” contest received over 500 entries from all over the world, including submissions from Nepal, Mexico, Singapore, and India. Many of this year’s entries addressed timely topics such as the spread of diseases via animal markets and the devastating Australian wildfires, demonstrating that young people are as tuned in as ever to recent events and the world around them. A few of the 20 prizewinning entries are described below.

Sarah Robison parlayed her appreciation for sea turtles into “Sea Turtle Awareness” day, educating her community about the dangers of plastics in the marine ecosystem. Her informative video, “The Plastic Effect: Sea Turtle Awareness,” documents her initiative in creating an educational display using recyclable items, as well as handicrafts, to show how materials can be repurposed instead of discarded.

While training for her summer job as a camp counselor on a California marine research vessel, Yolanda Chen learned of the problems caused by commercial fishing. As explained in her essay,

“Overfishing and Bycatch: An Empty Ocean,” increased demand and modern methods of fishing are causing animal suffering and ecological devastation. Chen incorporated this issue into the lessons and activities she and her fellow counselors shared with their campers.

Inspired in large part by his family’s own rescue dog, Derek DeAngelo brainstormed a technology-based solution. The resulting smartphone app, called “Rescue Me Massachusetts,” took months to develop and test. His perseverance throughout his project and commitment to helping shelter animals is apparent in his essay-with-photos submission titled, “Animal Homelessness: There’s an App for That.”

Employing forensic science to curb illegal pangolin trafficking is a unique solution described by Liana Hase-Penn in her essay submission, “The Tragic Plight of Pangolins and the Poaching of the Endangered Species.” Hase-Penn, who has a strong interest in STEM technologies, is hoping this application will allow authorities to identify and apprehend poachers. Citing a British survey from 2018, she also points out there are still many people who do not know that this species exists, let alone that they are critically endangered.

One of the winning entries in this year’s “A Voice for Animals” contest addressed the dangers that plastics in the ocean pose to sea turtles.

AWI, together with Humane Education Network, congratulate these and other winners of the contest’s 30th year. To view all the winning entries, visit hennet.org/contest.php.

LESSON PLANS NOW AVAILABLE FOR POPULAR AWI BOOKS

AWI now has free lesson plans available for two of our most sought-after books, *A Dangerous Life* and *The Magic of Touch*. The lesson plans were developed by AWI in cooperation with educator Nancy Kellum Brown.

A Dangerous Life is a graphic novel that weaves lessons of conservation and compassion for all living things throughout a story about the importance of both animal and human families. The lesson plans include activity cards and worksheets that can be used on their own or in conjunction with an interactive notebook. They are applicable across a variety of subjects, including science, environmental education, social studies, and language arts for grade 6 and up.

The Magic of Touch is a compilation of many different scientific studies that establish how positive physical contact—both within and between species—has psychological and health benefits for animals and humans alike. High school teachers and college professors will find this text and accompanying lesson plans appropriate for courses involving animal behavior, ethology, environmental studies, and philosophy.

These teaching guides can be downloaded at awionline.org/content/free-publications.



Dissection Alternatives:

SUPERIOR LEARNING OPPORTUNITIES THAT SPARE ANIMAL LIVES

In North America, animal dissection remains commonplace in K-12 science education. At a time when numerous interactive and immersive alternatives are available, it's time to end this outdated practice once and for all by adopting non-animal teaching methods.

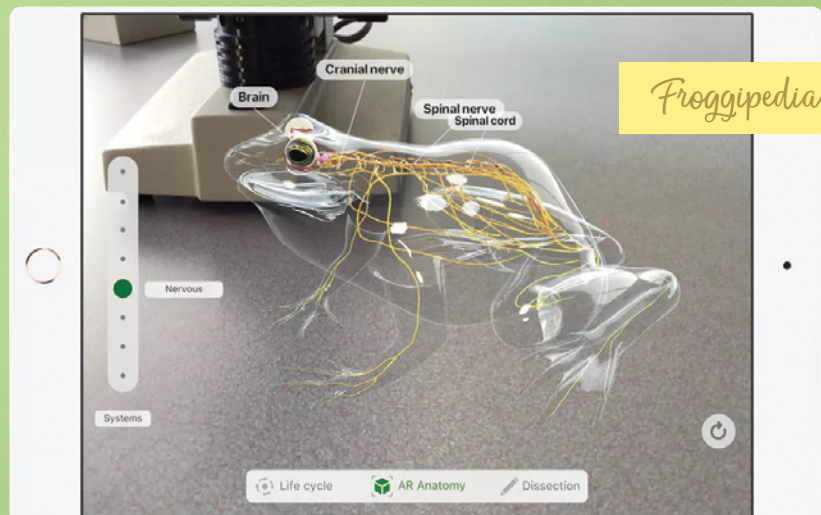
Non-animal methods are not only more humane, but also more effective, more inclusive, safer, and more economical. A literature review conducted by the Animals in Science Policy Institute (AiSPI) indicated that in 88 percent of studies, non-animal methods were superior or equivalent to dissection (bit.ly/3zsyEch). Non-animal methods reduce the emotional, ethical, and religious barriers to education. They also avoid the use of sharp scalpels or harsh preservative chemicals. Contrary to popular belief, many non-animal methods actually cost less than preserved animals, and there are typically no recurring annual costs.

Despite the benefits of non-animal methods, many teachers report that they do not have the time to research dissection alternatives. To help teachers make the transition, AWI has teamed up with AiSPI to create a list of some of the most effective and engaging non-animal methods

currently available. There are a variety of excellent options, and many are feasible for online education.

Froggipedia (apple.co/3zLYKot) is geared toward middle school students and features a fascinating and easy-to-use 3D model of a breathing frog. It offers the following modes: (1) "Life Cycle," which has an animation feature that allows you to move a cursor to view the frog submerged in a pond as it develops from a single-celled egg to a tadpole and eventually to an adult frog. (2) "Augmented Reality Anatomy," which works like a camera that projects the frog onto wherever you point your lens, so the frog can

appear to be in your hand or on your desk. You can "peel back layers" and view individual body systems inside the frog—for example, the skeletal system, the muscular system, or the digestive system. (3) "Dissection," with which you can conduct a traditional-style dissection using your finger or an Apple Pencil to "cut" through the frog's skin and muscle, locating different organs and learning about their function. The app also includes a quiz with eight organs to identify. Froggipedia was awarded the "iPad App of the Year" in 2018. Version 3.0 can be purchased for just \$3.99 in the Apple App Store (available only for iPhone and iPad) and is available in 8 languages.



3D Frog Anatomy by Biosphera

(biosphera3d.com) is an interactive model that permits the user to view the various systems of the frog individually or in combination and from any angle, along with the option to zoom in and out. You can learn anatomy by hovering over an area of the frog to see the name of the particular body part. There are 11 other Biosphera models, including cat, pig, fish, and human. Pricing varies depending on the species and device: The 3D Frog Anatomy for mobile versions (Android, Apple, or Windows devices) is \$11.99, and the desktop software costs \$26 for individual use and \$39 for multiple users.

Frog Paper Dissection— Sciestructable 3D Dissection Model by Getting Nerdy with Mel and Gerdy

(gettingnerdywithmelandgerdy.com) enjoys support from teachers and students alike. It is a great option for students who do not have easy access to an electronic device. This low-tech (or no-tech) model is geared toward those in grades 4 to 12, but it is typically used by 7th graders. The cost of the frog model is \$22.95 and the price drops if a number of licenses are purchased at once. There are a wide variety of other species options, including cat, fetal pig, earthworm, and crayfish. Patience is required to cut out all of the individual pieces, but there are clear instructions on how to assemble the models, and there is an online guide to making repairs and a suggestion for how best to display the models.

Merge Cube (mergeedu.com/cube) is an educational tool that can provide a fully immersive experience, but it is one of the more costly options when used to its full capacity. It consists of a soft foam 5-inch cube that costs \$19.99 and is used in combination with the Merge Explorer app, which can be launched on an Apple, Android, or Windows 10 device. This app, which runs \$9.99/month for individual use or at a

discounted price for schools, contains dozens of STEM-related components. When the device is pointed at the cube, it transforms it into a 3D model on the device's screen that can be held and rotated. A Frog's Life—one of the app's components—allows you to watch a frog's life cycle and perform a virtual dissection. The Merge Explorer app can be made more interactive if used with a virtual reality headset that costs \$49.99. While the Merge Cube offers an impressive array of activities for a number of STEM-related disciplines, we found its frog dissection app to be less impressive than other apps described above. This system has received a lot of acclaim, including the Parents' Choice Award, the Academics' Choice Brain Toy Award, and the Tech and Learning Award of Excellence. The manufacturer suggests it is suitable for ages 10 and above.

Other options include **Frog Dissection by GP Strategies** (an older app—we did not consider the graphics as good), **3D Anatomica** (detailed human anatomy, not nonhuman animals), and **SynFrog by SynDaver** (a synthetic frog that can be dissected without the blood and bad smells—kids enjoyed it, but at \$150 for one frog model that also requires special handling, it is one of the more expensive options).

Science educators are invited to visit the AiSPI website (animalsinscience.org) to find more information about alternatives to dissection. Once on the site, click the "Teacher Resources" button to learn about a variety of subscription-based resources AiSPI will roll out soon—including detailed class plans, workbooks, recorded classes and teacher tutorials, and the opportunity to schedule live online classes from AiSPI instructors. 🐾



USDA PHOTOS DOCUMENT HORRIFIC SUFFERING AT CHINCHILLA RESEARCH SUPPLIER



“The chinchilla’s collar was encrusted with matted fur and its tissue appeared swollen and encrusted around the collar,” wrote a USDA inspector. Following the collar’s removal, the inspector observed “an open sore around most of the neck where the collar had been,” seeping discharge with “a strong putrid odor.” The USDA has repeatedly cited Moulton Chinchilla ranch (MCR) for open sores and abscesses that have developed under the collars. It did so again this year.

The disturbing pictures included with this article, taken by a US Department of Agriculture inspector in 2017, are worth far more than a thousand words. And Moulton Chinchilla Ranch (MCR)—a licensed dealer supplying chinchillas for experimentation (see *AWI Quarterly*, summer 2020)—knows it.

In fact, by early 2018, MCR had had enough of the inspector who took them, appealing citations in his inspection report and complaining to the USDA that he was always “looking for anything to cite.” To MCR, it would seem, such photographs are not clear evidence of atrocious conditions, but rather overblown accusations from a meddlesome inspector. Further, MCR railed that, unlike USDA dairy inspectors, this one didn’t even try to help the facility and treated it “like the enemy.”

It turns out that MCR had little to fear from its alleged enemy. After the facility threatened that it “would not allow further inspections” unless the USDA addressed these baseless allegations, the department

- barred the inspector from visiting MCR;
- announced the next inspection, which—incredibly, given the advance warning—found *more* chinchillas (22) in need

of veterinary care during that October 2018 inspection than it did in any inspection before or since;

- chose not to include this particularly damning evidence from the October inspection in its November 2018 enforcement complaint; and
- failed to file a second complaint regarding all the additional citations documented in 12 inspection reports from July 2017 to March 2020.

Here, the inspector noted “strong odors where 8 chinchillas are housed above the buildup [of waste].” A dead chinchilla was found in one cage who “was bloated, had peeling skin, a strong odor, and its limbs were stiff.” During another inspection, a dead chinchilla was found who had been there so long she had to be peeled off the top of the cage.



View looking down into a soiled cage. The inspector wrote, “At least two enclosures had an excessive accumulation of wet food material around the water sipper valve.” (Valve circled below.)



This view from above shows two holes in the cage floor. “Six enclosures,” the inspector indicated, had “holes with sharp points sticking into the enclosures. Some of the holes were large enough a chinchilla could potentially escape from the enclosure.” The USDA has repeatedly documented hazardous caging at MCR.



Chinchilla with excessively matted fur on her stomach. (The pink areas are the chinchilla’s footpads.) The USDA inspector stated, “The hair mats were firm and crusted attached closely to the skin. Intervention from the attending veterinarian is needed.” Veterinarians AWI consulted suggest that this animal suffered from prolonged neglect for such a painful mass of mats to develop. Yet, the inspector failed to classify this as a critical citation.”

“The USDA defines a “critical” citation as one that has “had a serious or severe adverse effect on the health and well-being of the animal.”



A chinchilla whose right eye had swollen shut and who was hairless around her eyelids. The USDA has cited MCR repeatedly since 2014 for eye issues, including this year, when it cited the facility over a chinchilla with eyes crusted shut, swollen eyelids with hair loss, and a “thick, pale discharge.” During a six-year period from March 2014 to March 2020, USDA inspectors had to point out more than 120 chinchillas who needed veterinary care.

Because of this failure to file another complaint against MCR for its repeated flouting of the law, the USDA cannot even mention the ongoing noncompliances when a hearing before an administrative law judge (originally scheduled for April 2020) is finally held.

MCR would consider Sanford Feldman, unlike the inspector, an ally. He is the director of comparative medicine at the University of Virginia and a veterinary consultant for MCR. In May 2020, when *Science* published a damning article revealing conditions at MCR, it included quotes from Feldman asserting that the chinchillas at MCR are not “suffering terribly” and that the facility wants to “do right by the animals.” These photos prove otherwise. When research institutions and others in the industry purchase from MCR (or work with Feldman, who has a vested interest in overlooking such suffering—which is indeed terrible), they are complicit.

Many of the grim conditions evidenced by the USDA photos at MCR—from serious eye issues to widespread excrement in cages to soiled food—were also documented by the USDA this year at another research supplier, Ryerson Chinchilla. (Ryerson has over three times the number of chinchillas that MCR has.) Inexplicably, a now-retired inspector had characterized Ryerson’s failure to disclose the existence of 1,000 chinchillas at its facility and use of “painful” and “unacceptable” killing methods as “non-critical.”

Despite these abysmal records, MCR and Ryerson have supplied chinchillas to some of the most prestigious research

institutions in the world. Boston University, for one, still lists MCR and Ryerson as its only approved chinchilla vendors, months after the publication of *Science*’s devastating exposé. The USDA has apparently launched an official investigation of Ryerson (the department neither confirms nor denies such action). Time will tell if it botches that one as badly as it has with MCR. It is unconscionable that these chinchillas continue to suffer so terribly while industry and the USDA enable this wanton yet preventable abuse.

WHAT YOU CAN DO

The USDA can no longer be allowed to turn a blind eye toward such cruelty. Please send a letter or email to Kevin Shea, USDA-APHIS Administrator, 1400 Independence Avenue, SW, Washington, DC 20250, or Kevin.A.Shea@aphis.usda.gov. Respectfully ask the department to file a second complaint against MCR and include the taxpayer-funded citations it documented over the past three years—which highlight the facility’s ongoing animal abuse—and permanently revoke MCR’s license. The USDA undercuts its own inspectors when it chooses to ignore their findings.

Also, please urge the department to conduct a thorough investigation and file a complaint against Ryerson Chinchilla Ranch that fully addresses the issues uncovered by inspectors. We believe that the grave citations and suffering—in many ways eerily reminiscent of MCR—should also result in revocation of Ryerson’s breeder license. 🐾

VA TOLD TO REDUCE RELIANCE ON DOGS IN RESEARCH

A committee of experts—convened at the National Academies of Sciences, Engineering, and Medicine to review whether it is “necessary” for the US Department of Veterans Affairs (VA) to continue using dogs in biomedical research to fulfill its mission—has published its final report. After nearly two years of deliberation, the committee of researchers, physicians, veterinarians, lawyers, and bioethicists concluded that the use of dogs is “scientifically necessary for only a few areas of current [VA] biomedical research.” In addition to listing the types of research for which laboratory dogs should no longer be used (for example, diabetes, narcolepsy, or primary pharmacological studies), the report encouraged a shift toward clinical trials with companion dogs who naturally develop some of the same diseases as humans, adding that these dogs can also benefit from the research in which they participate.

The report also pointed out several deficiencies regarding the animal component of the VA’s research protocols, such as inadequate justification for the relevance of the proposed study to veterans’ health, why dogs were needed, and how investigators arrived at the number of dogs they were requesting. Certain research protocols also lacked input from key veterinary professionals to safeguard the welfare of research dogs, for example in studies where individual dogs underwent multiple surgeries. (The Animal Welfare Act discourages subjecting animals to more than one major operative experiment unless certain specific requirements are met.)

Finally, while acknowledging that current federal regulations “provide a foundation for the assessment of well-being,” the committee encouraged

the VA to look toward international regulations and guidelines, which are based on more recent literature and higher standards of care. The report offers a number of recommendations for reducing the VA’s use of laboratory dogs and improving their welfare. It recommended funding independent literature searches that emphasize replacement of dogs, not just a reduction in numbers.

LAB OVERSIGHT LAPSES DURING COVID-19

The COVID-19 pandemic has had a profound impact on many animals, and laboratory animals are no exception. The US Department of Agriculture’s routine unannounced inspections of research facilities (and suppliers of animals for experimentation) has been severely curtailed, and currently the department is prioritizing inspections based on need and safety. The USDA has stated that it is “available to discuss individual situations within facilities.”

With respect to internal oversight by the facility, *The Public Health Service*

Policy on Humane Care and Use of Laboratory Animals (which governs research conducted with federal funds) allows various “flexibilities” during a pandemic. These include (1) extending the usual interval between mandatory inspections or waiving the inspection requirement altogether, (2) conducting virtual rather than in-person site visits, and (3) having one Institutional Animal Care and Use Committee member act on behalf of the entire committee in performing a complete review/re-approval of current protocols coming up on their required three-year renewal.

GRANT OPPORTUNITY TO IMPROVE LAB ANIMAL WELFARE

Do you have a creative idea for improving the welfare of research animals? AWI offers grants of up to \$10,000 to conduct short research projects, based in the United States or Canada, aimed at improving the lives of animals in research. The deadline for applications is October 16, 2020. For more information or to apply, please visit awionline.org/refinementawards.



DEVMARYA



EXPANDING SAFE HAVEN RESOURCES FOR DOMESTIC VIOLENCE SURVIVORS WITH PETS

CUNFEK

Chris was in an abusive relationship, and she knew she had to leave. But she hesitated. She didn't have family nearby and having just moved to a new area, she hadn't made any close friends. Yet her partner grew more abusive every day. But if she sought shelter, how could she protect her dog, Caitlin, as well?

Many domestic violence survivors with companion animals have to grapple with such a question. The animals may be in grave danger, since abusers—well aware of the emotional bond between their victims and beloved companion animals—will use the threat of violence against such animals to punish or intimidate their victims.

Fortunately, there are now growing resources available for survivors to obtain shelter for their animals as they seek shelter for themselves. Those who follow AWI's Companion Animals program may already be familiar with the Safe Havens for Pets of Domestic Violence Victims national directory. Instituted in 2011, the Safe Havens directory identifies sheltering services that can assist victims of

domestic violence in placing their companion animals out of harm's way so that they may seek safety for themselves.

Safe havens operate differently from community to community. Some rely on networks of foster care homes. Some are allowed to use the additional kennel space of a local humane society or veterinarian. About 10 percent of the approximately 1,400 safe havens listed provide co-housing for both the domestic violence survivor and their pets. Depending on the local arrangement, family members may be able to visit their pets while they are in safekeeping. How long a pet can stay in a safe haven will depend on the local arrangement. In all cases, confidentiality of the pet's location is highly guarded in order to protect the pets and their family members.

For the past several years, the National Domestic Violence Hotline (The Hotline) has included a link to the Safe Havens database on its website (thehotline.org/help/pets-2). The Hotline was established in 1996 as a component of the federal Violence Against Women Act, and it is

supported by the US Health and Human Service's Family Violence Prevention Service Office, as well as contributions from individuals, corporations, and foundations. It is the only national domestic violence hotline offering free, confidential 24/7/365 support in 200 languages—by phone, digital chat, and text.

By connecting its audience to AWI's Safe Havens database, The Hotline has been pivotal in providing victims of domestic violence the resources they need to form a safety plan for themselves and their pets. In 2019, according to The Hotline, visitors to its website accessed the Safe Havens database approximately 15,000 times. Advocates at The Hotline also use the database to assist callers or chatters directly when they are seeking resources for their pets.

About 70 percent of those who accessed the database in 2019 through The Hotline's website identified as female, matching the national pattern regarding the percentage of women and men that report being victims of domestic violence. According to The Hotline, one in three women and one in seven men will be victims of severe physical violence from an intimate partner in their lifetime. Database users (regardless of gender identity) were most often from US midsize or large cities. A 2011 study (Peek-Asa et al.) found the following:

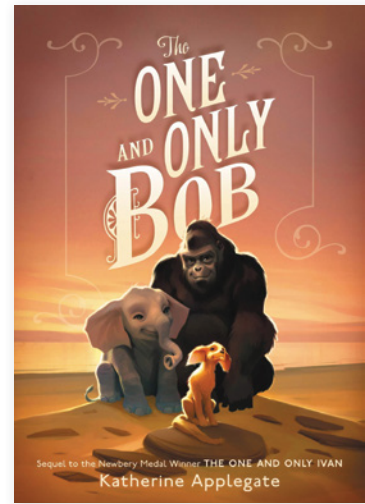
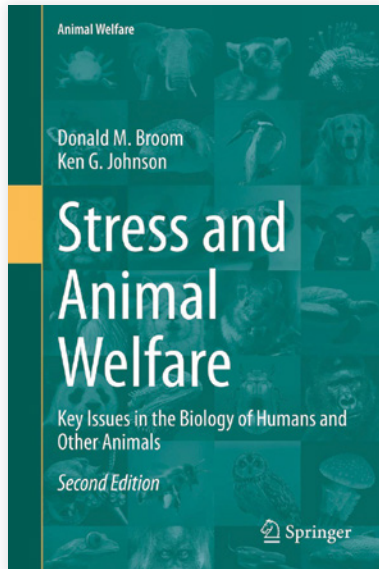
Women in small rural and isolated areas reported the highest prevalence of IPV [interpersonal violence] (22.5% and 17.9%, respectively) compared to 15.5% for urban women. Rural women reported significantly higher severity of physical abuse than their urban counterparts. The mean distance to the nearest IPV resource was three times greater for rural women than for urban women, and rural IPV programs served more counties and had fewer on-site shelter services. Over 25% of women in small rural and isolated areas lived >40 miles from the closest program, compared with <1% of women living in urban areas.

The Pet and Women Safety (PAWS) Act became law on December 20, 2018, as part of the Agriculture Improvement Act of 2018—the latest version of the extensive agricultural

appropriations package (a.k.a. the “Farm Bill”) that comes before Congress every five years or so. The PAWS Act establishes a grant program for entities that provide shelter and housing assistance for domestic violence survivors to enable them to better meet the housing needs of survivors with pets. The law also takes the important step of including pets, horses, service animals, and emotional support animals in federal law pertaining to interstate stalking, protection order violations, and restitution. These provisions provide law enforcement with additional tools for protecting victims from their abusers. We can anticipate, therefore, that more resources will be available to support existing safe havens for pets of domestic violence victims, as well as facilitate the opening of new ones.

The Safe Havens database is being accessed tens of thousands of times each year, showing the drastic need for safe shelter for victims of domestic violence and their pets. Visit awionline.org/safe-pets for more information about how your community can start a safe haven for pets. 🐾





EVERY PENGUIN IN THE WORLD

Charles Bergman / Sasquatch Books / 193 pages

In this period of canceled travel plans and rarely venturing past one's own front porch—if it can be helped—living vicariously through the adventures of people such as Charles Bergman, the author of *Every Penguin in the World: A Quest to See Them All*, has become one way to remain connected to the planet and its nonhuman inhabitants. Truly, his quest to see every species of penguin around the world can be called an adventure, as he has crossed dangerous rivers, endured gale-force winds, and occasionally sustained injuries to witness and document his favorite animal. Bergman's deep appreciation for these birds, which was sparked when he saw his first “in-person” penguin in 2003 while snorkeling in the Galapagos Islands, is evident in the book's beautiful photos and retellings of his encounters with each species.

Within each story, there is an urgent yet hopeful reminder for each of us that we must all do what we can to help preserve the natural world and its residents. Of the 18 penguin species, 10 are classified as endangered or

vulnerable, including the Galapagos penguin—the only species found north of the Equator and the least numerous of all, with an estimated 800 breeding pairs.

Throughout his pursuit, Bergman meets researchers, biologists, and sea bird sanctuary personnel who are dedicated to penguin conservation. But, as he points out, even non-experts can help by volunteering, voting, and supporting science and fact-based recommendations. A list of resources to aid readers in doing so can be found at the end of the book. After all, says Bergman: “If we cannot save what we love, and everyone loves penguins, what can we save?”

STRESS AND ANIMAL WELFARE, 2ND EDITION

Donald Broom and Ken Johnston / Springer / 230 pages

The second edition of *Stress and Animal Welfare* describes the current understanding of how stress in humans and animals is connected to their welfare. It provides information

that is essential for understanding how to assess impacts of various stressors on animals and will be helpful to individuals and entities responsible for the welfare of animals in a variety of settings—whether it be research, exhibition, production, companion, sport, or wildlife.

In the 26 years since the book's first edition was published, the science of animal welfare has rapidly advanced, and improved methods have emerged to enable a greater understanding of the link between physiological stress responses and welfare. In this edition, authors Broom and Johnston review the increasing evidence of similarities between humans and many animal species in cognitive ability and the capacity for emotions and feelings that can be affected by stress.

The authors explore how individuals respond and adapt to pain and other stress-inducing factors. They discuss how to promote good welfare and the principles and methods for assessing welfare in a quantitative and objective manner. Broom and Johnston also delve into the ethical aspects of addressing contemporary world challenges—such as sustainable food production—and the need to consider stress and other impacts on human and animal welfare when making decisions related to these challenges. (Interestingly, they describe the development of antimicrobial-resistant pathogens as the greatest global threat to human and animal welfare.)

As human society has evolved, so has the relationship between humans and other animals. While this has resulted in improved welfare for many animals, some changing relationships have been to the detriment of other animals. With recent advances in animal welfare science that provide better ways to objectively identify, assess, and alleviate poor welfare, strategies can and should now be developed to avoid such detriments. *Stress and Animal Welfare* provides a science-based framework for society to provide improved sustainable welfare for all animals and people.

—Dr. William Stokes, AWI Board of Directors

THE ONE AND ONLY BOB

Katherine Applegate / HarperCollins / 352 pages

Bob has not had an easy life. As a puppy, he and his siblings were thrown from a truck window by a cruel owner. Bruised and starving, Bob found his way to the Exit 8 Big Top Mall and Video Arcade, home of Ivan, a gorilla who spent 27 years of his life in a cage and who became Bob's best friend.

In this long-awaited sequel to Applegate's Newbery Medal-winning 2012 book, *The One and Only Ivan* (recently adapted into a feature film streaming on Disney+), the Big Top Mall has closed and the animal residents have been dispersed to zoos and sanctuaries around the country. Ivan and Ruby, a baby elephant, now reside in the local zoo. Bob has found a home with the family of the former mall caretaker, but he's having trouble settling in—even after a year he still has the sense that he has to find shelter, safety, somewhere to belong. And, although Bob bills himself as "untamed and undaunted," deep down he believes himself to be a coward.

Bob has reason to doubt his bravery—after his flight from the truck window, he heard the cries of his sister but he didn't try very hard to find her. When her yelps stopped, part of him was relieved, because as a small puppy himself, it was all he could do to take care of himself. He has spent his few years of life believing himself to be alone, and living with the guilt. But when a hurricane strikes the zoo and a nearby animal shelter, it's Bob who leads the rescue efforts, finding courage he didn't know he had.

The One and Only Bob is about being tested and rising to the occasion, making amends and finding the true meaning of family. In true Applegate style, the book touches on big ideas and big themes without preaching. Bob notes that the zoo that is Ivan and Ruby's home is an improvement over a cage in a mall but is not perfect: "A perfect place would not need walls." But "when you're an animal it helps to be a realist." Recommended for ages 8–12, but an engaging and uplifting story for readers of all ages.

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.



Animal Welfare Institute

900 Pennsylvania Avenue, SE, Washington, DC 20003

Return Service Requested

Non-Profit Org.
US Postage
PAID
Washington, DC
Permit No. 2300

f facebook.com/animalwelfareinstitute

t @AWIonline i @AWIonline



ALL US STATES NOW ALLOW VETS TO REPORT SUSPECTED ANIMAL ABUSE

The crucial role of veterinarians in identifying and reporting suspected animal abuse is becoming clearer—to the public, to law enforcement, to veterinarians themselves, and to lawmakers. Most recently, thanks to a decade-long effort by both activists and the state's veterinary medical association, Kentucky ended its prohibition on vets reporting animal abuse. The law now permits (though does not mandate) vets to make good-faith reports of suspected animal abuse to law enforcement in most cases. If the suspected abuse involves an “animal for which an on-farm livestock or poultry care standard has been promulgated,” then the vet may report it only to the state veterinarian.

All 50 states now either permit or require vets to report suspected animal cruelty; it is mandatory in 19 states. Their input could be crucial: In a 2017 survey, 87 percent of vets who responded reported having encountered at least one case of animal abuse. Moreover, the connection between animal cruelty and interpersonal violence—particularly domestic violence, elder abuse, and child abuse—means vets may be one of the first outside a home to detect signs that family members may be in danger.

While the profession comes to terms with the growing expectation that vets are among the “first responders”

to both animal abuse and family violence, many vets remain uncomfortable with the idea—feeling that their education has not trained them sufficiently to recognize signs of abuse and to differentiate between abuse and accidental injuries. In fact, the 2017 survey concluded that there is a significant need to improve education and communication regarding detection and reporting of animal abuse.

In response to this need, AWI, in consultation with two esteemed forensic veterinarians, developed posters for vets that provide cues as to signs that might suggest that a pet's condition is due to maltreatment, as well as guidance concerning what to do if abuse is suspected. These posters may be downloaded from our website at awionline.org/vet-posters, and hard copies are available free of charge. 🐾

