

2116

Newsletter

2022
Volume 1



I hope you enjoy this inaugural edition of the 2116 Advisors newsletter. We're honored to bring you, our closest friends, behind the scenes at the San Diego Zoo and San Diego Zoo Safari Park, and into the heart of our conservation work worldwide. This digest of the latest news, updates, and happenings at San Diego Zoo Wildlife Alliance has been curated exclusively for you, our 2116 Advisors. It's your unique look at all you make possible for our organization—and for wildlife and ecosystems around the globe. We're so grateful for you, and that you share our commitment to a world where all life thrives. I look forward to many incredible moments and all we can accomplish together through this special advisory board.

Together for wildlife,

Paul A. Baribault
President and Chief Executive Officer



SAN DIEGO ZOO WILDLIFE ALLIANCE

2116

TWENTY-ONE SIXTEEN ADVISORS



The World Is in Your Hands



This is exclusively for you, our San Diego Zoo Wildlife Alliance (SDZWA) 2116 Advisors. On the following page, you'll find a list of stories that serves as a functional Table of Contents. **To read more, simply click the link** and you'll be taken directly to that story within the newsletter. If you prefer to browse, skip straight to page 4

to discover the latest from the San Diego Zoo, San Diego Zoo Safari Park, and collaborative conservation field projects worldwide. Thank you for being part of this important group, and for all you make possible. We're here for you—today and always. Please reach out to us at any time. We look forward to hearing from you. 📧

At the Zoo
River hippos are making a splash

At the Safari Park
A refuge for wildlife confiscated from illegal trafficking

Around the World
The surprising way insects are saving endangered lemurs

In the News
A giraffe calf walks with the help of human leg braces



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Click the title to view the story

MEDIA REACH & HIGHLIGHTS IN THE NEWS

This year, we’ve garnered over **2.4 billion views** across social media and **55.4 billion views** in earned media, representing more than **\$105 million** in media value.

Here are some of our latest highlights:

THE TODAY SHOW ▶

Penguin given life-saving booties

ABC 10NEWS ▶

Baby rhino gives hope to related species

THE ECONOMIST

The health-giving benefits of Jacuzzis—for frogs

LA TIMES

Scientists find new and mysterious DDT chemicals accumulating in California condors

KTLA ▶

KTLA came to experience and showcase Denny Sanford Wildlife Explorers Basecamp in mid-June. The 2-minute segment aired on July 3

NATIONAL GEOGRAPHIC EN ESPAÑOL

México es el mejor candidato para que el mítico cóndor californiano se recupere de la extinción

SCIENCE TIMES

Cryogenics, the Freezing of Cells, is Helping Save Endangered Species

ACCESS DAILY ▶

with Mario Lopez

ASSOCIATED PRESS

San Diego Zoo welcomes 1st aardvark birth in years

MSN

San Diego Zoo Partners in Research to Save Endangered Chinese Giant Salamander

SAN DIEGO ZOO WILDLIFE ALLIANCE JOURNAL



September/
October 2022

This edition focuses on our Asian Rainforest hub and the Safari Park’s Bird Breeding Center, home to the only milky storks in North America.

ACROSS THE ALLIANCE



Lesser flamingo

Preparing for HPAI

We've been monitoring and preparing for Avian Influenza (HPAI) to make its way to San Diego. To protect the hundreds of birds in outdoor habitats at the Zoo and Safari Park—such as the

flamingo flocks—we're in the process of moving them to protected, covered areas, and/or installing protective covering over their habitats to keep them safe and healthy. 🦋

Always Innovating

MORE ALLIES FOR WILDLIFE

To begin promotion of our Admission Applied program, we've updated the new mobile app beacon toward the exit at the Zoo. With the program, visitors can apply the cost of their ticket toward the purchase of a new membership, making it easier for guests to join us as Allies for wildlife and increasing our membership.

CONSERVATION SCIENCE

Our Reproductive Sciences team is developing a method to separate sperm that is genetically male versus female, using a specialized cell sorting instrument. Cell sorting is a powerful tool that allows isolation of a single cell from within a mix of different cells. The biological sex of an individual is based on the type of DNA present in an individual sperm cell: once joined with an egg, sperm with an X chromosome will produce a female, while a Y chromosome will result in a male. To prevent an imbalance of sexes,



Innovative wildlife health care

and therefore support the success of a conservation breeding program, male and female offspring should be in proportion. We are developing ways to use the cell sorter to isolate X and Y chromosomal sperm, in an effort to improve artificial reproductive techniques as part of our mammalian, avian, and reptilian conservation programs.

VETERINARY CARE

To assist with breathing while under anesthesia, patients typically receive an orotracheal tube that goes through the mouth, down the trachea (windpipe) to the lungs. Recently, a Somali wild ass at the Safari Park needed dental work under anesthesia, but a tube in the animal's mouth would have prevented our veterinary consultant from working effectively. This case therefore required inserting the tube through the nose, rather than the mouth. Lacking an appropriately sized tube, our Wildlife Health team worked with a veterinary supply company to create custom-made tubes for this specific purpose. By adding these tubes to our supply of equipment, we've improved our patient care by reducing the time needed to complete procedures, thus reducing the amount of time patients are under anesthesia. We will also be able to use these tubes in routine exams for other species. 🦋

GROWING MEMBERSHIP

*We have seen
a massive growth
in membership,
with an
increase of
30,000
new members
since 2019.*

Philanthropy



Denny Sanford Wildlife Explorers Basecamp at the San Diego Zoo



LEAVING A LEGACY: KICKING OFF A NEW EVENT

Our Heritage Guild members are a special group of supporters who have confirmed to us that we're included in their will, trust, or estate plans. In July, we held the first-ever Heritage Guild event. Guests enjoyed an early morning at the Zoo with a delicious breakfast buffet, followed by an engaging panel presentation on Denny Sanford Wildlife Explorers Basecamp from panelists Eamonn Farrell, Vice President of Construction Management, Vanessa Nevers, Lead Architect, and Paige Howorth, McKinney Family Curator of Invertebrates. After the event, guests were encouraged to stay and experience the wonders of Basecamp first hand. One guest wrote in afterwards, "The speakers gave us special insight on Basecamp. We revisited the area with renewed appreciation. Their information on the recycling effort was really interesting...The breakfast was the best I have ever had at the Zoo."



Celebrating for a cause

ENGAGING WILDLIFE ALLIES

Wildlife Health teams—including Veterinary Services, Clinical Laboratories, Wildlife Nutrition, and Disease Investigations—partner up to engage and educate our members and guests. During a recent early morning event at the Zoo for our Wildlife

Guardians members, teammates were on hand with the tools of their trade to provide members an up-close-and-personal look into their unique jobs. This was a rewarding—and important—opportunity to share our knowledge and passion with others, and to engage our wildlife Allies.

TOGETHER AGAIN— FOR AN “ELE-FANTASTIC” CAUSE

In June, we were thrilled to celebrate the 2022 Rendezvous In The Zoo (R-I-T-Z) gala with current and prospective donors, city government officials, and close connections. This “Ele-fantastic Night” of fun was the first in-person gala in three years, and benefitted one of the largest endeavors in SDZWA history: [Denny Sanford Elephant Valley at the Safari Park.](#)

State and local elected officials attended R-I-T-Z, including State Senate pro Tem Toni Atkins, Assemblymember Chris Ward, Mayor Todd Gloria, and San Diego Councilmembers Raul Campillo and Stephen Whitburn. Their attendance provided an opportunity to learn more about SDZWA's key priorities and engage with the SDZWA Executive Team and Trustees.



An “Ele-fantastic” evening



THE LARGEST GIFT, FOR EARTH'S LARGEST LAND ANIMALS

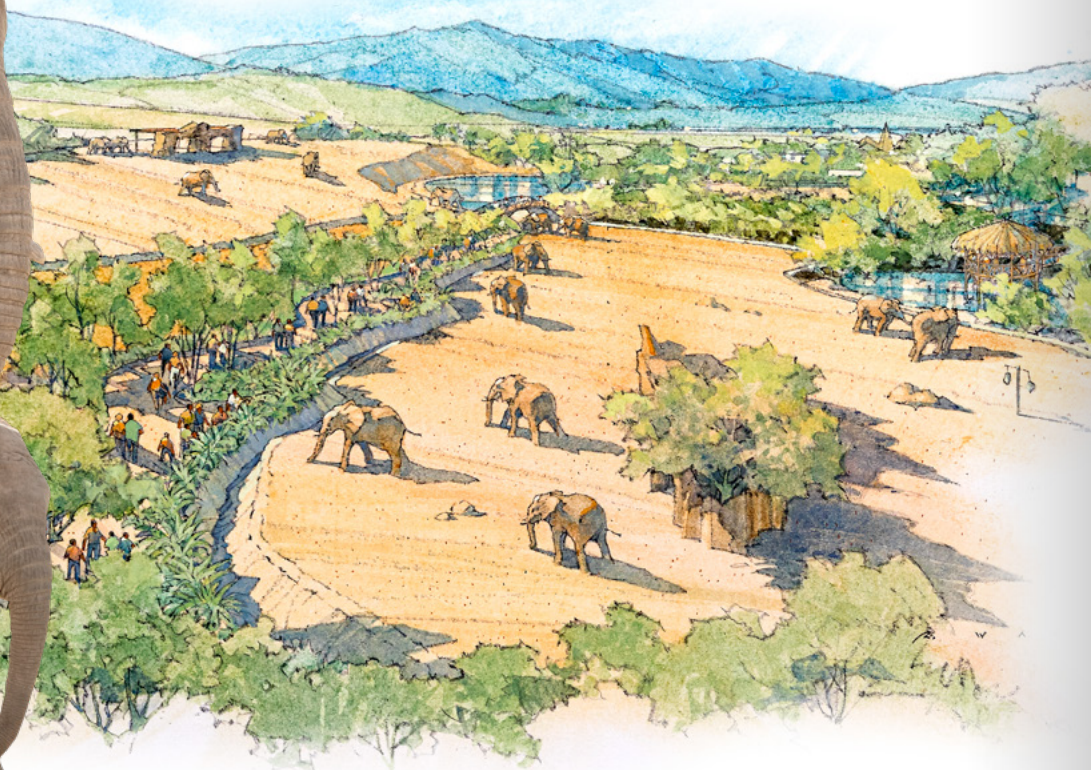
We're honored to share the largest gift in the Safari Park's 50-year history.

Denny Sanford has generously given \$25 million to name Denny Sanford Elephant Valley. Denny's long history of support of our organization has helped fund Denny Sanford Wildlife Explorers Basecamp at the San Diego Zoo as well as the San Diego Zoo Wildlife Explorers Channel, our closed-circuit television channel, which is viewed in 364 children's hospitals and Ronald McDonald Houses in 48 states and 13 countries.

Rendering of Denny Sanford Elephant Valley

In addition to this milestone gift, friends like you are helping build this one-of-a-kind home for African elephants. With your support, we're creating a special place to make lifelong connections with these gentle giants and secure a future for elephants worldwide. Collective gifts from donors like you have raised an additional \$12 million, for a total of more than \$37 million—propelling us toward our \$60 million fundraising goal.

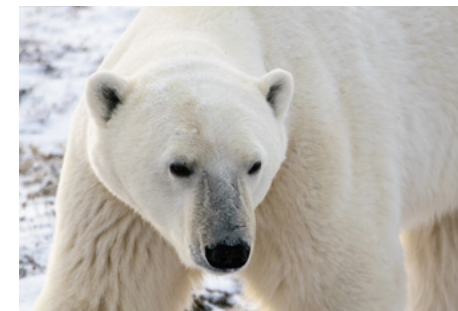
Provided we're able to meet key fundraising milestones in time, we plan to break ground later this year. We extend our deepest gratitude to Denny, and to all of you who have given to this incredible project. 🐘



Government Relations



California condor, 'akikiki (Hawaiian honeycreeper), polar bear, desert tortoise



U.S. Fish and Wildlife Service (FWS) director Martha Williams met with Paul Baribault, Dr. Megan Owen, and Andrea Caldwell to introduce the director to SDZWA and our mission. They provided an overview of our organization, audience reach, and OneHealth approach, and discussed our key partnerships with FWS through the decades, including California condors,

Hawaiian birds, polar bears, and desert tortoises. The value of biobanking was a highlight of the conversation, as we continue to advocate for its inclusion as part of species recovery planning. Director Williams was very engaged and noted our shared missions. We look forward to a continued positive relationship with Director Williams and her department.

Paul Baribault and Jeff Opdycke met with U.S. Ambassador to the Republic of Madagascar Claire Pierangelo. She shared her experiences as a new ambassador and recommendations on working with the State Department. She also met with SDZWA team members on our current and historical work in Madagascar.

Senator Dick Durbin's Chief of Staff Pat Souders visited the Zoo with his family on June 24. Paul Baribault and Shawn Dixon welcomed him and shared their appreciation for his support, working with Senator Durbin and other legislators to secure the Shuttered Venue funding during the COVID-19 pandemic. 🐘



Click the bolded words
to be taken to the podcast

AMAZING WILDLIFE: A SAN DIEGO ZOO PODCAST

Our first-ever podcast is proving to be a wild success. Since it debuted less than a year ago, it's climbed the charts, currently sitting in the top ten for Apple podcasts Pets & Animals category, and ranking 15th in Kids & Family. Each episode brings listeners into our work, sharing fun facts about familiar favorite wildlife—like **jaguars, elephants, and penguins**—while helping them discover the planet's more unusual species, including **pink iguanas, the last wild horses, and Africa's "unicorn"**, and how their support is helping protect them.



Dr. Jane Goodall, DBE, Founder of the Jane Goodall Institute, UN Messenger of Peace
Photo courtesy of JGI/Bill Wallauer

AMAZING WILDLIFE EXCLUSIVE

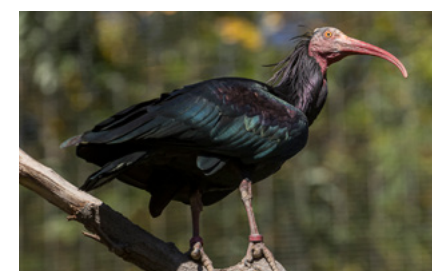
Join global phenomenon and world-renowned conservationist, Dr. Jane Goodall, as she shares her lifelong passion for wildlife and her commitment to saving our natural world with Paul Baribault, President and Chief Executive Officer for San Diego Zoo Wildlife Alliance. **The two sit down and chat** about Jane's lifelong commitment to conservation, and as Chair of the Jane Goodall Institute's USA Board of Directors, Paul talks with his friend about her love for chimpanzees and what it will take to protect and save our closest relatives—and the planet we all share.

NEW ARRIVALS



Dwarf mongooses

We recently welcomed two male dwarf mongooses from the Brookfield Zoo for breeding with females at the San Diego Zoo, as a Species Survival Plan (SSP) recommendation.



Waldrapp ibis

Two Waldrapp ibis have just fledged! These two females are from an SSP-recommended pairing to help save this endangered species.

Five harlequin ducks are thriving after being artificially incubated and hatched. This is only the second time that we have cared for chicks from this species.

New Ambassadors

This spring, we were thrilled to welcome Nandi, **the first aardvark cub born at the Zoo in more than 35 years**. Born to first-time aardvark parents, mother Zola and father Azaan, Nandi is thriving. She recently joined Zola in her first adventure as a Rady wildlife ambassador in Conrad Prebys Africa Rocks.



Aardvark cub

In June, **a Linnaeus's two-toed sloth was born at Denny Sanford Wildlife Explorers Basecamp**. The baby sloth is doing well, instinctively clinging to its mother, nursing and gaining strength each day. The little one was born June 25 to mother Xena, who herself was born at the Zoo in 2013 and is one of the most popular Rady wildlife ambassadors.

Each year, wildlife ambassadors connect millions of visitors with their species, offering a chance for

guests and allies to come face to face (or nose to nose!) with a species they may never have encountered or heard of before. They're a critical part of our work to inspire, educate, and engage—and ultimately connect wildlife allies with the natural world. 🌿



River hippos

A Temporary Home for Hippos

On July 19, female river hippo Funani and her daughter Amahle successfully moved from their habitat in Ituri Forest to their temporary habitat in Urban Jungle. They'll remain in Urban Jungle until their habitat refurbishment is complete. 🌿



African Forest



Ring-tailed lemurs

HAPPENING

- at the Zoo
- at the Safari Park
- worldwide

Celebrating New Arrivals

We celebrate [the birth of a ring-tailed lemur within the Conrad Prebys Africa Rocks Madagascar Forest habitat](#). The female infant was born to first-time lemur mother, Rindra. The baby is thriving, nursing well and gaining weight. There are more than 100 species of lemurs—all native

to the island of Madagascar, and all considered threatened or endangered. Ring-tailed lemurs are listed as Endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, primarily due to habitat destruction, hunting and illegal wildlife trade—**making every birth a critical addition to the global population of the species.**

Good News for Endangered Blooms

For the first time since 2009, our coral trees produced blooms. These critically endangered trees are part of our accredited botanical collection and are native to Southern Africa.



Coral trees

Caring for Rescued Wildlife

We partner with Limbe Wildlife Centre (LWC) in Cameroon to care for primates rescued from the commercial bushmeat trade. The African Forest program recently donated two of our retired field vehicles to the LWC. Coming at a vital time for LWC, the vehicles are essential in transporting fresh vegetation from farms on the flanks of Mount Cameroon—an active volcano, renowned throughout Africa for its rich, fertile soil—back to feed primates in the care of LWC. This “greens project” also enables women’s groups in the area to earn income by selling to LWC what would otherwise be waste vegetation material.

Honoring Community Conservation

One of the last remaining intact forests in all of Central Africa, Cameroon’s Ebo forest is not only a biodiversity hotspot and a site of global importance to our planet’s overall health, it is also a key habitat for some of the most endangered primates on Earth. And new discoveries are routinely being

made there. Recently, a plant species in the forest was newly described to science. The small plant is found only in the Ebo forest, growing on rocky basalt outcrops called inselbergs. The plant has been called *Impatiens banen*, named after the Banen tribe, which is situated around the Ebo forest. Together with local community partners, and our partners at the Royal Botanic Gardens, Kew, we agreed on the name to acknowledge the long history of Banen people protecting the critical Ebo habitat.

Finding Solutions Together: Insects Helping Save Lemurs?

Andohahela National Park in southeast Madagascar is a unique ecosystem and home to 10 lemur species threatened by forest degradation and hunting. To alleviate these threats, we recently kicked off a collaborative effort to provide nearby rural villages with a sustainable, alternative protein source: an insect called sakondry. This insect is high in protein and fiber and is affectionately known as the “bacon bug,” due to its bacon-like taste. We’re working with local communities on how to farm, harvest, and cook them. So far, over 600 households have responded enthusiastically! With annual monitoring of the nearby protected forest, we expect to see a decreased reliance on bushmeat, and an increase in lemur population densities. 🐛



Amazonia



Andean bear

Saving Cycads

The Horticulture team planted eight cycads in the Fishing Village Bridge landscape. The cycads were sent to the Safari Park by the University of California Botanic Garden through our participation in the Global Cycad Conservation Consortium, as part of collaborative efforts to save these threatened species.

Forest Education

Deep inside Peru's Manu National Park, in protected areas only accessible by river, live the Matsigenka Indigenous people. Recently, fifth and sixth grade students from the community of Yomibato visited Cocha Cashu Biological Station as part of the EduCashu program hosted by our Amazonia team in Peru. The students were accompanied by teachers and parents from the community, who also participated in the activities. Across two days, the students shared scientific and traditional insights about life in the forest and identified plants and birds on the station's forest trails. Discussions with our team included methods of studying

giant otters and fish in the park's oxbow lakes, as well as the recent findings by our giant otter research program on the effectiveness of protected areas in the Amazon. **All conservation is local, and community outreach is critical to our global conservation programs.**

Andes to Amazon

SDZWA conservation scientists participated in a 3-day virtual seminar series celebrating the 49th anniversary of Peru's Manu National Park. **During the event, government officials, researchers, and students shared information and learned about the park's importance for biodiversity conservation from the Andes to the Amazon.** Members of our San Diego- and Peru-based Amazonia team led discussions on themes including the legacy of Cocha Cashu Biological Station and challenges for the field station in the 21st century, the contributions of Amazon protected areas to the conservation of aquatic biodiversity, and how the diversity of terrestrial mammals changes with elevation in the Manu Biosphere Reserve. 📖

HAPPENING

- at the Zoo
- at the Safari Park
- worldwide



Asian Rainforest



Better Together

We're working with the European Association of Zoos and Aquariums (EAZA) ex situ program (EEP), and the AZA species survival plan (SSP), to protect global wildlife populations through conservation breeding programs that protect and increase global populations. The San Diego Zoo is the only AZA institution in the US to successfully breed Mangshan pit vipers. **Recently, we helped move three of this endangered species from the Zoo to the Zoological Society of London as part of the collaborative effort to save this endangered species.**



Milky stork chick

Rescued Orchid

At the Zoo, the Paphiopedilum hangianum—a beautiful orchid with large, distinct flowers—bloomed for the first time in 5 years. **This species is critically endangered and came into our care as a confiscation in 2000.**

Saving Milky Storks

This spring, a milky stork chick hatched to a pair of first-time parents at the Safari Park's Bird Breeding Center. Currently, 21 storks, including 10 breeding pairs, make up the flock at the Safari Park—the only one in the western hemisphere. Every chick is a critical addition for this endangered species, and the new chick represents critical genetic diversity. **Stork numbers in native habitats are steadily decreasing, and this collaborative conservation breeding program plays a critical role in securing the future of the species.**

Community Engagement

Conservation is local—and begins with understanding. Our Community Engagement and Horticulture teams collaborated on a questionnaire designed to provide insight on motivations for harvesting wild orchids in Vietnam. In the questionnaire, we ask about illegal trading practices—such as selling wild-harvested orchids internationally—as well as the respondents' level of "conservation-mindedness." **The goal is to understand opportunities to engage with communities who may be harvesting orchids unsustainably. From there, we look to work collaboratively with these communities on conservation efforts, such as propagation of rare and/or endangered species that these individuals may already have in their collections. The teams should be able to analyze and report the results by October.** 📖



Australian Forest

HAPPENING

- at the Zoo
- at the Safari Park
- worldwide

New Babies on the Horizon?

Wildlife care specialists observed breeding between two Matschie's tree kangaroos. They can't confirm pregnancy just yet, and are monitoring female Arona carefully. **If she is pregnant, the joey will be an important addition to the global population of this endangered species.**

Devil's in the Details

Loss of genetic diversity in wildlife is associated with decreased health, which includes higher disease susceptibility. **Using genome data to study genetic diversity is important to better understand the relationship between genes and disease.** Tasmanian devils are endangered. And in their native habitats, they're highly susceptible to Devil Facial Tumor Disease, presenting a significant threat to the future of the species. A new study—supported in part by SDZWA and carried out by our Australian partners—analyzed genomes of populations under human care (known as assurance populations) versus those in their native habitats, and discovered that they have similar levels of genetic diversity levels. This is good news, showing that the assurance populations can help reestablish healthy populations in native habitat in Tasmania, if needed.



Tasmanian devil



Coconut lorikeet

Solving a Healthcare Puzzle

The flock of 40 coconut lorikeets at the Safari Park began showing subtle signs of illness in April, prompting a collaborative care and health effort between teams in Veterinary Services, Disease Investigations, and Avian Wildlife Care. **The teams worked together to diagnose, hospitalize, and provide individualized care for the birds.** Diagnostics included physical

exams, chemistry and molecular diagnostics, and food and toxin analyses. Extensive investigations identified a bacterial intestinal infection as the cause of illness, which resulted in a few deaths. The birds were treated with antimicrobials, supportive feeding, and several additional therapies. One bird is still undergoing treatment, and all other birds have been successfully treated.

Celebrating New Arrivals

The Avian Propagation Center has successfully hand-reared five Wonga pigeon chicks this year, from five artificially incubated eggs. One more egg is being incubated and expected to hatch.



North Island brown kiwi

A Different Kind of Kiwi

We've achieved a conservation milestone with the [hatching of a North Island brown kiwi](#)—the first time this species has hatched at the Safari Park. The male chick hatched on June 13, and brings valuable genetic diversity to the very small brown kiwi population in North America. 🦜



California condor



Southwest

Vital Condor Reintroductions

After eight years of continuous attempts to restart exportation of juvenile condors from our conservation breeding program to Baja California, Mexico, our Wildlife Health, Wildlife Care, and Conservation Science teams successfully shipped two juvenile

HAPPENING

- at the Zoo
- at the Safari Park
- worldwide

condors to Baja California this May. **These condors not only increase the population but provide valuable genetic diversity to the growing Baja California flock.** The degree of work required for permitting and the steps needed to clear these birds to cross the border cannot be overstated; our teams worked incredibly hard to reach this important milestone and were thrilled to see the birds off.

Exploring Native Plants

Zoo Horticulture hosts Plant Days throughout the year, with various themes. In July, we focused on native plants, ecosystems, and oak conservation work. In August, the tour highlighted our amazing hibiscus collection on grounds.

Wildlife Confiscations

Flora

We received a plant confiscation of 881 pounds of cactus and euphorbia seized by the U.S. Fish and Wildlife Service. As a plant confiscation organization, SDZWA can include these plants in our botanical collections and disseminate

them to other confiscation partners, protecting the plants and ensuring they're in good hands.

Fauna

SDZWA's reptile department and Wildlife Health teams worked together to care for nearly 60 reptiles of various species recently confiscated by U.S. Fish and Wildlife Service (USFWS) at the US-Mexico border. This care required intensive collaboration, time, and attention by all involved. As with most confiscations, many of the animals arrived in poor condition, needing quarantine, health assessments, treatments, and sensitive management. Our extraordinarily dedicated teams have worked around the clock to improve the animals' well-being, as well as to detect diseases of concern to other reptiles, and provide evidence to USFWS to prosecute wildlife crimes. **SDZWA has helped care for trafficked wildlife for over 50 years. Today, we are also a platinum partner of AZA Wildlife Trafficking Alliance, and our teams are helping design the Southern California Wildlife Confiscations Network.**

New Insights into Environmental Contamination

A new study with SDZWA co-authors has found that marine mammal carcasses on the California coast contain relatively high levels of chemical contaminants. Contaminated carcasses present a potential risk to California condors: as scavengers, condors living on the coast are eating the contaminated carcasses and are therefore ingesting chemicals such as DDT. These chemicals may interfere with condor physiology, including reproduction and egg development. The study compared contamination levels on the California versus Baja California (Mexico) coasts and found lower levels in the Baja area. **This study indicates the value of the Baja site for future condor reintroductions, and importantly, it also identifies novel chemicals that may pose risk to wildlife and environmental health.**

Innovating for Endangered Frogs

Our mountain yellow-legged frog team has successfully used artificial fertilization (AF) techniques to create viable embryos in the lab. The process involved manually fertilizing oocytes (eggs) with sperm; the result was the creation of roughly 250 embryos. **Although AF practices have been developed for many amphibian species over the past decade, its use in conservation programs has**



Southwest

been limited. AF technology has the potential to improve reproductive outcomes in conservation populations. Additionally, we can use these protocols to collect sperm from wild males and bring it into our facilities to fertilize the eggs of females under our care—increasing genetic diversity in our conservation breeding programs without the need to remove vital animals from the landscape.

Parrot Recorders

Our Conservation Science team successfully deployed eight acoustic recorders in two thick-billed parrot nesting areas in the Sierra Madre mountains in Chihuahua, Mexico. With these in place, we'll record the loud and boisterous calls of endangered thick-billed parrots for

six months. We can then analyze the recordings to gauge their “call rates”—meaning where, when, and how often they call. To ensure clarity, we're using artificial intelligence programs that can separate parrot calls from ambient forest noise (e.g., wind, rain, and lots of cicadas). Our aim is to use call rates as indicators of thick-billed parrot abundance in the area—vital information for conservation and protection programs.

Reaching Future Generations

This year, our Community Engagement team conducted their 17th summer of Teacher Workshops in Conservation Science, hosting 160 formal and informal middle and high school educators and pre-service teachers across 5 different weeks.

Mountain yellow-legged frog

Participants joined from 24 states, Washington D.C., and 3 countries, spending three days at the Safari Park and Arnold and Mabel Beckman Center for Conservation Research. They engaged in laboratory and field-based activities and experiences that share recent advances in conservation research and connect them to wildlife conservation. These are replicable and standard-based conservation science activities that are then brought back to their classrooms anywhere in the country or world. These workshops are part of SDZWA's mission to engage and inspire conservation allies everywhere.

Little Locals

Eight burrowing owl chicks are currently living in the habitat at Condor Ridge, and six chicks can be seen on Owl Cam at the Bird Conservation Center. All of the birds will be reintroduced into protected areas of native local habitat later this year as part of our ongoing efforts to conserve this locally threatened species.

Western burrowing owls

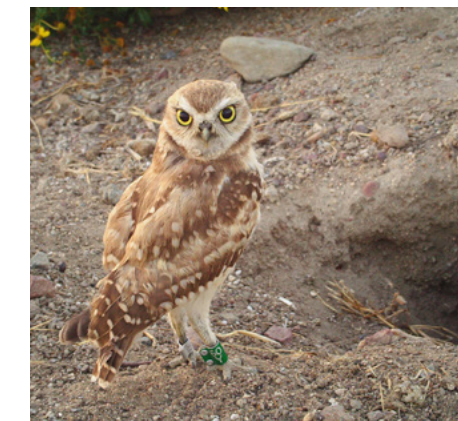
HAPPENING

- at the Zoo
- at the Safari Park
- worldwide

Third Condor Parthenote Confirmed

Last year, SDZWA conservation scientists made headlines across the globe when they discovered that California condors are capable of parthenogenesis, a natural form of asexual reproduction in which offspring are produced without genetic contributions from a male. Through routine genetic testing in our condor breeding program, they identified two such parthenote offspring. Recently, care specialists at the World Center for Birds of Prey in Idaho suspected that a condor produced a parthenote, as she had laid an egg despite not mating

for many years. Our Conservation Genetics team analyzed a sample from the egg (the chick did not fully develop or hatch) and, using a DNA profiling system, confirmed that the chick did not have any genetic match for a father. This is only the third condor parthenote ever confirmed, and also indicates that parthenogenesis may be relatively common in condors. Further studies of the genomes of the three parthenotes can provide us with critical information about the genetics—and therefore the health—of the larger California condor population. ■





Savanna



African lions

New Pride

The Safari Park welcomed [three new female African lions](#) in July. The three eight-year old sisters, named Malika, Zuri, and Amira, are the great-grand cubs of the Safari Park's

HAPPENING

- at the Zoo
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- worldwide

beloved male lion Izu and lioness Mina, who lived at the Safari Park for 18 years. The lionesses were moved here from the Caldwell Zoo in Texas following a recommendation from the Association of Zoos and Aquariums (AZA) Species Survival Plan (SSP) to maintain and manage a healthy and diverse population. According to the International Union for Conservation of Nature (IUCN), the African lion is listed as a vulnerable species. Its population is likely less than 40,000, due to habitat loss, issues threatening human-wildlife coexistence, poaching, and wildlife trafficking.

Conservation partners and government officials break ground



New Community Center

In Laikipia County, Kenya, our leopard conservation team—called Uhifadhi wa Chui, which means “leopard conservation” in Kiswahili—co-hosted a groundbreaking event with Loisaba Conservancy. The event benefitted the Chui Mamas Center, a new community headquarters for local enterprise and conservation planning. Chui Mamas is a community-based women's

organization established and led by local women to enhance capacity and income opportunities linked to wildlife and habitat conservation. The Center will be a base for over 300 women from the surrounding

community conservancies, including spaces for their shops and a meeting hall for conservation events, as they work together to provide income for their families while protecting local wildlife.



Nola, a northern white rhino that lived at the San Diego Zoo Safari Park



Savanna

HAPPENING

- at the Zoo
- at the Safari Park
- worldwide

Hope for the Northern White Rhino

In a multinational and cross-departmental team effort this spring, conservation scientists, veterinarians, and wildlife care specialists successfully collected 18 oocytes (eggs) from 5 southern white rhinoceros (SWR) through the process of ovum pick-up (OPU). The oocytes collected via OPU are crucial in our teams' investigation of how to produce rhino embryos in the lab. Only two northern white rhinos (NWR) are left on the planet—a mother-daughter pair unable to breed—and in the essential final step of our program to save them, our Reproductive Sciences team is developing in vitro oocyte maturation and embryo production protocols. Once perfected, lab-produced NWR embryos will be transferred to SWR surrogate mothers for gestation. Following the recent OPU, we reached a significant milestone when 56 percent of the oocytes matured in vitro!

World Giraffe Day

Twiga Walinzi ("Giraffe Guards"; a community-led giraffe conservation group) hosted World Giraffe Day celebrations with three communities in northern Kenya. Giraffe conservation in this region has greatly benefitted from community leadership, involvement, and collaboration. The celebrations included gatherings that showcased conservation talks, school group performances, and women's choirs. These were all part of worldwide celebrations to recognize giraffe conservation, including those at the San Diego Zoo giraffe habitat, where guests learned about giraffes from our Wildlife Care, Horticulture, Conservation Science, Education, and Volunteer departments.

Reaffirming One Health

Together with partners Stellenbosch University (SU) Animal Tuberculosis (TB) Research Group and South African National Parks Veterinary Wildlife Services, we participated in the largest study ever conducted on a free-ranging population of rhinoceroses, which revealed that about one in every seven rhinos in a key South African national park has

been infected with *Mycobacterium bovis* (*M. bovis*), the pathogen that causes bovine tuberculosis (bTB). While the research results prompted concern, evidence provided by the study is crucial to support effective conservation efforts to protect the already vulnerable rhino population. Added to this, scientists with the Animal TB Research Group, situated within SU's Faculty of Medicine and Health Sciences, developed a novel diagnostic test to detect *M. bovis* infection in rhinos, which will greatly aid conservation efforts. The finding shines new light on the potential for diseases to disrupt global conservation efforts, and potentially increase risk to human health, if left unaddressed—reaffirming our commitment to our One Health approach to conservation, which recognizes the interconnectedness of the health of wildlife, people, and the ecosystems we all share. These results are also relevant in the US, where bovine TB is rare, but can occasionally be found in domestic cattle and other livestock. It can travel across landscapes by carrier species such as white-tailed deer, and it has reached endemic status among deer, bison, and elk in parts of North America. 🦋



Pacific Islands

HAPPENING

- at the Zoo
- at the Safari Park
- worldwide

Collaborating for Bird Care

Teams from our Hawai'i Endangered Bird Conservation Program, Wildlife Health, and Conservation Science met to discuss avian health trends and inform changes in our practices to maximize the health of our conservation breeding populations. The goal is to encourage positive health, well-being, and natural behaviors in the birds in our care. The teams are updating veterinary protocols and incorporating the birds at our Keauhou and Maui Bird Conservation Centers into our Program for Veterinary Care: a comprehensive document outlining factors such as preventative medicine guidelines, routine diagnostics, vaccinations, medications, and common medical concerns. **It's been several years in the making, and the recent updates will address all bird species under our care at the Zoo, Safari Park, and conservation centers in Hawai'i.**



'Akikiki (Hawaiian honeycreeper)

Informing Honeycreeper Management

Our conservation teams recently participated in meetings with conservation managers from the U.S. Geological Survey, U.S. Fish and Wildlife Service, and U.S. Department of the Interior. These conversations led to a recently published report, combining scientific and biocultural information, designed to inform emergency management decisions for four species of Hawaiian honeycreepers facing imminent extinction in Hawai'i. **As a result of the findings, Hawai'i is set to receive \$14 million for ecosystem restoration from the Bipartisan Infrastructure Law; much of this funding will be used to develop mosquito control techniques.** As global temperatures rise, mosquitos move into higher

elevations—carrying avian malaria into new habitats and further threatening endangered birds. Some of the funding will also go toward the development of additional facilities at SDZWA's Maui and/or Keauhou Bird Conservation Centers.

Tech Upgrades

Our San Diego-based IT team recently visited our Maui and Keauhou Bird Conservation Centers in Hawai'i. The IT department is assessing the technology infrastructure at the facilities, including internet connectivity, Wi-Fi, and remote camera monitoring of birds. **This infrastructure is critical in our teams' abilities to care for our wildlife and to connect with partners and allies locally, nationally, and globally; however, the remoteness of these facilities—which are surrounded by forest—makes it difficult to upgrade factors like Wi-Fi.** The current Wi-Fi only covers a small portion of each facility in the main office areas, but following the assessment, we have a plan to expand the coverage throughout as much of each facility as possible. 📺



Oceans

HAPPENING

- at the Zoo
- at the Safari Park
- worldwide



Polar bear

Following Polar Bears from Afar

For over 40 years, SDZWA has been involved in an ongoing, long-term monitoring of the polar bear population in Hudson Bay, Canada. Earth's largest bears are notoriously difficult to track, given that they blend into their snowy habitat and live in remote regions with some of

the harshest conditions on Earth. As such, teams are always working to find new ways keep an eye on them. Recently, working with partners from the University of Alberta, the team successfully deployed 14 ear tag tracking units on adult male and subadult bears. The tracking units—which will eventually fall off on their own—will allow researchers to follow

polar bear movements through the summer months when sea ice melts and polar bears are forced to go on land.

Polar Partners

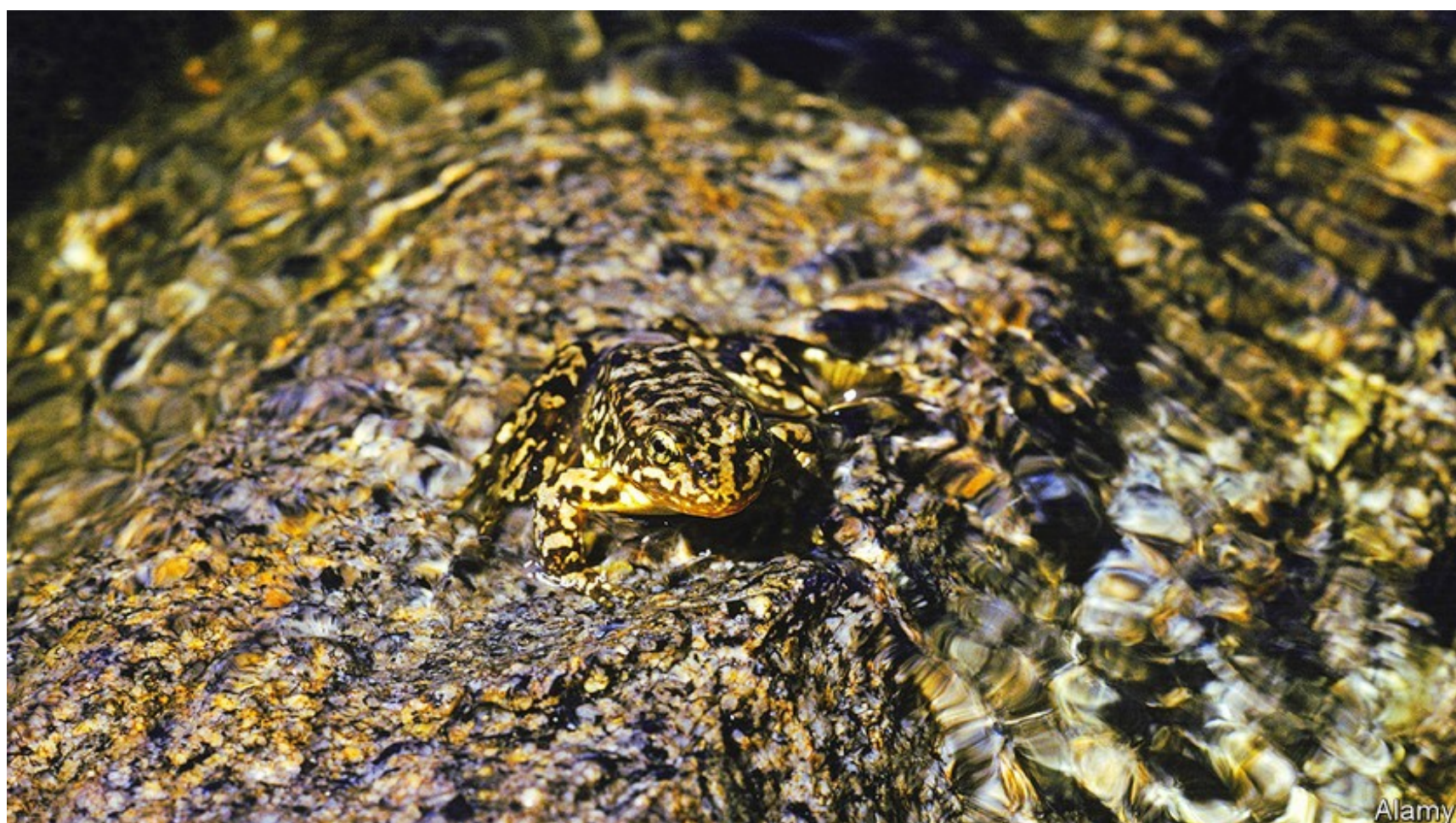
We joined Polar Bears International (PBI) for an online education event celebrating Earth Day. SDZWA and PBI conservation scientists were featured on *Tundra Connections*, a webcast for audiences of all ages to hear and learn from polar bear research experts. The scientists joined live from both the Canadian and Norwegian Arctic, connecting with online audiences from around the world about everything polar bears, working in the Arctic, and careers in conservation. 📺



Science & technology | Conserving amphibians

The health-giving benefits of Jacuzzis—for frogs

How to toughen up captive-bred animals for release into the Big Bad World



Jun 1st 2022

Share

CAPTIVITY IS A cushy number compared with the rigours of the wild. No predators. Little risk of disease. And a guaranteed food supply that you don't have to work for. But that makes you soft. And if the purpose of your captivity is eventual reintroduction into a natural habitat, because you are a member of a rare species that human beings would rather did not become extinct, then having to make your own way in the world when that moment arrives can come as a rude awakening.

This is a problem faced by the mountain yellow-legged frogs which are part of a captive-breeding programme run by San Diego Zoo that is intended to boost that species' numbers in the mountain streams of California. But, as she reports in the *Journal of Applied Ecology*, Talisin Hammond of the San Diego Zoo Wildlife Alliance, the arm of the zoo in charge of the programme, has a plan to do something about it. She is limbering up her charges prior to their release by putting them on the aqueous equivalent of a treadmill.

Ecologists have long understood that animals raised in captivity can be confused and disoriented when liberated. Breeding programmes therefore go out of their way to provide artificial habitats that are as naturalistic as possible. Amphibian vivaria intended for this purpose are thus supplied with plants, branches, soil and water similar to those found in the wild. Yet Dr Hammond and her colleagues suspected they might need something more: a Jacuzzi.

In the wild, yellow-legged frogs live in streams that, in the summer at least, have powerful currents. So presumably they have to develop the strength to swim against these. She therefore set about introducing such currents in captivity. She took 146 one-year-old (ie, juvenile) captive-bred frogs and 110 two-year-olds (ie, sub-adults), tagged them all and divided each group in two. She then put half into enclosures equipped with a Jacuzzi jet that acted as a sort of aquatic treadmill; the others, which served as controls, had a conventional filtration pump.

Five weeks later, she and her colleagues measured the amphibians and gave them a 30-second swimming test, which they filmed. The resulting videos recorded how far each frog travelled per stroke of its limbs, and also the total distance it moved in the half minute available. Shortly thereafter, they released their charges into the wild and monitored them for four subsequent months.

The results were striking. Though the two-year-olds gained no noticeable benefit from having an aquatic treadmill in their enclosure, the one-year-olds definitely did. After just five weeks in the Jacuzzi-jet enclosures, their legs were proportionally longer, compared with the sizes of their bodies, than the limbs of one-year-olds raised in the control enclosures. The one-year-olds from the Jacuzzi-jet enclosures also became better swimmers, travelling more per stroke in the test, relative to their overall body size, than the control frogs.

Crucially, one-year-olds that had had access to the aquatic treadmill also survived better in the wild. Monthly attrition rates were 65% for the control juveniles but only 49% for the Jacuzzi-jet juveniles. Though the two-year-olds had a better overall prognosis after release than the one-year-olds, which was expected, because they were bigger, and so better able to look after themselves, there was no significant difference between the attrition rates of the Jacuzzi-jet animals (38% per month) and the controls (40%).

These findings lead Dr Hammond and her colleagues to suggest that there is a critical developmental window, closed by the time an animal is two years old, when frogs' anatomies can change in response to their circumstances, and that this knowledge can be used to toughen them up for release at an appropriate moment.

Strictly speaking, the researchers would, to prove the point, need to repeat the experiment, having first allowed both sets of one-year-olds to mature into sub-adults, to see if the survival difference persisted. But, on the face of things, it looks as if a regular workout in a Jacuzzi does indeed improve a yellow-legged frog's prospects of making it in the real world. ■

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CLIMATE & ENVIRONMENT

Scientists find new and mysterious DDT chemicals accumulating in California condors



With a 9 1/2-foot wingspan, the California condor is a sight to behold in the wild. (San Diego Zoo Wildlife Alliance)

BY ROSANNA XIA | STAFF WRITER

MAY 17, 2022 5 AM PT

When Christopher Tubbs joined an ambitious [multinational effort](#) to save California condors from the brink of extinction, he knew the odds of success were long.

There were [wind turbines](#) that could strike the giant birds and [lead bullet fragments](#) in hunted animals that could sicken and kill.

But Tubbs, [who studies](#) hormone-disrupting chemicals, suspected there was yet another threat to condor survival — a particularly problematic pesticide [dumped decades ago](#) off California’s coast.

Now, after years of study, Tubbs and a team of environmental health scientists have identified more than 40 DDT-related compounds — along with a number of unknown chemicals — that have been circulating through the marine ecosystem and accumulating in this iconic bird at the very top of the food chain.

In a sophisticated chemical analysis [published](#) Tuesday in Environmental Science & Technology, the team found that DDT-related chemicals were seven times more abundant in coastal condors than condors that fed farther inland. Looking at the birds’ coastal food sources, researchers found that dolphin and sea lion carcasses that washed ashore in Southern California were also seven times more contaminated with DDT than the marine mammals they analyzed along the Gulf of California in Mexico.

One mysterious chemical that is likely connected to the DDT dumping in California was 56 times more abundant in coastal condors and 148 times more abundant in California dolphins.



California condors, a critically endangered species, are at the top of the food chain in the coastal ecosystem. (Ken Bohn / San Diego Zoo Wildlife Alliance)

“This DDT story, and contaminants interfering with reproduction, is what we call a sublethal exposure,” said Tubbs, a reproductive sciences expert at the San Diego Zoo Wildlife Alliance. “They don’t kill a bird outright, but ... they could interfere with estrogen receptors or any other endocrine pathway.”

This latest study builds on much-needed research into DDT’s toxic — and insidious — legacy in California. Public calls for action have intensified since The Times reported that the nation’s largest manufacturer of this pesticide [once dumped its waste into the deep ocean](#). As many as half a million barrels could still be underwater today, according to [old records](#) and a UC Santa Barbara [study](#) that provided the first real glimpse of this pollution bubbling 3,000 feet under the sea near Catalina Island.

Significant amounts of DDT-related compounds are still accumulating [in Southern California dolphins](#), and a recent study linked the presence of dichlorodiphenyltrichloroethane to [an aggressive cancer](#) in sea lions. Another study based in Oakland found that DDT’s hormone-disrupting effects are affecting a new generation of women — passed down from mothers to daughters, [and now granddaughters](#).

Just because we banned DDT 50 years ago doesn’t mean it has gone away — especially in California, said Eunha Hoh, whose lab at San Diego State’s School of Public Health led the chemical analysis in the new condor study. If the California condor is accumulating such high amounts of DDT, that means that every link of the coastal food chain — including people — is also exposed.

“The abundance is so high in Southern California,” said Hoh, who keeps finding this forever chemical reappearing in new and unexpected ways. “We can’t just move on ... our ocean is so much more polluted with DDT.”

Condors commanded the skies as early as the Pleistocene, when mammoths, saber-toothed cats and other megafauna prowled California. Many native people such as the Chumash have come to see the giant birds as central to their culture. The Yurok know them as [prey-go-neesh](#).

With its bald, prehistoric-looking head and a wingspan that stretches almost 10 feet, *Gymnogyps californianus* remains the largest land bird in North America and is a sight to behold in the wild. Its numbers plummeted, however, in the wake of trophy hunting and an increasingly contaminated environment. By 1982, there were only 22 California condors left on the planet.

Federal and state wildlife officials, with the support of conservation advocates, agreed to capture every last bird in hopes of breeding the population back to vitality.

Saving this critically endangered species is particularly tricky: It takes more than six years before a condor is ready to reproduce, and even then, the birds tend to lay only one egg every other year. After decades of painstaking work, there are now 537 California condors, supported by [a network](#) of breeding centers and reintroduction sites from Baja California to [Northern California](#).

Given the lead poisoning that often befalls a condor scavenging farther inland, many point to marine mammals as a critical food source for the species’ long-lasting survival in the wild.

But in 2006, when condors released [along the Big Sur coast](#) finally started to mate, many of their eggs [failed to hatch](#). Researchers started studying how remnant DDT in the environment could be at play.

“Our ongoing work has demonstrated that the more years a female condor spends on the coast, and thus likely feeding on marine mammals, the lower the probability her egg will hatch,” said Myra Finkelstein, an environmental toxicologist at UC Santa Cruz whose research group has also [been instrumental](#) in pinpointing the cause of lead poisoning in condors.

A huge challenge for her field, she said, is the overwhelming number of chemicals polluting the environment. Research like this new study, which Finkelstein reviewed but was not a part of, goes a long way in helping toxicologists figure out where and how to focus their analyses.

For this latest study, researchers at San Diego State’s School of Public Health teamed up with the San Diego Zoo Wildlife Alliance to connect more of the chemical dots.

They took blood samples from 19 condors that soared along the Big Sur coast and 20 condors that lived primarily inland. Using a high-tech instrument known as a mass spectrometer, they sorted through hundreds of chemicals and methodically identified each DDT-related compound in the blood samples — and applied the same technique to the blubber of marine mammals from both the Southern California coast and the Gulf of California.

They cataloged a suite of DDT compounds, including two suspicious chemicals — TCPM and TCPMOH — that are likely a byproduct of DDT manufacturing, explained Nathan Dodder, an environmental analytical chemist at SDSU. These currently unmonitored chemicals were also present in [the dolphins they studied](#), as well as the sediment collected near [the barrels dumped](#) in the deep ocean.

Very little is known about these chemicals, said Margaret Stack, an environmental health scientist at SDSU and first author of the paper. She pointed to one [study](#) so far that tested TCPMOH on zebrafish — the aquatic-version of lab mice — and found that the chemical is acutely toxic to its embryos at elevated concentrations.

These are all clues that could help determine what to look for when tracing the legacy of DDT through the coastal ecosystem, said Lihini Aluwihare, a marine chemist at the Scripps Institution of Oceanography who was not affiliated with the study.

“We really need to understand where these animals are accessing the DDT. ... What [this study] adds is a more comprehensive look at the fingerprint of pollutants in the condors,” said Aluwihare, who has been piecing together how various sources of DDT have been entering the food web. “This gives us something to compare, once we get the kind of data that we’re looking for from the dumpsites.”

David Valentine, whose UC Santa Barbara research team first came across the submerged barrels, said that the discovery of TCPM in such high concentrations is a big piece of the puzzle.

He’s convening key scientists, regulators and policymakers in a conference this week to discuss next steps. Researchers recently received a round of funding from Congress to do more chemical analysis and gather more data — including more [mapping of the seafloor](#) to determine the scope of the dumping.

Many agree that there is an overall need for better monitoring — not just for the DDT-related chemicals that we know about, but also the ones that might be emerging after so many decades of interacting with the environment.

“We now see it in marine mammals, particularly dolphins. We’ve known about some of the fish in shallow water. We know that sea lions have higher burdens of DDT-related compounds, and now we’re seeing the condors are also accumulating both DDT and these other DDT-related compounds in the form of TCPM,” Valentine said. “To me, that says that we’ve got a problem. ... We need to now go back and understand what the legacy of those compounds really was — and understand where it’s coming from, and what we might be able to do moving forward.”

Back on the southernmost reaches of the condor’s historic habitat, Ignacio Vilchis has been guiding the recovery team down in Baja California — coordinating across borders to help these endangered birds thrive again in the wild.

With the latest findings showing that the Gulf of California is much less contaminated for condors, he hopes that releasing more birds in Baja could help the overall population sustain itself well into the future.

An oceanographer by training, Vilchis sees the condor as inseparable from the health and future of our ocean. If we are able to save the condor, he said, that means we are also saving so much other life along the way.

His face lights up as he describes the awe he feels when a condor soars overhead. Their wings are so immense that you can hear them beating the air.

“It’s just ... it’s very majestic,” he said, at a momentary loss for words. “There’s something very magical about them. You look up and there’s a 10-foot wingspan flying above. It always gives me chills.”



Rosanna Xia

Twitter Instagram Email Facebook

Rosanna Xia is an environment reporter for the Los Angeles Times. She covers the coast and was a Pulitzer Prize finalist in 2020 for explanatory reporting.

ANIMALES ([HTTPS://WWW.NGENESPANOL.COM/ANIMALES/](https://www.ngenespanol.com/animales/))

México es el mejor candidato para que el mítico cóndor californiano se recupere de la extinción

ANDREA FISCHER ([HTTPS://WWW.NGENESPANOL.COM/AUTHOR/ANDREA/](https://www.ngenespanol.com/autor/andrea/)) - 5 JUNIO, 2022



Sin cacería ni entramados eléctricos, las reservas naturales de Baja California, al norte de México, son el escenario ideal para que el cóndor californiano se restablezca.

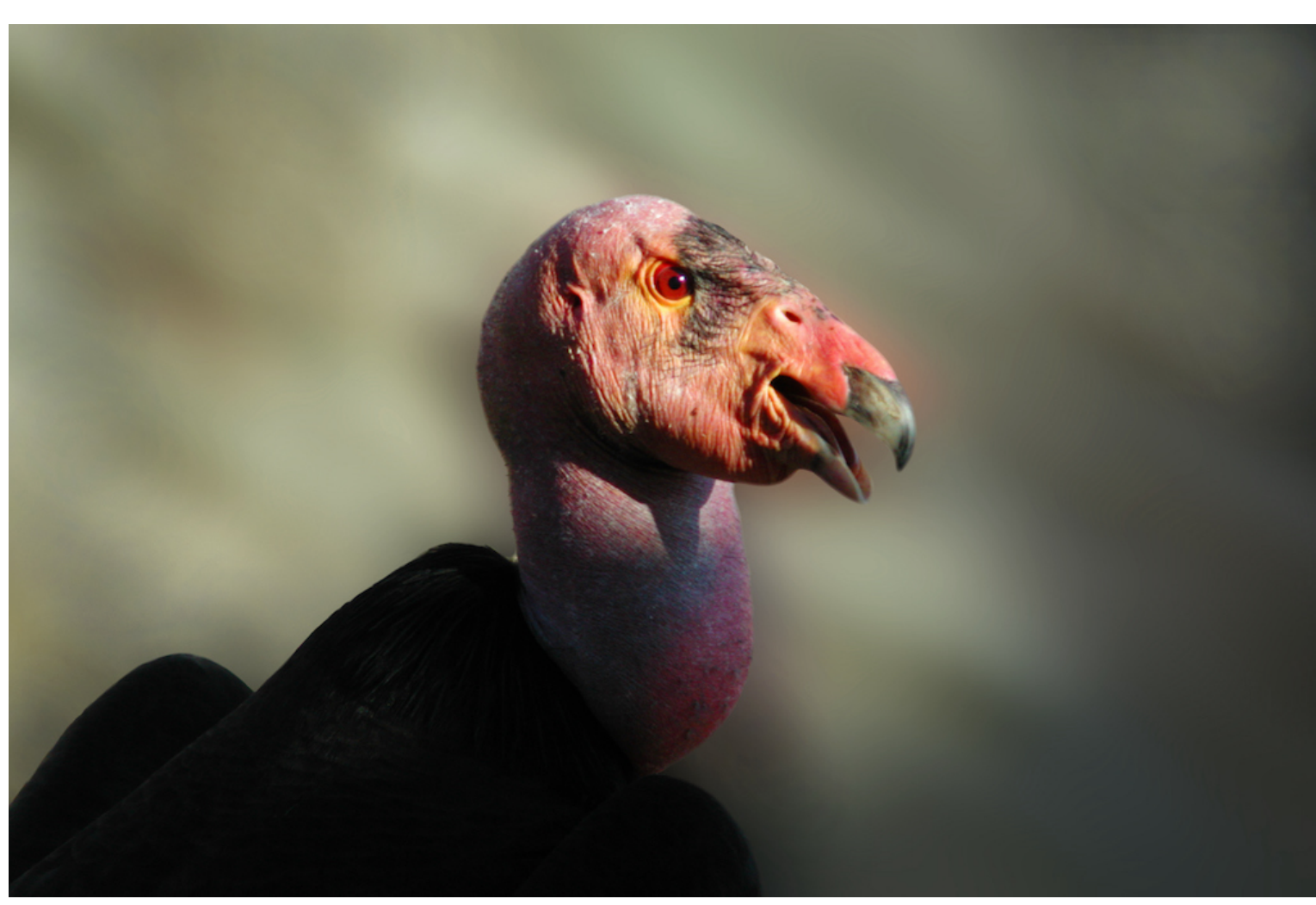
En los años 80, el futuro **pintaba árido para el cóndor californiano**. Después de casi un siglo de estar en declive, la población en toda la costa oeste de Estados Unidos se había reducido a mínimos históricos. Los registros señalaron que **sólo quedaban 30 en todo el mundo**, según explica Nacho Vilchis, conservacionista del San Diego Zoo.

Desde entonces, la institución ha hecho **esfuerzos titánicos para restablecer a la especie en su rango histórico natural**. De la mano del Fish and Wildlife Service, tras 130 años de estar cerca del umbral de la extinción, el **cóndor californiano puede estirar sus alas de nueva cuenta**

(<https://www.ngenespanol.com/animales/el-condor-californiano-se-restablece-en-su-habitat-original-en-eeuu/>), entre los bosques occidentales de Estados Unidos.

*Te sugerimos: **130 años después, el cóndor californiano vuelve a volar sobre los árboles más grandes del mundo** (<https://www.ngenespanol.com/animales/el-condor-californiano-se-restablece-en-su-habitat-original-en-eeuu/>)*

Entre 20 y 30 nuevos cóndores al año



GETTY IMAGES

Después de formarse como oceanógrafo en Scripps Institution of Oceanography, enfocado con aves marinas, y de terminar su postdoctorado en conservación marina, Nacho Vilchis ingresó al San Diego Zoo Wildlife Alliance para **unirse al proyecto de rescate**

del cóndor californiano. Al terminar su postdoctorado en conservación marina, ingresó al San Diego Zoo para empezar un proyecto de rescate para el cóndor californiano. Hace 8 años que el especialista ha colaborado con la institución **para lograr que las poblaciones estén más sanas**, y sus cifras, más sólidas:

«EN LA DÉCADA DE LOS 80, EL FISHING WILDLIFE SERVICE DECIDIÓ CAPTURAR A TODOS LOS CÓNDORES PARA TRAERLOS A CENTROS DE REPRODUCCIÓN EN CAUTIVERIO», DICE VILCHIS. «AHÍ EMPEZÓ EL PROYECTO DE RECUPERACIÓN.»

Para 1992, dice el especialista, se empezaron a liberar **cóndores California**. Lo mismo se intentó al norte de Arizona, con la supervisión cercana del Fish and Wildlife Service. En la actualidad, después de esta expansión territorial paulatina, se cuenta con 6 sitios de liberación. Según Vilchis, cada año se liberan **entre 20 y 30 nuevos ejemplares**, provenientes de sitios de reproducción.

Con el tiempo, el San Diego Zoo logró alianzas con las autoridades de México para expandir **todavía más los horizontes del cóndor californiano**. En Baja California, piensan los conservacionistas, la especie tiene altas posibilidades de cobrar fuerza.

Surcar los cielos de Baja California



GETTY IMAGES

México está considerado como un territorio fundamental para que el cóndor californiano recobre fuerza. Especialmente, en Baja California, al norte del país. Desde el 2002, la institución ha colaborado con la Comisión Nacional de Áreas Naturales Protegidas (CONANP) y la Secretaría de Medio Ambiente y Recursos Naturales

Con el Programa de Acción para la Conservación de la Especie (PACE), **explican** (<https://www.gob.mx/conanp/documentos/programa-de-accion-para-la-conservacion-de-la-especie-pace-condor-de-california-gymnogyps-californianus>) las autoridades mexicanas, se planteó liberar «cóndores de California en el Parque Nacional Sierra de San Pedro Mártir». Esto se traduce en **más de 72 mil hectáreas para que la especie pueda reapropiarse del territorio** en libertad, documenta un **reporte**

(https://www.gob.mx/cms/uploads/attachment/file/168026/2012_pace_condor_californiano.pdf) de SEMARNAT.

Sin balas y sin gente

Desde hace 2 décadas, los **esfuerzos han sido más que exitosos**. Esto es así porque la historia natural de México así lo ha permitido:

«EL SITIO TIENE QUE SER AMPLIO, PORQUE LOS CÓNDORES BUSCAN CARROÑA. ANTES, HABÍA MÁS DEPREDADORES QUE DEJABAN RESTOS PARA LAS AVES. HOY, TIENE QUE HABER MÁS ESPACIO PARA QUE ENCUENTREN COMIDA», EXPLICA VILCHIS.

Otro de los puntos fundamentales es que el espacio tiene que estar **«libre de gente y líneas eléctricas»**, especifica el especialista. Especialmente, para evitar la cacería. No sólo de los cóndores, sino de los otros animales víctimas de balas. Esto es así porque el plomo y otras sustancias tóxicas se quedan impregnadas en la carne, y **dañan a los animales que se comen los cadáveres**.

Hace 100 años, los cóndores **padecían de la caza en carne propia**. Un siglo más tarde, siguen adoleciendo de la actividad humana, que ahora hace que sus **fuentes de alimentación básicos estén contaminados**. Sin embargo, las áreas naturales de México permiten que estos obstáculos desaparezcan.

Lento, pero seguro

En la actualidad, el reto más grande para los cóndores californianos es la reproducción. «En el mejor de los casos», explica Vilchis, «una hembra pondrá un huevo cada año y medio, porque **no pone otro hasta que el polluelo pueda ser independiente**». Por lo tanto, «cualquier mortalidad les afecta muchísimo», concluye el especialista.

Aunque la tasa de reproducción es lenta para los cóndores californianos, el proyecto de reinsertión en México

liberación aquí es el mejor de todos».

Sigue leyendo:

[El mítico cóndor de California volverá a volar después de un siglo de ausencia](https://www.ngenespanol.com/animales/el-mitico-condor-de-california-volvera-a-volar-despues-de-un-siglo-de-ausencia/) (<https://www.ngenespanol.com/animales/el-mitico-condor-de-california-volvera-a-volar-despues-de-un-siglo-de-ausencia/>)

[Dos cóndores hembra se reproducen asexualmente aún con la presencia de machos](https://www.ngenespanol.com/animales/condores-de-california-reproduccion-asexual-partenogenesis/) (<https://www.ngenespanol.com/animales/condores-de-california-reproduccion-asexual-partenogenesis/>)

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ANTERIOR

[Así se vive en Oymyakon, el lugar habitado más frío de todo el mundo](https://www.ngenespanol.com/el-mundo/oyamkyon-la-ciudad-mas-fria-de-todo-el-mundo/) (<https://www.ngenespanol.com/el-mundo/oyamkyon-la-ciudad-mas-fria-de-todo-el-mundo/>)

SIGUIENTE

[El derecho a decidir en Guerrero: una lucha de las mujeres afromexicanas, indígenas y mestizas](https://www.ngenespanol.com/el-mundo/el-derecho-a-decidir-en-guerrero-una-lucha-de-las-mujeres-afromexicanas-indigenas-y-mestizas/) (<https://www.ngenespanol.com/el-mundo/el-derecho-a-decidir-en-guerrero-una-lucha-de-las-mujeres-afromexicanas-indigenas-y-mestizas/>)

Cryogenics, the Freezing of Cells, is Helping Save Endangered Species

Ron Jefferson May 29, 2022 03:44 AM EDT



(Photo : Jamshed Ahmad from Pexel)

Over the past two decades, the San Diego Zoo, well-known for providing animals with naturalistic habitats and zoo-goers with unique encounters, has secretly achieved remarkable feats in the line of animal conservation.

How Cryogenics at the San Diego Zoo Helps Save Vanishing Species

The Frozen Zoo at San Diego can potentially offer the only chance for Northern White Rhinos to survive since it has already provided a second chance for some animals on the brink of extinction.

Unlike other zoos where penguins and polar bears can be seen, the San Diego Frozen Zoo is a cryobank of cells gathered from the tissue samples of endangered animals from across the globe. The storing of the genetic material of these endangered animals has led to the cloning of the undomesticated critically endangered [Przewalski's horse](#) back in 2020, an Indian Guar- a type of humpbacked wild fox in 2013, and a [Banteng](#), a Southeast Asian cattle species in 2003, and more.

The San Diego Frozen Zoo has secretly been garnering tissue samples of endangered animals for over 50 years since its beginnings in 1972 by Kurt Benirschke, a biologist. Today, the zoo is the largest and offers the most diverse collection of its kind across the globe. It contains more than 10,000 living cell cultures, sperm, oocytes, and embryos representing almost 1,000 taxa, including an extinct species known as the po'ouli. The Frozen Zoo's leading site is at the Beckman Center for Conservation Research, duplicating samples at a secondary location.

According to the [San Diego Zoo](#), the germplasm stored in their Frozen Zoo has the potential to help produce offspring when used for in vitro oocyte maturation, artificial insemination, fertilization, and embryo transfer. Stating that the successful artificial insemination of several pheasant species using cryopreserved sperm has rendered chicks in the past.

Why Do We Need Cryopreserved Germplasm?

Some scientists have stated that the biodiversity of life on the planet may fall by roughly a million species in the next century. Because of this, institutions such as the San Diego Frozen Zoo are becoming more critical.

Despite Frozen Zoo's achievements, it isn't the only group racing against time to save species. Nature's Safe, founded by Tullis Matson, also collects tissue samples from endangered animals to serve the same purpose.

Cryobanking receives little to no funding. Matson explains that the task is enormous and that no one person can do it independently. Stating that there are over a million species at risk, with the cryobank needing 50 different genetic samples from each animal equating to 50 million samples, that need five vials of each, totaling hundreds of millions of samples that need to be preserved and stored, reports [GoodNewsNetwork](#)

For many species on the brink of extinction, cryobanks are the only way to keep the species alive and give them a second chance to thrive in the world. Unfortunately, with all the funding and challenges these cryobanks face, it is a race against time to gather samples to ensure the planet's biodiversity remains resolute.

San Diego, CA

San Diego Zoo welcomes 1st aardvark birth in years

AP The Associated Press 2022-06-16



1 of 3

SAN DIEGO (AP) — An aardvark cub born at the San Diego Zoo is doing well and developing quickly, according to wildlife specialists.

The female cub was born May 10 and will nurse from her mother, Zola, for about six months, the San Diego Zoo Wildlife Alliance said this week in announcing the zoo's first aardvark birth in nearly four decades.

"She is very active, and was using her sharp claws to dig like an adult aardvark, just hours after her birth," lead wildlife care specialist Cari Inserra said in the statement.

The long-eared, hairless cub has tripled her birth weight in just five weeks.

She does not have a name yet, and will remain out of view of zoo visitors for about two months as she bonds with her mother.

"We can't wait until we are able to introduce the cub to our Zoo guests, helping them learn more about this remarkable species," Inserra said.

Aardvarks are native to sub-Saharan Africa. They have strong front legs and long claws adapted to digging burrows where they spend daylight hours until emerging in evenings to use their long, sticky tongues to slurp up ants and termites.

San Diego Zoo Partners in Research to Save Endangered Chinese Giant Salamander

Times of San Diego - Jun 13

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The endangered Chinese giant salamander. Photo credit: animals.sandiegozoo.org/
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[San Diego Zoo Wildlife Alliance](#) and conservation partners, including Ocean Park Hong Kong, are working to create a breeding group for the endangered [Chinese giant salamander](#).

The goal is eventually to re-establish depleted populations in the Chinese giant salamander's native range, in China's mountain river system, while at the same time educating the public about conservation of its habitat.

The Chinese giant salamander is the largest living amphibian on the planet, with some measuring nearly 6 feet in length. However, their elusive nature has made it difficult for biologists to study their reproductive habits.

Veterinary and wildlife care specialist teams at the San Diego Zoo conducted ultrasounds on three of the creatures in an effort to determine their sex and better understand their overall health. Establishing their sex is critical to the creation of a conservation breeding plan to help bring this species of "living fossils" back from the brink of extinction.

The technique of using ultrasound to determine sex was discovered and recommended by specialists in China and colleagues in the zoo community.



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Kim Gray, curator of herpetology and ichthyology at the San Diego Zoo, "males and females look very, very similar" and using ultrasound helps them see inside the Chinese giant salamanders.

"These species are really unique in how they reproduce," Gray said. "The males and females will breed and produce around 400 to 500 eggs, and the males stay with them. Other than that, there's not a lot known. We want to learn as much as possible."

The Chinese giant salamander is listed as Critically Endangered on the International Union for Conservation of Nature Red List of Threatened Species, due to heavy poaching and harvesting for human consumption, despite laws to protect them.

Their habitat has become fragmented, and their numbers have plummeted by 80% over the last few decades.

The newly opened Denny Sanford Wildlife Explorers Basecamp at the San Diego Zoo is one of only six locations in the U.S. where guests can view Chinese giant salamanders. This large amphibian can be seen in the lower level of the Cool Critters building.