The Toledo Zoo’s Mission:
Inspiring others to join us in caring for animals and conserving the natural world.

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### 2016 BOARD MEMBERS:
- Susan Allan Block
- Peter Boyer
- Angelita Cruz Bridges
- Elaine Canning
- Carol Contrada (non-voting/ex-officio member)
- Dr. Shanda Gore
- James Haudan
- Pamela Hershberger
- James Hoffman
- Sandra Hylant
- John Jones
- Dr. Marcia Sloan Latta
- William McDonnell
- Bonnie Rankin
- Harlan Reichle
- Clarence Smith
- Marc Stockwell
- Olivia Summons
- Lamont Thurston
FROM THE DIRECTOR

2016 was another momentous year for your Toledo Zoo and, of course, we couldn’t have done it without you. From the births of endangered species and the new heights reached on the Aerial Adventure Course to the debut of rescued bears and the dizzying fun of new Bumper Cars on Ice, we made lots of memories together! We appreciate everyone coming out to see our new animals, experiences and exhibits, celebrating a successful levy passage and spending quality family time with us during our holiday events. The Zoo has been educating, inspiring and engaging visitors for well over 100 years and we look forward to doing it for many, many more. Read on for the full 2016 year in review of your Toledo Zoo as told through our mission of inspiring others to join us in caring for animals and conserving the natural world!

Sincerely,

Jeff Sailer

ANIMALS / SPECIES

10,228 Individual Animals
732 Species Represented

TOLEDO ZOO BY THE NUMBERS

2016 ATTENDANCE

Total Visitor Attendance #: 1,018,377
including both daytime and after hours events

VISITOR BREAKDOWN

Lights Before Christmas
167,354 visitors
(Nov. 18 - Dec. 31)

Adult Events
1,150 visitors
Wine Tasting- 650
Zoo Brew- 500

Live Nation Concert Series
21,481 visitors
Steve Miller Band- 3,370
Bob Dylan- 2,630
Weird Al- 2,732
Avett Brothers- 4,124
Jim Gaffigan- 4,356
Alan Jackson- 4,269

Music under the Stars
7,332 visitors
Busiest Day: 12,269 visitors
Dec. 3, 2016
Busiest Week: 45,660 visitors
Dec. 26 – 31, 2016
(Note, we were closed on Sunday, Jan 1)
Busiest Month: 135,881 visitors
June 2016

WEDDINGS

50 Weddings
8 rehearsal dinners
5,664 guests
347 guests

MEMBERSHIPS

Membership #: 56,101
56 annual pass holders

CHECK OUT THESE 2016 HIGHLIGHT VIDEOS!
**NEW IN 2016**

**MURAL UPDATES:**
The Zoo has hired local artist, Nick Hartzell, of Temperance, Michigan to restore the artistic renderings of natural habitats inside the exhibits within the historic Works Progress Administration (WPA) -era building. Hartzell worked in the Reptile House for over a month, completing five total refurbishments and lots of touch ups. This restoration is not only preserving history, it is also saving the Zoo valuable time, assets and money.

**EXPEDITION AFRICA! AERIAL ADVENTURE COURSE PRESENTED BY MERCY HEALTH:**
The summer of 2016 turned into an all-out choose your own adventure with the opening of Expedition Africa! Aerial Adventure Course presented by Mercy Health! The Zoo's new Aerial Adventure Course is a unique challenge for the mind and body, allowing guests to customize their experience by combining a sky bridge walkway, quick drop and high ropes challenge elements set more than 30 feet in the air with an exhilarating 700+ foot zip line to create a one-of-a-kind aerial adventure. To top it off, guests get to do it all while also enjoying incomparable views of the giraffes, zebras, wildebeests and other animals that call the Africa! exhibit home!

**TOWER RIDGE GIRAFFE EXPERIENCE:**
There were countless memories made as guests enjoyed hand-feeding and interacting with our Masai giraffe herd. Believe us when we say, you will never forget the look and feel of their 18-inch, rough black tongues as they devour your tempting treat— and we have more than 30,000 feed veterans to back up our tall claim!

**BUMPER CARS:**
Winter got even wilder at the 2016 edition of Lights Before Christmas presented by KeyBank! In addition to the return of the ever popular Ice Slide, Newton’s third law of motion, the law of interaction, came into play! For every action there is an equal and opposite reaction. Thanks to Kroger’s sponsorship the Winter Village was home to Bumper Cars on Ice! Guests got to be the driving force last winter and enjoyed the dizzying thrill of 16 zero-turn electric bumper cars on a 2,000 square foot ice rink located at the base of the Zoo’s historic Amphitheatre! The approximately three minute on-ice adventure was available weather-permitting each night of Lights. Throughout the 6 weeks of LBC, more than 14,000 guests took part in this new experience.

**BEST ZOO LIGHTS DISPLAY:**
The Toledo Zoo’s Lights Before Christmas presented by KeyBank was voted Best Zoo Lights by USA Today’s 10 Best Readers’ Choice online public voting contest! Toledo Zoo competed against 20 other zoos, including regional competition from Detroit Zoo who placed second and Indianapolis Zoo that placed fourth.

**DOCUMENTARY:**
On Monday, October 17 Toledo Zoo and WGTE Public Media premiered a co-produced documentary, “Toledo Stories: The Zoo Life” highlighting the Zoo’s conservation efforts, locally and across the globe, while also giving sneak peeks of behind-the-scenes access to favorite zoo exhibits and animals. Doors opened at 5 p.m. for guests to walk the conservation green carpet and pose for pictures with our Ambassador Animals. Hors d’oeuvres, including gourmet popcorn, were served in the Great Hall of the Museum of Science. At 6:30 p.m. guests took their seats in the Indoor Theatre and enjoyed the show!

**GREENLIGHT A VET:**
On December 7, the Toledo Zoo proudly hosted local military members and their families for a green tree lighting ceremony, as a way of saying thank you for their service to our nation. We are proud to be a part of the Greenlight A Vet campaign to show our appreciation of and support for our armed services and all veterans. Throughout our holiday Lights display, we shined green in their honor!
2016 NEW SPECIES

**FISH**

- *Chilomycterus antillarum*
- *Xanthichthys mento*
- *Siganus guttatus*
- *Ptereleotris evides*
- *Pholis laeta*
- *Cetoscarus bicolor*
- *Choerodon jordani*
- *Chromis punctipinnis*
- *Neocirrhites armatus*
- *Pomacanthus xanthometopon*
- *Genicanthus melanospilos*
- *Hemitaurichthys zoster*
- *Percina caprodes*
- *Perca flavescens*
- *Etheostoma spectabile*
- *Ehteostoma camurum*
- *Pseudoanthias pleurotaenia*
- *Oligocottus maculosus*
- *Oxylebius pictus*
- *Taenianotus triacanthus*
- *Doryrhamphus pessuliferus*
- *Corythiochthys flavofasciatus*
- *Cargocentron rubrum*
- *Monocentris japonica*
- *Clinostomus elongates*
- *Carassius a. auratus*
- *Campostoma anomalum*
- *Dasyatis Sabina*
- *Scyliorhinus rotifer*
- *Strongylocentrotus franciscanus*
- *Pisaster ochraceus*
- *Pisaster giganteus*
- *Echinaster spinulosus*
- *Warthog*
- *Plica plica*

**BIRDS**

- *Elliott’s pleasant*
- *Mikado pleasant*
- *Malayan green aruys*
- *Spotted whisling duck*
- *Emperor goose*
- *Lesser white-fronted goose*
- *White-headed duck*
- *Dalmation pelican*
- *American coot (mudhen)*
- *Great black-backed gull*
- *Mandarin bleeding-heart dove*
- *Phasianus pigeon*
- *Many-colored finch*
- *Mandarin lovebird*

**INVERTEBRATES**

- *Chrysogaster lucens*
- *Melitoboeus giganteus*
- *Montaguita sp.*
- *Tubastrea sp.*
- *Chrysaora fuscencens*
- *Metridium giganteum*
- *Spiny-headed tree lizard*
- *Giant Red Sea urchin*
- *Ochre sea star*
- *Giant-spined sea star*
- *Brown spiny sea star*
- *Blunt-armed sea star*
- *Urashima pustuloides*
- *Goniopurgettia sagamiensis*
- *Paromola japonica*
- *Cervimunida princeps*
- *Paralomis japonicas*
- *Clibanarius vittatus*
- *Metanephrops japonicas*
- *Pandalus platyceros*
- *Sepia kobiensis*
- *Lambis lambis*
- *Astraea sp.*
- *Diodora aspera*
- *Tubastraea sp.*
- *Montipora sp.*
- *Metridium giganteum*
- *Chrysaora fuscenscens*
- *INVERTEBRATES*

**MAMMALS**

- *Himantopus usta urinaria*
- *Chrysocyon brachyurus*
- *Phascolomys australis*
- *Xenarthra antarctica*
- *Common (forest) wombat*
- *Maned wolf*
- *Red-tailed black coo*
- *Webhardt*

**REPTILES**

- *Platysoma picta*
- *Bubo vociferus*
- *Spiny-headed tree lizard*
- *Rhinosaurus superi*

**PELICANS:**

Dalmation Pelicans (*Pelecanus crispus*) are the largest species of Pelicans in the world, standing approximately five feet tall, weighing up to 30 pounds and having a wingspan of over 11 feet. These birds are also recorded as one of the heaviest flying birds in the world and are listed as vulnerable on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species due to a decreasing population from wetland drainage, water pollution, disturbance from tourists and fisherman and being hunted for their bills for use in horse grooming. Seven of these enthralling and enormous birds are now on exhibit in Tiger Terrace!

**POLAR BEAR CUB ON EXHIBIT:**

It was a long winter wait, but the time finally arrived: The female polar bear cub went on public exhibit in the Arctic Encounter® on Friday, May 6! Staff chose to name the cub, born on December 3, 2015, Hope after Point Hope, Alaska part of the known polar bear range and to represent optimism for the future of the endangered species. Hope is the seventh polar bear cub born at the Toledo Zoo since 2006. She is an important ambassador for her imperiled species, as climate change is drastically reducing the Arctic sea ice polar bears in the wild depend on for survival. Polar bears (Ursus maritimus) are listed on the International Union for Conservation of Nature (IUCN) Red List as a vulnerable species and as threatened under the Endangered Species Act.

**BROWN BEARS ON EXHIBIT:**

Brown bear, brown bear, what do you see? Hopefully, people learning from me. Three rescued brown bears, two female grizzlies and a male Kodiak, are now on exhibit in Tembo Trail at the Toledo Zoo. Sisters, Montana and Cody, from Yellowstone National Park and Dodge, from Kodiak Island, Alaska are in good health, have bonded well as a group and are actively discovering all aspects of their new home. While the bears came to the Toledo Zoo due to unfortunate circumstances, they are now ambassadors for the increasing challenge of human-wildlife conflict. In addition to giving these bears a much-needed and great home, our goal is to educate our guests on how to co-exist with animals. We want to ensure that future generations are able to know and appreciate these magnificent creatures and their role in our interconnected ecosystem.
INSPIRING OTHERS TO JOIN US IN CARING FOR ANIMALS AND CONSERVING THE NATURAL WORLD.

Not all survived longer than 30 days.

BIRTHS & HATCHINGS

**BIRDS**
- Coryphospingus cucullatus
- Chloebia gouldiae
- Poephila acuticauda
- Poephila bichenovii
- Aidemosyne modesta
- Hypergerus atriceps
- Coracias cyanogaster
- Coua cristata cristata
- Loriculus galgulus
- Neophema bourkii
- Ptilinopus pulchellus
- Ptilinopus porphyrea
- Otidiphaps nobilis
- Gallicolumba luzonica
- Claravis pretiosa
- Vanellus spinosus
- Turnix nigricollis
- Ephippiorhynchus senegalensis
- Spheniscus demersus
- Mergus squamatus
- Clangula hyemalis
- Aythya baeri
- Polyplectron napoleonis
- Lophura swinhoii
- Tragopan caboti
- Tetrao urogallus
- Cyrtonyx montezumae
- Extatosoma tiaratum
- Acrophylla wuelfingi
- Phyllium giganteum
- Heteropteryx dilatata
- Deroplatys desiccate

**MAMMALS**
- Tolypeutes matacus
- Brachyistius frenatus
- Haplochromis piceatus
- Haplochromis sp.
- Hippocampus erectus
- Urobatis jamicensis
- Sphyrna tiburo
- Mantella pulchra
- Dendrobates tinctorius
- Bufo baxteri
- Nectophrynoides asperginis
- Pseudotriton r. ruber
- Eurycea lucifuga
- Desmognathus welteri
- Cryptobranchus a. alleganiensis

**REPTILES**
- Plan (SSP) studbook, the average life expectancy is 33.9 years.

**AMPHIBIANS**
- Cyclorhanchus a. algarvensis
- Desmognathus wetheri
- Eurycea lucifuga
- Phaeomedusa ruber
- Hemiphractus cupreus
- Bulb hutniri
- Demophobes leucius
- Mantella parvane

**FISH**
- Sphyra tiburo
- Udanzos jaemis
- Hippopampus erectus
- Alopichromis gm
- Hypophryrea philander
- Brachyistius femminus

**EDUCATION**
- Tolypeutes matacus
- Southern three-banded armadillo

**INVERTEBRATES**
- Deroplatys desiccate
- Heteropteryx dilatata
- Phyllium giganteum
- Acrophylla wuelfingi
- Erikoessa navinum

**VET NUMBERS**
- 1100+ EXAMS
- 897 FECALS
- ~400 BLOOD TESTS
- 570 RADIOGRAPHS

**MONGOOSE LEMUR:**
The mongoose lemur family also increased in size. Olivia and Silvio became first-time parents on March 25 with the birth of a healthy 70 gram (less than a quarter of a pound) female infant, Tiana. Primate keepers took care of the offspring for a day while the first-time mother got used to her new situation and duties, but since then the entire family has bonded and is doing well. Mongoose lemurs (Eulemur mongoz) are native to dry deciduous forests in northwestern Madagascar and eat fruit, flowers and nectar. They live as a small family with a monogamous pair and offspring. Male mongoose lemurs have gray or brown coats with a brown band of fur around their shoulders and neck and a brown beard, while females are lighter gray in color with dark gray faces and white necks. Mongoose lemurs are listed as critically endangered due to being hunted for food and their habitat destroyed for slash and burn agriculture.

**RING-TAILED LEMURS:**
Nine year old, ring-tailed lemur twins, Fresca and Fanta, gave birth to offspring just days apart. Fresca gave birth to female twins, Anja and Mimi, on March 24 and then Fanta gave birth to a single female offspring, Lila, on April 1. The father of all three is Max. Ring-tailed lemurs (Lemur catta) are a primate species native only to the dry forests of southern Madagascar and the surrounding islands. They are easily recognized by their long, black and white striped tails and piercing eyes. Because of habitat destruction, hunting, the pet trade and population segmenting ring-tailed lemurs are listed as an endangered species.

**DEATHS**
The Toledo Zoo was sad to report that one of its most beloved animals, 47-year-old Lulu, our geriatric female southern white rhinoceros, died comfortably in her sleep overnight on April 26 of natural causes. Lulu had been a Toledo Zoo resident for nearly 30 years. At 47, she was estimated to be the seventh oldest white rhino in a U.S. zoological institution. According to the Association of Zoos & Aquariums (AZA) Southern White Rhino Species Survival Plan (SSP) studbook, the average life expectancy is 39.9 years.
ANIMAL CARE

Your Toledo Zoo is committed to providing top-notch health and wellness care to all of our animal residents. We do this through having a full-time veterinarian staff on grounds, an always expanding enrichment program, participating in more than 120 Species Survival Plans through the Association of Zoos and Aquariums and cooperative working relationships with experts across the world.

ANIMAL CARE HIGHLIGHTS OF 2016

On April 2, 2016 our silverback male gorilla, Kwisha, had a preventative medicine exam (“wellness exam”) performed. He was immobilized and under constant monitoring by our vet staff for this exam, that took place in the holding area of the Great Ape facility. As director of animal programs, Terry Webb, explained: “These exams are critical to the care and health of our animal collection. For gorillas, a variety of things are checked during preventative exams. This male was 28 years old at the time of the exam and at that age the medical team and husbandry teams want to ensure that reproductive, cardiac and overall body condition are evaluated.” A specialty team from the Cincinnati Zoo, Conservation and Research of Endangered Wildlife, “CREW” was invited to participate in the reproduction exam and found that Kwisha was in good reproductive health. Cardiologists from The University of Toledo were also invited to assist with a complete evaluation of his heart and found no abnormalities. In addition, general body x-rays and blood samples were taken during the examination. This is an example of several teams coming together to assist with the health and well-being of endangered species and the partnerships that exist within the AZA community.

In November of 2016 our younger male African elephant, Lucas, had to have a tusk procedure due to small fracture in one of the tusks. A team of dental specialist came from San Diego Zoo to assist our staff with the procedure. Lucas was trained to present both tusks to the elephant staff for exams and x-rays. After measurements and x-rays were taken, both tusks were trimmed down to a point that would prevent further fracture risks. As Lucas continues to grow, so will his tusks. This is a great example of animal husbandry training and the cooperation of specialists in the AZA community to provide quality care to the collection.

Enrichment is provided through the provision of novel items, modifications to the animals’ environments, housing in social groupings that mimic those of wild counterparts and enhancing the ability of the animals to make choices within their environments.

FAST FACTS OF ANIMAL CARE IN 2016

IN ONE MONTH THE ZOO USES:

- 139 pounds of eggs
- 1,420 pounds of feline carnivore diet
- 1,567 bales of hay
- 1,990 pounds of fruit
- 1,990 pounds of fish
- 6,892 pounds of veggies
- 8,860 pounds of veggies
- 553,000 mealworms
- 1,980,000 crickets

ENRICHMENT PROGRAM HIGHLIGHTS OF 2016

BROWN BEARS:

Our three resident brown bears, grizzly sisters Cody & Montana and Kodiak male, Dodge, were young and growing bears, especially for 2016, their first full year at the Zoo. We wanted to ensure we were giving them items to encourage species specific behaviors along with exercise for growth and development of muscles and bones, digging opportunities for foraging, water opportunities for play and cooling off, browse as diet supplement and teeth cleaning and frozen treats. Most of this was already in the exhibit space, making it easy to utilize, monitor and replace as necessary. The large rubber water tub was the biggest hit for water play and cooling.

ELEPHANTS:

Forage time and exercise are important items for elephant wellbeing. We use timed diet items, lowering of hay bags and barrels during the day and night to encourage feeding over a 24-hour period. As hind gut fermenters, this is important for digestive tract health, weight control and to alleviate boredom. The staff also places browse, hay and other diet items in barrels, hay bags, in and under logs and large tires to stimulate search and forage behaviors over a 16-hour period, which helps promote an active time budget and help with GI tract motility and satiation.
CONSERVATION PROJECTS:

KIWIS FOR KIWI:
The Toledo Zoo contributes financial support to Kiwis for Kiwi. The group takes a multi-faceted approach to conserving the iconic bird including trapping non-native predators, artificially incubating and hand-rearing chicks to increase survivability, outreach programs and the ongoing monitoring of adult kiwi populations in the area.

PITCH-BLACK FULU:
The Zoo’s ex situ breeding population is 655 fish, with a total North American SSP population of around 800 fish. During 2016, 22 fish died in the population and 218 were born resulting in a net population gain of 196 fish.

GREAT LAKES PIPING PLOVER PROJECT:
Project participants included Monica Blackwell and Anneliese Miles working with curator Tom Schneider and associate curator Bonnie VanDam of the Detroit Zoo. Eggs from abandoned nests were collected by MDNR and FWS personnel and taken to the University of Michigan Field Station at Douglas Lake, MI. The eggs were artificially incubated, reared and then released back into the wild after fledging. The Great Lakes Piping Plover is listed as endangered under due to habitat loss from shoreline development, human-caused fluctuating water levels and human disturbance of nests.

POLAR BEAR:
This year the Zoo’s polar bear conservation efforts were focused on collaborations of zoo professionals and field research scientists. This collaboration focused on using the bears in zoos to help answer questions for field scientists on how wild polar bears will adapt to changes in a warming Arctic using non-invasive studies.

WYOMING TOAD:
Wyoming toad breeding took place at Toledo on 6 and 7 June 2016 with one egg mass produced. 418 tadpoles from this breeding were shipped back to Wyoming on 21 June. Of these, 403 were reintroduced to the wild at a Safe Harbor site. A total of 26,060 tadpoles, toadlets and adults were released in 2016 across three reintroduction sites representing the third-most productive year in the captive breeding program’s history.

HORNBILL NEST ADOPTION:
Toledo Zoo contributes financial support, including visitor donations from keeper talks to the Hornbill Research Foundation. The Foundation organizes the field protection and research of the hornbills. Toledo Zoo’s donation help observe and protect 6 nest of 6 different hornbill species.

SCALY-SIDED MERGANSER TASK FORCE:
The Zoo supports the Task Force financially and through the expertise of our curator of birds, Chuck Cerbini. The Toledo Zoo’s donation in 2016 helped support the following projects: Wintertime surveys in China; Installation of 20 nest boxes to supplement the diminishing nesting habitat of this species, and much more. 2016 brought more success than ever with this endangered species at the Toledo Zoo as we successfully hand-reared six ducklings.

PACIFIC BIRD CONSERVATION WITH MARIANA AVIFAUNA CONSERVATION:
In April, Ellen Gorrell of the Bird Department and Josh Minor of Education Department participated in MAC trapping and relocation activities in Tinian and Guguan. The two were also charged with giving a presentation to the children attending the only elementary school on Tinian (300 students). The collection team reached their goals in 2016 for relocation of 61 Tinian Monarchs and 54 Bridled White-eyes.

COLLECTION OF MANY-COLORED FRUIT DOVES IN AMERICAN SAMOA:
From 22 September through 16 October, birds of this species were collected and held in American Samoa by field biologists in order to begin a population enhancement conservation initiative with this species. Eight doves were transferred to Toledo, completed a 60-day quarantine period and are currently housed in pairs at the Avian Breeding Center. This marks the first captivity of this species.

SNOW LEOPARD (WITH PANTHERA):
For the second year in a row, Toledo Zoo veterinarian, Dr. Ric Berlinski, spent several weeks in Kyrgyzstan with the international big cat conservation organization, Panthera. During that time, the group collared two new male snow leopards, one very young and the other a mature 7-8 year old battle scarred veteran. Each collar provides valuable information regarding territory size and overlap, as well as hunting frequency and success and possible den sites.

CUBAN BOA:
Our current study focuses on the reproductive biology of this species, including reproductive interval, litter size, reproductive effort and thermoregulatory and mating behavior— including mate fidelity. The goal of the project is to produce a conservation management plan for U.S. Naval Station Guantánamo Bay, Cuba. We currently have 25 Cuban boas implanted with Holohil AI-27 transmitters.
ON-GROUNDS

PRAIRIE BIODIVERSITY ASSESSMENT:
Toledo Zoo has taken some of our grass lawns and converted them into native prairie habitats increasing plant diversity, decreasing non-point source pollution in the Maumee River watershed, and reducing both CO2 emissions from lawn-maintenance equipment and associated labor costs. All existing prairies were mowed in the spring of 2016, however, this did not successfully decrease invasive species in the areas. Additionally, a total of 15.5 hours were spent surveying for reptiles and amphibians in on-grounds native landscapes in 2016, resulting in 91 captured and processed. A total of 6,698 small mammal trap hours were also recorded with 24 animals caught. As the Zoo continues to partner with local agencies, quantifiable metrics on carbon sequestration will also prove helpful in bringing the idea of urban prairie plantings to a broader audience.

MONARCH CONSERVATION:
Twenty two Monarch eggs were collected in June and July from common milkweed (Asclepias syriaca) primarily on Wild Toledo urban prairies resulting in three generations (2 breeding and 1 migratory) of butterflies raised in the Wild Toledo greenhouse. 709 migratory butterflies were then tagged and released from the first week of September through the first week of October. Ten tagged Monarchs were recovered in Mexico during the annual over-wintering period. Additionally, Zoo donors were given the opportunity to “adopt” a migratory monarch in the “Midwest to Mexico” campaign resulting in 114 adoptions from the Zoo and 21 from partners at Owens-Illinois.  In total, the “Midwest to Mexico” program raised $2,070 in 2016.

OFF-GROUNDS

MITCHELL’S SATYRS:
Toledo Zoo is currently working with The Nature Conservancy (TNC) – Indiana and U.S. Fish and Wildlife Service to establish a new Indiana Mitchell’s satyr population. Rearing in 2016 marked the second year of the captive program and the first year where adult insects were available for release. In 2016, conservation staff at the Toledo Zoo tested a hypothesis that the ability of the insect to switch between univoltine (one generation) and bivoltine (2 generations) was dictated by the ambient temperatures during the larval stage. The Toledo Zoo tested this hypothesis by artificially chilling half of the satyr tents during the 2016 rearing season and comparing the number of animals entering diapause to the un-chilled tents. There was a significant difference in the percent of animals entering diapause between cooled and un-cooled tents where 98% of animals in cooled tents entered diapause in the fall of 2016, whereas only 63% of animals in non-cooled tents entered diapause. A total of 89 animals entered diapause and 24 animals matured in 2016.

PRAIRIE UPDATE:
Expansion of the Wild Toledo Urban Prairie Initiative continued in 2016 with the addition of new prairie locations at the King road Lucas County Public Library, Owens-Illinois (OI) world headquarters and a site associated with Toledo GROW. Wild Toledo also worked with our community partners to develop new, larger signs that focus on simple, easy to read messages on the benefits of the prairies. These signs were installed at all existing prairie locations.

KARNER BLUE BUTTERFLIES:
Experimental rearing of Karner blue butterflies (Lycaeides melissa samuelis) took place during June and July 2016 at the Toledo Zoo. Animals were harvested from five sites in Allegan State Game Area, were then stored in clear plastic boxes, each fitted with a feeding tube and placed in a large cooler for transport to the Zoo. Of the animals kept at the Zoo, mean survival time at the Zoo was 17 days, far exceeding the 7-10 day life expectancy in the wild. Captive rearing had mixed results due to fertility and survivorship. These data demonstrate distinct differences between currently occupied and extirpated sites, providing information that could result in better restoration goals for Karner habitat.

PNC PRESCHOOL PROGRAM:
Toledo Zoo is providing a unique natural learning opportunity for three local Head Start preschools, including installation of a native prairie and once a month visits by a Zoo educator with nature lessons and activities. Each Head Start classroom was also provided with a PNC Prairies for Preschools activity box containing exploration supplies. A total of 347 (187 Head Start and 180 traditional) children were reached through this program in 2016.
OFF-GROUNDS (CONTINUED)

TURTLE RESEARCH:
The goals of this project were to 1) gather long-term data on turtle populations in northwest Ohio, and 2) study habitat use and movement patterns for Blanding’s turtles and eastern box turtles. Five Blanding’s turtles had been outfitted with transmitters in 2015 and were tracked once every 1-2 weeks. Seventeen eastern box turtles had transmitters affixed to their carapaces and were tracked once every 7-14 days from May – November. A total of 687 and 689 trapping hours were logged at Wiregrass Lake and the Oak Openings Sandpits, respectively, in 2016. Box turtles were tracked for 171 to 209 days, during which time two of the 17 telemetered turtles lost their transmitters and were not recovered. Toledo Zoo’s dataset on turtle populations in the Oak Openings Region represents the only long-term effort to monitor turtles in this unique area and will be of great use as agencies purchasing properties or restoring land in an effort to promote biodiversity and landscape connectivity.

2016 CONSERVATION FUNDING

KIRTLAND’S SNAKES:
In 2016, Toledo Zoo began conducting surveys for Kirtland’s snakes at current, potential and historic locations using artificial cover objects (ACO). This resulted in eight captures of three individuals at two sites and an additional road-killed specimen. Kirtland’s snakes clearly still remain at some of their historic sites, but their abundance is difficult to assess. To this end, we propose to increase survey efforts for Kirtland’s snakes at locations where they were found in 2016. In total, we put in 83.1 hours of survey effort (or 1070 ACO flips), which resulted in the three individual captures.

AWARDS:
Toledo Zoo was recognized by several organizations for its on-going commitment to educating the public about conservation efforts. On Monday, December 12 the Ohio Environmental Protection Agency awarded an Ohio EPA Education grant in the amount of $44,300 to the Toledo Zoo to create 10 acres of demonstration rain gardens throughout the city. The Zoo was also recently honored by the local Oak Openings Region chapter of Wild Ones with the 2016 President’s Award. This award was given to the Zoo in appreciation of the Zoo’s support of the Wild Ones Oak Openings Chapter and promoting local biodiversity through establishing and educating about native plant communities in our local area.

It has been said that together everyone achieves more. Together, we are bringing lake sturgeon back to Ohio! A proposal submitted to the Great Lakes Fish and Wildlife Restoration Act Grants Program by the Toledo Zoo was one of seven projects recently recommended and approved for funding. The proposal entitled Maumee River Sturgeon Acclimation Facility received an approximately $90,000 grant. That grant will be complemented by one from the U.S. Fish and Wildlife Service, bringing the total funding of the new project to $170,000. The funding will provide for the construction of a modular facility on Zoo-owned property near the Maumee River to headstart lake sturgeon.
INSPIRING OTHERS TO JOIN US IN CARING FOR ANIMALS AND CONSERVING THE NATURAL WORLD.

EDUCATION

OUTREACH GROWTH

Lucas County outreach program participants

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Count</td>
<td>15,288</td>
<td>22,156</td>
<td>23,882</td>
<td>25,004</td>
<td>47,364</td>
<td>33,336</td>
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SAFARI DAY CAMPS

1,118 CAMPERS

Camps run throughout the summer for 9 weeks, in the winter during school break and in the spring on spring breaks. The Zoo added 2 new camp experiences for 2016: Camp for a Day on single days without school (MLK Day, etc.) and the evening-based Kid’s Night Out.

BEHIND-THE-SCENES TOURS

339 TOURS FOR 1,199 GUESTS

These interpretive tours give guests the opportunity to have up close experiences with our animals and their keepers while underlining our excellence in animal care, enrichment, and conservation. Hope, the baby polar, elephant training sessions and red panda tours were highlights of our 2016 tour offerings.

ZOO SNOOZE

123 OVERNIGHTS WITH 5,216 PARTICIPANTS

Snoozes and Overnights are offered for scout and community groups, schools, families and adults. 2016 continued the trend of record attendance increasing participants 10% over 2015 attendance. This year’s most popular overnight offering was the Aquarium. Along with increased participation, overnight programs switch to compostable utensils and plates in support the Zoo’s conservation mission.

ZOO EVENTS (PARTY FOR THE PLANET, TEDDY BEAR CARE FAIR, GREAT LAKES SYMPOSIUM AND BUGFEST) ATTENDED BY 11,435 VISITORS

Play Naturally Toledo (PNT) was created as a collaboration between the Toledo Zoo, Metroparks of the Toledo Area and the 577 Foundation to introduce families with children ages 3 - 12 to family nature play. The program is funded through a grant by the Association of Zoos and Aquariums and the Disney Conservation Fund. It has been proven that outdoor family nature play enhances many aspects of a child’s cognitive, physical, emotional and social well-being, as well as elicits science learning behaviors such as observation and cause and effect inquiry and improves motor skills.

TOTAL EDUCATION #:

2362 PROGRAMS WITH 617,831 PARTICIPANTS

Awards: Toledo Zoo’s education department has been recognized by the Center for Interactive Learning and Collaboration with their Pinnacle Award for doing all of that and more! The Toledo Zoo was one of 52 content providers awarded the 2015-2016 Pinnacle Award for their work in providing the group’s over 50,000 members with interactive, engaging and standards-based distance learning programming. According to the Center’s website, the Pinnacle Award is given annually to organizations that receive outstanding scores on program evaluations submitted by educators and other users.

TOTAL EXTERNAL FUNDING AWARDED TO EDUCATION IN 2016: $22,580

The education department received two grants in 2016 from the Toledo Community Foundation: 1) Community Funds Grant - $18,260.00 – Play Naturally Toledo a family oriented collaborative program between the Zoo, Toledo Area Metroparks and the 577 Foundation; 2) Community Funds Accelerator Grant - $4,320.00 – Funds to evaluate the aforementioned program.

SUPPORT

FUNDRAISERS

Total amount raised by fundraisers: $454,647.92

- **Once upon a Vine**
  - 112 ATTENDEES
  - RAISED $47,956
  - Watch the video

- **Dart Frog Dash**
  - 2,000+ ATTENDEES
  - RAISED $41,033
  - Watch the video

- **Baru Trailer at community events**
  - 672 shows for 50,854 audience members
  - with 670 programs for 31,398 audience members

- **Nature’s Neighborhood Exhibit**
  - utilized for nature play by 159,681 guests

- **Night in the Museum**
  - 180 ATTENDEES
  - RAISED $5,474
  - Watch the video

- **Rock n Roar**
  - 1,000 ATTENDEES
  - RAISED $44,078
  - Watch the video

- **Feast with the Beasts**
  - 140 ATTENDEES
  - RAISED $65,856
  - Watch the video

DONORS

Thank you, donors!

Click here to view our full list of donors.
2016 EXPENDITURES

- **Animal Care, Education, Conservation & Facilities**: 49.7% ($11,815,985)
- **Visitor Services & Amenities**: 33.2% ($9,323,872)
- **Administration, Membership, Marketing & Development**: 12.6% ($4,426,869)
- **Utilities, Insurance & Taxes**: 4.5% ($2,300,472)

**Total Expenditures**

$27,867,198

**Net Excess (Deficit)**

$459,104

Note: Consistent with prior years, depreciation expense is not included in the above figures but capital expenses of $687,280 that were paid from operations are included.

Cost of goods sold is included in Visitor Services expenditures.

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2016 REVENUE

- **Park Operations**
  - Park Operations* 49.6% ($14,044,273)
- **Lucas County Tax Levy** 20.8% ($5,892,300)
- **Memberships & Development** 19.7% ($5,582,305)
- **Contributions, Education & Special Events** 9.0% ($2,557,356)
- **Miscellaneous** 0.9% ($250,268)

**Total Revenue**

$28,326,302

*Park operations include admissions, concessions, gifts, catering, parking and rides revenue

**Contributions, Education & special events include Zoo PAL, Companies for Kids, the annual Fund 200000000, Corporate Sponsorship, educational Programs, Special Gifts and funds from the Zoo foundation. Some of the funds included in this line are reported differently on our audited financial statements due to being either board designated, temporarily restricted or permanently restricted receipts.

***Miscellaneous revenue includes investment income, grants and other revenues.