



FY17 PHILANTHROPIC IMPACT REPORT  
NATURE



**YOUR MUSEUM. YOUR IMPACT.**

From its collection of more than 12 million objects and specimens, the Royal Ontario Museum (ROM) advances new knowledge and connects audiences with the understanding of their natural world -- from the depths of our planet's oceans to the expanses of our solar system.

We are pleased to share with you some of the many highlights of the impact of philanthropy over the 2016-17 year.

Fiscal year for April 1, 2016 to March 31, 2017

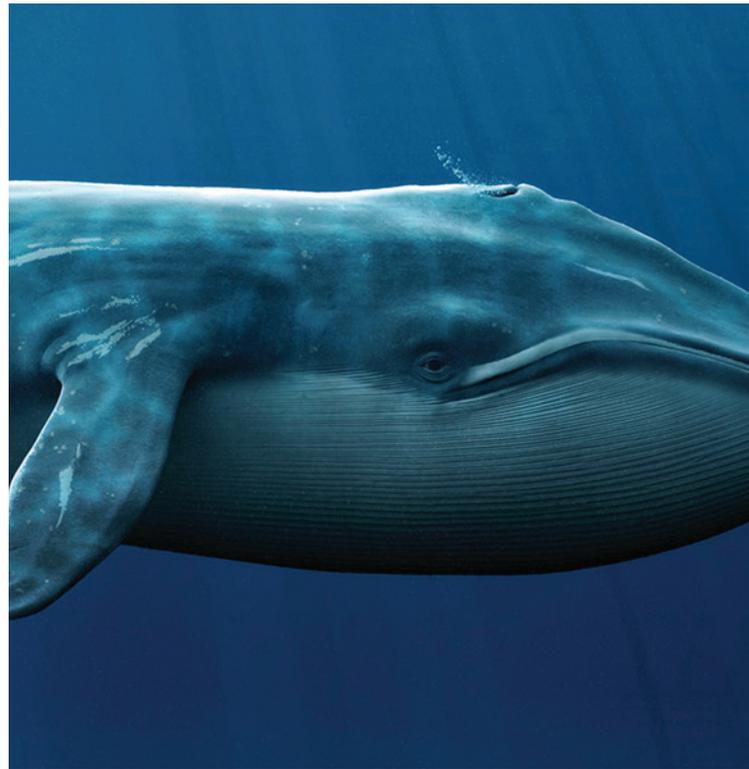
# DELVING INTO THE GENOME OF BLUE WHALES

Exciting research continued on the ROM's Blue Whale Project, an initiative to sequence the full genome of the species, following the Museum's recovery of two whales that perished off the coast of Newfoundland in 2014.

Blue whales are the largest animals to ever inhabit the Earth; and during the last century, the species nearly came to the point of extinction. Due to the great depths they dive to and their typically reclusive nature, the ROM's Blue Whale Project underscores a rare and critically important opportunity to unlock the mysteries of this species from its genetic material.

Using sophisticated sequencing techniques, a draft of the first genome of the blue whale has now been prepared, establishing a basis from which ROM experts can recover about 91 per cent of the genes found in the species' genome. These genes are currently being examined to find those that have undergone adaptation—genetic variations among individuals that have become adapted to a specific environmental context. For instance, the gene for rhodopsin, a protein produced in the eye and a blue whale's sole visual pigment, may provide clues to how the creatures potentially find their food.

Once published, these genomes will become reference points for researchers worldwide, providing a resource from which they can compare local whales, and better understand how much global movement occurs between different populations. It may also help answer questions about blue whale biology, physiology and evolution, and may also inform conservation efforts, such as estimating pre-hunting population sizes and population history.



ROM technician Oliver Haddrath extracting a DNA sample from blue whale tissue in his lab.

The ROM's Blue Whale Project was made possible by the generous support of Friends of the Canadian Collections, J.Crew, Arthur P. Kennedy, Alan and Patricia Koval Foundation, Jean M. Read in memory of Morris Appleby, Nita and Donald Reed, ROM Research Fund, Berneice Skelly, Louise Hawley Stone Charitable Trust, Elizabeth Walter Endowment Fund, Jane M. Wilson and EQ Bank, along with the 821 individuals who contributed to the ROM's 'Make a Splash' digital fundraising campaign.



## BIoblitz: ADVANCING CITIZEN SCIENCE

Over 250 scientists and 400 citizen scientists uncovered more than 1,300 species in the ROM-led Ontario BioBlitz—a program now nationally scaled with a \$750,000 grant from the Ministry of Canadian Heritage.



## GAME JAM: HACKING DAWN OF LIFE

The 5th annual Game Jam brought together some 100 programmers of all skill levels over a single weekend to build interactive games centred on the ROM's unparalleled collections and pioneering research in early life.



# TRACING THE EVOLUTION OF OUR SOLAR SYSTEM

**With many recovered specimens older than the Earth itself, meteorites offer ROM experts a rare opportunity to probe new insights into the formation and evolutionary history of the solar system.**

Did you know that the ROM's Earth & Space section holds one of the world's most comprehensive and important collections of Martian meteorites? With 22 samples—part of a broader meteoritic collection that includes more than 600 specimens!—that represent some of the rarest and largest known pieces ever recovered, the Museum is an invaluable resource for researchers in the planetary sciences. For Dr. Kim Tait, Teck Endowed Chair of Mineralogy, these specimens are critical in her ongoing efforts to uncover new insights into the conditions of early evolution of planetary crusts.

Last year, Dr. Tait completed an isotopic and geochemical survey of 21 Martian masses from both the ROM's and NASA's

meteoritic collection, advancing the understanding of the complex planet-scale evolution of Mars. Just like rocks on Earth, meteorites are composed of mixtures of minerals that provide important insight into planetary formation and evolution over geological time. By analyzing the composition of meteoric specimens, Dr. Tait is gleaning a wealth of data to better understand the petrological history of Mars—knowledge that may also suggest new ways of unraveling other evolutionary mysteries of the solar system.

Dr. Tait's research is generously supported through her Teck Endowed Chair and the Thayer Lindsey Geological Trust, along with federal grants and other sources of public funding.



**A rare 53 kg specimen of a pallasite meteorite in the ROM's collection—one of only 84 examples of its kind ever recovered!**



## LEECHES AS A SURVEY TOOL

By analyzing the iDNA in blood sampled from leeches, Dr. Sebastian Kvist, ROM Associate Curator of Zoology, is exploring an approach that could reveal the approximate biodiversity in an area without having to sample specimens.



## A PALAEOLOGICAL SURVEY

Following the acquisition of a newly described species of ankylosaur, Dr. David Evans, James & Louise Temerty Endowed Chair of Vertebrate Palaeontology, led a field project at the site of the find to place the specimen in context.

## ROM NATURE HIGHLIGHTS

### Special Exhibitions

The ROM's special exhibition program continued to present audiences with unique perspectives of their world, and was a critical driver of record-breaking Museum attendance of **1,348,144 visitors** for the 2016-17 year.



**OUT OF THE DEPTHS: THE BLUE WHALE STORY**

**285,416 VISITORS**

Brought face-to-face with the 80-foot skeleton and the world's first-ever plastinated heart of a blue whale, this original exhibition immersed visitors in the fascinating stories and the ROM's leading research into the biology, evolution and conservation of this endangered species.



**WILDLIFE PHOTOGRAPHER OF THE YEAR**

**82,900 VISITORS**

The ROM's presentation of the longest-running and most prestigious nature photography competition in the world returned for its fourth year, showcasing category finalists and winners of the competition through 100 breathtaking photographs.

### Notable Acquisitions



**Ankylosaur Skeleton**

A new species of armoured dinosaur, *Zuul crurivastator*, based on one of the most complete and remarkably well-preserved ankylosaur skeletons ever found, represents a landmark addition to the ROM's collection of dinosaur fossils.



**Black Fly Fossils in Amber**

Nearly 200 amber specimens with black fly inclusions from a private collection was acquired by the ROM, providing an excellent starting point to study the abundance and diversity of the Baltic amber black fly fauna.



**Gar Fish Fossil**

An exquisitely preserved gar from the latest Cretaceous time period from North America was recently acquired by the ROM. This specimen will be important for the Museum's research on fish evolution as well as end-Cretaceous extinction.

Acquisitions made possible by the **Louise Hawley Stone Charitable Trust**.