

Give The Perfect  
Gift This  
Holiday Season!

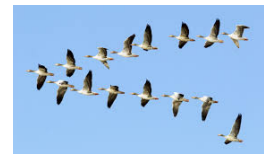
**DONATE TO YOUR  
FAVORITE CONSERVATION  
PROGRAMS**



**HOLIDAY ANIMALS**  
SOME ANIMALS CAN  
TOLERATE THE  
WINTER WEATHER



**HIBERNATION**  
MOST ANIMALS GO  
INTO A STATE OF  
DORMANCY



**MIGRATION**  
OTHER ANIMALS TRAVEL  
GREAT DISTANCES TO  
NEW PLACES

# NEWS FOR THE DEDICATED ZOOLOGIST

## Palm Oil

Palm oil is the leading and most versatile vegetable sourced oil in the world according to Green Palm Sustainability. While it brings us food such as snacks commonly found in international markets (mostly the Asian snack section), cosmetics, biofuel and energy, etc. , non-sustainable palm oil is dangerous to the environment.

Palm oil is manufactured by harvesting palm nuts in places such as Borneo, Sumatra, and Malaysia. Then the palm nuts are processed in a factory. Lastly, the oil can be shipped to global companies and used in products.

The problem in the palm oil crisis is deforestation. In order for the palm nuts to be harvested for manufacture, areas the size of 300 soccer fields are cut down every hour to be cleared by carbon



dioxide releasing tractors. Indonesia and Malaysia contribute to 85% of the world's palm oil and provides jobs and money in poor countries. This action disturbs the ecological balance and biodiversity living in the canopy of the rainforest. With this, animals such as Bornean and Sumatran orangutans, Bornean Pygmy elephants, Sumatran Rhinoceros, Malayan sun bears, Sumatran tigers, monkeys, and more are driven out of their home and often times are killed by the machinery and workers.



Snacks, especially those found in Asian markets, contain palm oil in the nutrition facts' ingredients. Sometimes listed as one of the first

ingredients, or deep into the list, palm oil sneaks its way into the ingredients list in about 50% of all food products worldwide. In other cases, palm oil can be found in products not related to food. Supposedly, palm oil is good for moisturizing skin. As a result, many cosmetic companies add



palm oil to their products as well.

In response to the growing abundance of palm oil and the growing diminish of Indonesian forests, conservation programs such as GreenPalm are working to certify sustainable palm oil. GreenPalm works with RSPO (Roundtable of Sustainable Palm Oil) to promote the production and usage of sustainably sourced palm oil in the world. Whenever unsure if a product containing palm oil is sustainably sourced or not, look for the RSPO logo.



Other conservation programs such as the Palm Oil Awareness Initiative work to inform people about what palm oil is, how it impacts the environment and our society, and how it is grown. You can also learn about some of the (strange) places that palm oil can be found.



There are also many other forms of conservation methods that you can use to reduce the use of non- sustainably sourced palm oil. Some examples are: downloading the free Cheyenne Mountain Zoo Sustainable Palm Oil Shopping app, donating to conservation programs, and of course, spreading awareness for the animals affected by palm oil and the use of sustainable palm oil.

## Holiday Animals



Reindeer are hoofed animals that spend their winter on the tundra, where life is harsh and temperatures are coldest out of all the biomes. Some herds will migrate depending on where they live. One of the many adaptations reindeer have is the ability to warm outside air before it reaches their lungs.



Ever wonder what that bird in the pear tree looks like? Well here it is, the partridge. Partridges are medium sized birds that do not escape the cold of winter. To survive the winter, the partridge will consume foods such as seeds and grass.



The candy cane shrimp is not known for their ability to survive during winter, but instead for their resemblance to the holiday confection, candy canes. These crustaceans have a mutualistic symbiotic relationship with a fish called a Randall's prawn goby. The two animals stick together for life and offer shelter and food to each other.

# Upcoming Events!

Mark these events on your calendar and spread awareness to celebrate them!

December 4- International Cheetah Day and World Wildlife Conservation Day

December 10- National Animal Rights Day

December 13- National Horse Day

December 14- Monkey Day

December 27- Visit The Zoo Day

January 5- National Bird Day

January 10- Save The Bald Eagle Day

January 20- Penguin Awareness Day

## Cool Crafts that are Eco- Friendly Toilet Paper Roll Reindeer

### Materials:

- 1 toilet paper roll
- 1 sheet of brown colored paper
- Red puff ball (substitute red paper)
- Black marker
- Hot Glue Gun if using red puff ball
- Tape
- Scissors



### Instructions:

- 1.) Take your sheet of brown paper and make 2 shapes for your reindeer's antlers, tape inside roll.
  - 2.) Make 2 leaf shapes for your reindeer's ears, tape onto roll.
  - 3.) Use your marker and draw 2 eyes on the roll.
  - 4.) Red puff ball- Ask an adult to use the hot glue gun to glue on the red puff ball for your reindeer's nose
- Red paper- Cut out a circle for the nose and tape onto roll.

## The Scatology Corner!

Scatology is a field of science that involves the study of the contents of an animal's poop.

We all know of the long tapered scat, and the feces that resemble brown balls, but have you ever heard of cube shaped poop? While it seems pretty bizarre, the wombat of Australia produces just that. Being the only known animal in the whole kingdom to produce such oddly shaped scat, the shape of the wombat's feces is most likely the result of the shape of its intestines that mold the poop into such a shape.



Wombat scat



Stay tuned for the bimonthly scat!

## Your Questions, Answered!

Mrs. Munsell asks: "Which animals are at the greatest risk of extinction?"

Answer: Within the past century, nearly 500 species of animals have gone extinct. These include the passenger pigeon in 1914, the Tasmanian tiger in 1936, and the Caribbean monk seal in 2008. To this day, more than 26,000 species, including plants and animals, are threatened with extinction. In percents, this is over 27% of all the assessed species. Amphibians are currently at the highest risk of extinction, making up 41% of the threatened species. Species such as the vaquita porpoise have a population of less than 12 in the whole world as of March 8, 2018. Other critically endangered species include the Amur leopard of Russia and Asia. In 2007, less than 26 individuals remained.

# National Park Spotlight

## Hawai'i Volcanoes National Park

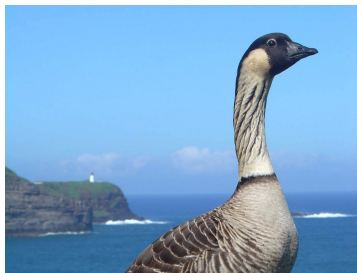
Hawai'i Volcanoes National Park is located on the south side of the island of Hawai'i, otherwise known as The Big Island. It was established on August 1, 1916. Covering 505 square miles, Hawai'i Volcanoes National Park is most famous for their volcanoes, endemic birds such as the nēnē goose, and the rich Hawaiian history.



Since its establishment on August 1, 1916, 2 million people have visited Hawai'i Volcanoes National Park annually. Hawai'i Volcanoes National Park was the eleventh national park to be established in the United States, as well as being the first national park established in an American island. When tourists visit the national park, they can hike on the many hiking trails, including the 1.2 mile loop trail Kīpukapuauulu or the Crater Rim Trail with an elevation of 4,000 feet.



Hawai'i Volcanoes National Park is located to the south of The Big Island. Within the park, people can visit the three volcanoes, Kīlauea, Mauna Loa, and Pu'u 'O'ō. Kīlauea reaches an elevation of 4,091 feet and last erupted on May 3, 2018. Mauna Loa has the largest altitude of the volcanoes, reaching 13,678 feet in elevation. Mauna Loa last erupted on April 15, 1984. Pu'u 'O'ō has an elevation of 2,290 feet and has been erupting from 1983 to 2018. When Kīlauea last erupted in May, 875 acres of land were added to the island.



To add to the volcanoes, Hawai'i Volcanoes National Park is also called home by many species of animals. Some 59 species inhabiting Hawai'i Volcanoes National Park are endangered. To name a few, the nēnē goose, Hawaiian hoary bat, Hawaiian petrel, and hawksbill sea turtle are threatened with extinction mainly due to climate change, tourism, invasive species, and loss of habitat has pushed these animals further towards extinction. Many animals inhabiting Hawai'i

Volcanoes National Park and islands in general, are birds. Bird species such as 'io, also known as Hawaiian hawk, and 'oma'o, a native thrush can be seen flying about the park. Among the species listed above, introduced species such as rats, feral goats, pigs, cats, and mouflon sheep have become invasive and have disrupted the ecological balance in the park.

Hawaii Volcanoes National Park is a great national park to visit during vacation and the park rangers look forward to teach you about Hawai'i Volcanoes National Park's rich history and wildlife!



**HAWAII**  
**VOLCANOES**  
NATIONAL PARK

### Did You Know?

The "Every Kid in a Park" program allows fourth graders and their families across the United States to visit any national park for free! If you are a fourth grader, have a fourth grader in your family, or know of a fourth grader who would like to participate, please inform them of this program!



Visit <https://www.everykidinapark.gov> for more details!

Visit <https://www.nps.gov/index.htm> for more information on Hawai'i National Park and other parks too!

## Bio inventions Reusable Straws



Plastic has been recognized as a wasteful and single use product. As a result, places such as Seattle, Washington have banned plastic straws in restaurants unless you request one from the server. California will also be implementing this law in 2019.

In response to this new law. People can carry reusable straws with them when they go out to eat. Many reusable straw companies are making their straws out of bamboo, metal, stainless steel, and silicon. Next month, do not forget your reusable straw!

## Hibernation

The cold winter months are approaching and all the animals are aware of it. Some animals have spent all year eating lots of food to store layers of brown fat. They had scurried about their habitat to find as much food as they can before winter settled in.



The animals shoved down the last bit of food before bundling up in a warm burrow or hole in a tree. The weather gets colder with each passing day and all the squirrels, chipmunks, bears, hedgehogs, frogs, and fish seem to have disappeared. These animals did not migrate with the herd animals, or fly south with the birds, they are still where they were in the earlier seasons.

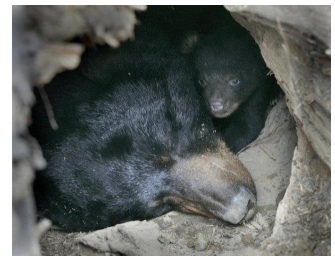
Hibernation is a state of dormancy that some animals exhibit during the cold winter months. Hibernation remains a mystery to scientists (for now) and we still have a lot of questions about it. However, we have discovered that a chemical in the blood of hibernators known as hibernation inducement trigger (or HIT for short) makes the animal hibernate.

Before winter approaches, hibernating animals will collect and consume lots of food, which is turned into what is known as brown fat. Brown fat is an extra layer of fat that prevents

hibernating animals from getting too cold, as well as protecting vital organs such as the brain and the heart.

Hibernators come in two forms: true hibernators and light sleepers. True hibernators, as its name suggests, sleep the whole way through winter. True hibernators can not be woken up easily. In some cases, these types of hibernators appear to be dead during hibernation. Some examples of true hibernators are hedgehogs, woodchucks, groundhogs, and bats. The word “light sleepers” is also pretty self explanatory as well. Light sleepers, such as bears, skunks, raccoons, and opossums, can easily be woken up and will occasionally wake up to eat.

When a true hibernator exhibits their state of dormancy, their heart rate drops to a very slow pace. The lungs also work a lot less and the hibernators only inhales and exhales a few times every minute. Hibernation in light sleepers works differently than in true hibernators. Light sleepers exhibit a sort of elongated sleep as appose to a deep sleep. Light sleepers, such as bears, utilize the winter months to give birth to babies. In the spring, the young will be able to move around and stay close to their mother. No matter if the animal is a true hibernator or just a light sleeper, hibernation and hibernators are pretty cool in the cool months of winter!



# Migration

Migration is when a group of animals within the same population travel a long distance to reach a specific destination. Migration occurs in many different animals for different reasons. Some animals will migrate to give birth to young. Others migrate to find better food sources. Some animals migrate to hibernate. In this article, we will focus on migrating for better living conditions in the winter.



Scientists do not know for sure how animals that migrate know where to go. Some hypothesize include the usage of landmarks that the animals pass during the migration, navigating using the sun and stars or Earth’s magnetic field, and smell.

Animals such as birds and herd animals such as reindeer migrate to warmer places to escape the harsh conditions of winter. Members of the species in the area group together to make the trip to a new destination. For example, it gets cold and snowy in Canada, so Canadian geese migrate south towards Mexico during the winter months. Migratory animals are awesome!

## Give The Perfect Gift This Holiday Season!

Beforehand Notice: This will probably be the only instance in which *News For The Dedicated Zoologist* advertises something.

Conservation programs worldwide are working very hard to protect animals that need our help, they deserve a holiday gift as well! Please visit the following trusted conservation program websites and submit a donation. These websites use their funds towards the conservation of animals, research, as well as keeping up their websites. As a reader of *News For The Dedicated Zoologist*, you are not obligated to donate, spreading awareness for endangered animals will warm our hearts too!

- <https://www.worldwildlife.org>
- <https://porpoise.org/donate/>
- <http://www.orangutan.com/threats-to-orangutans/>
- <https://www.rootsandshoots.org>
- <https://www.audubon.org>
- <https://www.rainforest-alliance.org>
- <https://www.msc.org>



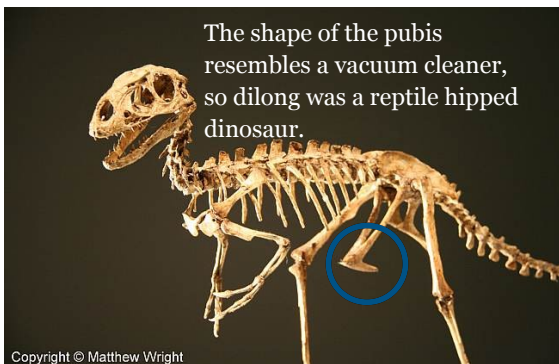
# Dinosaur of the Issue: Dilong

## Jump into the prehistoric life of dinosaurs!

The “emperor dragon” scouted the mossy forrest for any small mammal. It called out to its fellow group mates with a ferocious roar. With its large eyes, the alpha- dilong (pronounced dee- lowng) silently tip toed to a nearby shrew. The other dilong followed their leader. With one short sprint and the closing of the jaw, the small shrew had been caught by the dilong.



With fossils being originally found in North Eastern China, dilong was an early tyrannosauroid that was most likely an ancestor to the all famous tyrannosaurus rex. Dilong (帝龙 dì lóng) meaning “emperor dragon” in Chinese, was a nocturnal carnivore of the early Cretaceous Period 125- 146 million years ago. It grew to be 6 feet long and 3 feet tall. Fossilized skin show that dilong may have had feathers, probably used to keep warm. Dilong was surely a crucial part in dinosaur evolution.



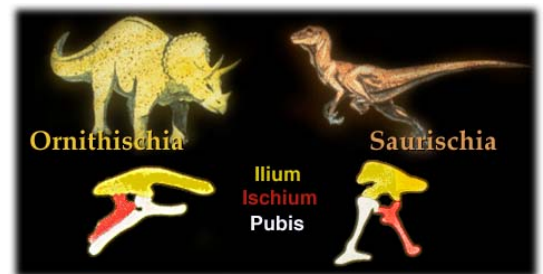
Dinosaur Connection



## Lizard Hipped Dinosaurs and Bird Hipped Dinosaurs

Dinosaurs are categorized into two groups based on the shape of their pelvis bone. Lizard hipped, known scientifically as saurischia, and bird hipped, ornithischia are the two categories of dinosaurs.

The pelvis is the hip bone, it comprises of three parts in dinosaurs. The three bones are the ilium, ischium, and pubis. In lizard hipped dinosaurs (saurischians), such as dilong, tyrannosaurus rex, and brachiosaurus, the pubis is long and forms a sort of shape that resembles a vacuum cleaner. The bird hipped dinosaurs (ornithischians), such as triceratops, stegosaurus, and iguanodon. The pubis bone is long one way and shorter the other. It resembles the state of Maryland turned at a 45 degree angle. Oddly enough, lizard hipped dinosaurs are more closely related to birds than bird hipped dinosaurs!



## Dinosaur Pole: Which is Your Favorite?

Pterodaustro (see issue #2)

VS

Giraffatitan (see issue #4)

# Games

Match the fact to the animal!

Tapir

A.) This animal has a prehensile tail

Jellyfish

B.) This animal has no bones

Crocodile

C.) This animal is able to drink fresh and salt water

Owl

D.) This animal can walk upside- down

Seagull

E.) This animal regurgitates bone and fur in the form of a pellet

Fox

F.) This animal is most closely related to rhinos and horses

Gecko

G.) During mating, the female eats the male for nutrients

Chameleon

H.) This animal's 4th tooth shows when they close their mouth

Praying mantis

I.) This animal is a sequential hermaphrodite


Clownfish

J.) The scientific name is composed of 2 of the same words

See the last page (page 10) for answers


Nature Poll

Which geologic era was better?



Mesozoic Era

OR



Cenozoic Era

In The Last Issue:

Yosemite National Park

won 2- 1!



The ability of the cheetah

won 3- 0!



# Reptile of the Issue:

## Gecko Lizards, family Gekkonidae

Geckos are known for having long and flexible tongues. This is a key feature for the 900 species of gecko in the world. Geckos are mostly arboreal and rely on their tail to stay balanced while climbing. The tail of the gecko can also store fat and tends to be more rounded



than that of a lizard. Similar to lizards, geckos can detach their tail if they feel threatened. To add to the anatomy of the gecko, they have toe pads on the bottom of their feet that allows them to walk on vertical surfaces. At night particularly, the nocturnal geckos make chirping sounds to other members of the area. Because geckos have no eye

lids to blink, they use their long tongues to lick their eyes. Geckos are omnivores. Their diet consists mainly of insects, spiders, fruit, and flower nectar. Geckos use their all- famous tongue to catch their prey.



Geckos on every continent of the world except for Antarctica. They generally live in forests, deserts, and mountains. Habitats are crucial to the survival of the organism living there. When loggers cut down trees to clear room for agriculture and housing, many species of gecko become at risk of extinction. The day gecko and turquoise dwarf gecko are critically endangered because of habitat loss. The eyelash gecko is listed as vulnerable due to habitat loss, clearance for agriculture, and the predation of rodents.

## Resources

- <https://www.greenpalm.org>
- <https://whatismyspiritanimal.com/animal-holidays-celebrations/>
- <https://www.nationalgeographic.com/animals/2018/11/wombat-poop-cube-why-is-it-square-shaped/>
- <https://www.nps.gov/havo/index.htm>
- <https://www.iucnredlist.org>
- “All About Hibernation” By Tori Kosara
- <https://nhpbs.org/natureworks/nwep4c.htm>
- <https://www.newdinosaurs.com/dilong/>
- <http://www.ucmp.berkeley.edu/diapsids/dinomm.html>
- <http://www.arkive.org>

Thank You for reading this month’s edition of “News for the Dedicated Zoologist”! I hope you enjoyed it. Please do your part and spread awareness for all those endangered animals out there.



But wait, don't stop reading yet!

If you would like to ask a **zoology related** question to be featured in "Your Questions, Answered", what you need to do is simple!

Fill out the information below and send it to my email or give it me in person.

"News For the Dedicated Zoologist" Request Paperwork

Name: \_\_\_\_\_

Age (optional): \_\_\_\_\_

Question: \_\_\_\_\_

\_\_\_\_\_

Email (also optional): \_\_\_\_\_

Please send this paper to this address: [biologysilife@50-50.com](mailto:biologysilife@50-50.com), [ga1573mo1002@pusd.us](mailto:ga1573mo1002@pusd.us), or give it to me in person.

Answers- Animal Match Game

Tapir- F.

Fox- J.

Jellyfish- B.

Gecko- D.

Crocodile- H.

Chameleon- A.

Owl- E.

Praying Mantis- G.

Seagull- C.

Clownfish- I.

"News For The Dedicated Zoologist" is an uncredited non- profit newsletter, 100% of the money goes towards

Creature Update!

With the death of Lonely George the tree snail comes the extinction of the species that used to inhabit the Hawaiian Islands.

News For The Dedicated Zoologist mourns the extinction of the species.

Get Ready For The February- March Issue Of *News For The Dedicated Zoologist!*