Wing Beat

We represent Audubon Society members in Northern Pinellas County and provide services to all who are interested: free local field trips with expert birders; inexpensive extended field trips within the US and to other locales, free monthly programs, volunteer & networking opportunities within the local conservation community; scholarships to local summer camps and speakers for a variety of classrooms and groups.

Tidbits from the Hood (John Hood)

- The Florida Wildlife Commission approved the creation of 13 new and the expansion of 5 Critical Wildlife Areas. This will protect critical beach and mangrove nesting birds from human incursion into their homes. This has been about the first group of CWAs that have been created in the past 30 years in which time Florida's population has doubled.
- Florida Audubon has received a grant from National Fish and Wildlife Foundation. This grant will allow purchase of a boat for the 3 Rooker Bird Steward Program and fund for 4 years for a biologist to help Dan Larremore with the Caladesi, Honeymoon, 3 Rooker, and Anclote surveys. The biologist will also do other science based studies of the avifauna. Seasonal personnel will also be hired to drive the boat.
- Unfortunately, Wild Birds Unlimited has closed. In the 3.5 years, they were open they made a major impact in north Pinellas and Pasco counties. They sold 4,000 bird feeders, 500 nesting boxes, 11,500 bags of seed, 9.000 suet cylinders, 4,500 suet bricks and doughs, and 532,000 live mealworms. They will be missed.
- On Jan19 members Paul Ingham, John Hood, and David Hopkins presented a plaque to the Clearwater Police department and the City Council thanking them for their efforts in supporting our efforts in protecting he beach nesting bird colonies.

Clearwater Audubon Society
http://clearwateraudubonsociety.org/
February, March 2017
Vol. 75 No. 1
Supporting our community since 1959
Our Motto: Conservation through Education
For more information call us at 727-442-9140

December Program: Raptors of a Different Sort
Paul Cutlip, Professor of Geology at St. Petersburg College

Paul Cutliff gave an interesting talk for our December meeting on the origin of birds. During the Triassic period 2 major groups of animals evolved, the dinosaurs and the reptiles (pterodactyls were reptiles and not an ancestor of birds). During the late Jurassic about 225 million years ago a group called the Theropoda dinosaurs developed. This group included Tyrannosaurus rex and a group called the Maniraptora from which birds would eventually evolve. A number of dinosaurs had feathers although they were not flight capable. This is evidenced by the presence of feather quill knobs on their arm bones. This has been found in Velociptors (contrary to the movie they were only about 18 inches tall). Archacopteryx is the earliest "bird" fossil that has been found. It was found in Germany in the 1800's and is about 150 million years old.

Raptor – From the Latin *rapere* to snatch, grab, carry off or abduct

Unlike modern birds it had teeth, a boney tail, and fingers with claws on the end of its wings. It had a 15-inch wingspan but was not a direct ancestor of modern birds. Just like the genus Homo there were a lot of dead ends in the evolutionary tree of birds. A number of these developed in the Mesozic era (145-66 million years ago), but became extinct.

A lot of new discoveries are being made in the Liaoning province in China. Among these is Microraptor the only fossil that we can tell what color it was since melanin pigments have been recovered. About 66 million years ago, a mass extinction event occurred and all the dinosaurs disappeared. This was caused by a massive meteor impact off the coast of Yucatan Mexico perhaps abetted by a massive volcanic event in India which covered the entire subcontinent in multiple layers of lava many hundreds of feet thick. Only 4 bird ancestors survived this extinction. They were to become the ancestors of the large non-flighted land birds such as ostriches and emus; the ducks, geese, and swans; the ground fowl such as chickens and turkeys; and modern birds (Neoaves). The closest relatives to modern birds that also survived the extinction event are the crocodilians.

Membership

Membership Application

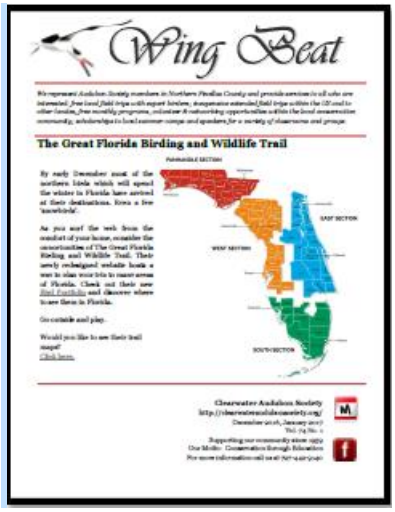
Size : 141.717 Kb

Monthly Meetings

October – May
The first Monday of each month
at Moccasin Lake Nature Park:
Meet and Greet @ 6:30PM
Public Program @ 7:00PM
(Unless otherwise noted)

Past Issue of Wing Beat

click issue to view
Dec 2016- Jan 2017



"A Boater's Guide to Clearwater Harbor & St. Joseph's Sound *including Three Rooker Island, the Anclote Keys and Anclote Bar" is now available online.*

click picture to view

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Join us for this Amazing day trip to Ponce de Leon Inlet & Daytona Beach

w/Michael Brothers

February 18th, 2017

Carpooling from Wal-Mart at 8:00am, Saturday the 18th returning the same day at 9:00pm-ish.

Reservations a MUST please!

Please contact Dale 727-510-1462 in order to coordinate transportation.

(Cost of trip…carpoolers $15 to driver, admission fees below, dinner on the way home.)

We'll stop at a rest stop to consume our packed lunches on the way over. Our timing is to coincide with the high tide at Ponce Inlet jetty…in order to find the wintering Purple Sandpipers and other shorebirds. We may have time to do additional birding at this location or for those love lighthouses…the Ponce de Leon Inlet Lighthouse ($6.95) or check out the Marine Science Center ($4 seniors/$5 adults)… all centrally located.

We will spend time in a classroom setting with Michael at the Marine Science Center, then take it to the beach and put our new-found gull knowledge to work identifying the gulls on the beach.
We'll head home from the beach, getting dinner before we get on the interstate.

Michael Brothers

Mr. Brothers has been the director of the Marine Science Center in Ponce Inlet, Florida for the last 12 years. He has over 40 years of experience in museum administration in city, county, state, and private non-profit museums. Mr. Brothers is the former Executive Director of the Museum of Arts and Sciences in Daytona Beach.

Mr. Brothers has extensive natural science experience including specializations in the bird life and flora of Florida, as well as leading natural history tours throughout Florida, the Galapagos Islands, Kenya, and the Amazon. He has been leading pelagic birding expeditions off of Florida and Georgia for the last 12 years. He is currently a member of the Florida Ornithological Society Records Committee, which evaluates reports of birds recorded in the wild in Florida and is responsible for updating the scientific record of Florida's bird life. Mr. Brothers is also the Florida regional editor of the journal "North American Birds." He is currently conducting a banding project on Lesser Black-backed Gulls in Volusia County in hopes of determining the breeding location of the Lesser Black-backed Gulls that occur in North America.

Lighthouse: http://ponceinlet.org/ Marine Science Center: http://www.marinesciencecenter.com/

Each evening in winter we get an astounding assemblage of gulls on the beach here. Gulls come from the landfill and many other areas in the late afternoon. They stage here until sunset, then they fly off the beach and settle on the ocean, just beyond the breakers. They stretch for miles. I have estimated that there may be 50,000 – 60,000 gulls on the beach. This is only a guess. I have tried to pace off areas and count the average bird density per meter, but it is still only a guess. I have had many of the leading birding experts in gulls from throughout the US here and this may be the largest concentration of gulls on any beach in the United States.

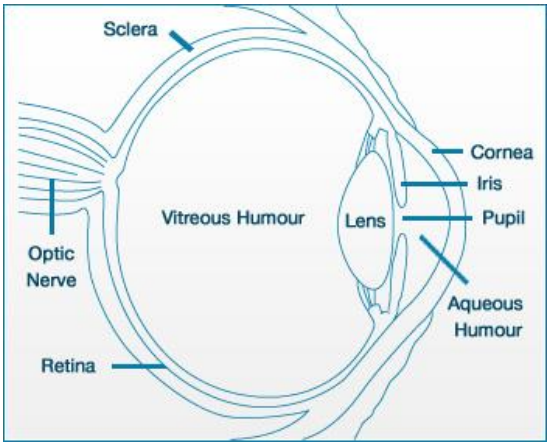
The majority are Laughing Gulls, with many Ring-billed Gulls. There are hundreds of Herring Gulls including many adults. We also have numerous Great Black-backed and Lesser Black-backed Gulls. I am getting an increasing number of adult LBBGxHEGU hybrids. In addition, we also get Bonaparte's Gulls, Glaucous, Iceland, Thayer's, California, and even Florida's first Vega Gull. We also have turned lots of odd birds, including possible Slaty-backed Gull, European Herring Gulls and also possible Yellow-legged Gull.

Binocular Optics

-Madeleine Bohrer

Human beings are endowed with binocular vision, a characteristic that allows for depth perception. Through the millennia, they have developed tools to enhance their visual acuity. Microscopes were created to explore unseen worlds while telescopes touch the universe beyond the sky above. Here, we will explore the development of binoculars and the mathematics that define them.

It is interesting to note that the human eye is a telescope in its own right, using refraction to transmit images to the brain. Refraction is the change in direction of a wave, in this case a light wave, as it passes from one medium to another. As a wave of light enters the eye it passes through the aqueous humor, the lens, and the vitreous humor on its way to the retina and optic nerve to deliver the synaptic impulses that allow our brain to perceive an image. There are muscles that change the shape of the lens to accommodate objects at varied distances. The pupil allows light to enter the eye and in fact is the point at which the object space transitions to the image space—the entrance and exit pupil.



The amazing alignment of the parts of the eye seen here not only uses the same physical laws of refraction used in a manufactured eyepiece, but foreshadows the idea behind the telescope and later the binocular. After all, many species have what is known as "binocular vision"—the ability to see three-dimensionally.

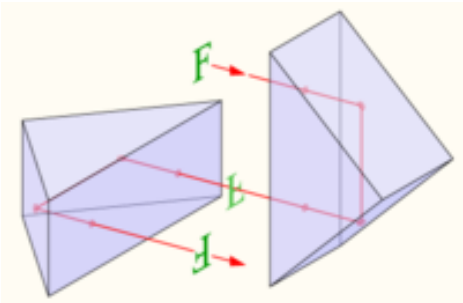
The study of the perception of light and the idea of magnifying images has been pondered and recorded since the fourth century B.C. Euclid and Ptolemy, both Greek mathematicians from ancient history, held to a very egocentric view of man within an Earth-centered universe. Vision, to them, was a ray that emanated from the eye to touch the object being viewed. Although Aristotle rejected this theory, it was not until the 10th Century A.D. that Alhazen from Arabia and known as the father of modern optics, disproved this "emission" theory of vision through his extensive research with parabolic mirrors. When his papers were translated, and introduced to medieval Europe, they had an enormous influence on thought and invention. Man, and Earth were no longer the center of the universe and the mysteries of the behavior of light were revealed in astonishing accuracy for his time. Interestingly, this view was in direct opposition to the era's biblical doctrine stating that God created the Earth as the center of the cosmos. Centuries later, Johannes Kepler brilliantly refined optical knowledge with the publication of Astronomiae Pars Optica (The Optical Part of Astronomy) in 1604.

In 1608, Hans Lippershey, an eyeglass maker and inventor born in Germany living in Holland, patented a three-power telescope. It was made by housing two lenses two feet apart within a long wooden tube. One year later, Italy's foremost instrument maker, Galileo Galilei, perfected Lippershey's idea (a reconstruction of it is pictured left). It had a convex objective and a concave eyepiece which allowed the image to be seen erect but had a rather narrow field of view. Ironically, it was this invention that later ostracized Galileo from the church as he mapped the stars of the Milky Way and proved that the Earth revolves around the sun.

The optical research of Isaac Newton in 1670 led him to create a telescope which magnified and focused light by reflection rather than refraction. This means that instead of using glass lenses he reflected light off a concave mirror. His telescopes had a larger diameter to house the mirror but the tube was considerably shorter. The efficiency of this design increased magnification to 38 power! Applications of this invention included use in the military, hunting, and at sea.

Who invented the binocular and when did it come into common use? It is nearly impossible to answer these questions precisely. The optical components of Lippershey's telescope were primitive and used poor quality lenses. Telescopic vision also opposes what comes naturally to us: using two eyes. It is tiring to squint for long periods of time with one eye through an inferior lens so the transition to a double telescope—one for each eye—would have been quite natural. There are numerous accounts of binocular inventors throughout the 17th century including not only Lippershey, Galileo, and Newton but many other innovators in Italy, Germany, and France.

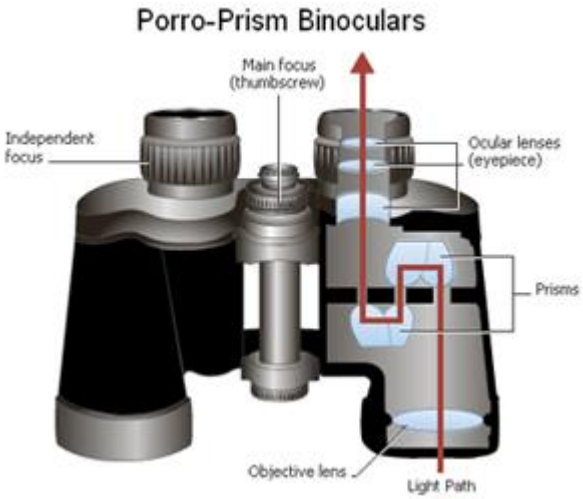
When an image is viewed through a series of lenses, it is inverted (similar to the phenomenon in human perception). Bending the light receptor, as we saw with Galileo and Newton, corrects this anomaly but still leaves us with the issue of magnification and field of view. It was not until 1854 that an Italian optician

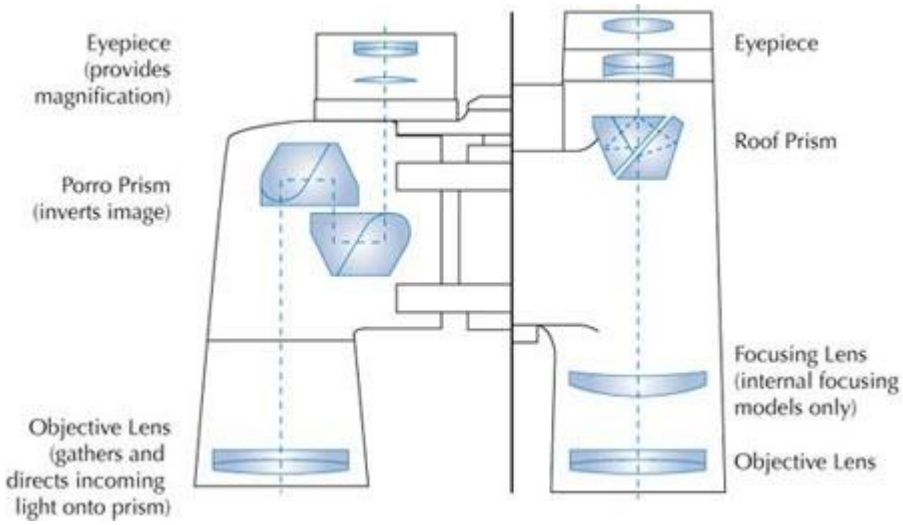


named Ignazio Porro patented a double prism system to efficiently bend and direct light waves. Because the right triangle-shaped prisms must be set in a double z-shape, the body of the binocular needs to be wider which in turn allows the objective lens to be bigger; the more light that enters the binocular, the better the image. Note in the illustration how the optical path has been folded into five pieces; this consequently allows for shorter binoculars. To this day, Porro-prism binoculars are

manufactured and have kept the name of their inventor. Their biggest disadvantage is that the alignment of the prisms can be easily compromised through use.

In 1905, Carl Zeiss patented the roof-prism binocular. Here, instead of a z-shaped configuration, the prisms are set with their longest hypotenuse sides facing each other. Not only does this stabilize the prisms but it allows the light to travel in a straighter path directly toward the eye; the binocular has a compact and narrow body as well. While a roof prism design can compromise image brightness, the closer position of the objective lenses allows for close focus when watching, for example, butterflies or insects. The picture below is a nice juxtaposition of the two types of optics.





This illustration also presents the three basic elements of a binocular: the objective lens, the prisms, and the eyepiece, or ocular lens. A binocular is identified by two numbers: the magnification of the eyepiece and the diameter of the objective lens, for instance, 7 x 35 or 8 x 42 (magnification by diameter).

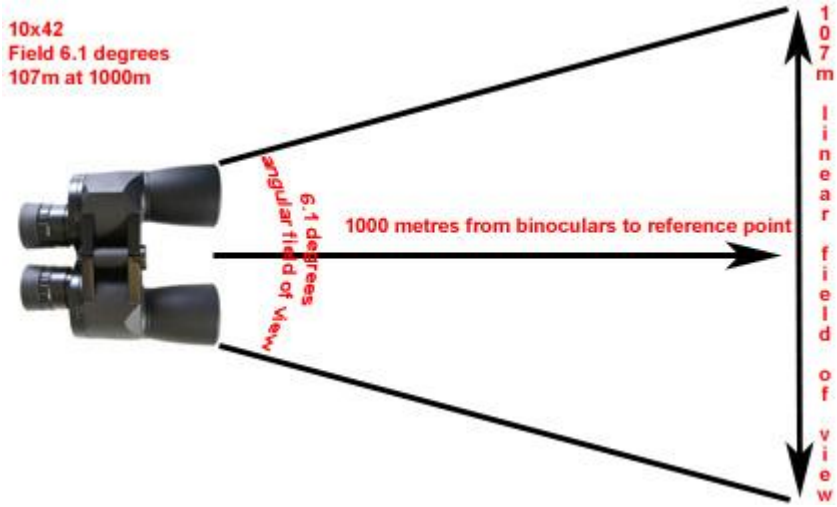
The objective lens, so-called as it is closest to the object being viewed, is qualified by its aperture (diameter). A binocular's aperture determines how much light can be gathered to form the image being viewed and is generally measured in millimeters. Due to the nature of the light wave, detail and color tend to blend together when an objective is small. Resolution—the degree of detail seen in an image—is directly proportional to the objective diameter: a wider lens offers greater image detail.

The ocular lens is responsible for the magnifying power of the binocular. A ten power magnification allows the viewer to see an object ten times closer than with the unaided eye. This is wonderful, but the resulting field of view is more narrow thus creating difficulty when tracking a moving object. Also, image brightness is compromised with higher magnifications again due to the physical nature of the light wave. Magnification is calculated by dividing the focal length of the ocular into the focal length of the objective. The focal length is the distance between the lens and its focal point—the point at which the beams of light converge after passing through the lens. These numbers are not generally given to a binocular owner, but they are simply based upon the same physics that Lippershey and Galileo used when they placed two lenses a certain distance from each other to magnify distant objects.

As in the human eye, there is an exit pupil in a binocular. As the objective collects light, it concentrates it into a beam as it travels towards the prisms. The diameter of this beam is calculated by dividing the aperture by the magnification. Therefore, an 8 x 42 binocular has an exit pupil of 5.25 millimeters. You can see the exit pupil by holding the binocular at arm's length. To transmit the most light to the viewer, its diameter should match the eye's pupil as closely as possible; if it is wider than the dilated eye pupil (from 3 to 7 millimeters in daylight and darkness respectively), the light is in effect wasted. A wide exit pupil, though, affords a better image in dim light.

Field of view—the width of landscape visible through the binocular—is another interesting consideration determined by the the inner workings of the various components. The field of view is generally determined by the horizontal length visible 1000 meters or feet away. The field of view for most human eyes is from 160 to 170 degrees. Note the illustration below: the field of view through a binocular is narrowed down to a cone-shaped area ranging from 5 to 8.5 degrees. In this example, these binoculars afford a view of 107 meters at 1000 meters. The angle at the small end of the cone is 6.1 degrees. Each degree isequal to approximately 17.5 meters: 17.5 x 6.1 = 107 meters. (If using feet, multiply the angle by 57.5.) Another way to calculate the field of view length is to take the tangent of the angle in degrees and multiply by 1000: 1000(tan 6.1) = 107. Both the degree measure and the linear measure are commonly used to indicate the field of view.

Over the centuries since binoculars were invented, their use remains essentially the same: for the military, for recreation, at sea, and for astronomy. Varying the size and configuration of the optics, applying coatings to the lenses, and improving the housing all contribute to tailoring the binocular to its intended use. It is a remarkable invention that complements the human eye and creates an empowering extension to our own binocular vision.



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http://www.scienceclarified.com/scitech/Telescopes/The-First-Telescope.html Science Clarified. This was an excellent, informative, clearly written article. It was nicely illustrated as well.

http://www.europa.com/~telscope/binohist.txt Peter Abrahams. This site was a simple piece without illustrations which proved to be the most in depth article about the history of the binocular, a topic which is sketchy at best.

http://www.opticron.co.uk/Pages/chooser_guides.htm Opticron. This is a British company that sells binoculars, telescopes, and other optics

http://www.aoe.com.au/binocular_guide.html Aquila Optical and Electronics. This is an Australian company that deals with various optics

http://www.birdwatching.com/optics.html Birdwatching.com. This website provided an excellent article on the basics of binocular optics. It was written by Michael and Diane Porter. Their main field of research is on recreational binoculars and telescopes.

http://www.thebinocularsite.com/ The Binocular Site. This site was wonderfully well-written and illustrated and full of great information.

http://www.nei.nih.gov/health/eyediagram/eyeimages1.asp National Eye Institute

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Color Me Happy!

According to the American Art Therapy Association, art therapy is a mental health profession in which the process of making and creating artwork is used to "explore feelings, reconcile emotional conflicts, foster self-awareness, manage behavior and addictions, develop social skills, improve reality orientation, reduce anxiety and increase self-esteem." So basically, it's similar to good old therapy.

Click the link to see the recent cover of Living Bird Magazine:
https://www.allaboutbirds.org/living-bird-winter-2017-table-of-contents/

Shutterbug

-Lynn Sumerson

White Ibis & Glossy Ibis

Pair of Glossy Ibis

Roseate Spoonbill

Limpkin

The Cleanup

-John Hood

On 11/30/16 a group of Audubon staff and volunteers (Ann, Mark, Johnx2, Ronnie, Stephanie, Dana) embarked on a cleanup of the Audubon sanctuary islands in St. Joseph sound. The islands cleaned were marker 26, Ozona spoil west, and Dunedin Sandkey west. The weather was good with sun and warmth but quite a breeze which necessitated a slow speed otherwise we would have become soaked. Multiple bags of debris were collected along with monofilament fishing line. Fortunately there was not much in the way of monofilament but unfortunately there was one pelican carcass from a bird which had become entangled. On a good note a pelican was spotted which had a lure and line in one wing that we were able to catch and remove the offending debris. The bird was flight capable and flew off without problems. All in all we made a difference for our feathered friends.

Earn Your CAS Volunteer Pin by Being a Bird Steward!

Volunteers monitor beach locations where sea and shorebirds are nesting. The beaches are surveyed early in the season and nesting sites are posted when the first egg is spotted. We usually have a black skimmer colony on Sand Key. Our primary emphasis is on Three Rooker Island which is just north of Honeymoon Island. Volunteers are transported by boat to the island where they set up in chairs and umbrellas (provided) adjacent to the colonies. They educate the folks who come by and keep people and dogs from entering the colonies. It's wonderful to spend the day on one of the only unspoiled pristine barrier islands on Florida's west coast. Nesting birds include snowy plovers, laughing gulls (4-5,000), least terns, royal terns, white ibis, Caspian terns, reddish egrets among others.

Click the PIN to learn more.

http://clearwateraudubonsociety.org/birdsteward.html

Bats

-Francine Prager

INTRODUCTION:

Francine heads up the organizations called Tampa Bay Bats. They are an educational and bat rescue and rehabilitation organization located in the Tampa Bay, Florida area. Their goal is to teach children and adults about how beneficial these gentle animals are and to dispel the many myths surrounding them.

There are 13 species of bats in Florida, with 5 living right here in the Tampa Bay area. All of our Tampa Bay bats are insect eaters

MYTH OR FACT:

Bats are blind: No, all bats can see and many can see quite well. The small insectivores use echolocation to find their meals in the dark, but also use their eyes to get around.

Bats and Ebola: The very latest research into the Ebola virus is proving that bats DO NOT pass on the Ebola virus. Even those bats who have been experimentally infected with the virus show no signs of shedding it.

Bats will get tangled in your hair: No. In addition to sight, our bats use echo-location to find their way around. This sense is so keen, a bat can detect an object the width of a single human hair and avoid it.

All Bats Have Rabies: Only the smallest percentage of bats are rabid...1/2 of 1 percent of them. And unlike raccoons, dogs, etc., if a bat is rabid it quickly becomes paralyzed and dies shortly after. It does not chase after a person trying to bite them.

Bats Are Flying Rodents: No... Bats are not flying rats. They belong to a group called Chiroptera, which means "hand wing". They are closer to groups like primates, lemurs and humans, than rodents.

Echolocation: This is how bats find their prey at night...by listening to echoes bouncing off objects in their path. Bats produce calls using their lungs and larynx. Since the louder the call, the better the echo, bats scream out their chirps and are one of the loudest creatures on earth - but fortunately their calls are higher in pitch than human ears can hear. Bats fly along producing calls from 10-20/ SECOND.

They are uniform and evenly spaced. Once an insect is detected the bats swoops towards it and doubles or even triples it's call rate to glean more information about it. Once the bat has decided a meal is in front of it, it needs even more information to capture it. At this point the bat will issue calls of up to 200/Second and interpret the returning echo at the rate of 200/Second! A bat detector must be used to detect these calls at audible levels, and when heard through a bat detector, this capture phase sounds like a buzz to the human ear...hence it is called the "feeding buzz". A bat will repeat this hundreds of times per hour.

Vampire Bats: Myths abound about these bats, so let's dispel some of them. The United States does not have vampire bats - they are found only in zoos. They live in South and Central American and some parts of Mexico. They do not "suck" blood, but since they are required to drink blood in order to live, they do make a small scrape with their sharp incisors and lap up a little blood. Out of the 1,327 species of bats in the world, only 3 are vampires and 2 of those drink only the blood of birds. The 3rd species, the common vampire bat, does drink the blood of mammals, but prefers the blood of cattle and horses.

Since these bats must eat every day to stay alive, if a vampire bats' roosting neighbor is sick and cannot hunt for itself, the neighbor will bring "food" (blood) back for it. An orphaned baby vampire bat will be taken in by another female and cared for as though it was her own. Vampires are small bats, weighing from about 1/2 to 1 4/5 ounces. Their wingspan is about 8 inches...They live in close-knit family groups and they are kind of cute!

Organizations We Support

Audubon of Florida

St. Petersburg Audubon Society

Important Bird Areas in Florida

Great Florida Birding Trail

Florida Ornithological Society

Friends Of Brooker Creek Preserve

Dunedin Osprey Cam

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If you are interested in advertising with us, please contact Meichelle Long.