

アンケートI 画面

イヌ・ネコ咬傷・創傷由来感染症に関するアンケート調査

下記黄色の部分に回答を入力して下さい。  
黄色のセルにマウスを合わせクリックをすると▼印が表示され、  
▼印をクリックすると選択肢から選ぶことができます。  
(ALTキーと↓キーで表示、↑↓キーで選択することもできます)。

2011年12月9日(金)までにご返送頂ければ幸いです。

性別 a. 男性 b. 女性  
年代 a. 20代 b. 30代 c. 40代 d. 50代 e. 60代 f. 70代以上  
病院所在地 (都道府県のみで結構です) 都道府県を記載して下さい。  
診療経験年数 具体的な年数を入れて下さい。

ご回答


年

- 1 1ヶ月当たり、平均何回くらいイヌに咬まれますか。(数値はおおよそ、小数点でも構いません)  
出血を伴う物: 1ヶ月に  回程度  
出血を伴わない物: 1ヶ月に  回程度
- 2 1ヶ月当たり、平均何回くらいネコに咬まれますか。(数値はおおよそ、小数点でも構いません)  
出血を伴う物: 1ヶ月に  回程度  
出血を伴わない物: 1ヶ月に  回程度
- 3 1ヶ月当たり、平均何回くらいネコに引っかかれますか。(数値はおおよそ、小数点でも構いません)  
出血を伴う物: 1ヶ月に  回程度  
出血を伴わない物: 1ヶ月に  回程度

(イヌ咬傷)

- 4 イヌに咬まれた後に感染症を発症したこと(疑いを含む)はありますか。(経験有無)  
発症したことは 1. 有る 2. ない →質問6へ 発症経験  (疑いを含む)  
↓ある(疑いを含む)と回答した方  
それぞれ、1. 経験有 2. 経験無 を選んで下さい。  
a. 医療機関を受診、入院した   
b. 医療機関を受診、外来で抗生物質(内服)を処方された   
c. 医療機関を受診、外来で抗生物質(内服)の処方しなかった   
d. 医療機関を受診しなかった(受診せずに済ませた)   
↓ある(疑いを含む)と回答した方
- 5 イヌ咬傷後に感染症を発症した方(疑いを含む)に伺います。原因は特定されましたか。  
特定されたことは 1. 有る 2. ない 原因特定(推定)経験   
↓ある(疑いを含む)と回答した方  
それぞれ 1. 確定診断 2. 自己診断 3. 経験なし  
a. パスツレラ症   
b. 猫ひっかき病   
c. カプノサイトファーガ症   
d. その他 具体的な疾病名があれば記入下さい→

(ネコ咬傷)

- 6 ネコに咬まれた後に感染症を発症したこと(疑いを含む)はありますか。  
発症したことは 1. 有る 2. ない →質問6へ 発症経験  (疑いを含む)  
↓ある(疑いを含む)と回答した方  
それぞれ 1. 経験有 2. 経験無 を選んで下さい。  
a. 医療機関を受診、入院した   
b. 医療機関を受診、外来で抗生物質(内服)を処方された   
c. 医療機関を受診、外来で抗生物質(内服)の処方しなかった   
d. 医療機関を受診しなかった(受診せずに済ませた)   
↓ある(疑いを含む)と回答した方
- 7 ネコ咬傷後に感染症を発症した方(疑いを含む)に伺います。原因は特定されましたか。  
特定されたことは 1. 有る 2. ない 原因特定(推定)経験   
↓ある(疑いを含む)と回答した方  
それぞれ 1. 確定診断 2. 自己診断 3. 経験なし  
a. パスツレラ症   
b. 猫ひっかき病   
c. カプノサイトファーガ症   
d. その他 具体的な疾病名があれば記入下さい→

(ネコ搔傷)

8 ネコにひっかかれた後に感染症を発症したこと(疑いを含む)はありますか。  
発症したことは 1. ある 2. ない →質問10へ 発症経験  (疑いを含む)

↓ある(疑いを含む)と回答した方  
それぞれ 1. 経験有 2. 経験無 を選んで下さい。

- a. 医療機関を受診、入院した
- b. 医療機関を受診、外来で抗生物質(内服)を処方された
- c. 医療機関を受診、外来で抗生物質(内服)の処方はなかった
- d. 医療機関は受診しなかった(受診せずに済ませた)

↓ある(疑いを含む)と回答した方

9 ネコに搔傷後に感染症を発症した方(疑いを含む)に伺います。原因は特定されましたか。  
特定されたことは 1. ある 2. ない 原因特定(推定)経験  2. ない

↓ある(疑いを含む)と回答した方

それぞれ 1. 確定診断 2. 自己診断 3. 経験なし

a. パスツレラ症

b. 猫ひっかき病

c. カブノサイトファーガ症

d. その他

具体的な疾病名があれば記入下さい→

10 カブノサイトファーガ症はご存じでしたか。(a. ~d. よりひとつ選んで下さい)

- a. 最近(ここ1-2年頃)に知った。
- b. もっと前から、原因菌や症状を含めて知っていた。
- c. もっと前から、名前は知っていた。
- d. 今日まで知らなかった。

11 パスツレラ症や猫ひっかき病はご存じでしたか。(a. ~d. よりひとつ選んで下さい)

- a. 原因菌や症状を含めて知っていた。
- b. 名前は知っていた。
- c. 今日まで知らなかった。

質問は以上です。

調査へのご協力、どうもありがとうございました。

「動物由来感染症のリスク分析等に基づくリスク管理のあり方に関する研究班」  
分担研究者 国立感染症研究所 獣医科学部 第一室長 今岡 浩一

# 海外委託

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### DEPARTMENT OF VETERINARY PARACLINICAL SCIENCES

REPORT for Year 2011: The Rousette bat (*Rousettus amplexicaudatus*) as potential carriers of REBOV (Reston Ebola Virus)

#### PROPONENTS:

1. University of the Philippines Los Baños, College of Veterinary Medicine- Dr. Joseph S. Masangkay as coordinator
2. Kitasato University, College of Veterinary Medicine – Dr. Yasuhiro Yoshikawa
3. University of Tokyo, Graduate School of Agriculture and Life Sciences - Dr. Hiroomi Akashi and Dr. Shigeru Kyuwa
4. Dr. Yumi Une – Azabu University, College of Veterinary Medicine
5. University of the Philippines Los Baños, Museum of Natural History – Phillip Alviola
6. Dr. Roberto Puentespina, Jr. – wildlife and small animal practitioner in Davao City

OBJECTIVE: To determine if the Rousette bat (*Rousettus amplexicaudatus*) is a potential carrier of REBOV (Reston Ebola Virus)

RATIONALE: The mechanism of transmission of zoonotic diseases is one big puzzle for veterinarians and epidemiologists. Viral diseases top the list of these pathogens especially those with part of its life cycle affecting wildlife. A good example of this zoonotic disease is the deadly Ebola virus affecting non-human primates and humans characterized by fatal haemorrhages. The deadly Ebola virus distributed in Africa like the Sudan, Zaire, Ivory Coast strains had been reported to be positively transmitted by the *Rousettus egyptiacus* bats. On the other side of the globe, especially in the Philippines panic alarm was sounded when *Macaca fascicularis* monkeys exported to the USA tested positive for REBOV (Reston Ebola Virus). This alarm was an over exaggerated reaction because it was found out that REBOV was only fatal to macaque monkeys but not to humans. The caretakers of the monkeys which tested positive for REBOV did not show any sign of illness and they are still alive as of this date. This panic died down and was just kept in the background for quite sometime. The panic re-surfaced again when serum samples collected from pigs from farms in the Central Luzon areas sent to the USA tested positive for antibodies of REBOV. Again the government agencies over reacted with the egging and coercion of the USA CDC by compelling the Philippine government to have the swine farms affected to conduct a quarantine policy and have all the pigs slaughtered. This move was an overkill since the REBOV did not show any danger to humans.

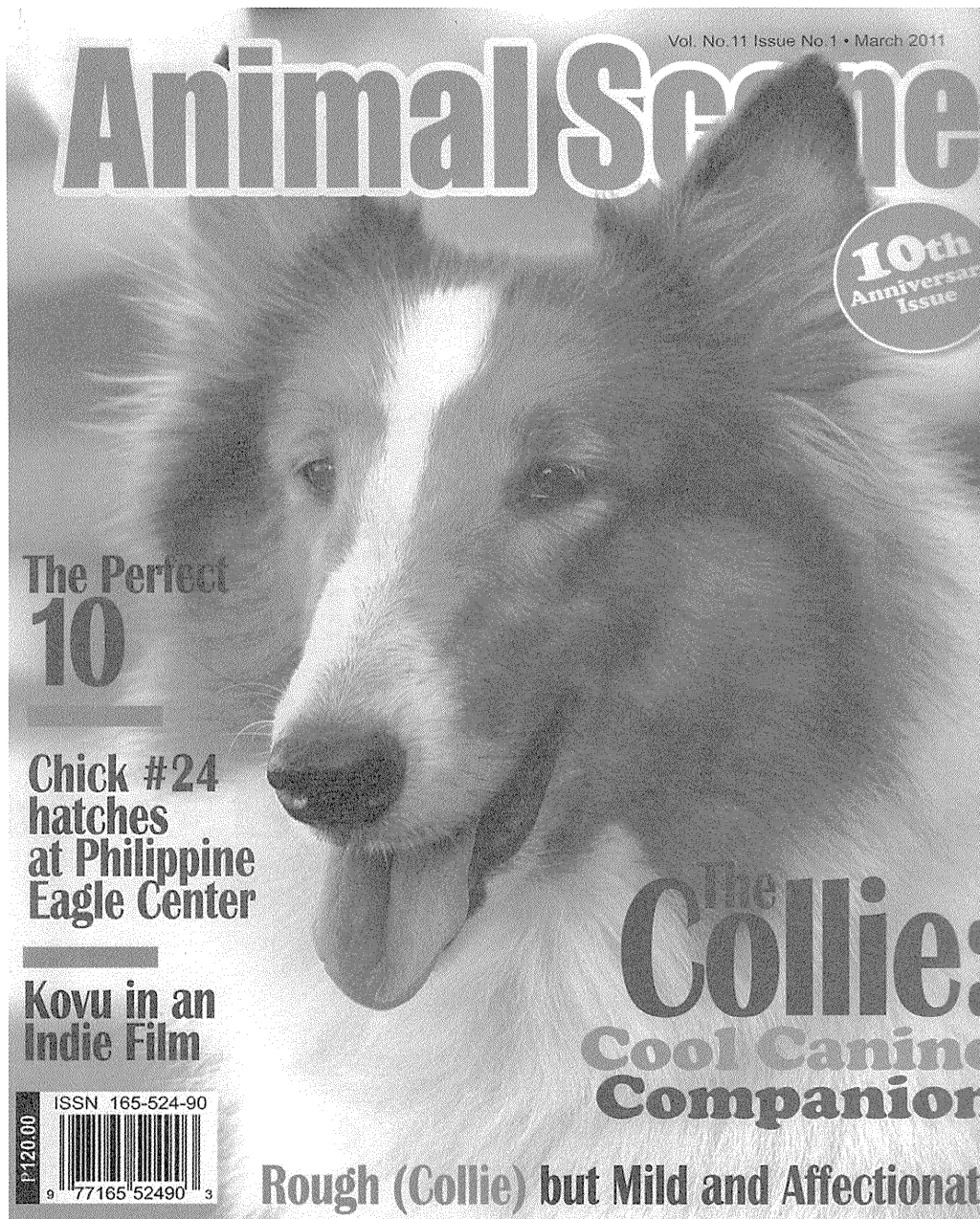
It is for this reason that our group conducted a survey near monkey breeding farms in Tanay, Rizal and Sto. Tomas, Batangas by capturing bats using the mist net technique. The comprehensive report about this survey was submitted much earlier. We only captured very limited numbers of *Rousettus amplexicaudatus* which tested negative for the REBOV.



To make valid our findings we need more samples of *Rousettus amplexicaudatus* bats. It was very fortuitous that the Guinness World Record reported the presence of a big colony of *Rousettus amplexicaudatus* bats in a privately-owned bat cave in the island of Samal in Davao.

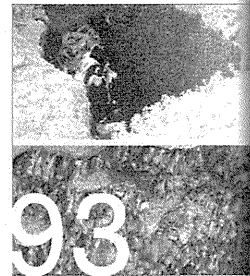
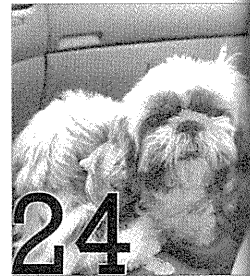
DAVAO 1 expedition: February 2-5, 2011:

Before going to Samal Island in Davao we need to have a contact person who is very familiar with the place and with good credentials. The most qualified person for this position is Dr. Roberto Puentespina, Jr. who is a private practicing veterinarian in wildlife and small animals. Dr. Puentespina. He is also a good friend of the owner of the private bat cave, Mrs. Norma Monfort. The result of this preliminary expedition is reported in Animal Scene Magazine March 2011 issue:



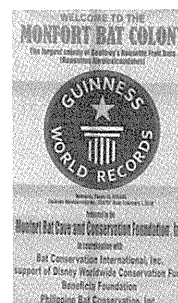
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# BATS IN THE GUINNESS WORLD RECORDS

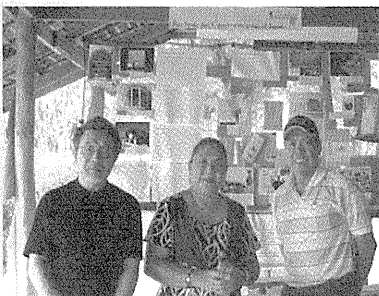
By Joseph S. Masangkay, DVM, MS, PhD, Yasuhiro Yoshikawa, DVM, PhD and Roberto P. Puentespina, Jr., DVM



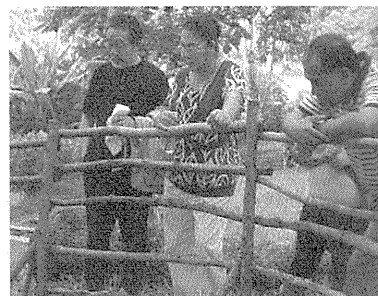
Recognition by the Guinness World Records for the largest colony of Geoffroy's Rousette Fruit Bats (*Rousettus amplexicaudatus*) in the Monfort Cave located in the Island Garden City of Samal (IGaCoS), Davao.



The owner of the land, Norma Monfort, where the bat colony is located, gives an orientation lecture about the features of the bat colony.

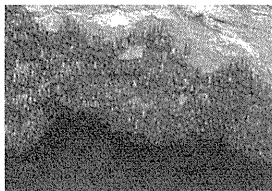


Dr. Yasuhiro Yoshikawa (left) with Dr. Joseph S. Masangkay (right) and Norma Monfort (center). Both Dr. Yoshikawa and Dr. Masangkay are doing collaborative research on possible diseases that can be transmitted from bats to humans and other animals.



The visiting scientists were guided by the owner, Ms. Norma Monfort in observing the bats. At right is Dr. Roberto P. Puentespina, Jr. who is a practicing veterinarian in Davao City. Dr. Puentespina's family is the owner of Malagos Garden Resort in Davao. Both Ms. Monfort and Dr. Puentespina are concerned with ecological protection and wildlife conservation doing several collaborative projects with different NGOs and private foundations. Take note of the barrier fence constructed around the hole of the bat caves to prevent people from getting very near the bats and disturbing them. The fence also prevents other stray animals like dogs, goats, and pigs from getting inside the cave. Nursing mother bats, when disturbed, might drop their pups leading to their sure death because of the very thick guano on the floor of the cave.

A partial view of the bat colony clinging on the wall and mouth of the bat cave. The Monfort Bat Cave is unique for having only one species of bat, the Geoffroy's Rousette Fruit Bats (*Rousettus amplexicaudatus*). Most often, a bat cave will contain more than one species of bats. This bat colony was first estimated to have 1.8-million bats but lately the population has grown to almost 2.5 million making it to the Guinness World Record.



If you ask a Filipino what Davao is famous for, you will get two qualified answers — Durian and the Philippine Eagle. However, last Feb. 1, Davao was again put on the map when the bat colony in the Monfort bat cave in the Island Garden City of Samal (IGaCoS) qualified for the Guinness World Record for having the largest colony of Geoffroy's Rousette Fruit Bats (*Rousettus amplexicaudatus*)—Guinness claim ID:266445; Guinness Membership No.234797; Date: Feb.1, 2010.

The geographic distribution of Geoffroy's Rousette bats includes the whole of Southeast Asia encompassing the countries of Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Vietnam, the island of Borneo, East Timor, Solomon Islands, Bismarck Archipelago, and Papua New Guinea.

The majority of fruit bats navigate by sight but the Geoffroy's Rousette Fruit Bats use both sight and echolocation. On the other side are the insect-eating bats with very keen sense of hearing and mainly use sound

navigation, technically called echolocation. This echolocation ability of bats became the basis for the invention of the radar which the Allied forces translated into early detection of enemy aircraft. Without the use of the radar, the result of World War II would have been different and the Allied forces would have been defeated by the Axis forces. The bombing of London by the Luftwaffe Air Force of Germany was not successful because the bomber airplanes were detected early in their flight enabling the Royal Air Force to intercept the bombers and also forewarned

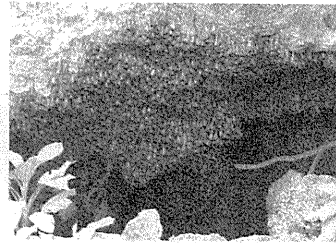
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the civilian population of coming air raids. Other animals like the whales and dolphins also have the ability to echolocate. If radar (RAdio Detection And Ranging) is to the air force, sonar (SOund NAvigation and Ranging) is to the navy which it uses in submarines. Rousettus amplexicaudatus have good eyesight, keen sense of smell and hearing; hence they can fly well and avoid obstacles in both daytime and night time. This species can be distinguished from other fruit bats by their gray-brown to brown upperpart that is darker on top of their head with paler underpart. Even with short sparse fur these bats have long pale hair on the chin and neck. Males can be distinguished from females by the presence of pale yellow tufts of hair on the side of the neck. Just like most mammals, the males are significantly larger than females. Aside from audible clicks when calling the species is also easy to distinguish from other species because the wings are attached to the sides of the back and separated by a broad band of fur. Other distinguishing minute anatomical features are the dentition with the lower incisors being bifid and the canines have a longitudinal groove on the outer surface that is slightly medial to center while the first premolars are relatively smaller than the second premolars particularly on the upper jaw.

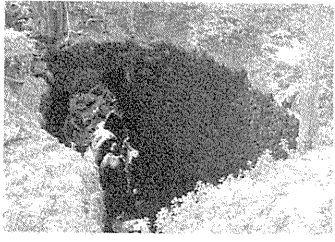
Bats are great contributors to the maintenance of the ecological balance. The insect-eating bats are responsible for controlling insect population. A good example of the role of bats in insect control is in Mexico and Texas by the Mexican free-tailed bats (*Tadarida brasiliensis*). The heart and soul of Mexico's agriculture is corn accounting for more than 60 percent of the country's total agricultural produce and 62 percent of its arable land. Close to 18-million people, roughly 17 percent of the population is dependent on corn for their livelihood. Without the bats, the corn can easily be destroyed by the two most damaging pests: corn earworm (also known as cotton bollworm) moths (*Helicoverpa zea*) during summertime in northern Mexico, and fall armyworm moths (*Spodoptera frugiperda*) during winter months in the south.



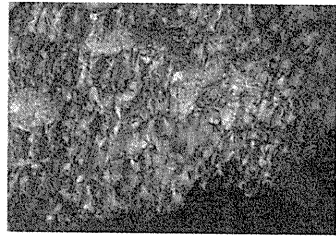
The Geoffroy's Roussette Fruit Bats (*Rousettus amplexicaudatus*) are unique among bats because they are active both in the daytime and night time. The bats do not shy away from the light as you can see in this picture with many of them hanging on the outside rim of the cave and some even flying (the blurred portion of the picture because of the movement of the wings).



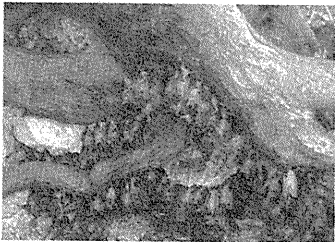
The bats are so dense that they can be observed to occupy several layers on the wall of the cave. A conservative estimate pegged the density of the bat as approximately 640 individual bats per square meter. Because of the big size of the colony, it also produces a lot of guano which was harvested before for agricultural fertilizer. Lately, however, because of the disturbance during the harvesting of guano, this practice is now totally stopped.



This picture shows one of the holes of the cave with its wall completely occupied by bats from the rim down to the bottom of the cave.



A closer view of the bats hanging from the wall of the cave. One of the probable reasons the colony is increasing in size is the very active reproductive rate of the bats. It was observed that there is no clearly-delineated breeding season. Sexual activity is continuous 24/7 with bats copulating day and night. The bats also practice true polygamy with one male copulating with several females (polygyny) and one female copulating with several males (polyandry). Even pregnant females are being copulated by males and sometimes, even immediately after birth copulation was also noted. There is a famous joke circulating on the island that the Montfort cave is the largest and most active 'brothel' in town.



The bat cave is so fully occupied that "standing room only" is observed with roots of trees being taken by bats for their roosting place.

## BATS IN THE GUINNESS WORLD RECORDS



Another close-up view of the roosting bats. The colony is so huge that it was estimated that if only one bat will consume 10 grams of fruit a night, the whole colony of 2.5-million bats would have consumed a total of 25 tons of fruits a night. However, this observation should always be taken with a grain of salt because it might be construed that the fruit bats are destructive to fruit trees which is not true. It was observed that the fruit bats eat only the over-ripe fruits which can also benefit the fruit farmers because, in effect, the bats help in cleaning the farm by getting rid of the over-ripe fruits that can serve as breeding place for harmful insects like the destructive fruit fly. Fruit bats also help in the dispersal of seeds to ensure the continuous natural planting of trees that can help mitigate global warming.

In the south-central States, particularly in Texas, both moths are also major crop pests where the role of bats is appreciated by Texas cotton growers. With an estimated population of 100-million Mexican free-tailed bats they can easily consume roughly two-thirds of their body weight which translates to 1,000 tons of insects nightly. This pest-reduction service of Mexican free-tailed bats in south-central Texas is worth the equivalent of \$740,000 a year to cotton farmers with an annual harvest value of approximately \$6 million.

The bat cave in the Island Garden City of Samal (IGaCoS) is in Barangay Tambo within the property of Norma Monfort. Actually there are also other caves on the island but most of them are now empty. Bats are sensitive to disturbances and once people go near the roosting places of bats they tend to go away. Another threat is illegal hunting because fruit bats are considered a delicacy by

some people. Some exotic restaurants even include bats in their menus. Because of the popularity of bats as exotic food, people abused them leading to over-harvesting. This could be one of the reasons the population of the Geoffroy's Rousette Fruit Bats in the Monfort cave increased from 1.8 million to the present conservative estimate of 2.5 million. A rough estimate of the density of the cave was tagged at 640 bats per square meter making it a very compact and dense population concentration. When threatened, the bats will shy away from their normal roosting places and will look for more suitable and secure places which the Monfort cave provides, thanks to the effort of the owner in safeguarding and protecting the bats as well as the environment in general. Because of the nocturnal habit of bats, they are always associated with bad characters like vampires. Fruit farmers also had the wrong belief that the fruit bats are pests because they tend to destroy and eat the fruits. Careful studies and observation proved that the fruit

bats eat only the over-ripe fruits which, in effect contribute to quality control of the fruits by weeding out rotten fruits which can serve as breeding places for harmful insects like the fruit fly.

The Monfort cave is unique and is adapted very well to the natural contour and lay of the land. The cave is not a deep subterranean structure but a longitudinal fairly shallow cave with five openings. Another uniqueness of the cave is its monospecific population of bats. No other species of bats is found in the cave except the Geoffroy's Rousette Fruit Bats (*Rousettus amplexicaudatus*). I had been to other bat caves and most of them did not have a monospecific and homogeneous population but rather composed of different bat species occupying different parts of the cave. Because of the presence of these holes, the observer does not need to enter the cave and disturb the bats. The first four holes are relatively large and bats can be observed not only in the inside wall of the cave but even found hanging along the rim of the hole and some were even hanging on the roots of the trees. Because of the natural contour of the land with a gradual uphill ascent, cold air enters the first hole, flows to the other three holes and finally the now humid and hot air tends to go up and exits through the last hole. This last hole is at the end and serves as a chimney. If one puts his hand near the opening, warm humid air can be felt. With a population of approximately 2.5-million bats, the body heat produced by the bats alone plus the chemical decomposition of guano can easily increase the ambient temperature and humidity inside the cave. Without a natural way of ventilation, the bats can easily suffer from hyperthermia that could lead to a massive die-off. In the past years, guano was regularly harvested from the cave for agricultural fertilizer. However, because of the big possibility of disturbing the bats, this practice of guano-harvesting was stopped. Another big question to ask is the reason for the increase in the population of bats. Careful observation showed that the bats do not have a specific breeding season but rather a continuous cycle of reproduction. Scientists had documented a continuous sexual activity all throughout the day and night. In fact because of this observation,



## BATS IN THE GUINNESS WORLD RECORDS

there is a popular joke that the Monfort cave is the biggest 'brothel' in town. Sexual activity is non-stop and copulation was observed even right after birth. The Roussette Fruit Bats (*Rousettus amplexicaudatus*) is truly a polygamous species practicing both polygyny (one male to several females) and polyandry (one female to several males). Pups (baby bats) are observed throughout the year at varying ages of development.

It is not a joke to feed 2.5-million bats and a conservative estimate showed that if one bat will just eat 10 grams of fruit a night they would have consumed 25 tons of fruits. Bats are crepuscular (active during dusk and dawn) to nocturnal (active during the night) and it was observed that feeding time is staggered within the colony. Even the direction of flight out of the cave is divided into different waves and directions going to the mainland of Davao where more fruits can be found. The return flight to the cave is also staggered with a definite regular schedule. If you are a social drinker, do not assume that only people have the monopoly on drinking and getting drunk in the process. Animals also enjoy the alcoholic content of fruits. A species of monkey was observed in Africa to protect a favorite tree when it starts to bear fruits. The troop of monkeys which guards the tree within the territory has the sole bragging right to claim the tree. Sentinels are posted in strategic position to prevent untimely and early harvest by other members of the troop. Once the fruit has ripened and starts to ferment, producing alcohol in the process, then the party begins. It was observed that the monkeys really prefer the fermenting fruits because of high alcohol content. After eating the fermented fruit, the monkeys really get drunk with swaying movement and loss of muscle control with some even falling to the ground in a very tipsy manner. In the Monfort cave, the Roussette Fruit Bats (*Rousettus amplexicaudatus*) were also observed to practice and seem to enjoy this practice of eating fermented fruits. This batch of drunkards, usually males, is the last group to return to the cave after feeding in the mainland. Even from far away, one can notice that they are returning because of the loud sound they produce. Indeed, they are a raucous noisy band of drunkard bats. Another tree, in the Sudano-Sahelian range of West Africa known as Marula (*Sclerocarya birrea*) which, in English, is known as jelly



Just like people, bats are also very careful and avoid dangerous places. Here in spite of the heavy density of bats occupying almost every nook and cranny of the cave, they avoid dangerous places like the waterway passage as shown in the center of this picture. During heavy rain, this waterway passage becomes a "falls" and any bat caught in the deluge will be washed down and surely end up in the bottom of the cave and get mired in the thick guano guaranteeing a sure death.



This is the last hole of the cave at the end of the cave system which has the highest elevation among the other four holes of the cave. With 2.5-million bats generating body heat plus the chemical decomposition of guano, the bats would have suffered from hyperthermia because of the high temperature and humidity that can cause a massive die-off. The land area where the cave is situated has a natural system of HVAC (heating, ventilation and air conditioning). Because of the lay of the land with its gradual ascent uphill, the first hole at the lowest portion of the cave sucks in cold air coming from the sea, goes through the whole length of the cave, gathers heat and moisture and finally exits through the last hole at the end of the cave system funnelling out warm humid air. In effect, this last hole serves as a natural "chimney" for the cave

to dissipate heat. If one puts his hand near the vent, warm air can be felt.

plum, cat thorn, morula, cider tree, is a favorite of many animals especially when the fruits become over ripe and fall to the ground. The fermenting fruits attract different animals including both mammals and birds. After gorging on the fermented fruits the animals like wild pigs, wildebeest (gnu), elephants, baboons, giraffe, ostrich, and meerkats, go home tipsy and drunk.

For us veterinarians our concern is the possibility of the Roussette Fruit Bats (*Rousettus amplexicaudatus*) carrying potential pathogens for both humans and animals. In Africa it has been proven that the Egyptian roussette bats (*Rousettus aegyptiacus*) are carriers of the

dreaded Ebola virus. In the past studies in the Philippines conducted by different research institutes, the link between pigs and bats with regards to the transmission of REBOV has not been clearly established. The presence of a monospecific population of Roussette Fruit Bats (*Rousettus amplexicaudatus*) in a dense population in Monfort cave is a very challenging situation and can provide valuable data in the elucidation of the link between fruit bats and REBOV. Hopefully in the future, we will be given the permit and opportunity to examine and analyze bat specimens from this cave so that we can have a clear understanding of the ecological relationship between the host and its pathogens.



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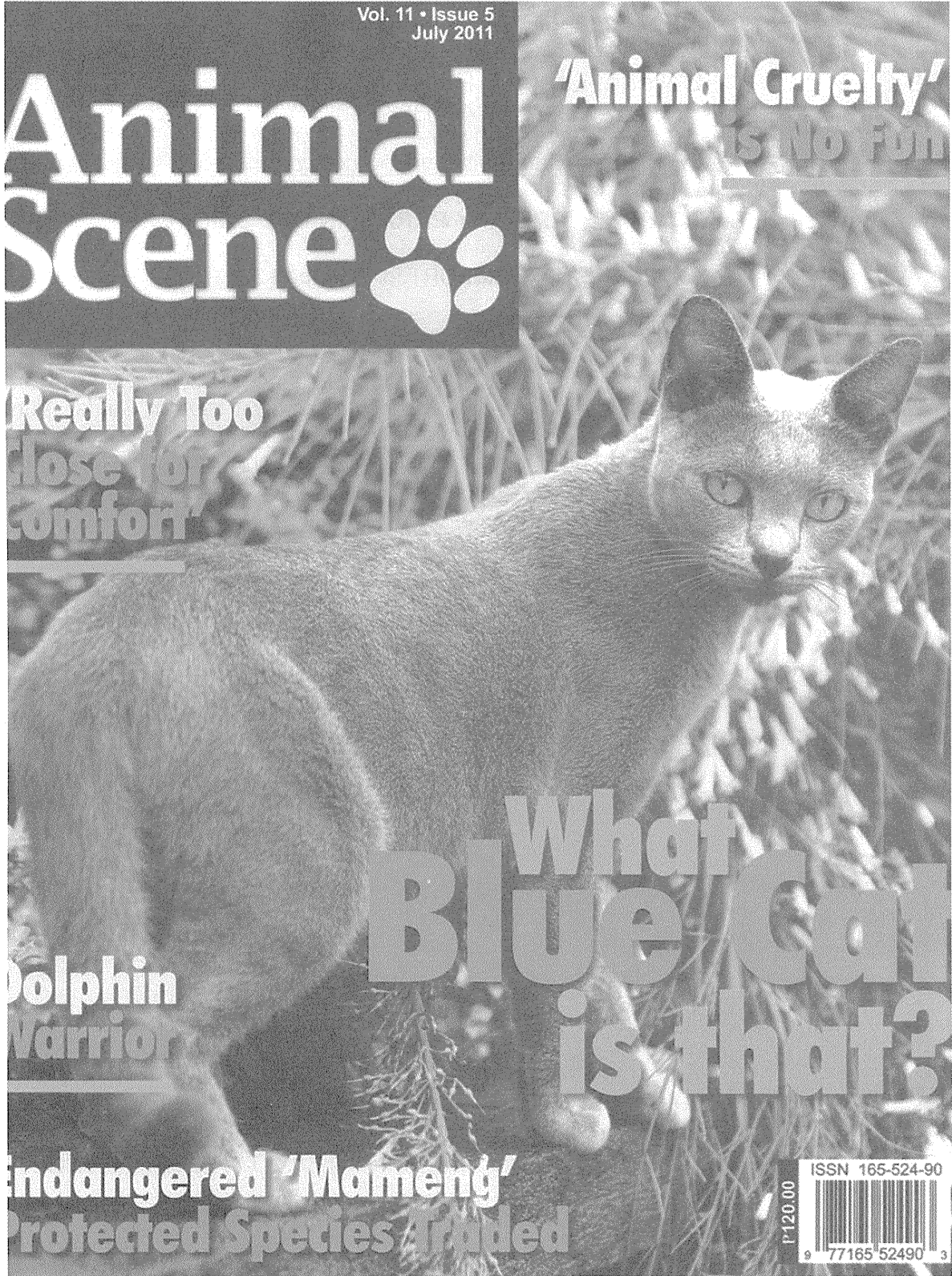
### **DEPARTMENT OF VETERINARY PARACLINICAL SCIENCES**

#### COMPREHENSIVE REPORT for 2011 part 2

Davao 2 expedition: May 9-15, 2011

In the first Davao expedition (February 2-5, 2011) it was only Dr. Yoshikawa who came from Japan to make the preliminary ocular survey of the Monfort bat cave in Samal Island, Davao. In this 2<sup>nd</sup> Davao expedition the original "bat team" composed of the same persons came with Dr. Yoshikawa for a first-hand ocular survey. Additional guest scientists came from other universities of Japan, Dr. Hondo from Nagoya University and Dr. Ken Maeda.

The narrative report for this 2<sup>nd</sup> Davao expedition is reported in Animal Scene Magazine July and August 2011 issues.



Vol. 11 • Issue 5  
July 2011

# Animal Scene

## 'Animal Cruelty' is No Fun

### Really Too Close for Comfort

### Dolphin Warrior

# What Blue Cat is that?

### Endangered 'Mameng' Protected Species Traded

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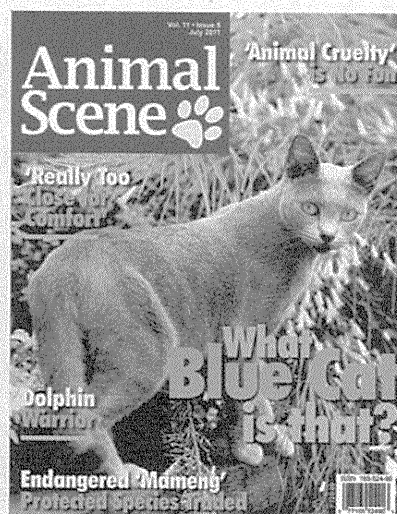


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## about the COVER

Intelligent, curious, and tranquil. These perhaps sum up the overall characteristics of the Russian Blue cat. Not literally carrying a pure "blue," it has a silver-blue coat which is quite unique and highly sought by cat-fanciers all over the world.

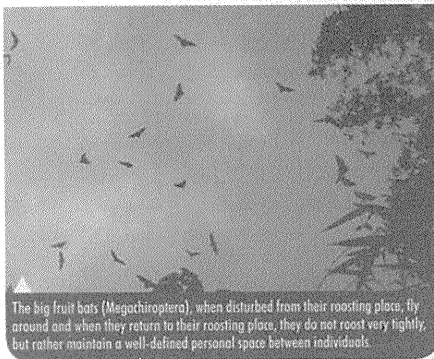
Also called 'Archangel Blue' or 'Archangel Cat,' the breed originated in the port of Arkhangelsk, Russia and is rumored to have descended from the Royal Cat of the Russian Czars. With that in mind, it was also believed to be the favorite pet of Queen Victoria. ■

Cat Name: Lombija Harry Touch  
Breeder: Henry Babiera

# 'Really too close for Comfort'

By JOSEPH S. MASANGKAY, DVM, MS, PHD,  
YASUHIRO YOSHIKAWA, DVM, PHD AND  
ROBERTO P. PUENTESPINA, JR., DVM

**H**uman beings, as social animals, like to have company most of the time and they tend to become lonely if left alone by themselves. However, as a rational animal and with different mood swings, there are times when a person just wanted to be alone by himself. A person who is liked by another person is always welcome to be physically close at all times. A person not liked is not welcome to be physically close, hence we have a saying "too close for comfort."



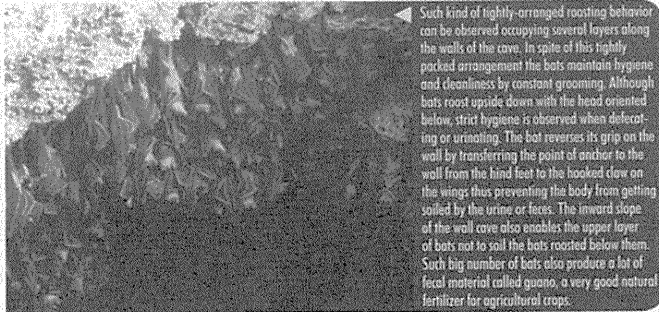
The big fruit bats (*Megachiroptera*), when disturbed from their roosting place, fly around and when they return to their roosting place, they do not roost very tightly, but rather maintain a well-defined personal space between individuals.

In the animal kingdom, social grouping is a very delicate and important part for the maintenance of balance and harmony. An animal is considered as having a solitary existence if it is not found as a group. Among the big cats, the tiger (*Panthera tigris*) is a good example of a solitary animal. The biggest grouping of tigers is only observed, composed of a mother tiger with her litter of tiger kittens. The male tiger seeks only the company of another female tiger when she is on heat and ready to have sexual intercourse for the sole reason of reproduction. This behavior is in contrast to another big cat, the lion (*Panthera leo*) which is always found as a social group called a "pride" of lions. The head and leader of a pride of lions is the alpha dominant male "King" lion. The position of being a king is not given in a silver platter, but must be earned and defended against other male lions that want to capture the pride. Being the leader of the pride he has the sole monopoly of breeding with the lionesses in the pride, his very own "harem." The position of being the king is not permanent and a >>

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In contrast with the big fruit bats, the *Rousettus aplexicaudatus* bats in the Moafort cave are found tightly roosted together, with bodies touching each other with disregard to maintaining each individual personal space. The reason for this kind of unique behavior is not exactly known, but it could be a species characteristic to maintain tight personal bonding. With intimate body contact the social bonding is strengthened because of the hormones secreted for species and individual identification. On the other hand, such kind of close contact with each other can easily spread potential pathogens that can spread rapidly within the colony. Very virulent pathogens can potentially wipe out a whole colony of animals.



Such kind of tightly-arranged roosting behavior can be observed occupying several layers along the walls of the cave. In spite of this tightly packed arrangement the bats maintain hygiene and cleanliness by constant grooming. Although bats roost upside down with the head oriented below, strict hygiene is observed when defecating or urinating. The bat reverses its grip on the wall by transferring the point of anchor to the wall from the hind feet to the hooked claw on the wings thus preventing the body from getting soiled by the urine or feces. The inward slope of the wall cave also enables the upper layer of bats not to soil the bats roosted below them. Such big number of bats also produce a lot of fecal material called guano, a very good natural fertilizer for agricultural crops.

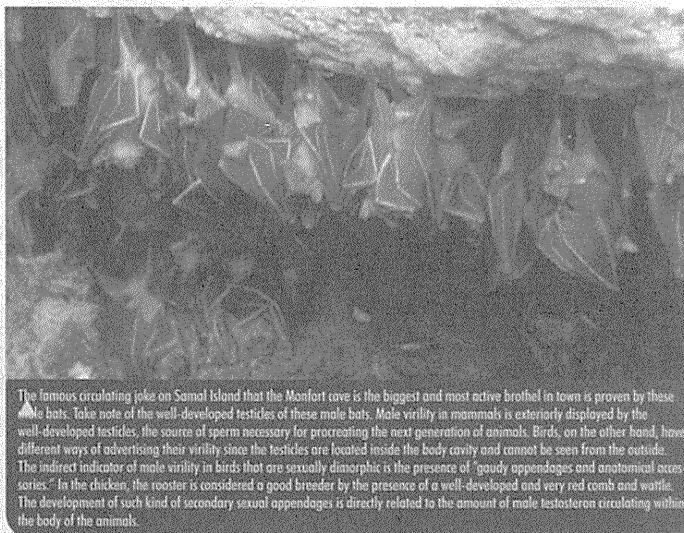
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## 'REALLY TOO CLOSE FOR COMFORT'

Birds are more delicate and the smallest group is called a pair-bonding between a male and female bird of the same species. A good example is the raptor birds –eagles, hawks, kites etc. Pair-bonded birds stay mated for life.

very successful king lion can have the ownership of a pride for just a number of years. Old age will take its toll and soon other younger and stronger male lions can defeat him. Once deposed of his position he becomes solitary and will have difficulty feeding himself because as an individual lion, it will be difficult for him to hunt and capture prey by himself. Other animal groupings like birds also have the same classification. Birds are more delicate and the smallest group is called a pair-bonding between a male and female bird of the same species. A good example is the raptor birds –eagles, hawks, kites etc. Pair-bonded birds stay mated for life. They only produce a clutch of limited number of eggs and may raise only one or two birds at a time. The pair-bonding relationship is a very delicate and orderly behavior that if one of the pairs dies, the other living bird will have difficulty finding another mate and will eventually die. This is very sweet relationship between pairs, true to the marriage vow of "till death do us part." The reproductive cycle is also a carefully-planned schedule. Once the clutch of eggs is laid, incubation is mostly done by the female while the male hunts and feeds the female during the incubation period. When the eggs hatch, the feeding is done alternately by both parents. The Philippine Eagle (*Pithecophaga jefferyi*) is a good example of permanently-bonded birds. These pair-bonded birds have permanently-built nests mostly found at the canopy of tall Lauan trees and other tall dipterocarps. On the other hand a group of birds, the social birds, has a name for the group and we call it a "flock" of birds. A very good example of this kind of social group is the domestic chicken (*Gallus gallus domesticus*). From this grouping came the English idiom known as "pecking order." It is a well-structured grouping mostly governed by seniority. At the top of the "pecking order" is the dominant rooster. He has the sole monopoly of pecking all the other birds within the flock. He has the right to mate with all the hens within the flock. Other junior roosters can also mate with the other hens but not in his presence.

Although social animals are found in a group they still maintain a "personal space" when resting or sleeping together. When chickens roost in tree branches this personal space is strictly followed. Other social mammals that group together during rest and sleep strictly maintain this personal space. A good example of a social mammal resting together in a rookery is the sea lion. From a distance, one sees a sea of bodies resting on every available space in the rookery. However, if one goes closer, one can see the animals still maintain that precious personal



The famous circulating joke on Samal Island that the Monfort cave is the biggest and most active brothel in town is proven by these male bats. Take note of the well-developed testicles of these male bats. Male virility in mammals is exteriorly displayed by the well-developed testicles, the source of sperm necessary for procreating the next generation of animals. Birds, on the other hand, have different ways of advertising their virility since the testicles are located inside the body cavity and cannot be seen from the outside. The indirect indicator of male virility in birds that are sexually dimorphic is the presence of "gaudy appendages and anatomical accessories." In the chicken, the rooster is considered a good breeder by the presence of a well-developed and very red comb and wattle. The development of such kind of secondary sexual appendages is directly related to the amount of male testosterone circulating within the body of the animals.

space without touching bodies. The hippopotamus is also a good example of a social animal that groups together but still maintains each personal space, both in the water and on land.

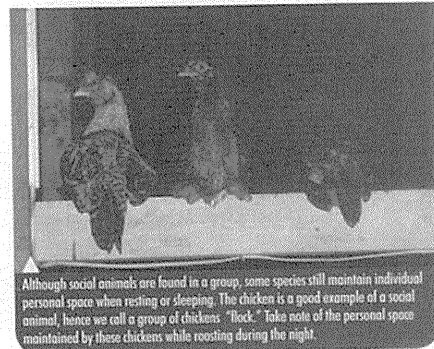
In the March 2011 issue of Animal Scene we published an article about the Monfort cave on Samal Island, Davao which was recorded in the Guinness World Record for having the largest gathering of bats comprising only of one species, the *Rousettus amplexicaudatus*. These bats are found in the Monfort cave with five holes comprising of approximately 2.5 million bats densely and tightly roosted along the walls of the cave. During our visit last February there were only a few baby bats (pups). However, this time there are plenty of pups found in separate group very similar to a nursery group. This time, we stayed overnight and observed the exit and migration of the bats when they leave the cave to forage for food. Such kind of long distance flight is not done in a haphazard fashion but rather in a very well-disciplined manner. Just before dusk, the bats are observed to be moving, flying around the space of the cave doing the needed "warm up" just like an athlete before engaging in a competition. When it becomes dark, then the exodus starts. First only a few bats fly out of the cave and then gradually the wave of bats becomes bigger until it reaches a peak very similar to a tornado vortex coming out of the cave. Such kind of behavior is very difficult to comprehend because in a big grouping of animals, >>

## 'REALLY TOO CLOSE FOR COMFORT'

If one goes closer, one can see the animals still maintain that precious personal space without touching bodies.

this kind of behavior does not seem to be headed by a leader. In animal behavior studies (ethology) it is called "swarming" which was first observed in social insects like ants and bees. In higher forms of life among the vertebrates the fish behavior in a "school" of fish is also a good example. The sardines and anchovies tend to form a tight grouping and during peak of migration especially along the coast of South Africa the school can be seen from a spotter airplane stretching several kilometres long. During this intense migration the school of fish attracts a lot of predators ranging from birds, to fish and mammals. Although consisting of thousands up to millions of fish the school behave just like a single organism. When attacked by predators like killer whales they tend to form tighter and tighter groups and be able to avoid and move away from the attacking predators. Observation showed that there is no "leader" of the group but movement is coordinated which the ethologists called "swarming" behavior. In the Monfort cave, similar behavior can also be observed. The rousette bats perform such kind of "swarming" in a very regular cycle called circadian rhythm. Using the circadian rhythm (from a Latin combination "circa" meaning approximately and "dia," a day) social animals have a behavioural pattern repeated every 24 hours. Hence, an animal can be considered as diurnal (day-active), nocturnal (night-active), crepuscular (dusk-dawn-active) and cathemeral (active both during day and night). Behavioral instinct is so strong in the rousette bats that exodus migration looking for food is a precise clock-synchronized affair done without fail every night rain or no rain. The body of the rousette bats is coated by a water-proof film of oil secreted from their glands that protect them from being wet. During the exodus migration the pups are left behind in a group called a nursery group looked after by bats assigned as caretakers.

Another, bizarre behavior of social animals like sea lions, penguins and bats is the fact that each mother can pinpoint and identify her own young upon returning from a foraging hunt. For the sea lions, it is the audible cry of the young that is imprinted into the memory recall center of the mother's brain. Smell is very critical among social land mammals like the wildebeest (gnu) of the great Serengeti plains of Africa. In bats in general, telemetry studies had shown that the mother bats rely on both smell and audio to pinpoint and identify her young from the nursery. Just like mouse and rat pups, the baby bats emit an inaudible sound in the infrasound wave not audible to the human ears but can easily be detected by bats. The mother bat can distinguish the unique sound of her baby from the nursery.



Although social animals are found in a group, some species still maintain individual personal space when resting or sleeping. The chicken is a good example of a social animal, hence we call a group of chickens "flock." Take note of the personal space maintained by these chickens while roosting during the night.

As we mentioned in our March 2011 article, the bats are very useful in maintaining the ecological balance of nature. At first, the fruit farmers hated the bats because they thought that the bats are pests coming to consume the fruits. Careful study and observation proved that the bats eat only the overripe fruits which is also a very useful natural biological control against the fruit flies which can do more harm by infecting all the other fruits ready for harvest. Overripe fruits tend to attract the fruit flies but since the bats consume these overripe fruits, there is no chance for the fruit flies to infect other fruits in the farm. And as a bonus, the bats like the overripe fruits especially when they ferment and start to produce alcohol which can give them the needed fix and euphoria just like human social drinkers and come home drunk, tipsy, and happy. ■



Vol. 11 • Issue 6  
August 2011

# Animal Scene

What's  
New  
in the  
Forest?

Spear:  
A smart  
'snow beauty'

\*\$300:

The Rare  
Luzon  
Discoveries

Wild' Jungle  
Adventure

Borneo  
Quest

The  
Maltese:  
Cuddly Canine  
Companion



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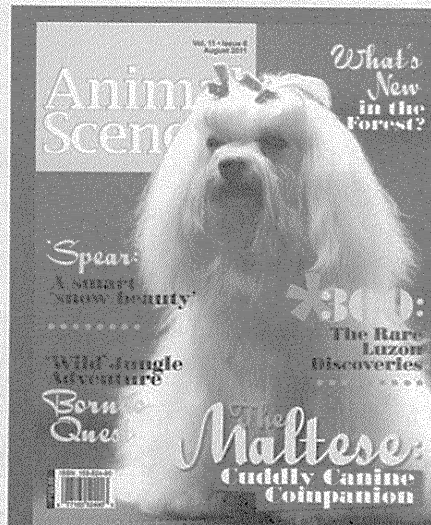


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### about the COVER

The Maltese is an old breed categorized as a toy dog. It was originally called the 'Canis Melitaeus' and was also called 'the ancient dog of Malta.'

Primarily bred as a cuddly companion dog, a Maltese would stay playful and lively even as it ages. This breed is perfect for people living in apartments and townhouses because of its small size and preference in enclosed spaces.

The breed has no undercoat and has little to no shedding and requires daily grooming if kept with a long coat ■

Cat Name: Emerald Spear  
Breeder: Johnson Ong



# Focus On: Birds Of Prey



The classical aquiline look of a raptor with the pair of eyes positioned anatomically in front of the face for keen and accurate vision characteristic of hunting animals. Prey animals, like the galliformes (chickens, pheasants, quails etc.) have their eyes situated on a side of the head for a wider field of vision in order to detect potential predators. The saying you have the eyes of an eagle is indeed a very positive compliment because the eagle's eyes are monocular, binocular, telescopic and macroscopic.



Profile of the Philippine Eagle (*Pithecophaga jefferyi*). The Philippine Eagle is one of the biggest eagles in the world, together with the South American Harpy Eagle. The wingspan is not as long as the other big eagles, but it is wider in shape.

By JOSEPH S. MASANGKAY DVM, MS, PHD,  
ROBERTO P. PUENTESFINA, JR., DVM, AND  
YASUHIRO YOSHIKAWA DVM, MS, PHD

In my 40 years of service as a professor in the UPLB College of Veterinary Medicine, I regularly ask a bonus question like this: If you will be reincarnated as a bird, which bird would you like to be? Explain your answer. The majority of the choices is something like this: "I want to be an eagle so that I can fly high and be at the top of the predator chain with no other birds daring to challenge my authority."

The eagle is only a member of the big grouping of birds called "raptors" (from Latin for plunderer) which is the technical term for "birds of prey." The other members of the group of raptors include the kites, hawks, vultures, and even owls. Even in ancient times, the eagle is considered an elegant and majestic bird. The eagle, either adapted as a single or double-headed symbol, had been used in flags, emblem, coat of arms, or even as part of an organization's logo. The Byzantine Emperors use the double-headed eagle to symbolize dominance over the East and West whereas the Roman emperors consider the double-headed eagle to represent authority over State and Church. The Central Intelligence Agency (CIA) of the United States of America and the US Presidential seal depict the eagle in their logos. The Freemason of the Scottish Rite Temple also uses the eagle in its emblem. In the Boy Scouts, the highest rank a scout can attain is the Eagle Scout. There is also a fraternity called The Eagles. Even the German Nazi included the eagle as part of its emblem.



The bird with its head completely turned backwards. This ability to move the entire head backwards without the body moving is a very important hunting strategy of raptor birds. Prey animals also have a keen vision able to perceive even the slightest movement. Head movement is imperceptible and will not give away the position of the hunter bird.

### BIRDS OF PREY



The eagle is displaying the defensive posture with its head crest standing up and wings open. Actually, the bird is anticipating the meat to be given by the caretaker during feeding time. All animals tend to exaggerate their anatomical parts when intimidated, so that they may look and appear much bigger.



Good catch !! This bird easily caught the piece of meat given by caretaker. Raptors possess talons in their feet which are very effective grasping and hooking tools. The fishing eagles are also equipped with rough scales on the underside of their feet to prevent the fish from slipping away when caught.

What is the reason for the use of the eagle in flags, heralds, coat of arms, and logo? The eagle is indeed a majestic bird. Most of us are familiar with the saying "eye of an eagle." This phrase is used to describe a person with keen eyesight. However, the phrase "eye of an eagle" is really very appropriate because the eagle, belonging to the raptor group has very unique characteristics. Being a predator (hunter), the pair of eyes is set in front of the head, unlike galliform birds like the chicken with the eyes set on the sides of the head. Hunting animals, like, lions, tigers, leopards and humans have their eyes situated in front of the face. To be able to judge accurately the distance (depth of field), the animal must have binocular vision with both eyes situated in front of the face. However, the raptor birds, particularly the eagles, have a very unique vision. The eagle's vision is binocular, monocular, telescopic, macroscopic, and with complex refractor capacity. The simple layman's meaning of this keen vision is: if the eagle sees both a rabbit and a ground squirrel from a distance of more than a kilometer, the eagle can focus each eye (monocular) on the rabbit and the ground squirrel at the same time. The eagle will make a choice by focusing both eyes (binocular) on one animal, zooms the lens (telescopic) to determine which one is more juicy and healthy and finally swoops in with deadly talons and catches the animal of choice.

The field biologists came to this kind of conclusion because they noted that most of the animals caught by eagles were the healthy and fat animals. The thin, sickly, and parasitized animals were not chosen, most probably a defensive innate behavior to avoid possible infection. Also a fat, juicy prey will give more nutrient and energy per gram than a thin, sickly animal. The ultimate eyes are those of the fishing eagles. If you have tried catching a fish by spear or arrows you know that because of the refractor property of water you do not aim where the image of the fish is supposed to be located, but rather you aim a little bit above the image of the fish. The fishing eagles have mastered this skill and they have a high

rate of success in catching the fish. Another unique part of the anatomy of the eagle is the talon. Each digit has this formidable structure that can pierce the flesh of the animal just like a grappling hook ensuring a perfect catch. The Ospreys and other fishing eagles even have rough parts underneath the feet to assure that the slimy and slippery fish prey will not be able to escape once caught. Raptors are efficient hunters and can kill the prey in a swift manner minimizing pain and agony of the prey. Unlike predator mammals like lions and tigers which suffocate the prey and take a long time for the prey to die until its last breath, raptors do the so-called "coup de grace" in a fast efficient manner by dislocating the atlanto-occipital joint ( head to neck joint ) with its powerful beak causing immediate death of the animal. The raptor can then cut the meat into small pieces by means of its scissor-like beak. The master of darkness is the owl. It can locate prey even in a completely darkened room. Unlike snakes which depend on the body heat of the prey which is sensed by means of the "pit" apparatus, owls do it mainly by ear. A group of ethologists, scientists who study animal behavior, conducted a very interesting experiment by putting a barn owl in a completely enclosed and darkened room and letting loose a mouse. Observation was made through a camera equipped with third-generation night vision lens. As the mouse moves, it emanates a



The bird sees to it that the prey is dead by repeatedly striking with its talons. Note the parted feathers of the wings. This is called mantling. The raptor spreads its wings trying to cover the prey from other possible animals that will take away the meat from the bird. This behavior is innate and instinctive and can be observed even in hatchlings attempting to cover the prey even with the unfeathered wings.