

# Wildlife Express!

Volume 25/Issue 2

Parasites

October 2011

## Pesky Parasites!



Photo courtesy H. Vannoy Davis © California Academy of Sciences



# Pesky Parasites

When you think of a parasite, what jumps into your mind? Do you think of your brother or sister trying to sneak a cookie from your plate? Do you think of a small, creepy insect living in your hair and sucking your blood? Both your sibling and the insect may make you think “ick,” but both share a relationship with you.

All things in an environment are connected in some way. When the connection or relationship is close, it is called a “symbiotic” relationship. There are three types of symbiotic relationships. One is commensalism. This is a relationship where one organism gets food or shelter from another organism but doesn’t harm it or offer any benefits. Hermit crabs and snails have this relationship. Hermit crabs use shells made by snails that are left behind after the snail has died. The crab gets protection from the shell. The snail is not harmed by the crab, but it also doesn’t get any benefits from the crab using the shell. Mutualism is a relationship where both organisms benefit. Most flowers and bees have this relationship. When bees drink nectar from

flowers, they get a meal and the flower is pollinated. Parasitism is a relationship where one organism gets benefits from another organism often causing some sort of injury. Ticks do this. Ticks feed on the blood of deer to the detriment of the deer. The organism doing the harm is called the parasite. The organism being harmed is called the host.

Parasites may be found living on and in animals. Parasites that live in or on the skin and hair are called ectoparasites. Ecto means outside. Ectoparasites are usually insects or arachnids. Ticks and mites are types of arachnids. Flies, fleas and lice are insects. Parasites that live in an animal’s organs are called endoparasites. Endo means inside. They often look like worms. Tapeworms, flatworms and round worms are all types of endoparasites.

Parasites may make your skin crawl, but they are a natural part of nature. Most wild animals have parasites. Take elk for instance. Wild elk are known to carry 21 endoparasites and 18 ectoparasites. Finding all of these different types of parasites on one elk is not likely, but you may find several.

It is hard to find an animal or plant that doesn’t have at least one parasite. Parasites are creatures that have developed interesting and brilliant ways to thrive and grow. Maybe after reading this issue of Wildlife Express some of the “gross” factors about parasites will be changed to “wows.”

**Dr. Drew examining canine tapworm.**





# Be Outside Outsmarting Parasites

Ticks and mosquitoes and roundworms, oh my! In reading this issue of Wildlife Express, you might think that going outside is dangerous business. Actually, learning about the parasites you might encounter can help you avoid them. A few simple precautions can help you enjoy the outdoors no matter what creepy-crawlies you have to share it with.

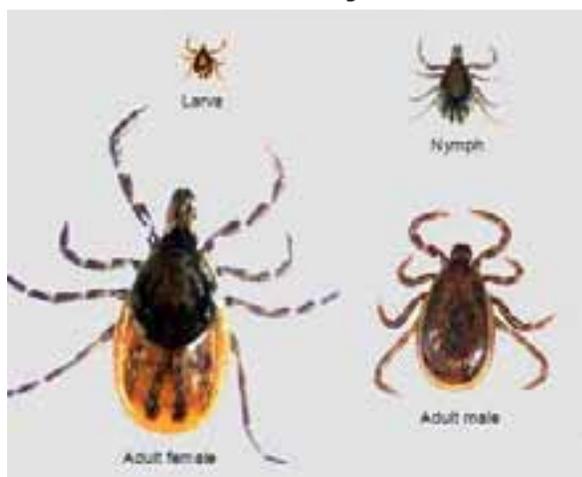
Unless you eat dirt or animal scat, internal parasites are pretty easy to avoid. If you and your family eat wild game, make sure it is properly cooked to the recommended temperature called for in the recipe. When you clean game meat use rubber gloves, and remove any areas that look suspicious. Make sure to thoroughly wash your hands when you handle game meat, just like you do when you handle other kinds of meat. Good hygiene like hand-washing is very important in helping you avoid unpleasant parasites.

Whether we like them or not, external parasites like ticks and mosquitoes are part of being outside. You can take simple steps to avoid these outdoor pests. Insect repellent is very helpful in keeping ticks and mosquitoes away from you. Wearing long sleeves and long pants can prevent bites. Light-colored clothing will help you spot ticks trying to hitch a ride. Wearing a hat will protect your head. You can also avoid going outdoors at times when mosquitoes are active such as early morning and at night. Staying out of long grass can help you avoid ticks.

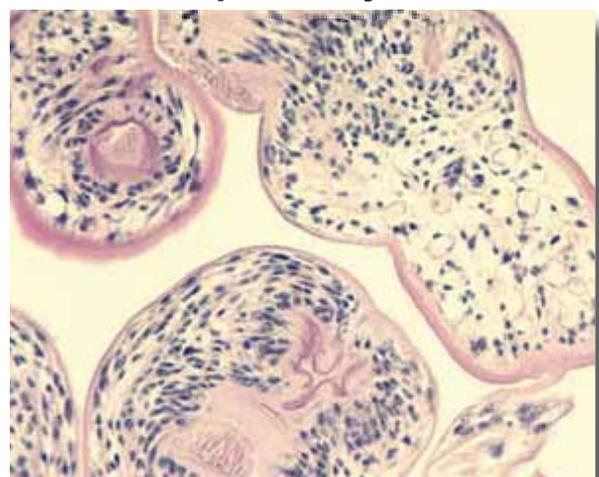
After a day outdoors, check yourself to make sure you do not have any hitchhiking ticks. If you find a tick that has attached itself to you, remove it right away. Using tweezers, grasp the tick firmly as close to your skin as you can get. Slowly and steadily pull on the tick until it lets go. Dispose of the tick and wash the bite with soap and water.

Parasites are a natural part of the outdoors. Don't let them keep you indoors!

**Tick Life Cycle**



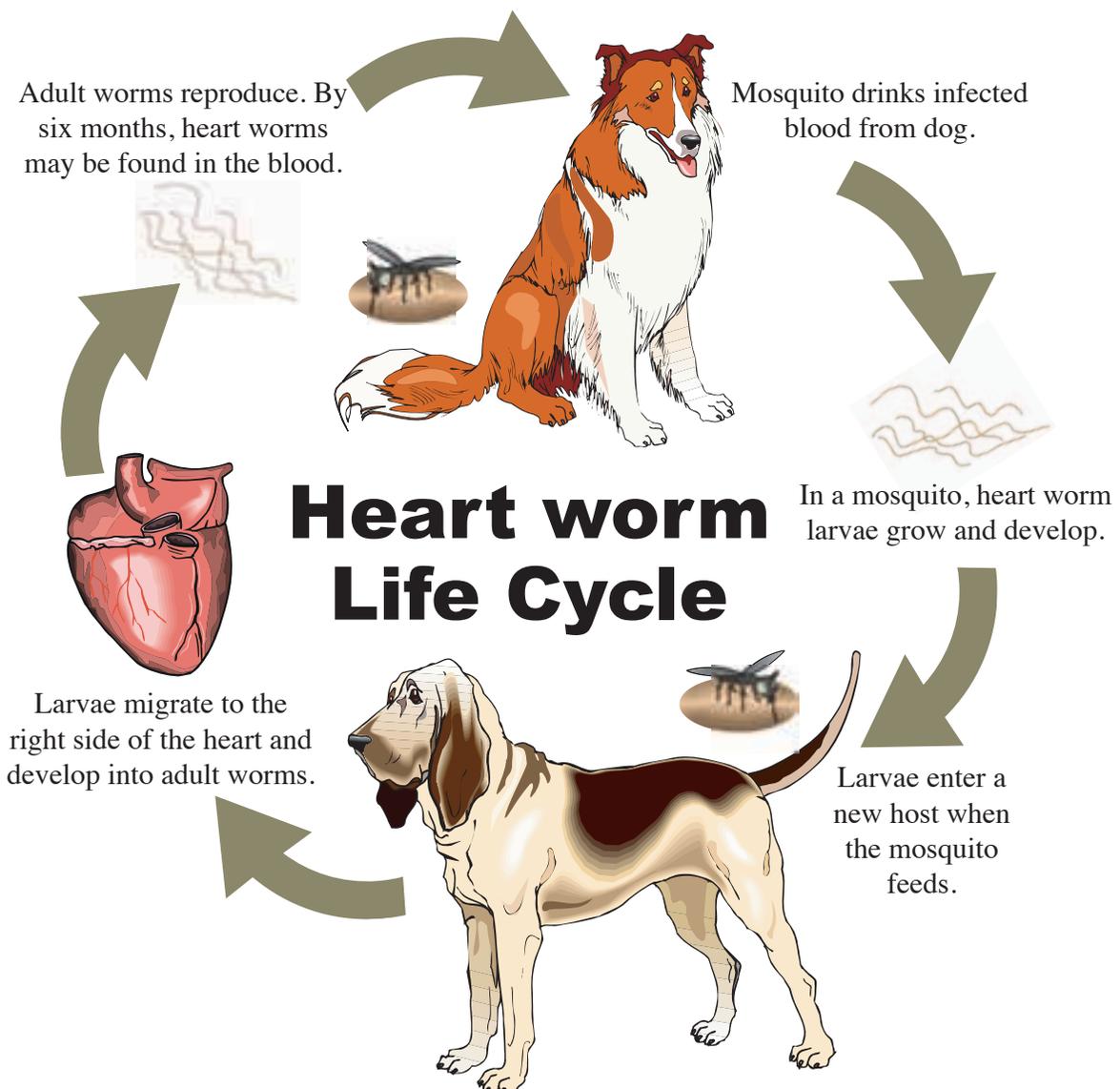
**Tapeworm Cysts**



# Wildlife Health Lab

Idaho's Wildlife Health Laboratory monitors the health of Idaho's wildlife. The people who work at the health lab do this by checking on wildlife. Since wildlife does not stop by the laboratory, the people who work there head outdoors to find their patients. For example, when Fish and Game puts radio collars on animals, they take blood samples. The blood goes back to the laboratory where it is checked for diseases and parasites. Some bacteria and parasites are normally found in wildlife. However, finding certain kinds of bacteria or parasites can be a big clue that something is wrong. Just like some illnesses are worse for you than others, some diseases can be very bad for wildlife. Knowing what is infecting wildlife is the first step in preventing other animals from getting sick.

Sometimes, wildlife diseases are discovered because people report wild animals that are "acting funny." Strange behavior often is a sign of a problem. Unfortunately, most of these sick animals cannot be helped. They are humanely killed and taken to the health lab where a wildlife veterinarian will do something called a necropsy (KNEE-crop-see). A necropsy is an animal autopsy. The animal's organs and other body parts are looked at to discover what was making the animal sick. Once this is known, a plan can be made to keep other animals healthy. A necropsy can also tell if the disease is one that people can catch, like rabies or West Nile Virus. By monitoring the health of our wildlife, the Wildlife Health Laboratory works to keep both people and wildlife healthy.



# What's Eating You?

You have many symbiotic relationships with millions of organisms. Believe it or not millions of creatures live on and in you! The human body is host to thousands of bacteria, mites, viruses and other organisms. Many of these organisms don't hurt you at all; many actually help to keep you healthy.

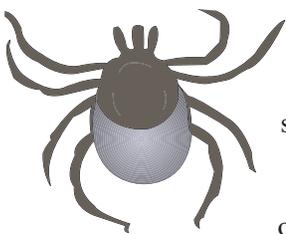
Thousands of different types of bacteria live on and in the human body. They are found on your skin, tongue, teeth and inside your intestines. One square inch of your skin can have as many as 300 different species or types of bacteria. Many of these eat dead skin cells and help to keep your skin healthy. Thousands of bacteria live in your intestines. An adult may have three pounds of bacteria living in her gut! That sounds awful, but these bacteria are important. Bacteria in our intestines help to break down carbohydrates so our bodies can use them for energy. Bacteria in our guts even make vitamins K and B12!

You may have a tiny mite living in your eyelashes called a Demodex mite. These mites live in the hair follicles of the face. Eyelashes are a favorite, but they may also be found in eyebrows and the hair on your forehead, cheeks or ears. Demodex mites eat dead skin cells and body oils. Only about 20% of people under the age of 20 have these mites living on them. They are most likely to infect people as they get older. Nearly all elderly people carry them, but they have no idea. The mite happily eats our dead cells without us even noticing.

Other creatures living on humans are more easily detected – lice for instance. It is hard to find a person that hasn't heard of lice. This parasite is an insect. It lives on and around human hair. It bites the skin and drinks blood. Female lice lay their eggs, called nits, on hair. The eggs are stuck to the hair shaft with a type of glue made by the female. It can be very difficult to remove nits from hair because of the glue. Lice have been preying on humans for a long time. Scientists have found louse eggs on hair that was 10,000 years old!

Parasites are not too much of a health concern for people living in the United States. Indoor plumbing and trash collection are a big help in keeping parasites under control. In some underdeveloped countries, intestinal parasites are still somewhat common. People may drink, wash their dishes and clothing, and dispose of their waste all in the same river. This can spread diseases and parasites. Our water in the United States is safe to drink, and we have sanitation systems to take care of our waste. Even if we do get sick, there are medicines we can take to get rid of the infection.

Many creatures call the human body their home. Some, like lice, are creepy and itchy. Others, like the cold virus, may give us a runny nose and make us sick. But don't freak out! Most are just along for the ride and a free meal. Your health may even depend upon a tiny organism you have never seen.



## Parasite Facts



Fleas can jump 200 times their body length, about 13 inches. If a grown man could jump 200 times his height, he could jump 900 feet.

Female fleas produce approximately 1,000 eggs in their lifetime.

There are over 800 species of ticks.

Tick saliva has an anesthetic effect on the skin.

Flea saliva cause allergic reactions in some animals.

Mosquito means "little fly" in Spanish.

There are over 3,500 species of mosquito.

Only female mosquitoes bite.

Mosquito larvae live in the water. They are important food for small fish.

Adult mosquitoes are important food for birds, bats, dragonflies, frogs, and toads.

The Chinese identified roundworms as parasites almost 5,000 years ago.

Not all roundworms are parasites.

Scientists think that 75% of all the world's creatures are parasites, including microscopic parasites like bacteria.

Tapeworms can lay as many as one million eggs per day.

Flea fossils have been found that date back 100 million years.

The largest recorded flea in North America measured almost 1/2 an inch.

A female flea consumes 15 times her body weight in blood daily.

# You're It!

Ever wonder how parasites find their hosts? Sometimes it just may be that a host animal was in the wrong place at the wrong time. Some parasites have wonderful senses that help them find a host. Other parasites are a bit tricky. Some even seem to use “mind control.”

Are you one of the unlucky people that mosquitoes seem to love? Do mosquitoes find you at a campfire but leave everyone else alone? Believe it or not, you may actually smell good to mosquitoes. Researchers have found that mosquitoes can smell something from over 100 feet away! A big draw for a mosquito is your breath. Every time you breathe out you release carbon dioxide. This gas tells a mosquito that a blood meal is near. Mosquitoes also like chemicals on our skin. Lactic acid, perfumes and lotions seem to draw them closer. Sweat may also attract a mosquito. They like the moisture and sweat can be stinky!

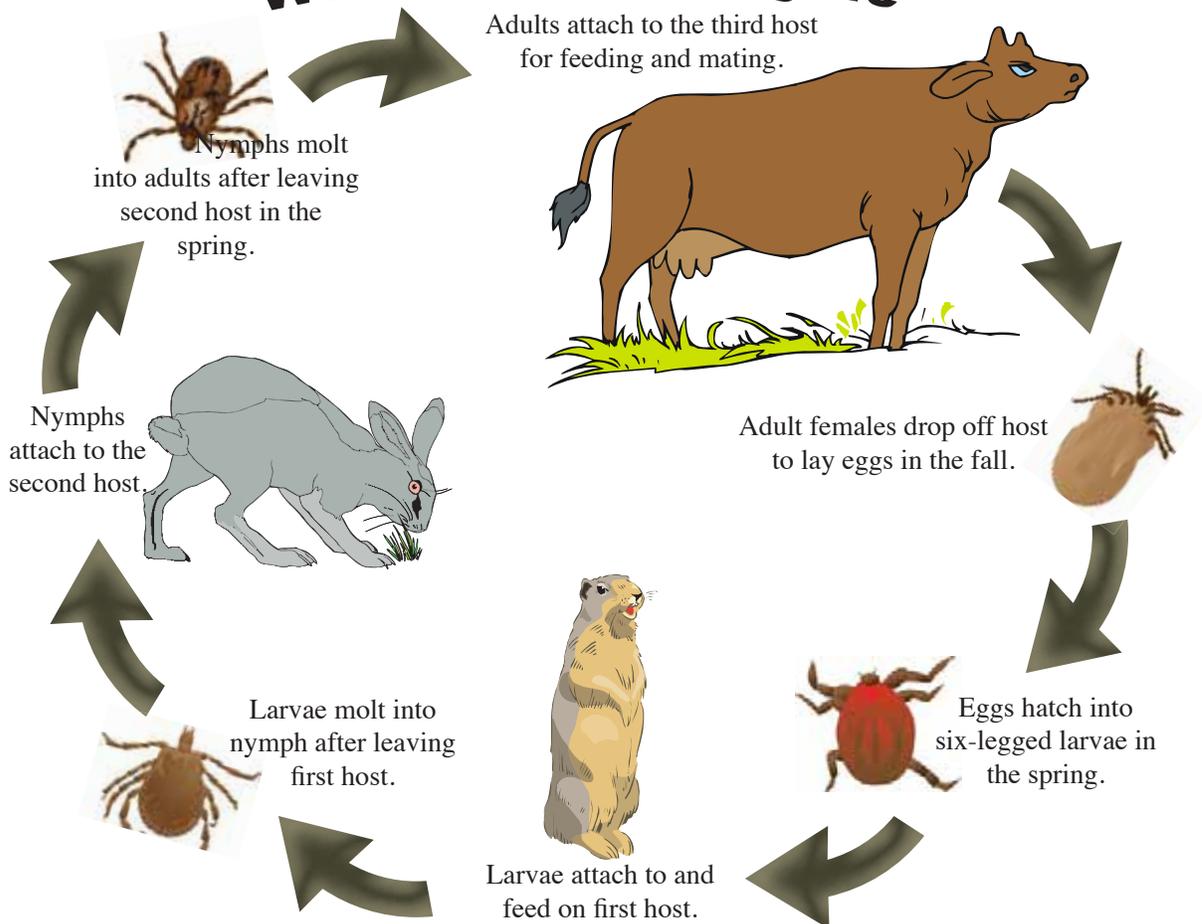
Some parasites seem to have the ability of “mind control.” They make their hosts act in strange and bizarre ways to insure their life cycle will continue. A small tapeworm found in sheep uses the tiny pasture mite to do its dirty work. The immature tapeworm causes the nervous system in the mites to work the wrong way. The infected mites go up to the tips of the grass when a large animal is near instead of going down to hide in the ground. The mites are

more likely to be eaten by a sheep at the tips of the grass, continuing the tapeworm life cycle.

A type of liver fluke does something similar. Snails eat the droppings of animals and ingest the liver fluke eggs. The eggs hatch into larvae in the snail and are left on the ground in the snail’s slime as it crawls. Ants love to eat snail slime. They gobble up the slime with the liver flukes in it. Ants even take the slime back to the ants’ nest and share it with other ants. Soon hundreds of ants are infected with the liver fluke. The ants act normally until a large animal like a cow comes near. When a large animal is present, the liver fluke takes over the ants’ “minds” and the ants run up to the top of flowers and grass where they are eaten by the cows.

Would you jump into water and drown yourself for a parasite? You would if you were brainwashed by a horsehair worm. The larvae of the horsehair worm attaches to beetles, grasshoppers and crickets. The larvae develop inside the insects. When it is time for the adult worm to emerge, they “brainwash” the insect into jumping into water. The worm crawls out of the insect leaving the insect to drown. Wow! Parasites sure have developed some interesting and tricky ways to find hosts and continue their life cycles.

## Wood Tick Life Cycle



# Parasitic Puzzle

Find these “parasitic” words in the puzzle.

ARACHNIDS  
COMMENSALISM  
CREEPY  
FLATWORM  
FLEA  
FLIES  
FLUKE  
HELP  
HOST  
HURT  
INSECTS  
ITCHY  
LICE  
MITE  
MUTUALISM  
PARASITISM  
PESKY  
ROUND WORM  
SYMBIOTIC  
TAPEWORM  
TICK  
TRICKY



C U F I E Q P T C P M D G C F  
T I P L Y K R L A I R X A O P  
U I T K A I U R E S O D S M N  
I N C O C T A L D H W F D M J  
M S Y K I S W I F M D Y S E E  
O E Y M I B N O I M N K T N C  
U C K T S H M T R S U S F S I  
N T I G C L E Y X M O E L A L  
V S F A F L I E S H R P E L O  
M E R T A P E W O R M A A I M  
K A E M S I L A U T U M Y S X  
T R U H L Y P E E R C H S M Q  
K J A Y D S V J R Z C R A I N  
P S C T N K V J H T N S F M W  
Y A B O R N S J I H Z T D S U

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