



# NATURE Spring 2006

# DETECTIVES

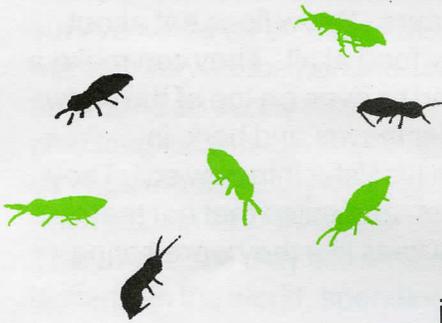


## Silly Names: Snow Fleas and Mourning Cloaks

### Cats have fleas, dogs have fleas, but can snow have fleas?

Just say the words "snow fleas" and your skin might feel crawly, but you can relax because the harmless snow fleas are no relation to the blood-sucking fleas that leave itchy bumps when they feast on dogs, cats, and other animals including people. Snow fleas were named for their famous jumping ability, which reminded people of dog fleas hopping around. But you'll never have to worry about getting a bite from a snow flea. They don't eat snow either; they mostly find their food in piles of rotting leaves.

Please Out and Save

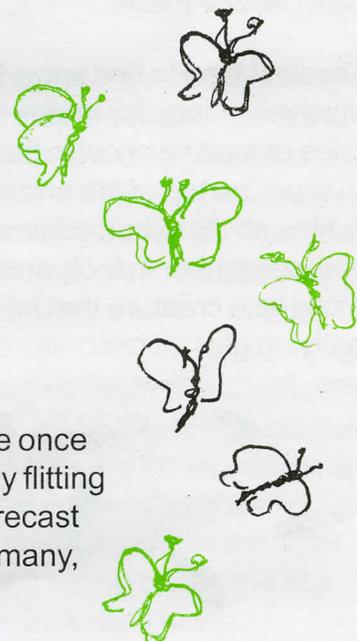


When teeny snow fleas are hopping around in leaf litter, they usually escape our notice, but on a sunny, late winter or early spring day bunches of them may make their way up through melting snow. They are easy to see on the white surface, but unless you get down close, you might think dirt or ashes blew across the top of the snow. If you put your finger next to one of the pepper-flake-sized dots and...boing...it suddenly jumps away, you've found snow fleas!

### Butterflies in Winter? Wearing Capes?

After finding the snow fleas, look up, because the same sunny day that brings out the snow fleas in late winter or early spring will often find mourning cloak butterflies in the air or high in the trees. These early butterflies wake from winter hibernation to lap up tree sap. The mourning cloaks find the sticky fluid oozing out of wounds in the tree bark as the sap rises on warm sunlit days.

Mourning cloaks have dark purple-brown wings with a velvety appearance that reminded folks of the capes or cloaks that were once worn by people to show sadness or grief. But a beautiful butterfly flitting about when cold temperatures and snowy days are still in the forecast is a never a sad sight. Mourning cloaks are the happy sign that many, warm, carefree spring days will soon be here.



## Snow Fleas Are Springtails



Snow fleas have six legs and a hard covering on the outside of their jointed bodies, which makes them related to insects. Snow fleas crawl around slowly on their stubby legs but when it comes to jumping, they don't use their legs at all. They use their special forked tails, which are kept hooked up



HOOKED TAIL UNDER  
BELLY

under their bellies. When the tail is suddenly released, the snow flea springs up and away. Well, maybe they spring away... snow fleas don't have much control over the direction of their spring so sometimes they land back in the very same spot.

Snow fleas belong to a big group of similar wingless springing relatives, and they are all called springtails. Scientists call them Collembola (kol-LEM-bo-la).



SNOW FLEA  
with tail extended

It is not surprising that snow fleas are hardy enough to survive chilly winter temperatures because springtails have survived on earth a really long time. Ancient, 400 million-year-old fossils show us that snow fleas were living long before the dinosaurs. Snow fleas eat about anything they find and can go for long periods of time without any food at all. They can make a meal of bacteria, fungi or algae, food too tiny to see on the ground or even on top of the snow. There are bunches and bunches of snow fleas in damp soil, under leaves and bark, in decaying logs and on pond scum. Their tiny munching helps turn leaf litter into new soil. They use their amazing tail springs to try to escape the beetles, spiders, and mites that eat them. Gray jays have been seen scooping up snow crawling with snow fleas like they were eating ice cream with yummy sprinkles on top.

## Finding Snow Fleas

The easiest time to find snow fleas is when they crawl through cracks in the snow to sun themselves or look for mates in the late winter or early spring. Watch for snow fleas on patches of melting snow in the forest especially near tree trunks. When you see what looks like pepper on top of the snow, stop and check to see if those "pepper flakes" have an incredible ability to hurtle themselves into the air. On a warm, sunny day, bunches of them sometimes gather in footprints or tracks in the snow. Grab a magnifying lens and study this amazing little creature that has managed to thrive for so many millions of years. Under the magnifying glass it becomes clear that snow fleas can be vividly colored, fascinating little critters.

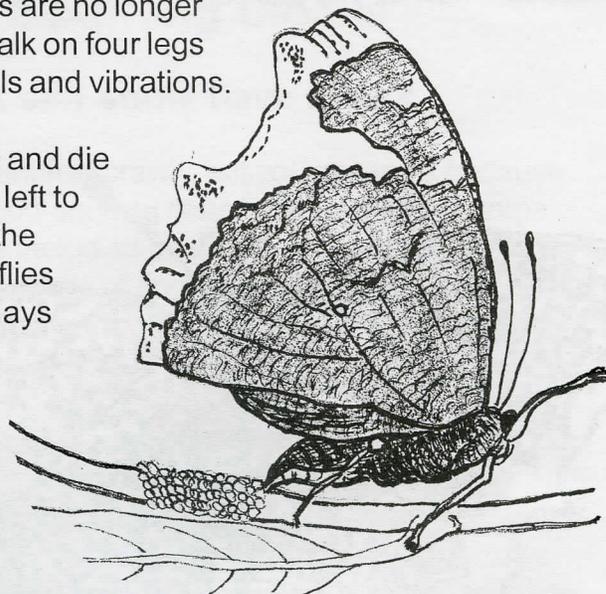


## Mourning Cloak Butterflies Are Brush-footed



You don't need a magnifying glass to see the beauty of a mourning cloak butterfly (*Nymphalis antiopa*) in flight. Toward the edge of its dark purplish-brown wings is an irregular line of blue spots. A pale yellow border runs along the outer edges of the jagged wings. Once the butterfly lands on the trunk or branch of a tree and closes its wings together above its back, it all but disappears, its dusky brown wings camouflaged against the tree bark. If you can get up close, you might see the butterfly's funny front legs. The short front legs place mourning cloaks in the group of brush-footed butterflies whose front legs are no longer used for walking. The brush-footed butterflies walk on four legs and use the two fuzzy front legs for sensing smells and vibrations.

Most kinds of butterflies complete their life cycle and die before cold weather sets in. Only their eggs are left to overwinter then hatch in warm weather to begin the butterfly cycle of life anew. Some kinds of butterflies migrate to warm places to avoid winter's frigid days and nights. Not the mourning cloak butterfly – it is one of the few insects to stick around and survive winter as an adult. Mourning cloaks not only survive the harsh weather but will even flit around on sunny late winter days as if checking for spring. These hardy butterflies live through the winter by making a type of insect antifreeze in their bodies once the weather starts to cool. This antifreeze may allow them to be the longest-lived butterfly in the world, spending their time as adult butterflies for ten months or longer.



LAYING EGGS AROUND TWIG

## Mourning Cloaks Are Butterflies of Spring

The males often perch on sunny branches waiting for females to appear. Amazingly, they can make clicking sounds with their wings to warn other butterflies to stay out of their territory. Females lay groups of eggs on twigs of willows, cottonwood, elm or hackberry trees in early spring. The tree leaves will be food for the newly hatched caterpillars. The caterpillars live together in a web, eat together, and rise up together to try to look scary if they feel threatened. The black, bristly caterpillars grow to be two inches long before they turn into adult butterflies in June or July.

The mourning cloaks spend much of their summer resting while other kinds of butterflies are busy mating and laying eggs. When fall arrives, mourning cloaks get busy eating so they will have energy to get through the winter. Mourning cloak butterflies hibernate in hollow logs and under tree bark to seek shelter from the worst winter weather. They crawl from their hiding places to fly in the late winter or early spring as soon as the sap starts flowing in the trees. The hungry butterflies are eager to lap this favorite food, and when spring brings the sap oozing out of the trees, they will once more rouse and get on with their life's work.

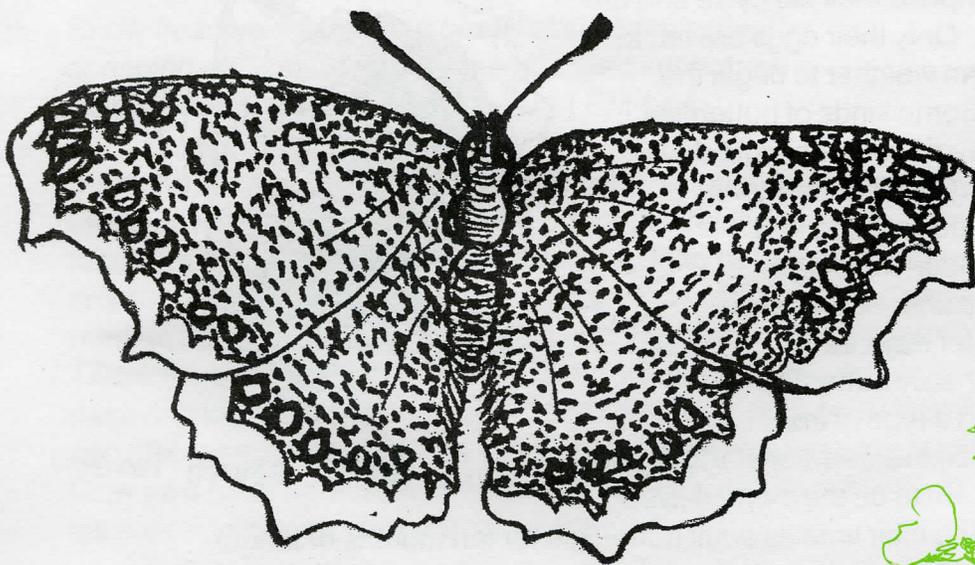
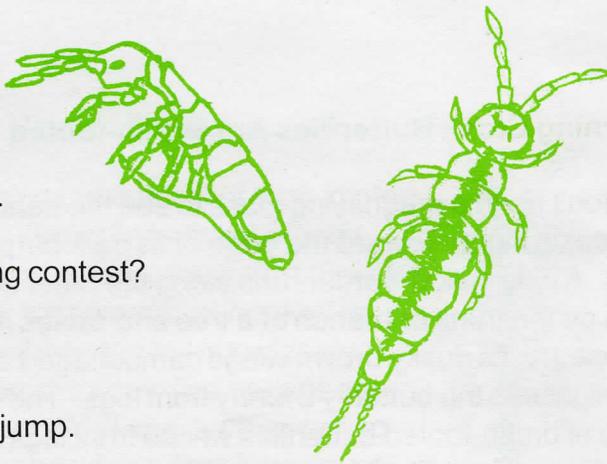
## How Far Can a Snow Flea Flee?

Snow fleas can hurtle their tiny three-millimeter (less than 1/8<sup>th</sup> inch) bodies amazing distances.

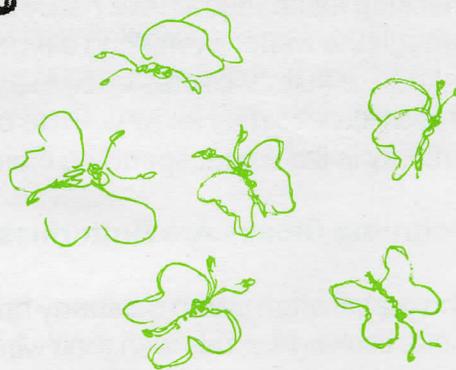
Why not get a ruler and have a snow flea jumping contest?

What is the farthest flea jump you measured?

Now measure how far you and your friends can jump.



# MOURNING CLOAK



ON A SUNNY LATE  
WINTER DAY...

## Color in the Mourning Cloak

Mourning cloak butterflies have about a three-inch wing span from tip to tip.

Use lots of different colors: purples, browns, blues, and silver-gray to get the rich silky color of the wings.

Remember the outside border is palest yellow and the spots are dusky blue.

