



Minnesota Department of Natural Resources  
Division of Forestry

# FOREST INSECT & DISEASE NEWSLETTER

<http://www.dnr.state.mn.us/fid/index.html>

May 14, 2010

## *Forest tent caterpillars: 2010 update*

### **On the scene, but no defoliation predicted in the northern counties**

A large outbreak of forest tent caterpillars (FTC) is not expected in northern Minnesota this summer. So it should be safe to go into the woods this year, at least in most of northern Minnesota. It has been a while since the last outbreak and people are wondering if another is on the way. They can't set their vacation (wedding, reunion, etc) plans without knowing that an FTC outbreak will or won't occur this year. There are records of eight outbreaks in the past century. With the first four of those outbreaks there were about 8 to 10 years between the end of one outbreak and the start of the next. With the last four outbreaks there were about 5 or 6 years between the end of one and the start of the next. Since our last outbreak collapsed in 2004, many people are anticipating that another outbreak can't be far away. And who can blame them. With so many of our recent winters being so mild, we need something besides the cold to brag about how tough you have to be to survive in Minnesota.

There were sightings reported of one or two forest tent caterpillars in scattered locations in northern Minnesota last summer but numbers were woefully small, not even enough to cause defoliation. Populations did increase to the south and west of Mille Lacs Lake where 30,000 acres of defoliation were reported last year. This was a significant increase from the year before but still nothing much compared to over 7 million acres of defoliation in each year at the peak of the last outbreak in 2001 and 2002.



#### **In this issue:**

##### **FTC: 2010 update**

No defoliation predicted in northern counties  
West central counties show increasing defoliation

##### **And the story continues...**

Severe spring drought across much of MN  
Rhizosphaera needlecast  
What's with all the woodpeckers?

##### **The latest on exotics**

Emerald ash borer update  
Gypsy moth in St. Louis and Lake Counties  
Firewood restrictions on DNR-lands

##### **Poems from Elsewhere**

Dr. Seuss Explains the Rocky Mountain Pine

#### **Forest tent caterpillars lay eggs**

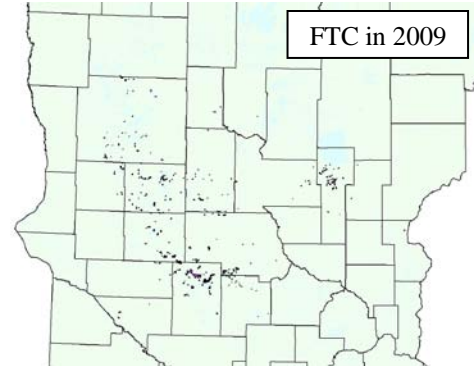
in July in masses that wrap around small twigs in the crowns of trees. These egg masses overwinter and can be used to predict defoliation the next summer. An egg mass survey was conducted this past winter in northeastern Minnesota. Five egg mass plots were surveyed in southern Aitkin County. Additional egg mass plots were taken near Grand Rapids, Calumet, Nashwauk, Hibbing, Mountain Iron, Virginia, Brookston and Duluth. No forest tent caterpillar egg masses were found in any of these locations. Of course that doesn't mean there are not any out there. We probably will see more than last year but we are unlikely to see forest tent caterpillars in large numbers in the northeast this summer. So, get out and enjoy the woods and lakes this summer.

## West-central counties show increasing defoliation since 2006

Forest tent caterpillars prefer basswood and oaks leaves in central and southern counties but are not above munching on aspen leaves when they can find them. In west central counties, FTC populations may synchronize their outbreaks with northern outbreaks or they may have small, localized outbreaks that pop-up and collapse quickly. These outbreaks occur in oaks, basswoods and aspens growing on lakeshores and affect relatively low acreages.

FTC populations are building in central Minnesota. The number of acres defoliated is climbing steadily with

increases being found in all of the central counties. The number of additional sightings of individual caterpillars and small pockets of trace defoliation from the northern counties is also increasing. Taken together, these observations usually portend a north-wide outbreak in the near future.



Typical phenology* for FTC life stages and host tree foliage in Minnesota	
Host tree buds break	April 18 - May 10
FTC hatch	April 18 - May 15
FTC peak defoliation	June 5 - June 25
Host trees refoliate	Early to mid-July
FTC moths fly and lay eggs	July 1 - July 15
* = The timing of biological events varies from year to year because events depend on weather and location. Events will occur near the earlier date when the spring is early, when May and June are warmer than average, and when the location is south of Mille Lacs Lake.	

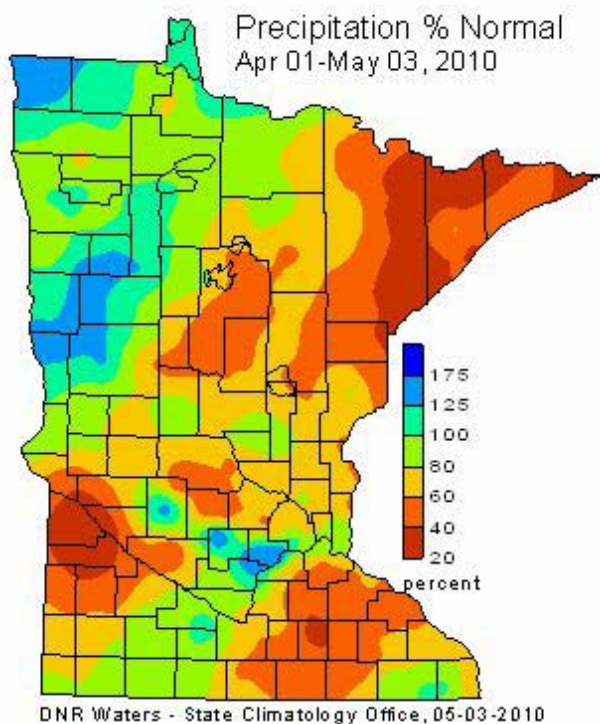
## *And the spring story continues...*

### Severe spring drought across much of Minnesota

By the State Climatology Office

The May 2010 edition of "HydroClim Minnesota", an electronic newsletter summarizing Minnesota's climate conditions and the resulting impact on water resources, is posted at: <http://climate.umn.edu/doc/journal/hc1005.htm>. April's highlights:

- April 2010 precipitation totals were below average in many Minnesota communities. After a nearly snowless March, no Minnesota communities reported measurable snowfall in April. This is the only time in the modern record where all of Minnesota avoided measurable April snow.
- The lack of significant late-March/early-April rain and snow was an extraordinary piece of good fortune for communities involved in the flood fight.

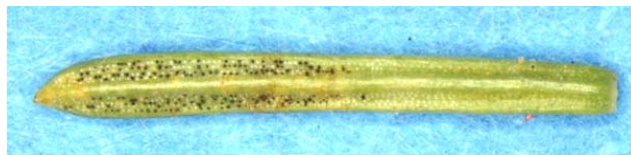


- Monthly mean temperatures for April 2010 were well above average across Minnesota, making it one of the warmest Aprils on record. Unusually warm March and April temperatures rapidly accelerated lake ice-out dates, phenological development, wildfire danger, and agricultural field work.
- Severe drought conditions exist in Cook and Lake Counties. Other northeastern counties, along with sections of north central and east central Minnesota are experiencing Moderate drought. Low stream discharge values and low lake levels are reported in the drought areas.

## Rhizosphaera needlecast

Rhizosphaera needlecast is a common problem on spruce trees, especially Colorado blue spruce. People often first notice it as a lack of needles on the lower branches and inner portions of their yard trees or windbreak trees. *Rhizosphaera* is a fungus that infects spruce needles causing them to turn color and drop or be “cast” from the trees. Consecutive years of needle loss often results in the death of the lower branches. The fungus produces tiny black fruiting bodies that stick out of the stomata which are arrayed along the length of spruce needles, see photo. Use a magnifying lens to look check out the needles. On healthy needles, the stomata look like rows of tiny white

spots. On infected needles, many of the stomata look black instead of white.



Infection occurs in the spring and early summer when spores are released from the black fruiting bodies on infected needles. *Rhizosphaera* spores are carried in water as rain drops are splashed onto needles in the spring. Infection may be able to occur anytime during the growing but most infections occur in the spring during wet weather. Infected needles eventually turn brown to purplish brown, especially on Colorado blue spruce. The new needles that develop this spring and become infected will usually stay green and healthy looking throughout the growing season but will turn color through the winter or next spring. So, severely infected trees often only have green healthy looking needles on the tips of lower branches and all the older needles are either brown or have already fallen off the tree.



Rhizosphaera needlecast is primarily a problem for young spruces and needles on lower branches which usually grow in humid conditions. Maintaining adequate airflow and controlling weeds and brush may help to limit this needlecast by allowing the needles to dry off more rapidly. Also when watering your trees don't use a sprinkler or spray water onto the needles as this will just be creating the wet conditions the fungus needs to gain access to the needles.

To manage existing infections, continue the preventative practices and apply fungicide as preventative treatments. Spray the tree with a fungicide containing chlorothalonil. This product will not cure already infected needles. Find a product at a local garden store that lists spruce needlecast

on the label and be sure to follow all label directions and precautions. The product needs to be sprayed to get good coverage of all the needle surfaces so that when spores of the fungus land on the needles they do not become infected. The trees should be sprayed when the new needles are half elongated and again when the needles are fully elongated. Two or more years of fungicide treatment will be required on severely infected trees. New needles will not grow back on the bare branches but after a couple of years without new infections, the healthy needles will hide the bare inner branches.

## What's with all the woodpeckers?

By Roger Hannigan

Chances are that if you live within Minnesota's northern hardwood forest you are being visited by a multitude of woodpeckers, such as red-crested, pileated, hairy and downy. In fact, I've had two woodpeckers run into my house this spring. And, it's no wonder why they are so abundant. The lengthy and deepening drought has taken a heavy toll in our aspens and birches. Then on top of that, it is quite rare to have a spring as mild and dry as we have had so far this year. On the up-side, it's been a great year for restocking the woodpile.

Many aspens and birches only have 2/3rds of their crowns left, while others are either already dead or are dying. In most cases the drought has made these trees vulnerable to opportunistic insects and pathogens. The deepening drought has accelerated top-kill and mortality, especially in the last year or so. *Agrilus* species (flat-headed borers) and an un-identified round headed borer species can be easily found in dead and dying quaking aspens. In paper birches, bronze birch borers have run amuck!

The un-identified borers in aspen appear to be very similar to *Saperda calcarata*. Mature larvae are quite large and burrow into the sapwood and deep into the heartwood as well. The tunnels are 5/8<sup>th</sup> inch in diameter and are packed with fibrous wood material and frass. Interestingly, attack by this wood borer lacks cambium feeding so the bark is tight. At least in my woodlot, these aspen borers favor trees from five to eight inches in diameter. As the woodpeckers forage on the bole to find the borers, no sap flow is evident. I've also noticed that when the bole becomes riddled with borer tunnels, the tree is weakened and often breaks off in the wind. We'll collect some larvae and maybe some adults and get them identified.

Bronze birch borer, a flat-headed borer, is the most destructive pest of paper birch. Most commonly, drought-stressed trees are attacked. Attacks begin in the very top of the crown where larvae feed in the cambium which girdles then kills the branches beyond that point. Each successive generation emerges and re-invades the tree lower down the branch, then down the bole until the tree is eventually killed. These borers do not make tunnels in the wood. The best way to manage bronze birch borers in yard or shade trees is to prevent infestation in the first place by watering the birches regularly during dry spells and droughts. Once they are infested, as witnessed by crown dieback, there are two main options: use pesticides or remove the infested tree(s) before adult borers emerge in the spring (May through June) and start the next generation in nearby birches. Insecticides that are injected into the tree need to be applied by a licensed commercial applicator.

So, if you are seeing more woodpeckers than usual, or more likely, hearing them, the abundance of insects in your aspens and birches is a likely explanation.

## *The latest on exotics*

### **Emerald ash borer update**

*February 25, 2010: MDA confirms emerald ash borer infestation in Minneapolis trees*

The Minnesota Department of Agriculture confirmed an emerald ash borer infestation in four trees in the Prospect Park East River Road neighborhood of Minneapolis within

Tower Hill Park. This infestation is within a mile of the St. Paul neighborhood in which the tree pest was found last year.

The infestation was discovered through an ongoing survey of ash trees in the vicinity of the South St. Anthony Park neighborhood, where EAB was found in May 2009. While this marks the first time emerald ash borer has been found in Minnesota outside Ramsey County, state officials said

the discovery was anticipated. Last fall, scientists determined that the St. Paul infestation had been in place for about three years prior to detection. Since the adult beetles can fly up to two miles each year, officials expected that the beetles had spread into Minneapolis.

*April 29, 2010: MDA confirms EAB infestation in Houston County trees*

The Minnesota Department of Agriculture confirmed an emerald ash borer infestation in three trees in the extreme southeast corner of Houston County immediately across from Victory, Wisconsin, where an infestation was found last year. Houston County was quarantined last year as a precautionary measure because infested trees in Wisconsin were found only 1/10<sup>th</sup> of a mile from the Minnesota border. Again, woodpecker foraging symptoms led the surveyors to find the EAB infested trees.

## MDA to tackle gypsy moth infestations in St. Louis and Lake Counties

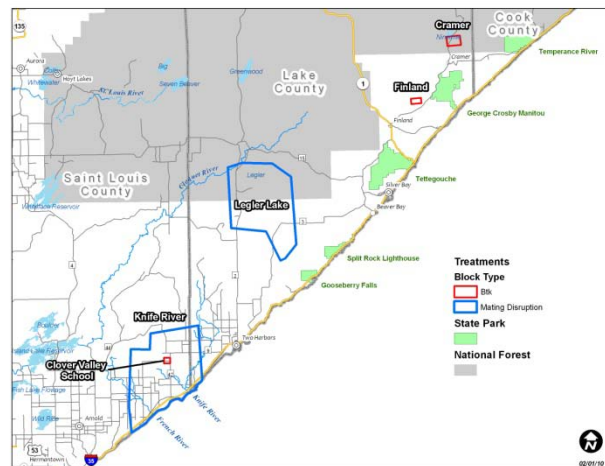
By Michael Schommer, MDA

As the battle against gypsy moth infestations heats up in northeastern Minnesota, the Minnesota Department of Agriculture (MDA) is inviting people to learn about the effort. Informational sessions are set for May 17-18 in Schroeder, Two Harbors and Duluth Township.

Gypsy moth is a destructive tree pest that has caused millions of dollars in damage to forests as it spread from New England to Wisconsin. MDA maintains a statewide monitoring program to watch for start-up infestations and, when discovered, officials move in to eradicate the pests before they can spread. Over the past 30 years, MDA has successfully treated more than 65 infestations across the state. While MDA has conducted successful treatments along Lake Superior, the department found new infestations in the area in 2009. Of the 27,000 moths found in 2009, nearly 99 percent were in the Arrowhead region.

To combat these infestations, MDA and its federal, state and local partners plan to conduct treatments in five zones or “treatment blocks.” Due to high moth concentrations near Clover Valley School in St. Louis County, and Cramer and Finland in Lake County, MDA will use the biological insecticide *Bacillus thuringiensis* var. *kurstaki* (Btk) for those three treatment blocks covering a total of 2,152 acres. Btk targets the moth’s larval stage of

development and treatments typically occur in late May or early June. MDA will treat the other two treatment blocks (roughly 98,694 acres total) using mating disruption. This method involves the application of a synthetic pheromone that confuses male gypsy moths so they are unable to find and mate with females. Application is timed just as the adult moths emerge from pupae in late July or early August.



While MDA has lead responsibility for gypsy moth treatment, the department works in close partnership with the U.S. Forest Service, the Minnesota Department of Natural Resources, and a host of local and non-profit partners. Before conducting a treatment, MDA’s treatment plan is submitted to other agencies for review of any potential effects on threatened and endangered species and for any impacts on historical sites.

## Recreational firewood restrictions on DNR-lands

Our state forests, parks, wildlife management areas, and other DNR lands are vulnerable to invasion from nonnative forest pests such as emerald ash borer, sirenix wood wasp, gypsy moth, and Asian long-horned beetle, as well as pathogens that cause oak wilt, sudden oak death and other diseases.

The spread of these and other pests has been closely associated with the movement of firewood. Surveys indicate that approximately 50 percent of overnight visitors typically bring firewood to Minnesota state parks and state forest campgrounds, putting state lands at high risk for pest infestations.

Exotic forest pests can have dire consequences for Minnesota forests if they become established. For

example, emerald ash borer has killed more than 50 million ash trees in Michigan since it became established there sometime in the 1990's. It is also responsible for the mortality of millions of additional ash trees in Ohio, Indiana, Illinois, Maryland, Massachusetts, Missouri, Pennsylvania, West Virginia and Wisconsin.

Here in Minnesota, we have a lot to lose from EAB. Minnesota has the third-largest volume of ash trees in the U.S. as well as extensive plantings of ash trees in urban settings. All in all, more than 950 million ash trees are at risk.

***What can I do to help slow the spread of forest pests?***

- Don't transport firewood from your home area to your lake cabin or other recreation sites around the state.
- Don't transport firewood from a vacation spot back to your home.
- Buy your firewood locally from someone who harvests Minnesota-grown trees.
- It's best to buy "seasoned" wood, which has been cut, split and dried for two or three years. It burns better and is less likely to house pests.
- Remember that it's against the law to bring unapproved firewood onto DNR lands.

***Approved firewood:***

Only non-ash firewood will be allowed on land administered by the Commissioner of the DNR unless it complies with 2) b or 3) below.

- 1) Firewood offered for sale by the Minnesota Department of Natural Resources (MN DNR).

- 2) Firewood offered for sale to the public by vendors who have successfully completed the DNR application process. Approved vendors must provide customers with a proof of purchase that includes the name of the vendor, date and quantity of wood purchased. The MN DNR requires that the firewood meets one of two conditions:
  - a) Non-ash wood originating on lands within Minnesota AND within 100 miles of the MN DNR land on which it is to be used, OR,
  - b) Wood originating from Minnesota that has been heat-treated in a kiln certified by the Minnesota Department of Agriculture.
- 3) Kiln-dried, untreated, unpainted/stained construction (dimension) lumber that is free of any metal or foreign substance. Pallet boards are not included in this category.
- 4) Wood originating from a quarantined county will be approved only for use in that county.
- 5) Wood from counties contiguous to a quarantined county will be approved only for use in those counties.

***Unapproved firewood:***

You must surrender any unapproved firewood you bring with you, since it is against the law to bring it onto DNR lands. Please contact park staff, campground hosts, or see posted instructions regarding bagging and surrender instructions.

Thanks for doing your part to save Minnesota's trees by leaving firewood at home. It's the right thing to do!



**You can find approved vendors on this website.**

**[http://www.dnr.state.mn.us/firewood\\_vendors/vendors/list.html](http://www.dnr.state.mn.us/firewood_vendors/vendors/list.html)**

# Poetry from Elsewhere

## Dr. Seuss Explains the Rocky Mountain Pine Beetle Epidemic

By Jenny Shank

I will not eat green pine, says Flea.  
Trees do not taste so good to me.  
I will, I will, says the beetle.  
I will eat them down to needles.

The beetles bite, they bore through bark.  
They bore all day, they bite in dark.  
They lay their eggs inside the tree.  
And that makes more of them, you see.

The beetles eat all types of pine.  
The mountain air suits them just fine.  
Lodgepole, Whitebark, Scots and Limber  
They will eat all sorts of timber.

RED RED  
the needles turn red.

RED DEAD  
red trees are dead.

BROWN DOWN  
Brown trees fall down.

BURN TURN  
In turn, they'll burn.

The burn will make the forest hot.  
I do not like this, I do not.  
Say, spray, why don't we spray?  
How many beetles will we stop that way?

Not enough, it's much too late.  
Two million acres are in this state.

Boo hoo. What can we do?  
The air is filled with CO2.  
The CO2 makes the air warm,  
The warm air makes the beetles swarm.

The beetle swarm eats trees for lunch.  
The winter does not stop their brunch.  
It's not so cold, so on they munch.

Can't we take the trees that fall,  
And turn them into ethanol?  
Maybe, maybe, that might work.  
That might give us extra perk.

But the only way to solve this danger  
Is to give the problem to a ranger.  
Rangers will burn here and there.  
They'll battle beetles from the air.

When rangers and beetles fight,  
it's called  
a ranger beetle battle.

And when they battle in a pine grove,  
It's a piney  
ranger beetle battle.

AND when rangers don't know the beetles,  
And they fight in forests full of needles,  
they call it a stranger  
ranger piney needle beetle battle.

Will fighting help?  
We don't know.  
We'll plant more trees  
And they will grow.

But by then we'll all be old.  
Piney beetles,  
Your tree game is done  
When you eat the final one.

This poem originally ran on April Fool's Day this year in NewWest.net/Books. You can find the poem on [http://www.newwest.net/topic/article/dr\\_suess\\_explains\\_the\\_rocky\\_mountain\\_pine\\_beetle\\_epidemic/C39/L39](http://www.newwest.net/topic/article/dr_suess_explains_the_rocky_mountain_pine_beetle_epidemic/C39/L39).

This newsletter is developed as a service to forest managers and shade tree owners. The Forest Health Unit would appreciate comments concerning the newsletter and its contents. These can be directed to Jana Albers, Editor, 1201 E. Highway # 2, Grand Rapids, MN 55744. To add, change or delete your name from our mailing list, please contact the editor. Thanks.

Olin Phillips  
Section Manager  
500 Lafayette Rd.  
St. Paul, MN 55155  
(651) 259-5282

Alan Jones  
Resource Manager  
500 Lafayette Rd.  
St Paul, MN 55155  
(651) 259-5271

Val Cervenka  
FH Consultant  
500 Lafayette Rd.  
St. Paul, MN 55155  
(651) 259-5296

Susan Burks  
Invasive Plants Coordinator  
500 Lafayette Rd.  
St. Paul, MN 55155  
651) 259-5251

Jana Albers  
Reg. 1 - Forest Health Specialist  
1201 E. Hwy. # 2  
Grand Rapids, MN 55744  
(218) 327-4234

Mike Albers  
Reg. 2 - Forest Health Specialist  
1201 E. Hwy. # 2  
Grand Rapids, MN 55744  
(218) 327-4115

Neville Wilson  
Reg. 3 - Plant Health Specialist  
1200 Warner Rd.  
St. Paul, MN 55106  
(651) 259-5821

DNR Forestry – Forest Health  
1201 East Highway 2  
Grand Rapids, MN 55744

U.S. Postage Paid  
Presorted  
Standard  
Permit No.525  
Grand Rapids, MN