



# Mosquitoes and Your Community



Southwest District Health

Southwest District Health covers Adams, Canyon, Gem, Owyhee, Payette, and Washington counties.

## Subdivisions and Storm Water Retention Ponds

Mosquitoes require standing water to go from an egg to an adult mosquito. Many of the stormwater retention ponds that have been installed in an attempt to stop pollution from getting into our streams have been having drainage problems. While some are due to construction issues, the majority are due to over-watering of lawns.

Several storm water retention ponds are set up in park-like settings. Grass is generally used to landscape the dry ponds. These are commonly set up with sprinkler systems. Make sure the sprinkler systems are well maintained, do not over-water, and only water early in the morning.



### Residential lawns:

Water between midnight and 6 a.m. to avoid excessive evaporation.

Check sprinkler systems once a month to make sure water is spraying where it should, the sprinkler heads are in good condition, and water pressure is appropriate for proper coverage.

### Check the soil type:

Take approximately two-tablespoons of soil into your hand and add water until fully wet but not dripping. Squeeze the soil into a ball. If the ball does not stay together, then you have mostly sand. The soil will not retain water long.

If the sample stays together, take the ball and gently push the soil up with your thumb. This is called "ribboning"

because the soil will create a ribbon shape. If the soil ribbon breaks off with less than an inch length, then your soil is a loam. If the ribbon does not break until it is longer than one inch, there will be clay in the sample. The longer the ribbon goes unbroken, the more clay is in the sample. Water will be retained longer with the clay.

Watch your sprinklers run and see how long it takes for water to run off the lawn and down to the gutters. Remember, this is wasted water that contributes to failure of the storm water retention ponds. You should never water longer than it takes the water to start running off your lawn or create puddles that do not drain quickly.



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### Special points of interest:

- Repellents provide a high level of protection from mosquito bites.
- Learn the symptoms of West Nile Virus.
- There are several ways to reduce mosquitoes around your home.
- Learn how Abatement Districts are formed.

## West Nile Symptoms

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West Nile virus is a viral disease carried and transmitted by mosquitoes. While there is no way to know in advance who will become ill, people over the age of 50 should be especially vigilant.

Approximately one out of five people who become infected have symptoms that

can include fever, headaches, body aches, nausea, vomiting, skin rash, and sometimes swollen lymph glands. Symptoms typically occur from 3 to 14 days after the bite of an infected mosquito, and can last for a few days to months.

Recent evidence indicates some people may experience

re-occurring headaches and fatigue that can lead to signs of depression.

Symptoms of the most severe form of WNV (experienced by approximately 1 out of 150 of those showing clinical signs of the infection) can be marked by a rapid onset of a high fever, moderate



## West Nile Symptoms (continued from page 1)

to severe head and body aches, fatigue, tremors, disorientation, convulsions, vision loss, and paralysis. This can result in prolonged hospitalization and can, in some cases, result in death.

Approximately 80 % of people who are infected with the West Nile virus will not show any symptoms.

Currently there is no human vaccine available. You should consult a medical provider if you are experiencing symptoms.

It is unknown if people will have long-term immunity after being infected.

In 2006, Idaho reported the highest number of human cases in the US.

People need to take extra care to avoid mosquito bites. If you spend time outdoors for work or play, apply an appropriate repellent to avoid infection.

Pregnant women and nursing mothers should talk to their doctor immediately if they develop symptoms.

***A medical provider should be consulted if you begin to experience symptoms.***



## Mosquitoes on School Grounds

Mosquitoes are attracted to carbon dioxide, smell, color, and movement. Children at play or sports will generally provide all of these attractants. Most mosquitoes are active during dusk and dawn. This is prime time for teens practicing sports or band activities during mid-August and September. Mosquitoes hide out in vegetation during the heat of the day. Children running through grass may stir them up. There are protective measures, parents and school officials can implement.

Parents should provide lotion repellent to older children. Younger children may

have the repellent applied to them by parents prior to school. Please read the above section on repellent safety. When attending outdoor school activities, parents should also wear repellent and protect any children with them.

School officials can implement a maintenance program to prevent mosquitoes from breeding on school grounds. The maintenance crew will need to watch for any standing water on the ground, play ground equipment, tarps, and catch basins. If the water cannot be eliminated, a larvicide like methoprene or *B.t.i.* (*Bacillus thuringiensis israelensis*) can be added.

Even with these measures, mosquitoes could easily be coming from an off-site location. Personal repellent is still the best option at this point. If the school is located inside a mosquito abatement district, a fogging schedule can be arranged. With the right pesticide and timing, there will be no residual pesticide when children were present.

**Remember to always read the label on any repellent or pesticide before using, especially on or around children.**



## Repellents

Of the repellents registered with the Environmental Protection Agency (EPA), there are three types that have shown to give the best protection. The active ingredients are DEET (N,N-diethyl-m-toluamide), Picaridin, and oil of lemon eucalyptus.

They are safe to use on the skin, but if using a spray, make sure to spray in your hands before applying to the face.

Never let children apply their own repellent, and do not use it on their hands. This is to prevent them from swallowing any of the product. Do not use on children under two years old. A stroller can be covered with mosquito netting that is treated with repellent.

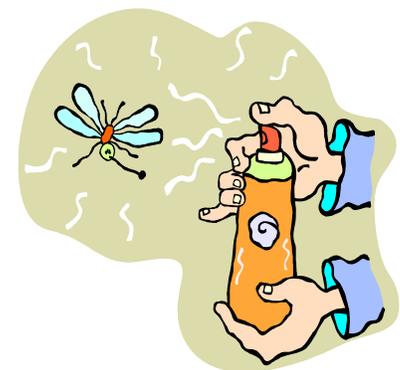
It is recommended to only add repellent to exposed skin and clothing. Do not wear under clothing.

DEET products can damage certain plastics, leather, and certain synthetic fabrics.

Permethrin is an effective pesticide and repellent but it should never be applied to the skin. Permethrin can be used on clothes, mosquito netting, tents, etc.

Remember to always read the instructions on container before using.

Check the Center for Disease Control's website for any updates on repellents [www.cdc.gov/ncidod/dvbid/westnile/qa/insect\\_repellent.htm](http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm).



***Never let children apply their own repellent and do not use it on their hands.***

# Mosquito Biology

Mosquitoes feed on plant nectar. The female mosquito requires a blood meal for egg production. Therefore, only the female mosquito will bite. The females are attracted to potential blood sources by carbon dioxide, temperature, moisture, smell, color, and movement.

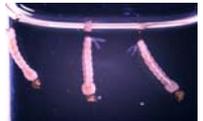
WNV is primarily carried by the *Culex* mosquito, which is highly active in Idaho.

Many mosquito species are more persistent and painful biters than others. They typically prefer to attack at dusk or dawn, but some will attack during the day if it is overcast and shady.

Mosquitoes mostly lay their eggs in static, shallow water. The water source can include cans, horse troughs, catch basins, house gutters, plant saucers, improperly maintained swimming pools, bird baths, ornamental ponds, and marshy areas. Some species will lay their eggs on damp soil that will be flooded later. These areas include irrigated pastures, tree holes, and areas around waterways that flood periodically.

The eggs hatch out into larvae. Larvae will go through four stages, molting and growing each time. They have breathing tubes that they need to keep near the

water surface. This is why it is important for them to be in static water. Choppy water will cause them to drown. They are feeding during the first three stages (instars). At the fourth instar, they quit feeding and begin to molt into a pupa. The pupa does not eat, but will need to keep near the surface to breath. At this point the mosquito will morph into an adult. The whole process can take less than a week to several weeks depending on the temperature of the water and available food sources (algae, fungi, bacteria).



# Mosquito Prevention



Do not allow water to stand longer than 48 hours.

Change the water in bird baths, watering troughs, and other water containers every other day.

If water cannot be removed or changed regularly, treat with a larvicide like *B.t.i.* (*Bacillus thuringiensis israelensis*), *B.s.* (*Bacillus sphaericus*), or Methoprene. These products are readily available in stores and will not harm humans, animals, or other insects.

If ornamental ponds do not have fish in them, then add a larvicide.

Keep roof gutters clean.

Clean out irrigation ditches and canals to avoid static areas.

Do not over water the lawn.

Fill in low areas that create puddles that do not dry out quickly.

Drain spare tires.

Keep swimming pools maintained.

If you want to try and kill adult mosquitoes, it will generally require cooperation from neighboring properties. If a Professional Pesticide Applicator is hired, make sure they are licensed by the Idaho Department of Agriculture for "Public Health Pest Control." The pesticide used cannot drift onto another's property without their approval. Check with Idaho Department of Agriculture's Pesticide Program for information on pesticide applications [www.agri.state.id.us](http://www.agri.state.id.us).

If you live inside a Mosquito Abatement District, please contact them for help.



# Mosquito Abatement Districts in Southwest District Health

There are two mosquito abatement districts (MADs) located within Southwest District Health's boundaries.

Canyon County Mosquito Abatement District (CCMAD) currently covers an area around Lake Lowell and the city of Nampa. It does not cover the entire county, but is rapidly expanding.

The contact number is (208) 461-8633.

The Gem County Mosquito Abatement District (GCMAD) has been in existence since the 1960's. It covers most of southern Gem County, but not all.

The contact number for GCMAD is (208) 365-5628.

If you are a land owner and are unsure if your property is inside a MAD, look on your property tax notice. If you rent property, and do not know if you are inside a MAD, please call the MAD.





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**We're on the web**  
[www.swdh.org](http://www.swdh.org)



## TWO WAYS TO REDUCE YOUR WEST NILE VIRUS RISK

### 1 AVOID MOSQUITO BITES!

Spray! Spray insect repellent containing DEET (look for N, N-diethyl-m-toluamide) on exposed skin when you go outdoors. Spray clothing with repellents containing DEET or Permethrin.

Products with a higher percentage of DEET (up to 50%) give longer protection.

► **Don't spray repellent on skin under clothing.**

► **Don't use Permethrin on skin.**

**Cover Up!** Wearing long sleeve shirts, long pants, and socks sprayed with repellent while outdoors can further help prevent mosquito bites.

**Avoid Mosquitoes!** Many mosquitoes bite between dusk and dawn. Limit time outdoors during these hours, or be especially sure to use repellents and protective clothing.

**Remember to always read the label on the repellent prior to applying it to people, animals, clothing, or other objects.**

### 2 MOSQUITO-PROOF YOUR HOME!

**Screens:** Keep mosquitoes outside by fixing or installing window and door screens.

**Drain standing water.**

Don't give mosquitoes a place to breed. A small amount of standing water can be enough for a mosquito to lay her eggs.

**Look around every week for possible mosquito breeding places.**

Empty water from buckets, cans, pool covers, flower pots, and other items. Throw away or cover up stored tires and other items that aren't being used. Clean pet water bowls weekly. Check if rain gutters are clogged. If you store water outside, or have a well, make sure it's covered up. Encourage your neighbors to do the same.

## Idaho Statutes in Regard to Mosquito Abatement Districts

The full set of statutes concerning mosquito abatement districts can be found at [www.legislature.idaho.gov/statutesrules.htm](http://www.legislature.idaho.gov/statutesrules.htm). Look under Title 39 Health and Safety, Chapter 28 Abatement Districts.

Abatement districts can be formed in any area of the state of Idaho and can cross county lines. (Statute 39-2801)

To form a district, an area must be decided upon by the property owners wanting the district. Then, a petition must be signed by 10% of the property owners inside the designated area. The petition is then turned in to the county commissioners. The petition must define the boundaries of the district and the assessed tax valuation of the property.

The county commissioners publish the petition. If there are no protests after 30 days, an election must be held on a regularly scheduled election. Only residents inside of the proposed district will be allowed to vote. A majority of votes is required.

Another option is for the board of county commissioners to add the question on a ballot if a specific area wants to establish an abatement district. (Statute 39-2802)

A five member board of trustees is appointed by the county commissioners. They must be property owners inside the district. (Statute 39-2803)

The board members will appoint a director to head abatement duties.

Funding is generated through property taxes. (Statute 39-2805)

If an area wants to annex into an existing abatement district, a petition of a majority of the legal voters who own property in the designated area must be submitted to the board of trustees.

Upon receiving the petition or written request (as with a single property owner seeking annexation), the district trustees will submit the annexation request to the voters at the next election. Only the legal voters inside the existing mosquito abatement district will be allowed to vote on this issue. (Statute 39-2806)

*Note: A temporary abatement district can be formed under certain emergencies. (Statute 39-2812)*

***Note: This is a brief overview of the Idaho Statutes governing mosquito abatement districts, and does not contain the statutes entirely.***