



ENSURE YOU'RE NOT BITTEN WHEN SMITTEN BY BACKYARD POND

“Build it and *they* will come.”

“**I**t” refers to backyard ponds, and *they* are those unwanted guests that can reach legendary proportions in some parts of Wyoming: mosquitoes.

Careful design and maintenance of backyard ponds will slow the breeding rate of some species of mosquitoes and help keep the focus of summer on things other than mosquitoes.

Here are some items to incorporate in the design of a pond: water movement/agitation, steep banks, a clean edge with limited aquatic and emergent vegetation, and plenty of natural predators.

Still Water Conducive to Mosquitoes

Two vulnerable times for adult mosquitoes are during deposition of mosquito eggs and eclosion, or the emergence of adult mosquitoes from the aquatic pupal case. Still water allows these processes to go unhindered while water disturbance via wind or wave action is likely to cause them to tip over and drown. Agitation by fountains or aeration pumps can create water movement – as can Mother Nature. Appropriate siting and



Moving water can upset and drown mosquitoes emerging from the aquatic pupal case.

landscaping – if wind is a reliable and consistent resource – or incorporation of a nearby running water source can also create movement.

Water 1 to 6 inches deep is ideal for mosquito production – it allows for maximal light penetration resulting in bacterial and algal growth, which serves as food and habitat for the mosquitoes.

At the same time, the shallow depth constrains the number and size

of potential predators able to navigate that column of water. Ponds with steep banks reduce the extent of this ideal habitat zone by limiting the food sources for the developing mosquito and enabling predators unfettered access to flooded areas.

Keep Vegetation at Bay

Similarly, aquatic and emergent vegetation, often occurring in the shallows, provides not just a substrate for bacterial/algal growth and cover from predators, but also a break from wind/wave action for the mosquitoes. Keeping a vegetation-free margin of the pond reduces conditions hospitable to mosquitoes and enables detection of mosquito larvae or pupae should they sneak in.

Habitat free from natural predators can foster exponential growth of mosquitoes. Introducing or encouraging native predators, including fish or other aquatic invertebrates such as dragonfly naiads or predaceous diving beetles, increases the health of the pond by filling in missing links in the food chain and ensures a quiet, hassle-free evening by the pond. Before stocking or transporting any fish, contact your local Wyoming Game and Fish Department office for guidance on native species and regulations.

Disrupt Mosquito Environment

Once the pond is established, limit mosquito production by:

- Avoiding nutrient and water level fluxes.
- Monitoring closely for mosquito activity.
- Apply timely control efforts should larvae be detected.

Excess nutrient input into the pond should be avoided by limiting fertilizer application near the pond where run-off could reach the water. If mowing near the edge, avoid blowing grass clippings in the water that would promote food and habitat for mosquitoes.

Stable water levels limit floodwater mosquito production. Mosquitoes lay eggs on the mud surrounding a drawn-down water body and emerge en masse once re-flooded. By reducing water level fluctuations, potential production of these cloud-forming species is limited.

If Control is Needed

Larvae can be detected by taking samples using a mosquito dipper. Larvae can be a variety of color variations and sizes but are generally

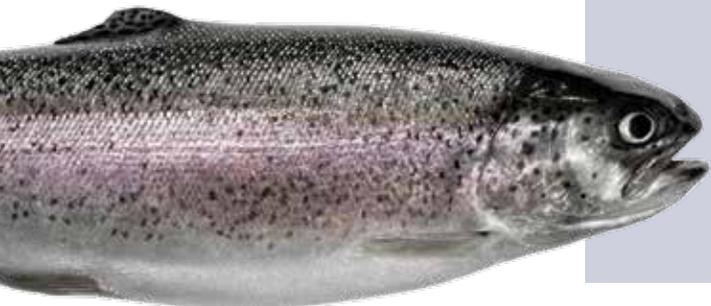
brown, legless, and have a siphon for a tail or look like a comma. Should mosquito larvae be detected, a biorational product controls them while limiting effects on non-target insects. Biorationals include products derived from natural sources, such as the active ingredient *Bacillus thuringiensis var israelensis (Bti)*, a common soil bacterium, as found in Mosquito Dunks; or s-methoprene, an insect growth regulator, as found in the Pre-Strike Mosquito Torpedo. Use of the former will visibly kill mosquito larvae within 24 hours; Mosquito Dunks may shift with the wind and should be anchored to ensure adequate coverage. Mosquito Torpedoes do the latter and do not visibly kill the larvae but prevents their emergence into viable adults. This allows them to remain in the habitat as a food source for native predators but prevents them from becoming the biting adult mosquitoes that can ruin any summer evening. If you are looking for technical assistance or cost share on mosquito control products, contact your local weed and pest or mosquito control district. Ponds offer a multitude of benefits for local and migratory birds and wildlife, including sources of food, water, and shelter

To a mosquito, irrigated pastures are its oyster

Fortunately for those interested in creating or maintaining backyard ponds, ponds are not the most prolific generators of mosquitoes in terms of habitat. Irrigated pastures, hayfields, and snowmelt pools can produce significantly more of these winged vampires by several orders of magnitude and *en masse*.



in a format rare to arid Wyoming. Ponds simultaneously provide habitat for mosquitoes and, potentially, the pathogens they may carry. Through deliberate design and maintenance, the unwelcome may be discouraged from approaching.



GO FISH

Learn how to build and stock fish ponds by reading the story by University of Wyoming educator Sandra Frost for *Barnyards & Backyards* magazine at <http://bit.ly/buildpond>.

Mosquitoes quiver at the mention of **Marta Iwaseczko's** name. She is assistant supervisor with the Teton County Weed and Pest District. She can be reached at (307) 733-1896 or at marta@tcweed.org.