

## UPCOMING EVENTS

**MAY 16** **Financial Benefits of Land Conservation**  
Milford, PA, 9am-12pm

**MAY 17** **Migratory Bird Walk**  
Bethel, NY, 8:30am-10am

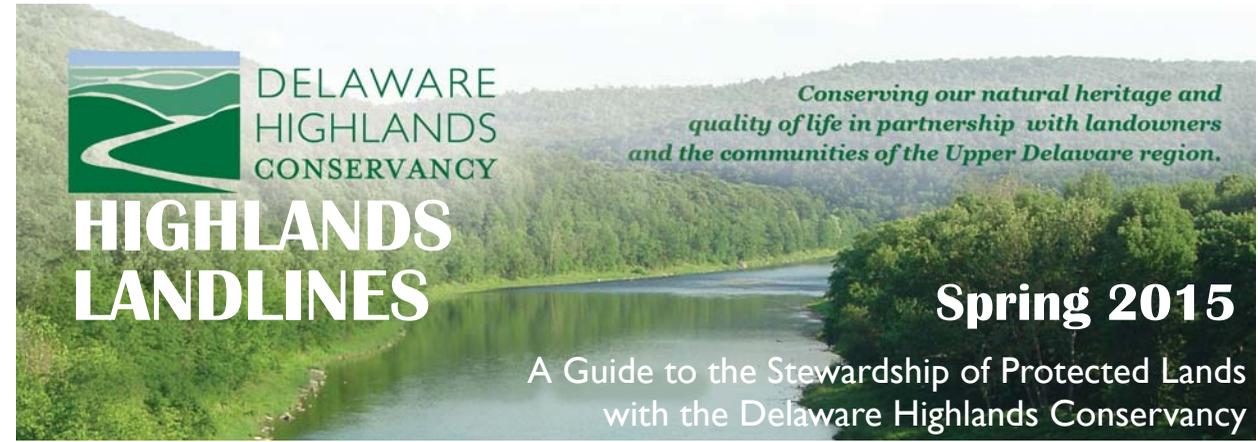
**JUN-AUG** **Nature Walks with the Conservancy**  
Select weekends; Bethel, NY

**JUNE 13** **Native Plants Walk with Dr. Ann Rhoads**  
Lacawac Sanctuary, Lake Ariel, PA, 12pm-2pm

**JULY 11** **Partner Ridge Walk**  
Lacawac Sanctuary, Lake Ariel, PA, 10am-12pm

**AUG 29** **Annual Community Picnic**  
Bethel, NY, 12pm-4pm

Visit [www.DelawareHighlands.org](http://www.DelawareHighlands.org), or call 570-226-3164/845-583-1010 for more information on these events and others, and to register.



### Vanishing Pieces of the Puzzle: The Importance of Family Forests to Conservation Goals

The American Forest Foundation has just released a new report ([www.forestfoundation.org/forestpuzzle](http://www.forestfoundation.org/forestpuzzle)) detailing the many threats facing family woodlands across the country, from development and subdivision to devastation from tree-killing insects, diseases, and wildfires. The following excerpts come from the report; you can download the full version on the AFF website.



#### Water: A Lifeline We Need to Protect

by Don Kennedy, Denver Water and Tom Fry

You know how important water is to our everyday lives, but did you know that more than half of the water supply in the 48 contiguous states originates on forests? Forests are nature's water filter, capturing contaminants before they reach rivers and streams, holding the soil in place, minimizing erosion and sediment runoff. Simply put, healthy forests give us much of the abundant, clean water we depend on.

Forests provide this service for free, whether the trees are on public or private land. And while National Forests get a lot of the attention, with almost 14 million acres of family forests bordering streams and a third of U.S. forests being family-owned, these lands are a critical piece of this green infrastructure puzzle. The bottom line is that to maintain a high-quality water supply, we must also maintain and invest in America's family-owned forests.

Yet these forests are threatened. The report shows that threats to our family forests, including catastrophic wildfire, can significantly compromise the water quality benefits they provide. [...] The biggest single threat to our watersheds nationwide is development, which threatens to reduce the water quality index score for water that runs through family forests by 13 percent alone. Taking into account all threats – from wildfire to insects and disease to natural disasters – this water quality score is in danger of being reduced by 19 percent. This doesn't just affect people. Our forests also support vital wetland habitat for aquatic and terrestrial animals.

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**DELAWARE HIGHLANDS CONSERVANCY**

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The Delaware Highlands Conservancy is a land trust dedicated to conserving our natural heritage and quality of life in partnership with landowners and the communities of the Upper Delaware River region.

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Highlands LandLines is a semi-annual newsletter created by the Conservancy for landowners who have a conservation easement with the Conservancy. This publication is also available electronically.



**What is Highlands LandLines?**

You already receive the Delaware Highlands Conservancy's regular newsletter, *Highlands Journal*. Our newsletter is distributed to all of our landowners, members, and other like-minded folks who are interested in the Conservancy's activities, accomplishments, and conservation goals.

**This publication, *Highlands LandLines*, comes to you twice a year and is dedicated to landowners.** *LandLines* provides you, the landowner, with useful information and tips for the stewardship of your land and conservation easement.

**Participate in LandLines!**

We are interested in your ideas for future articles and features, or your comments on the publication in general.

We'd love to know what you think!



**Save the Date!**

Mark your calendars for these exciting events coming up in 2015—and visit [www.DelawareHighlands.org](http://www.DelawareHighlands.org) to view our full calendar and register!

**June 13—Native Plants Walk with Dr. Ann Rhoads**

Lacawac Sanctuary, Lake Ariel, PA

**August 29—Annual Free Community Picnic**

Conservancy Office, Bethel, NY

**Annual Property Visit Questionnaire**

Please help the Conservancy prepare for our annual property visits by completing the below survey and mailing to:

Delaware Highlands Conservancy Attn: Stewardship Coordinator  
PO Box 218  
Hawley, PA 18428  
Or email: [conserve@delawarehighlands.org](mailto:conserve@delawarehighlands.org)

Contact: \_\_\_\_\_ Email: \_\_\_\_\_

*Annual property visits allow the Conservancy to uphold the terms of the conservation easement for each property. These visits allow the Conservancy to determine whether the conservation values outlined in the conservation easement are intact. In addition, the visit is a fundamental part of relationship building between the Delaware Highlands Conservancy, its members, and landowners.*

Would you like to attend the property visit? ..... Yes No

Do you have plans to sell, subdivide or lease the property?..... Yes No

Have any structures (houses, sheds, barns, gazebos, garage, pole barn) been built or replaced within the boundaries of the conservation easement?..... Yes No

Has there been any land disturbance as a result of road/trail construction, digging/filling, planting, fencing or other construction?..... Yes No

In the last year, has the protected property been affected by any of the following:

Insect damage.....	Yes	No
Storm damage.....	Yes	No
Fire.....	Yes	No
Vandalism; trespassing, dumping, abusive use of ATVs or other vehicles....	Yes	No
Property line violations from neighboring parcels.....	Yes	No

Has there been any timber harvesting on the property?..... Yes No  
If so, was the harvest a result of a recommendation by a current Forest Management Plan?..... Yes No

Have you noticed any of the following affecting wetlands or waterways on the property?

Encroachment of invasive vegetation or animals.....	Yes	No
Change in flow, quality or quantity of water .....	Yes	No
Livestock in or near waterways or wetlands.....	Yes	No
Erosion along banks or channels.....	Yes	No

Have you signed a lease for use of the land? (ie. gas lease, agricultural)..... Yes No

Have you noticed new populations or an increase in existing populations of invasive vegetation?..... Yes No 7

(Continued from page 1)

## The Overlooked Threats to Family-Forest Wood Supplies

by Tom Martin

When you turned on your lights today, did you think of a family forest owner? Or how about this morning when you walked across your dark-stained pine floors and opened the drawers to your maple bureau: did you imagine the family-owned forest where it may have come from? Or when you sneezed and reached for a tissue?



Because families care for more of America's forests than the government or corporations, family-owned forests and the products produced from these lands are part of every aspect of our lives and most of us don't even realize it. These lands are an integral piece of America's forest puzzle—without them, we wouldn't have the same clean air and water, wildlife habitat, places to recreate, or forest products we all use every day.

New research from the American Forest Foundation, produced in partnership with the U.S. Forest Service and the Family Forest Research Center, shows that the wood supplies in family-owned forests are abundant—these forests currently have more than 358 billion cubic feet of standing wood.

To put this into context, if all this wood was low quality biomass and were used as fuel, it would create enough energy for 67 million houses for one year. Or, looking at it another way, that includes enough high quality, large logs to build 37 million homes. And could be renewed to build or power just as many in the future!

But is this wood available to meet growing demands from a whole slew of products—from pellets for energy, to paper supplies, to wood for new and innovative tall buildings?

AFF's new research shows that we must pay close attention to this large piece of the wood supply puzzle but not for the reasons most think. The research shows that the two largest issues that could make wood supplies from family-owned forests unavailable are landowners "uninterested" in harvesting and development pressures, followed closely by environmental threats like wildfire, insects, diseases, and natural disasters like hurricanes. Ironically, many of these threats to this wood supply can be addressed by increased market demand for forest products.

Nearly 30 percent of the wood volume on family forests is owned by good people who want to own a piece of beauty, but are "uninterested"—they don't have the awareness, tools and information to take care of it properly. Without proper care, markets to finance this care, and long-term planning on family forests, families will find it difficult to resist other pressures—like development pressures, wildfires, and insects and diseases—putting wood supplies and many other forest benefits at risk.

**For more information on protecting your land with the Delaware Highlands Conservancy, visit [www.DelawareHighlands.org](http://www.DelawareHighlands.org) or call 570-226-3164 / 845-583-1010.**

Excerpts reprinted with permission from the American Forest Foundation blog and edited for length. Photos by David B. Soete.



## Invasive Species Corner

### Tree of Heaven

*Ailanthus altissima*

This deciduous tree native to China and Taiwan was first introduced to the United States in the late 18th century. It is extremely invasive, as it is capable of quickly colonizing disturbed areas and releasing a chemical that suppresses or kills other native plants growing nearby. It's also commonly called stinking sumac, Chinese sumac, varnish tree and stink tree.

Because tree-of-heaven can so easily thrive and crowd out native plant species, and its fast-growing root system can damage sewers and foundations, it is important to control this species. Pulling seedlings is the best option, but once the plants have matured, the only options to date have been chemical controls. However, researchers have discovered that after injecting the native fungus *Verticillium nonalfalfae* into tree-of-heaven, the plants are completely eradicated, including the sprouts.

In addition, the fungus is sometimes carried to the trees by the Ambrosia beetle. Preliminary studies have indicated that the fungus is not harmful to surrounding vegetation.



## Native Species Spotlight

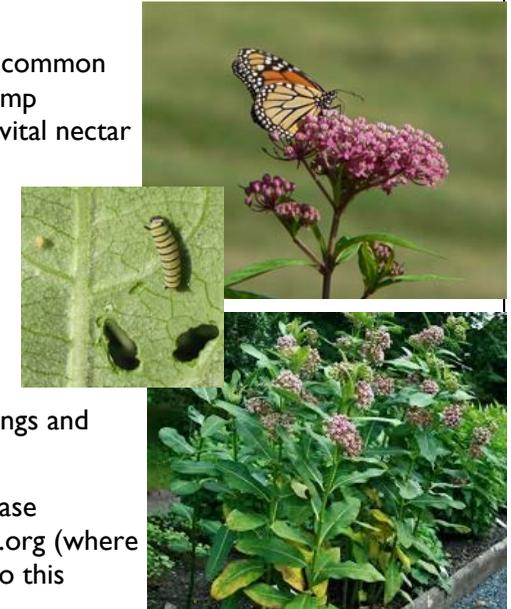
### Milkweed

*Asclepias*

Among the 140 different varieties of milkweed, the most common in our region are Common milkweed (*A. syriaca*) and Swamp milkweed (*A. incarnata*). These flowering perennials are a vital nectar source for a variety of pollinators and are the exclusive food source for monarch butterflies in the larval stage.

Milkweed plants are often found in unexpected areas, particularly along roadways, where they provide important "waystations" for migrating butterflies. But landowners can also help to create these "waystations" and food sources for butterflies and pollinators by planting milkweed, which can be started indoors as seedlings and then transplanted outside after the last frost.

Complete planting directions, and opportunities to purchase milkweed seedlings, are available on [www.monarchwatch.org](http://www.monarchwatch.org) (where you can purchase pesticide-free varieties that are native to this region).



# Experience the healing power of nature — go forest bathing!

By Barbara Howard (Reprinted with permission and edited for length)

It is no secret that spending time in natural settings promotes positive mind/body/spirit benefits. Whether we garden, tend the land, fish or go camping, nature calms and restores us.

Shinrin-yoku is a Japanese term that means “taking in the forest atmosphere,” or “forest bathing.” Researchers have found immediate and dramatic effects from even 15 minutes of wandering in the forest in a shinrin-yoku way. Shinrin-yoku is more than simply walking in the woods. It is breathing deeply and opening all the senses to receive the rejuvenating and restorative benefits of the forest. The idea is to let nature enter your body through the senses.

In fact, forest environments provide stimulation of various senses, such as vision (scenery), olfaction (smells of wood, grass, leaves, and flowers), auditory (sounds of running streams or the rustle of leaves) and tactile sensations (feel of the surfaces of trees and leaves). This sensory information is processed and transmitted in the corresponding areas of the brain that control emotions and physiological functions and may affect physiological changes.

Researchers have been amassing a body of evidence which supports the fact that spending time in nature has both long and short term health benefits, especially when we spend time with trees in a forest. Studies published in the official journal of the Japanese Society for Hygiene, Environmental Health and Preventive Medicine, show that regular practice of shinrin-yoku can increase human immune function, reduce stress hormone levels and regulate autonomic function.



A study published in the American Journal of Alzheimer’s Disease & Other Dementias, shows that long-suffering dementia and Alzheimer’s patients are known to have decreased symptoms following time in gardens and forests.

Spending time in nature helps people recover from mental fatigue and improves cognitive functioning. One study at the University of Michigan found that after walking for 50 minutes in nature, subjects performed significantly better on memory-related tasks than did subjects who walked in an urban environment.

Studies suggest even short periods of time in nature can reduce symptoms of depression. Dutch researchers who published their findings in the Journal of Epidemiology and Community Health found that living close to parks, or near lots of trees, can have far-reaching mental health benefits.

A study published in the International Journal of Biometeorology shows that the forest environment causes changes in hormonal secretion and autonomic nervous functions, and has beneficial effects in decreasing blood glucose levels.

According to a study published in the European Journal of Integrative Medicine, walking in a forest environment, in contrast to walking in a city, reduces arterial stiffness and increases pulmonary function in Korean elderly women.

Go to a forested area and wander. Smell the fragrances of the trees and shrubs. Listen to the water, the streams, the birds and the sounds of the forest, the breeze that sings in the leaves and needles.

Think of it as bathing in the full experience of the forest, engaging all your senses and letting the sights, sounds, fragrances and sensations wash over you.

## Health Benefits of Shinrin-Yoku:

- Lowers blood pressure
- Reduces stress
- Improves mental clarity
- Enhances immunity
- Lowers pulse rate
- Decreases blood glucose levels
- Increases parasympathetic nerve activity
- Lowers sympathetic nerve activity



## From Forests to Mussels: The Delaware River’s Natural Water Filters

The forested lands that border the Delaware act as excellent water filters—but you may not know about some much smaller creatures that live in the river and help to keep it healthy and clear.

As Mary Walsh of the Pennsylvania Natural Heritage Program explains, “Burrowing in the sand and rock bottoms of rivers and lakes, freshwater mussels often go unnoticed by boaters and fishermen. Although they receive little public recognition for their efforts, the shelled critters quietly spend their lives consuming particles from our waters, making them clearer and cleaner. One species, the eastern elliptio, is estimated by Dr. Danielle Kreeger at the Partnership for the Delaware Estuary to **filter 9.8 billion liters of water per hour in the Delaware River.**

**The sedentary habit and unique life cycle of mussels causes them to be vulnerable to habitat disturbance.** While adult mussels can move short distances, the ability to relocate to a more hospitable environment during a pollution or extreme environmental occurrence (e.g., a drought) is limited. As a result pollution events or localized habitat destruction can be arguably worse for mussels than for mobile species. Declines in populations of rare and common mussels are cause for concern.”

## NY-DEC Spring Seedling Sale

More than 45 species of native trees and shrubs from the New York State Department of Environmental Conservation's (DEC) Saratoga Tree Nursery are now available to public and private landowners at low cost. Visit <http://www.dec.ny.gov/animals/9395.html> to learn more about the Seedling Sale and place your order.



Find us at <http://www.facebook.com/DelawareHighlandsConservancy> and [www.DelawareHighlands.org](http://www.DelawareHighlands.org) or on Twitter @DHConservancy

