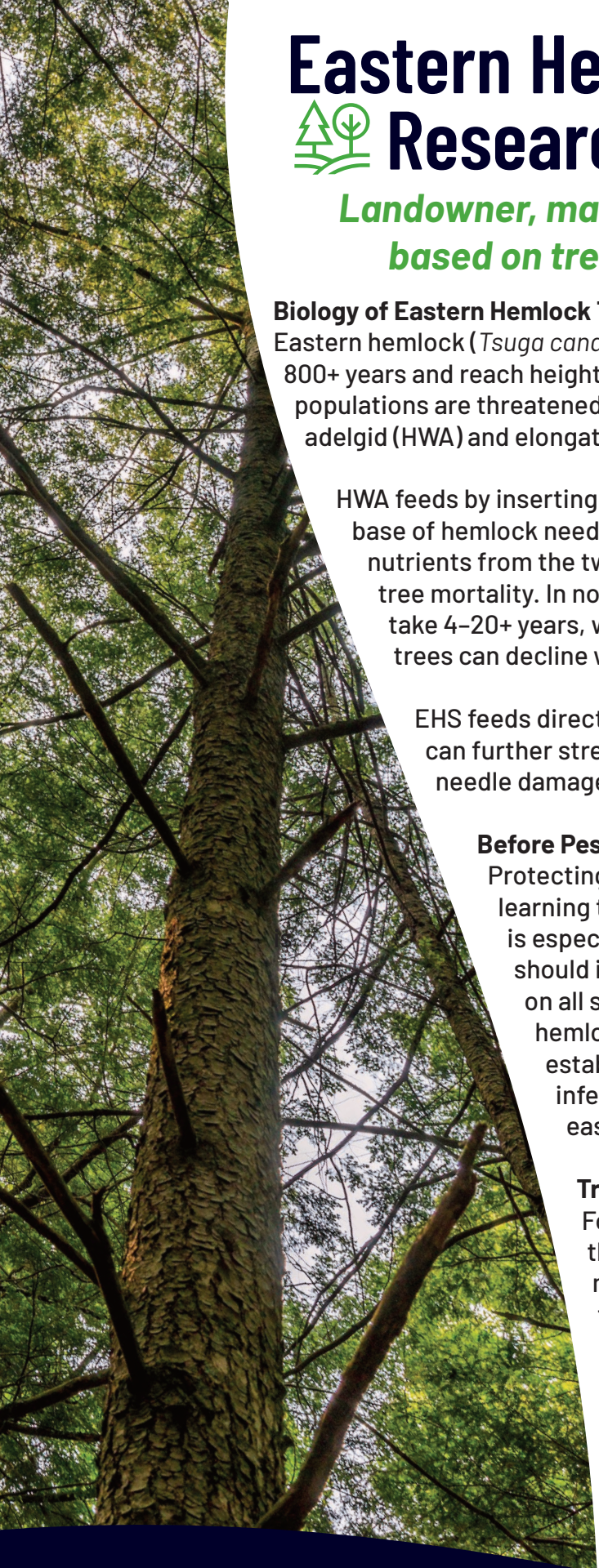


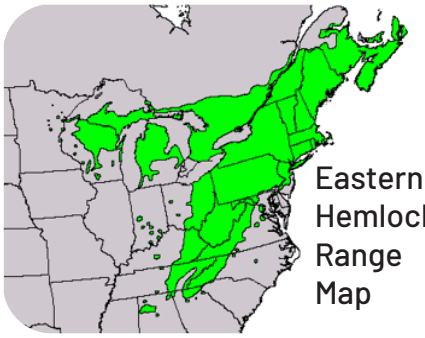
Eastern Hemlock Management & Research Participation Options

Landowner, manager, and community opportunities based on trees, location, resources, and goals

Biology of Eastern Hemlock Threats

Eastern hemlock (*Tsuga canadensis*) is a slow-growing tree species that can live 800+ years and reach heights of 170+ feet. Across their range, Eastern hemlock populations are threatened by introduced forest pests, particularly hemlock woolly adelgid (HWA) and elongate hemlock scale (EHS).

HWA feeds by inserting piercing mouthparts at the base of hemlock needles, where it removes stored nutrients from the twigs, eventually leading to tree mortality. In northern areas, mortality may take 4–20+ years, while in the southern range, trees can decline within 4 years.



Eastern Hemlock Range Map

EHS feeds directly on hemlock needles and can further stress trees already impacted by HWA. EHS contributes to needle damage and reduced vigor but does not appear to cause mortality.

Before Pests Arrive

Protecting hemlock trees begins with knowing where they are and learning to recognize the signs of HWA and EHS. Regular monitoring is especially important for high-value, individual trees. Monitoring should include surveying all trees and examining multiple twigs on all sides of each tree. For larger properties or forests, mapping hemlock locations and conducting routine pest surveys helps establish important management baselines. Early HWA infestations can be difficult to detect, but they are significantly easier and less costly to manage than well-established ones.

Trees in Backyards, Parks, Roadsides, and Neighborhoods

For individual hemlock trees, chemical treatment is currently the most reliable protection from HWA-related damage and mortality. This approach is widely used for high-value trees; treatments must be repeated over time, which may be undesirable or impractical in some settings. Removal of hemlocks solely due to HWA infestation is not generally recommended unless the tree is a hazard. Leaving standing infested or declining hemlocks provides wildlife habitat and chances for future research. Before acting, consult with certified foresters, licensed tree care professionals, or local Cooperative Extension agents who can provide site- and region-specific guidance.

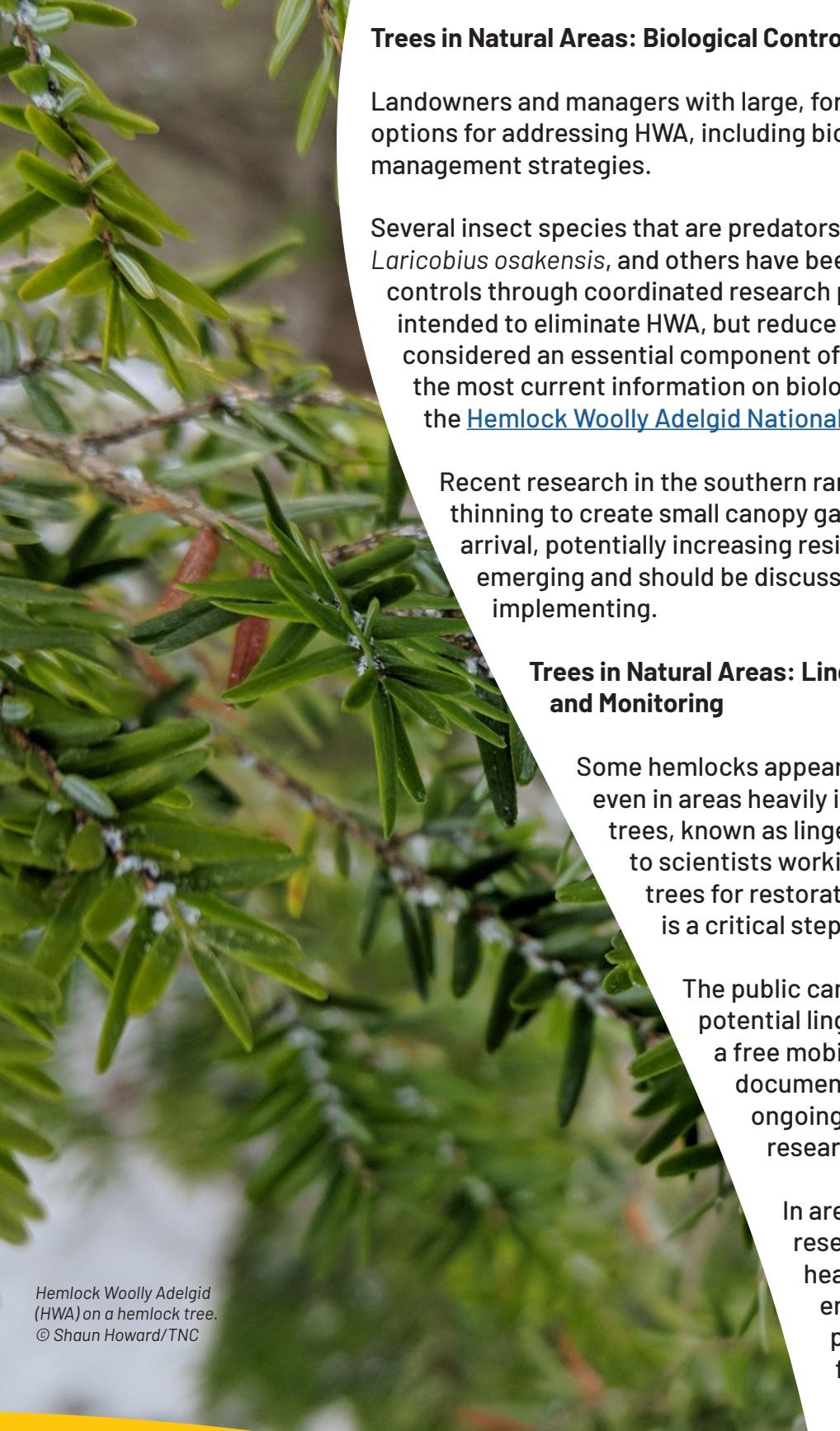
The Nature Conservancy

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

NEW YORK STATE HEMLOCK INITIATIVE

HEMLOCK RESTORATION INITIATIVE

Hemlock trees © Jerry and Marcy Monkman/EcoPhotography



Hemlock Woolly Adelgid (HWA) on a hemlock tree. © Shaun Howard/TNC

Trees in Natural Areas: Biological Control and Forest Management

Landowners and managers with large, forested properties have additional options for addressing HWA, including biological control and forest management strategies.

Several insect species that are predators of HWA, including *Laricobius nigrinus*, *Laricobius osakensis*, and others have been evaluated and released as biological controls through coordinated research programs. These predators are not intended to eliminate HWA, but reduce their populations over time, and are considered an essential component of long-term HWA management. For the most current information on biological control efforts in your area, visit the Hemlock Woolly Adelgid National Initiative.

Recent research in the southern range suggests that carefully planned thinning to create small canopy gaps improves tree vigor prior to HWA arrival, potentially increasing resilience to stress. This research is still emerging and should be discussed with a tree professional before implementing.

Trees in Natural Areas: Lingering Hemlock Searching and Monitoring

Some hemlocks appear to persist in relatively good health even in areas heavily impacted by HWA. The remaining living trees, known as lingering hemlocks, are of great interest to scientists working to identify and breed pest-resistant trees for restoration efforts. Documenting these trees is a critical step in advancing research.

The public can support this work by reporting potential lingering hemlocks using TreeSnap, a free mobile app that guides users in documenting tree locations and conditions for ongoing tree research purposes at partner research institutions.

In areas with low hemlock mortality, researchers may establish hemlock health monitoring plots to track decline, environmental factors, and pest pressure. These efforts help prepare for future lingering hemlock identification and restoration planning.

Training opportunities and additional resources are available through The Lingering Hemlock Project.

Additional Resources

Treesnap

The Lingering Hemlock Project

Hemlock Woolly Adelgid National Initiative

Hemlocks & Hemlock Woolly Adelgid (Hemlock Restoration Initiative)

Hemlock Woolly Adelgid Identification Guides (New York State Hemlock Initiative)

The Nature Conservancy coauthored this Tree Conversation Handout with experts from the Hemlock Restoration Initiative, New York State Hemlock Initiative, and U.S. Forest Service. Updated 10/14/26