

Conclusions

This report for the Forest Health Monitoring Program of the USDA Forest Service provides a summary of quantitative data collected during the past decade for a variety of indicators of forest health in the Northeastern United States. Despite the incidence of air pollution, drought, damaging insects and diseases, and population growth pressures, the health conditions examined in this report suggest that forests are resilient to these and other disturbances. Even so, the summarized information also suggests that some localities within the region might experience problems with one or more forest ecosystem components in the future. This report will be periodically updated using data from ongoing monitoring efforts and assess long-term trends in forest health conditions in the Northeast.

References

- Hall, D. E.; Elliot, W. J. 2001. Interfacing soil erosion models for the World Wide Web. In: Ghassemi, F.; Post, D.; Sivapalan, M.; Vertessy, R. (eds.). Proceedings Volume 1: Natural Systems (Part One) of MODSIM 2001 International Congress on Modelling and Simulation, The Australian National University, Canberra, Australia; December 10-13, 2001. The Modelling and Simulation Society of Australia and New Zealand; 179-184. <http://forest.moscowfsl.wsu.edu/engr/library/Hall/Hall2001a/2001a.html> (March 31, 2003).
- National Atmospheric Deposition Program. 2003. Isopleth grid database of hydrogen ion depositions: 1994-2001. <http://nadp.sws.uiuc.edu/isopleths/grids.asp> (March 31, 2003).
- National Interagency Fire Center. 2003. 2002 Statistics and summary. <http://www.nifc.gov/news/nicc.html> (March 31, 2003).
- National Oceanic and Atmospheric Administration. 2003. National Climatic Data Center: Climate visualization (CLIMVIS) database for the Palmer drought severity index: 1933-2002. <http://lwf.ncdc.noaa.gov/oa/climate/onlineprod/drought/xmgr.html> (March 31, 2003).
- Smith,W.B.; Vissage, J.S.; Darr, D.R.; Sheffield, R.M. 2001. Forest resources of the United States, 1997. Gen. Tech. Rep. NC-219. St. Paul, MN: USDA Forest Service. <http://www.ncrs.fs.fed.us/pubs/viewpub.asp?key=845> (March 31, 2003).
- U.S. Census Bureau. 2003. 2000 census data table. <http://nationalatlas.gov/census2000m.html> (March 31, 2003).
- USDA Forest Service. 2003a. 2003-2007 Strategic Plan for Forest Health Protection. MP-1590. Washington, DC: U.S. Department of Agriculture, Forest Service. 21 p. <http://www.fs.fed.us/foresthealth/publications/StrategicPlan.pdf> (March 31, 2003).
- USDA Forest Service. 2003b. Fire regime current condition classes. Rasterized data. <http://www.fs.fed.us/fire/fuelman/curcond.htm> (March 31, 2003).
- USDA Forest Service. 2003c. Pest condition reports for the Northeastern Area: 1997-2002. Forest Health Protection Program. http://www.fs.fed.us/na/morgantown/fhp/online_information.htm (March 31, 2003).
- USDA Forest Service. 2003d. Forest Inventory and Analysis Mapmaker. Version 1.0. <http://ncrs2.fs.fed.us/4801/fiadb/index.htm> (March 31, 2003).
- USDA Forest Service. 2003e. Forest Inventory and Analysis Program. Links to Phase 3 (forest health) data. <http://hrcweb.nevada.edu/forestry/index.html> (March 31, 2003).
- USDA Forest Service. 2003f. Forest Inventory and Analysis Program. Phase 3 plot (forest health) indicator factsheets. <http://fia.fs.fed.us/library.html/factsheets> (March 31, 2003).

USDA Forest Service. 2003g. Ozone Biomonitoring Program. Unpublished summaries of ambient ozone for 1998-2001 based on data provided by the U.S. Environmental Protection Agency. <http://fiaozone.net/maps.html> (March 31, 2003).

U.S. Geological Survey. 2003a. National atlas of the United States. Image layer file for causes of forest fragmentation in the United States – 1 kilometer resolution. <http://nationalatlas.gov/frfg1km.html> (March 31, 2003).

U.S. Geological Survey. 2003b. National Land Cover Characterization Project. National land cover data 1992. <http://landcover.usgs.gov/natlandcover.asp> (March 31, 2003).

Wade, T.G.; Riitters, K.H.; Wickham, J.D.; Jones, K.B. 2003. Distribution and causes of global forest fragmentation. *Conservation Ecology* 7(2): 7. <http://www.ecologyandsociety.org/vol7/iss2/art7/> (March 31, 2003).

Appendix A. Common and scientific names of insects

Native insects that damage hardwood trees

Common Name	Scientific Name
cherry scallop shell moth	<i>Hydria prunivora</i>
common oak moth	<i>Phoberia atomaris</i>
eastern tent caterpillar	<i>Malacosoma americanum</i>
fall cankerworm	<i>Alsophila pometaria</i>
fall webworm	<i>Hyphantria cunea</i>
forest tent caterpillar	<i>Malacosoma disstria</i>
jumping oak gall	<i>Neuroterus saltatorius</i>
large aspen tortrix	<i>Choristoneura conflictana</i>
maple leafcutter	<i>Paraclemensia acerifoliella</i>
maple trumpet skeletonizer	<i>Epinotia aceriella</i>
oak leaftier	<i>Croesia semipurpurana</i>
oak skeletonizer	<i>Bucculatrix cognita</i>
orange-striped oakworm	<i>Anisota senatoria</i>
peach bark beetle	<i>Phloeotribus liminaris</i>
periodical cicada	<i>Magicicada septendecim</i>
scarlet oak sawfly	<i>Caliroa quercuscoccinea</i>
variable oakleaf caterpillar	<i>Heterocampa manteo</i>
walkingstick	<i>Diapheromera femorata</i>

Introduced insects that damage hardwood trees

Asian longhorned beetle	<i>Anoplophora glabripennis</i>
basswood thrips	<i>Thrips calcaratus</i>
birch leafminer	<i>Fenusia pusilla</i>
emerald ash borer	<i>Agrilus planipennis</i>
gypsy moth	<i>Lymantria dispar</i>
oystershell scale	<i>Lepidosaphes ulmi</i>
pear thrips	<i>Taeniothrips inconsequens</i>
satin moth	<i>Leucoma salicis</i>

Native insects that damage softwood trees

eastern spruce budworm	<i>Choristoneura fumiferana</i>
hemlock looper	<i>Lambdina fiscellaria</i>
jack pine budworm	<i>Choristoneura pinus</i>
southern pine beetle	<i>Dendroctonus frontalis</i>
spruce beetle	<i>Dendroctonus rufipennis</i>
white pine weevil	<i>Pissodes strobi</i>

Introduced insects that damage softwood trees

balsam woolly adelgid	<i>Adelges piceae</i>
common pine shoot beetle	<i>Tomicus piniperda</i>
hemlock woolly adelgid	<i>Adelges tsugae</i>
pine false webworm	<i>Acantholyda erythrocephala</i>

Appendix B. Common and scientific names of diseases

Native diseases that damage hardwood trees

Common Name	Scientific Name
Armillaria root rot	<i>Armillaria</i> spp.
Ash yellows	(a microplasm-like organism)

Introduced diseases that damage hardwood trees

bacterial leaf scorch	<i>Xylella fastidiosa</i>
beech bark disease	<i>Nectria coccinea</i> / <i>N. galligena</i>
butternut canker	<i>Sirococcus clavigignenti-juglandacearum</i>
dogwood anthracnose	<i>Discula destructiva</i>
oak wilt	<i>Ceratocystis fagacearum</i>

Introduced diseases that damage softwood trees

white pine blister rust	<i>Cronartium ribicola</i>
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Appendix C. Common and scientific names of tree species

Hardwood trees

Common Name	Scientific Name
American basswood	<i>Tilia americana</i>
American beech	<i>Fagus grandifolia</i>
balsam poplar	<i>Populus balsamifera</i>
bigtooth aspen	<i>Populus grandidentata</i>
bitternut hickory	<i>Carya cordiformis</i>
black ash	<i>Fraxinus nigra</i>
black cherry	<i>Prunus serotina</i>
black oak	<i>Quercus velutina</i>
bur oak	<i>Quercus macrocarpa</i>
butternut	<i>Juglans cinerea</i>
chestnut oak	<i>Quercus prinus</i>
flowering dogwood	<i>Cornus florida</i>
green ash	<i>Fraxinus pennsylvanica</i>
mockernut hickory	<i>Carya tomentosa</i>
northern red oak	<i>Quercus rubra</i>
paper birch	<i>Betula papyrifera</i>
pignut hickory	<i>Carya glabra</i>
pin oak	<i>Quercus palustris</i>
post oak	<i>Quercus stellata</i>
quaking aspen	<i>Populus tremuloides</i>
red maple	<i>Acer rubrum</i>
river birch	<i>Betula nigra</i>
scarlet oak	<i>Quercus coccinea</i>
shagbark hickory	<i>Carya ovata</i>
shellbark hickory	<i>Carya laciniosa</i>
sugar maple	<i>Acer saccharum</i>
swamp white oak	<i>Quercus bicolor</i>
sweet birch	<i>Betula lenta</i>
white ash	<i>Fraxinus americana</i>
white basswood	<i>Tilia heterophylla</i>
white oak	<i>Quercus alba</i>
yellow birch	<i>Betula alleghaniensis</i>
yellow-poplar	<i>Liriodendron tulipifera</i>

Softwood trees

Common Name	Scientific Name
balsam fir	<i>Abies balsamea</i>
black spruce	<i>Picea mariana</i>
eastern hemlock	<i>Tsuga canadensis</i>
eastern redcedar	<i>Juniperus virginiana</i>
eastern white pine	<i>Pinus strobus</i>
fraser fir	<i>Abies fraseri</i>
jack pine	<i>Pinus banksiana</i>
loblolly pine	<i>Pinus taeda</i>
northern white-cedar	<i>Thuja occidentalis</i>
pitch pine	<i>Pinus rigida</i>
red pine	<i>Pinus resinosa</i>
red spruce	<i>Picea rubens</i>
shortleaf pine	<i>Pinus echinata</i>
tamarack	<i>Larix laricina</i>
Virginia pine	<i>Pinus virginiana</i>
white spruce	<i>Picea glauca</i>

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