

Some Clues to Global Warming in the Landscape

By Bruce Wenning

Wednesday, July 11, 2007

We are experiencing more frequent and intense storms and droughts and unseasonable weather patterns, ranging from mild winters and hotter-than-normal summers to more frequent and intense temperature fluctuations year-round.

These climate changes are related to global warming, which is due to the burning of fossil fuels and the loss or destruction of vast amounts of forests and other vegetated areas. We hear about the impacts of global warming on polar bears in the Arctic, about droughts in Africa, and heat waves in Europe. But climate changes are also creating biological threats to our local gardens, lawns and natural areas. Plant damage from exotic insects is increasing, and plant diseases are spreading more rapidly and lasting longer.

In recent years, many people have noticed the premature emergence of spring flowering bulbs, in February instead of April. Warmer-than-normal winter temperatures have also caused azalea to start blooming in March before succumbing to a sudden drop in temperature that causes bud and flower kill.

The increase in insect pests is a less direct, but no less serious, effect of global warming. Al Gore, in his book, *An Inconvenient Truth*, describes how the bark beetle is destroying the vast spruce forests of Alaska and British Columbia. Typically long, cold winters sufficiently reduce the bark beetle populations so they do not devastate the forests. Shorter and milder winters in the past decade or so have increased this pest's ability to survive and reproduce. More than 14 million acres of prized spruce forests have died as a result.

A similar phenomenon is occurring in our own backyard, but on a much smaller scale. Almost every homeowner has suffered lawn damage caused by the white grubs that become Japanese beetles, Oriental beetles or Asiatic beetles (www.greendecade.org/download/white_grubs.pdf).

Lately, European chafer grubs have been feeding longer into the fall and earlier in the spring on turfgrass roots than have these other three species. With warmer fall temperatures these grubs are able to feed on lawn roots longer, until freezing temperatures force them into inactivity. UMass Extension has found European chafer grubs feeding on lawn roots under snow in February. Twenty-five years ago this situation would have been an anomaly in Massachusetts, because this species is more prevalent in woods and fields dependent on rainfall for moisture requirements. This grub tolerates drier soil conditions than the moisture-loving Japanese beetle grub and it became a lawn pest in the 1990s, when regional droughts were common and water conservation minded homeowners did not water their lawns. The result was that Japanese beetle grubs declined on droughty lawns and the European chafer grubs expanded their range right into the lawns of suburbia.

The Hemlock Woolly Adelgid is an exotic pest affecting our native hemlocks that is active during the winter months. Usually, it succumbs to sudden drops in temperature and dies on the tree. But now that we are having milder winter temperatures without sudden hard freezes, the reproductive success and spread of this pest has been devastating woodland hemlocks, and it is impractical and too expensive to treat them with horticultural oil sprays.



A mass of hemlock woolly adelgid egg masses lined up along the base of the needles. This is the most noticeable stage for this pest. (R. Childs)

Global warming is also increasing the cold weather fungal diseases pink snow mold and gray snow mold I have seen on Kentucky bluegrass and fescue lawns. They appear as cob-webbing on the grass surface, and their characteristic color becomes noticeable as they increase in size. These diseases are active under snow, killing lawns during winter and early spring, and are sometimes most noticeable along walks and driveways. Prolonged wet snow cover combined with unseasonably cooler spring temperatures has extended the duration and severity of these diseases, particularly pink snow mold. When the fungal diseases subside as temperatures rise in the spring, the dead grass succumbs to weed invasion.

Unseasonably wet springs coupled with cooler early summer temperatures have also increased the duration and severity of dogwood anthracnose, the fungal disease decimating native New England dogwood trees over the past 15 years (see www.greendecade.org/download/dogwood.pdf). Countless other examples can be documented by observant gardeners and ecology-minded citizens. Plant growth and survival is dependent not only on proper gardening and lawn care techniques, but also on being observant. Homeowners, by being aware of their surroundings, can often note these new assaults of insect pests and pathogens in time to mitigate the damage.

For more information about monitoring insects in the landscape, plant diseases and the influences of weather on growing conditions in Massachusetts, see www.UMassGreenInfo.org and select Landscape Message.

Bruce Wenning is Land Stewardship Manager for Land's Sake, inc., Weston. www.landssake.org and serves on the Board of Directors of the Ecological Landscaping Association. www.ecolandscaping.org