City of Big Lake Environmental Education Newsletter
Special Edition
April 27th is Arbor Day!

Arbor Day was created in 1872 as a holiday on which to plant trees. The trees were needed to keep soil in place, as windbreaks, for fuel and building materials, and for shade from the hot Nebraska sun. Estimates suggest that over one million trees were planted on the first Arbor Day. However, since 1872, we have learned much more about the benefits of trees, not only to the natural world, but to human life.

Trees Help Clean Our Air
Global forests removed about one-third of fossil fuel emissions annually from 1990 to 2007 according to the U.S. Forest Service
- Trees remove pollution from the atmosphere, improving air quality and human health.
  - In Chicago, trees remove more than 18,000 tons of air pollution each year.
- Roadside trees reduce nearby indoor air pollution by more than 50%.

Trees Add Property Value
- Commercial retail areas with trees are more appealing to shoppers. Businesses on treescaped streets show 12% higher income streams.
- Healthy, mature trees add about *15* % to a property's value.

Trees Provide Us With Oxygen
- One large tree can provide a day's supply of oxygen for up to four people.

Trees Help Clean Our Drinking Water
- Forested watersheds provide quality drinking water to more than 180 million Americans.

Trees Provide Much Needed Cooling
- Trees lower surface and air temperatures by providing shade. Shaded surfaces may be 20–45°F cooler than unshaded materials.
  - Trees cool the city by up to 10°F by shading our homes and streets and releasing water vapor into the air through their leaves.
- Evaporation of water from trees has a cooling influence.

Trees Help Us Save Energy
- Carefully positioned trees can reduce a household's energy consumption for heating and cooling by up to 25%. Computer models devised by the U.S. Department of Energy predict that the proper placement of only three trees can save an average household between $100 and $250 in energy costs annually.

Trees Help Reduce Crime
- Among minor crimes, there is less graffiti, vandalism and littering in outdoor spaces with trees as a part of the natural landscape than in comparable plant-less spaces.

- Chicago public housing residents with nearby trees and natural landscapes reported [25% fewer acts](#) of domestic aggression and violence.

Trees Are a Good Investment of Our Public Dollars
- Every dollar spent on planting and caring for a community tree yields benefits that are [two to five times](#) that investment—benefits that include cleaner air, lower energy costs, improved water quality and storm water control and increased property values.
  - In Indianapolis, each dollar invested in the city's community trees yielded [$5.55 in benefits](#).

Trees Contribute to Our Health
- A study of [10 cities](#) found community forests save an average of one life each year.
- Office workers with a view of [trees](#) report significantly less stress and more satisfaction.

From *The Atlantic*:

It is becoming increasingly clear that trees help people live longer, healthier, happier lives—to the tune of $6.8 billion in averted health costs annually in the U.S. And we're only beginning to understand the nature and magnitude of trees.

Forester Dave Nowak and colleagues found that trees prevented 850 human deaths and 670,000 cases of acute respiratory symptoms in 2010 alone. That was related to 17 tons of air pollution removed by trees and forests.

In general, the more trees are in an area, the more pollution those trees remove. But they also remove more pollution-per-tree in areas where population density is high, in other words, in cities.

When the emerald ash borer began ravaging thousands of trees in the Midwest, rates of human death from cardiovascular and respiratory illness increased. One study monitored disease rates in 15 states from 1990 to 2007, where the borer was associated with 6,113 human deaths from illness of the respiratory system and 15,080 deaths from heart disease. And those medical outcomes don't even include the known psychological merits of tree proximity. In one famous 1970s study of patients recently liberated of their gall bladders in a Pennsylvania hospital, those whose rooms had a view of trees recovered more quickly than those looking out at another building.

Another medical study found that women recently diagnosed with breast cancer were better able to focus their attention if they spent two hours a week in natural environments.

Nowak says that, "The takeaway is that trees have a huge impact on pollution," he told me by phone, "and when populations increase, trees have a greater impact based on being close to where people live."

"We need to start having this discussion," Nowak said, "about the impact of trees on human health."

Before designing urban landscapes simply to optimize air-pollution removal, Nowak said, we'd do well to also consider other benefits of trees related to energy conservation, like changes in air temperature, water, and wildlife. "There are a whole bunch of other things to consider.

We're talking billions of dollars a year [in benefit] from urban forests. It adds up, if you look at the whole picture."

Air pollution now kills around seven million people every year globally, according to the World Health Organization. Factoring in the other costs of air pollution—not just to human health, but building and material damage and crop losses—Nowak's current study put the total annual value of pollution removal by U.S. trees at $86 billion.

The health argument for investing in trees, particularly of the urban variety, is even more staid. If you've ever scoffed at someone for calling a tree "majestic" or dismissed Johnny Appleseed as "just some crazy guy," maybe it's time to do some soul searching. And where's this anger coming from? Not enough trees, probably.

Go outside and appreciate all the trees do for you!

Information for this newsletter came from The Atlantic https://www.theatlantic.com/health/archive/2014/07/trees-good/375129/ and The Arbor Day Foundation https://www.arborday.org/