

# The Art of Exploration

EXTRAORDINARY EXPLORERS AND CREATORS INSPIRE US ALL TO REACH OUR OWN POTENTIAL



## BOOKS

- A Garden for Life by Diana Beresford - Kroeger; University of Michigan Press ( 2010)
- The Global Forest by Diana Beresford - Kroeger; Viking (2010)
- Arboretum Borealis by Diana Beresford - Kroeger; University of Michigan Press ( 2010)
- Arboretum America: A philosophy of the Forest by Diana Beresford - Kroeger; University of Michigan Press (2003)
- A Field Guide to Texas Trees (Gulf Publishing Field Guide Series) 2002 by Benny J. Simpson

## WEBSITES

- <http://forests.org/>
- [www.americanforests.org](http://www.americanforests.org)
- [www.greenpeace.org.uk](http://www.greenpeace.org.uk)
- [www.fs.fed.us](http://www.fs.fed.us) US Forest Service
- [www.nps.gov](http://www.nps.gov) national parks service
- <http://www.texasescapes.com/TexasStateParks.htm>
- <http://www.youtube.com/watch?v=ROKhhXWY4Mc>  
Diana Beresford-Kroeger talks about climate change
- [http://www.youtube.com/watch?v=Xawq\\_eQRpyo](http://www.youtube.com/watch?v=Xawq_eQRpyo)  
DBK talking about plants
- [http://www.youtube.com/watch?v=DhxYbr\\_1\\_9c](http://www.youtube.com/watch?v=DhxYbr_1_9c)  
dbk new books
- [http://explore.wingsworldquest.org/diana\\_beresford-kroeger](http://explore.wingsworldquest.org/diana_beresford-kroeger)
- <http://www.loe.org/shows/segments.htm?programID=08-P13-00017&segmentID=4>  
NPR Living on Earth interview
- USDA Forest Service  
Manages more than 191 million acres of national forests and grasslands, and is responsible for forestry research.  
<http://www.savatree.com>

The Art of Exploration is a unique program created by Milbry Polk, Founder and Director Emeritus of Wings WorldQuest ([www.wingsworldquest.org](http://www.wingsworldquest.org)) and Ginger Head, Founder and Director of Imagination Celebration of Ft. Worth, Texas. ([www.icfw.org](http://www.icfw.org)). The purpose of the yearly program is to introduce young people to outstanding scientists, explorers and artists to spark their imaginations.



Ginger Head, Executive Director  
[www.icfw.org](http://www.icfw.org)  
[imagine@icfw.org](mailto:imagine@icfw.org)



Milbry Polk, Director  
[www.wingsworldquest.org](http://www.wingsworldquest.org)



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## DIANA BERESFORD-KROEGER

**Scientist, Tree Specialist,  
Botanist and Medical Biochemist**

South of Ottawa, Canada, off a paved road, down a hidden roadway that leads to an arched alleé of black walnut trees, lies a world class garden. This garden is a living laboratory for Diana Beresford-Kroeger and her husband, Christian H. Kroeger. There are rare and endangered species in this garden, many of which are trees; some have strange fruits filled with medicine, others have nuts. All have aerosols that “go into the atmosphere spinning a web of detergent chemistry keeping the air that we breathe sparkling clean. Our lives, day by day,” Diana says, “rest alone, on how we nurture our trees and global forests.”

Diana’s journey to Canada began in Ireland. When she was a young child, she was orphaned. While still a ward of the Irish Court, she lived with an elderly family in the mountains and was instructed by them in Gaelic about the Brehon laws of Ancient Ireland. They told her that, “she would be the last child to be instructed about this ancient world and that there would be no other after her.” They told her to bring the knowledge from the old world of Ireland into the new world of the Americas.

College opened another door into knowledge. Her areas of interest were medicine, botany, physics and biochemistry. There Diana worked in medical research, investigating the flow rate of the blood moving within the pumping heart and she invented and refined various artificial bloods that are now widely used in the treatment of cancer. She also studied the physics of the flow of blood itself using spaceage technologies.

Among her discoveries in science is the phenomenon of cathodoluminescence. This is the ability of natural substance to hold light and to flow under certain circumstances. She has continued this work especially with trees and has written about her scientific thinking in her books, *Arboretum Borealis: A Lifeline of the Planet*, *The Global Forest*, *A Garden for Life*, and *Arboretum America: A Philosophy of the Forest*. Some of these will be turned into films in the near future.

Diana’s most recent project is a big one and will affect all life on the planet. She has set up a master list of the most important trees of the world. Some are the oldest, others are the rarest. All will be propagated in a form of natural cloning and will be used as living libraries like seed banks. These libraries will produce young trees, which will rebalance nature into a new harmony of the oceans, skies and the land itself to halt climate change.

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**TREE FACTS**

A tree is a perennial (grows year after year) woody plant. They produce much of the oxygen we need for life and reduce the amount of carbon dioxide in the atmosphere. Trees are essential to life on earth. Their roots hold the soil to help prevent erosion. Forests, very large clusters of trees, help modulate temperature and break strong winds. Their branches shelter and give life to whole ecosystems, including those within their canopies (tree tops). Trees provide nutrients for plants and animals.

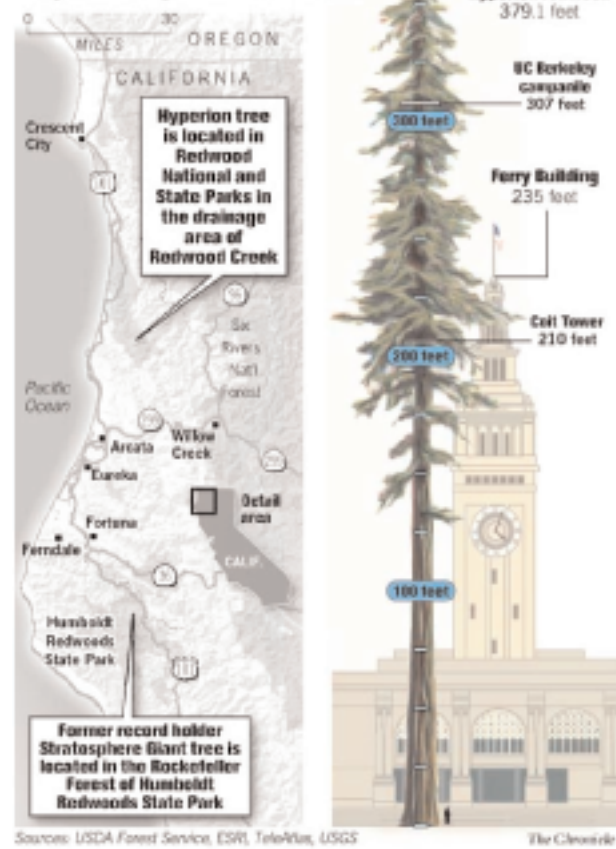
Trees have been integral throughout human history as a source of shelter, providing wood for building materials and for everything from boats to houses to furniture. Almost half of all modern medicines and food products come from trees. Trees have also been a cultural symbol throughout human history in all societies.

**FASCINATING TREE FACTS**

- A single tree produces 260 pounds of oxygen a year
- A single tree can absorb one ton of carbon dioxide in its life.
- Trees lower air temperature by evaporating water in their leaves.
- Tree roots stabilize the soil and prevent erosion
- Trees provide food and shelter for wildlife.
- Trees filter water
- Trees are the longest living organisms on earth.
- Thousands of products are made from trees from homes to paper.
- About half of medicines, food products and food additives come from trees.
- Trees improve concentration and learning
- Trees make their food from sunlight, water, carbon dioxide and nutrients in the soil
- They reduce pollution.
- Trees maintain the aquifer underground and reduce drought.
- Trees act as a biological filter to purify water.
- Trees reduce the harmful ultraviolet (blacklight) radiation that comes from the sun.
- Trees wet the air to make rainfall.
- The green in trees prevents the earth from being a desert like the moon or mars.
- There are more than 100,000 species of trees.
- One large tree can lift up to 100 gallons of water out of the ground and discharge it into the air in a day.
- No scientist has figured how food and water is transported in trees from the roots to the tips, an equivalent of 35 stories high.

**Tallest tree**

A redwood believed to be the world's tallest tree is actually a foot taller than original thought, according to new measurements.



**THE CARBON CYCLE**

Carbon is the building block of life. It is the fourth most abundant element in the Universe after hydrogen, helium and oxygen. Carbon cycles through all life forms, through the earth and the atmosphere and is found as ancient fossil, like coal and diamonds.



Carbon dioxide is found in the atmosphere and is used to make hundreds of products from Pop Rock candy and soda to floatation in life jackets. But if we have too much carbon in the atmosphere it becomes a poison. When we cut down the forests we are actually releasing and sending huge amounts of carbon into the atmosphere because the trees are no longer there to store and remove it. Too much carbon creates a blanket around the earth warming it up. This is called the Greenhouse Effect. One of the many results of the Greenhouse effect is that the heat is melting the glaciers in the Polar regions and in mountains. Ice is melting at such a fast rate that the North Polar Sea, which was entirely frozen year round a few decades ago, will be ice free in another few years. This leads to all kinds of problems. One of them is that the sea level will rise because so much melted water has been released into the ocean. Many of the world's cities are located along coastal areas and they will be flooded. Another problem with the warming of the planet, which is happening now, is an increase in storms, fires and drought. We can control it somewhat by not consuming so much and by using alternative energy that does not release carbon into the atmosphere. Other sources of energy originate from wind and the sun. Because of human activity, atmospheric carbon dioxide concentrations are higher today than they have been over the last half-million years or longer.

**Favorite Items to have in the field:**  
Good tea, lens, scalpel, collecting bags, folding shovel

**“A Tree that drinks from the Clouds”** The Dragon Blood tree grows on Socotra in the Indian Ocean. Socotra is an island that has very little to no rain. The tree has a novel way of capturing water. All of the Dragon Blood Tree's branches arch out from the top of the tree like an umbrella. The water vapor from the early morning mists settles on the leaves, forming beads of water which then roll down the open lattice work of branches into the heart of the tree. People on the island use the red sap of the tree as medicine and to decorate pottery and their bodies. Sadly, scientists have discovered that all the Dragon Blood trees on the island are over 200 years old. They suspect that goats have eaten all the young shoots.



**Ancient Irish Language of Trees**

Diana Beresford-Kroeger was raised speaking and reading this ancient Irish language called Ogham. It's alphabet, also called the Celtic Tree Alphabet, was created about 2000 years ago to enable people to write the Old Irish language. The letters in the alphabet were each linked to a specific tree. For example the letter B, (written like a T) is pronounced Beithe and means Birch tree. The Birch tree symbolizes beginnings, changes and renewal. Today Ogham words can be found carved into stones mostly in Ireland, Scotland, England and Wales.

The beannachtach spindle whorl showing an Ogham written in the 8th century in Orkney, Scotland. The inscription reads Boddactanim L., meaning "a blessing on the soul of L."