**Hillside Habitat Restoration & Pollinator Stations**

This project will restore six acres of an undeveloped wooded hillside, overgrown completely with the invasive Tree of Heaven (Ailanthus Altissima), with native pollinator forage (perennial and annual plants, shrubs, trees) and establish 12 pollinator stations. Each pollinator station will be uniquely landscaped based on a particular theme. The “Hillside Habitat” is part of a 25-acre Sanctuary. This project will help us fulfill our mission – to promote sustainable and biodynamic beekeeping through education, research and a honeybee sanctuary, where people can experience a beautiful landscape in which honeybees and other pollinators live, heal and thrive – by demonstrating a more natural and native forage habitat for honeybees and other pollinators, that we so rely on.

***Duration of Project:***

The duration of this project is three years. Our plan includes the following milestones:

Year 1:

* Fell invasive trees (approximately 50) and clear brush
* Plant native trees and bushes at the top of the hillside and as needed along the trail
* Create three pollinator stations consisting each of two honeybee colonies and one native pollinator condo
* Prepare soil for new plantings
* Sow bee forage and cover crops
* Erect signage, benches and windbreaks

Year 2:

* Fell majority of invasive trees (approximately 200)
* Prepare soil for new plantings
* Plant native trees and bushes
* Sow additional bee forage
* Establish three more pollinator stations with honeybee hives, native pollinator condos
* Incorporate more signage, benches and windbreaks
* Maintain landscaping to minimize re-growth of invasive species.

2015:

* Fell remaining trees (approximately 100)
* Plant native trees and bushes
* Sow additional bee forage
* Establish 5 more pollinator stations with honeybee hives, native pollinator condos
* Provide more signage, benches and windbreaks
* Maintain landscaping to minimize re-growth of invasive species
* Create an accessible water source
* Add bee sculptures to the landscape

***Purpose:***

Spikenard Farm Honeybee Sanctuary is located in Floyd, VA on 25 acres that encompasses the main apiary, orchard and vegetable garden, a seven-acre field planted in perennials and annual bee forage and 13 acres of undeveloped wooded land. This wooded hillside is overgrown with non-native species including a six-acre area dominated by the Tree of Heaven. Our project will focus on this piece of land and will include the removal of invasive species, new plantings of native plants, shrubs, trees focused on pollinator forage and the creation of ‘Pollinator Stations’. These stations will be located along the existing trail that meanders down the hillside from the main apiary to the fields and river below. Each station will be a uniquely landscaped alcove containing honeybee hives and native pollinator condos, forage, hardscapes for wind protection and areas for visitors to sit and enjoy the serenity of nature and mesmerizing effect of the surrounding pollinator activity.

***Promote Objectives (Biodiversity; Healthy ecosystems; Protect, conserve & restore land, air and water resources):***

The goal of this project is to restore the hillside by removing invasive species and replacing them with a diverse selection of native plants, shrubs, and trees supplying forage for honeybees and native pollinators. A variety of hive shapes and native pollinator condos designed to house and protect these vital creatures will be located along the hillside as well. **Both the pollinators, as well as the plants that attract them - contribute to the overall health of our ecosystems by providing:**

* **Pollination services.**
* **Clean air (produced by flowering plants).**
* **Water: Plants help to purify water and the water cycle depends on them to return moisture to the atmosphere (and they depend on pollinators to reproduce).**
* **Better soil: Plant roots prevent erosion and their leaves buffer rain as it falls to the earth.**
* **Formic Acid: Honeybees are the best among all the stinging insects at creating formic acid - an essential acid and the basis for all plant life.**

We believe that this project promotes the objectives of the Virginia Environment Program by transforming an area marked by an aggressive, invasive species into a healthy, diverse landscape created to protect and conserve the pollinators that are so important to life. As a Sanctuary open to the public and dedicated to education and outreach about the importance of the honeybee and other native pollinators, we serve a significant number of people in the Virginia area and beyond. Through the restoration of the hillside and the inclusion of the pollinator stations, we are giving visitors and students of all ages a better understanding of how to restore the vital environment needed for all pollinators and to see the pollinators at work as close to their natural habitat as possible from a great vantage point, up close and a part of nature. The restoration of the hillside and the building of the pollinator stations are partially intended to be educational tools for visitors, workshop participants and school classes, and at the same time promoting the well-being and future of the honeybee and other pollinators.

***Significance of Issue:***

Honeybees are more than just honey producers. This member of the insect order Hymenoptera plays several key roles in the human and natural world. Formic acid, produced by all the stinging insects, is one of the many acids (e.g. DNA, amino acids, etc.) essential for all life on earth. By virtue of their sheer numbers – up to 50,000 worker bees in one colony – the honeybees and the ants are the most important providers of formic acid. Apis Mellifera, the honey-bearing bee, is the only pollinating insect that overwinters as a colony, appearing on the scene in late winter/early spring with 10,000 – 20,000 worker bees (per hive). They are responsible for pollinating 40 – 70% of our diet, including some of the tastiest foods we eat such as apples, peaches, strawberries, nuts, avocados, broccoli and cucumbers. Honeybees also pollinate the vast majority, near 80%, of medicinal plants such as Echinacea, Angelica, Rosemary and Sage.

In the 1950’s there were 5.5 million hives in the United States and their numbers have been steadily declining ever since. Research showed that in 1985 we were down to 4. 3 million colonies and in 1996 the USDA stated we are facing an “impending pollination crisis” in which both wild and managed pollinators are disappearing at alarming rates. There has been a 96% loss of four major species of bumble bees. In 2006 beekeepers saw winter losses of 30% – 90% and over the next 5 years hive losses continued at an annual rate of between 22% - 39%. For the last 4 years we have been importing hundreds of thousands of package colonies from Australia in January in order to guarantee pollination of citrus fruit and almonds in California, but this year there were not enough bees to pollinate the California almond crop. Today the number of hives is estimated at 2.5 million (which includes colonies imported from outside the United States) with winter losses this year of closer to 60% - 70%.

These losses result from a host of viral and bacterial illnesses, mites and beetles, combined with commercial, bottom-line driven beekeeping practices and modern agriculture methods such as mono-cropping and pesticide use. Colony Collapse Disorder (CCD) is the result of these detrimental factors, all of which undermine the bees’ health and endanger their survival, as well as our own. The solution lies deeper than simply banning destructive pesticides or insecticides. In the internationally-acclaimed book **Towards Saving the Honeybee** (2002, and presently in its third printing), Spikenard Farm Honeybee Sanctuary co-founder Gunther Hauk outlines the extent of the honeybee crisis and offers a path towards reversing this alarming trend by adopting more sustainable beekeeping methods.

The honeybees have become an indicator species of what is happening to our environment and as their abundance, diversity and health continue to decline we will see the resulting detrimental effects in other plants, other animal species, the environment and in human beings. We are all mutually dependent on one another and need to acknowledge, embrace, cherish and gracefully respect this dependency – it is the only way to move into the future.

We believe that the key to restoring the honeybee and other native pollinators is through small-scale sustainable beekeeping efforts and pollinator habitat creation. We envision a landscape dotted with honeybee hives, native pollinator condos and patches of flowering plants, shrubs and trees. On farms and in gardens, on rooftops in cities, in backyards and schoolyards, along roadsides and office buildings – these backyard beekeepers and habitat champions have the power to strengthen honeybee colonies and native pollinators throughout the United States. CCD has not been significantly witnessed by hobby beekeepers. This project will be one example of how an area overgrown with invasive species can be transformed into a healthy, vibrant and beautiful pollinator habitat and will provide the inspiration and knowledge to replicate this effort throughout Virginia, the United States and other nations.

With the start of the 2013/2014 school year and throughout the duration of the Hillside Habitat Restoration and the building of Pollinator Stations, the **Blue Mountain High School** will be assisting with the project as part of their environmental curriculum. Blue Mountain High School helps students develop their awareness, concentration, and insight. The school strives to use processes that illuminate the innate wisdom of human beings and cultivate a growing sense of peace and wonderment in everyday life. Plans for the pollinator stations include the incorporation of bee sculptures into the landscape during the third year of the project. We will be partnering with the **Jacksonville Center for the Arts** to engage local artists in the creation of these sculptures. The Jacksonville Center for the Arts’ mission is to facilitate and showcase artistic endeavors and creativity as well as provide education in the arts throughout our rural community and region. Their vision is to be a collaborative partner within the community, be recognized for its excellence, to be welcoming and inclusive and to be a valued asset in Floyd’s creative economy.