Florida Torreya Relocation Project

Volume 2

Among the gardens and glens at
Stovers' Sèjour
in Greensboro, North Carolina

Growing seeds from trees in Clinton, North Carolina

Report Updated: November 19, 2019

Cover photo: 150-year-old tree growing in Clinton, North Carolina. Many of the seeds at Stovers' Sèjour came from this tree. Photo by F. Nelson Stover, November 2019.

This tree relocation project is being conducted in conjunction with the Torreya Guardians, a self-organized group of naturalists, botanists, ecologists, and others with a deep concern for biodiversity protection, who have chosen to use the internet as a tool for discussing ideas, posting plans, and taking a variety of actions on behalf of the Planet's most endangered conifer tree: *Torreya taxifolia*. For additional details about the work of the Torreya Guardians, visit their website at http://www.torreyaguardians.org. A special page for the Greensboro plantings has been created at: http://www.torreyaguardians.org/nc-greensboro.html.

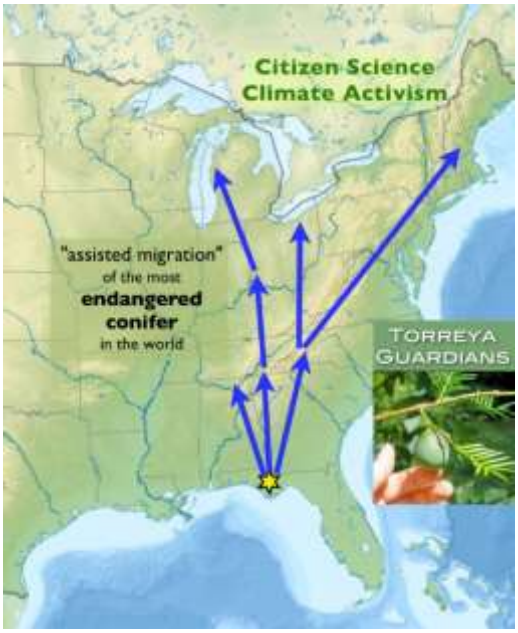
In November 2019, the on-going report of the tree plantation in Greensboro was separated into two volumes. Volume 1 deals with the initial planting of 30 seedlings around the Universe Story Walk trail. Volume 2 documents subsequent plantings throughout the gardens and grounds of Stovers' Sèjour and includes appendices with information about planting and caring for Florida Torreya.

The most recent version of the report on the relocation project at Stovers' Sèjour is also available at: www.EmergingEcology.org/Torreya.

For further information about this particular planting, contact Nelson Stover
NStover@EmergingEcology.org
phone (336) 605-0143

Torreya Guardians

(Information on this page has been taken from the Torreya Guardians' website: www.TorreyaGuardians.org.)



"Based on fossil records, we can speculate that the geographical range of Torreya taxifolia included North Carolina and perhaps, it was forced south by glaciers, and when they retreated, it became isolated in small areas of the southeastern United States." — p. 12 of **"Torreya taxifolia (Florida Torreya) 5-Year Review: Summary and Evaluation"**, 2010, U.S. Fish & Wildlife Service.

Rob Nicholson (of the Botanic Garden at Smith College, Massachusetts) wrote: "While the few remaining saplings may outlast the blight, not many people who have seen the trees would wager their homes on it. More likely, clusters of trees, propagated from specific ravines, will be grown in botanical gardens, universities, preserves, and state parks. This Florida native, as evidenced by the few healthy trees in cultivation, seems to thrive on the southern slopes of the Appalachian Mountains and is more cold tolerant than its present range would suggest.

Possibly an Apalachicola refugium can be re-created, an artificial Torreya forest where pollen can float, genes mingle, and the evolution of the past hundred million years can continue, even if it is in a pitifully discounted format."

Torreya Guardians is a self-organized group of naturalists, botanists, ecologists, and others with a deep concern for biodiversity protection, who have chosen to use the internet as a tool for discussing ideas, posting plans, and taking a variety of actions in behalf of our most endangered conifer tree: *Torreya taxifolia*.

There are no by-laws, officers, board, staff, overhead costs, dues, formal organizational structure, or physical location to this organization.

Torreya Guardians does not speak or take action as a group, but instead encourages subsets of those involved to post ideas and initiatives on this website and to help establish links with synergistic organizations and websites.

"The focus of the Torreya Guardians is an 'assisted migration' program that would introduce seedlings to forests across the Southern Appalachians and Cumberland Plateau. Their intent is to avert extinction by deliberately expanding the range of this endangered plant over 500 km northward. Because planting endangered plants in new environments is relatively simple as long as seeds are legally acquired and planted with landowner permission, the Torreya Guardians believe their efforts are justified. Introducing this species to regions where it has not existed for 65 million years is '[e]asy, legal, and cheap' (Barlow & Martin 2004)."

The Greensboro Relocation Project

(Summary)

During her visit to Greensboro, North Carolina in 2013, Connie Barlow invited Elaine and Nelson Stover to join the Torreya Guardians' relocation project by planting seeds in the upland wooded areas on their property. The Stovers received seeds from the main Torreya Guardians harvest in the autumn 2013 plus some additional seeds from the small 2013 harvest from A. J. Bullard's property in Mt. Olive NC. From the autumn 2015 Torreya Guardians harvest, an additional 20 seeds were sent to the Stovers. These were planted in the same general area. All seeds from the autumn 2013 and 2015 harvests by Torreya Guardians were "free-planted" directly into the soil of their regrowth forest.

The second planting of Florida Torreya seeds was completed in mid-November 2015 in 5 acres of upland woodland across I-73 from the FedEx Hub terminal at the Piedmont Triad International Airport in Greensboro, NC.

After the original 2013 planting, the Stovers monitored the seed locations and documented the germination process on a semi-annual basis during May and November through 2017 and then shifted to an annual documentation. Cursory examinations during 2014 showed no indication that any seeds had germinated. During an inspection tour in November 2015, six plants were noted and reported by email to Connie Barlow. In late 2015, an additional 25 seeds were planted among the gardens and pathways on the same property. No photos were taken during the planting of these seeds. None of these seeds were seen to have sprouted during the May 2017 survey.

Germination Summary

- ✓ Total of 55 seeds planted during 2013 and 2015
- ✓ 26 seedlings visible by November 2019 – 47% of seeds planted
- ✓ All seedlings ever spotted are still alive – though 3 have stressed leaves

This 2-volume report that follows shows the growth of the seedlings. Photos from the various monitoring sessions are indicated by the color of the borders on the photos as follows:

Original planting sites of the 30 seeds, November 2013 – brown borders (see Volume 1),
May 2016 – light green borders showing 6 seedlings,
November 2016 – yellow borders showing 10 seedlings,
May 2017 – dark green borders showing 11 seedlings, and
November 2017 – red borders showing 22 seedlings including seven from the second planting along with five additional seedlings from the first planting,
January 2019 – purple borders showing 25 seedlings including ten from the second planting and
November 2019 – light blue borders showing 26 seedlings – 11 are documented in Volume 2.

Thus, by November 2019, the overall germination rate has risen to nearly 50%.

The second planting of seeds was done at various places around the Stover Sèjour. This volume of the two-volume report deals with the plantings that were done in 2015 and after. Four additional seedlings were planted after a visit to Clinton, NC in mid-November 2019.

The Second Planting

Eastern Woods, Welcome Garden and Valley Short Cut

In late 2015, 20 additional seeds were planted in several additional places around Stovers' Sèjour. The first seven seedlings were discovered in the summer of 2017. Three more seedlings were discovered during the documentation in January 2019.

In the **eastern woods**, two sets of seeds were planted. One was planted near the northeast corner of the dog fence at the meditation bench. The Universe Story trail passes the fence on the left side of this picture. Marker #1 stands near the upper right corner of the photo. Two were planted in the pet cemetery located near the south fence of the property in the eastern woods; one was visible by Nov. 2017; a second was found a year later.

Left: Seedling, in circle

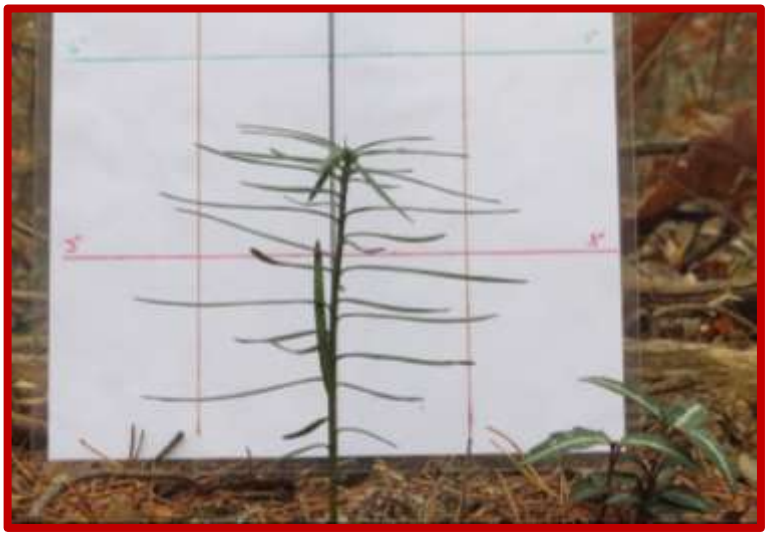
Right: Measurement, Nov. 2017

Bottom left: Jan. 2019

Bottom right: Leaves withered during 2019

In early 2013, sentimental remains from our dog, Perdu, was buried under the square marker stone in this area of the pet cemetery. My sister's cat, Razzle, was buried in the same vicinity which is located on the south side of the property near the interstate. The Torreya seeds were planted near each animal's headstone. Red circles locate the two plantings in the photo below – taken facing south, the fence in the background marks the interface of our property with I-73 which lies down in a 20' excavation.

Below left: Measurement of eastern seedling, Nov. 2017
Right: Eastern seedling, Jan. 2019



Above: Eastern seedling including Perdu's grave marker, Nov. 2019
Below left: Western seedling in the pet cemetery, Jan. 2019 – yellow circle highlights seedling
Below right: Western seedling, Nov. 2019

Four seeds were planted in the **Welcome Garden** between the dog fence and the parking pad. This area is immediately north of the Anniversary Garden that was built in 2015 (in upper center of photo, near dog). The four red circles indicate the locations of the seedlings – numbering from left to right, these will be referred to as WG1, WG2, WG3 and WG4 in the following documentation. WG2 was not seen until January 2019.

The photos below and on the following page show the seedlings from in the same left to right sequence as the photo above.

WG1

Below: Nov. 2017
Right: Jan. 2019

Below: This seedling wilted in 2019

WG2

Left: WG2, Jan. 2019
Right: WG2, Nov. 2019

WG3

Left: Nov. 2017 (Note: The WG3 seedling may have been damaged in the summer lightning storm or affected by an overabundance of direct sunlight during the heat of July and August 2017.)

Right: Jan. 2019

Below: WG3 recovery by Nov. 2019

WG4

Left: Nov. 2017
Center: Jan. 2019
Right: Nov. 2019

Along the Valley Floor

From an opening in the valley, near the Valley North and Valley South plantings (see Volume 1 of this report), a **Shortcut Trail** follows the old creek bed north toward Marker 9. This creek drains much of the forest on either side. It has been considerably dryer since the interstate highway (I-73) was cut though just south of its headwaters in 1995. Many of the large trees in this area were knocked down by the tornado which came through the valley in 2008. The fallen trees in the background came down during that storm. During November 2015, several seeds were planted along the western side of this trail. Two seedlings were seen during the late summer of 2017 and first documented in November 2017. Beyond these two, a third seedling was discovered in February 2019. These will be called VF1, VF2 and VF3, moving from left to right in the photo below.

Above: Two seedlings (VF1 and VF2) along the shortcut trail

Right: During storms of 2019 one of the other trees damaged by the tornado fell near the first seedling, knocking the pole sideways.

VF1

Below left: Leftmost planting, Nov. 2017
Below center: During a walk through the woods in late summer, we noticed that the top of this seedling had been broken/eaten off. The plant survived into January.
Below right: Stalk in debris after a dead tree fell in a storm

VF2

Right: Seedling on the right in valley picture, Nov. 2017

Below left: Seedling, Jan. 2019

Below right: Seedling, Nov. 2019 (Note: branch missing)

VF3

This seedling was first noticed in February 2019, photo of Nov. 2019

Just north of the **Shortcut Trail,** the Universe Walk Trail comes into the valley from the east. Marker 9 is on the west side (right in photo below). During the second planting several seeds were planted on the east side of the trail. One has been found (VF4).

VF4

Below: Seedling Jan. 2019, artificially resting on oak stick
Right: Nov. 2019

In the pet cemetery, Perdu's side, Nov. 2019