Connecticut River Conservancy

Clean water. Healthy habitat. Thriving communities.

394 Beck Pond Road, Newark, VT 05871
802.535.1202 www.ctriver.org

Date: 27 November 2019

To: Jeff Lougee, New Hampshire Chapter of The Nature Conservancy

From: Fritz Gerhardt, Connecticut River Conservancy

Re: TNC Brunault Planting Project October 2019

Presented here is a review of the actions undertaken as part of the Connecticut River Drivers WMA Restoration Project (also known as the TNC Brunault Project) in Colebrook, New Hampshire during 15-25 October 2019. The primary focus of this year's efforts was to restore floodplain forest in several old fields and recently-cropped rye fields and a 50-foot wide riparian buffer along the main rye field, which will remain in agricultural use for the foreseeable future.

Planting Stock and Delivery

The 3,101 trees planted in October 2019 came from three sources:

1) 3,050 silver maples (2-5'+ tall) grown from seed at the Intervale Conservation Nursery in Burlington, Vermont and delivered on 15 and 21 October 2019.
2) 11 silver maples (4-6' tall) grown from seed at the Essex County Natural Resources Conservation District in Bloomfield, Vermont and picked up from the nursery on 9 November 2019.
3) 40 Dutch elm disease (DED)-resistant American elms (4-6' tall) provided by The Nature Conservancy and delivered by the Intervale Conservation Nursery on 15 October 2019.

According to the nursery staff, all trees had been watered the morning before delivery, and they were enclosed in large, black plastic bags filled with saw dust to remain moist. Most of the trees retained their leaves until after planting.

Tree Planting

The trees were planted over eight days (15-18 and 21-24 October 2019) by a 7-person crew from the NorthWoods Stewardship Center in East Charleston, Vermont. Prior to planting, the three rye fields were harvested, and the old field at the south end of the property (Old Field South) was brush-hogged [the old field at the north end of the property (Old Field North) was not brush-hogged due to flooded access]. To ease monitoring in future years, trees were planted in rows in each field, and the trees located at the end of each row were marked with blue flagging. Rows were separated by 3 m (10') and trees were planted approximately 5 m (15') apart along each row. After

planting, tree wrap was wound around the bases of all of the trees to varying heights, ranging between 25-50 cm (10-20"). Due to the small size of the saplings, the tree wrap was not stapled but was knotted at the top to hold it in place. Except the 40 DED-resistant American elm, none of the silver maples were marked, except that the trees at each end of each row are marked with blue flagging. In addition, the "inland" edge of the planting in the Main Rye Field and the northern edge of Old Rye North were marked with wooden stakes to delineate the boundaries of the planted areas.

Figure 1. Map of areas where trees were planted in the northern half of the Connecticut River Drivers WMA in Colebrook, New Hampshire during October 2019. This map includes the areas referred to as (from north to south) Old Field North and Main Rye Field.

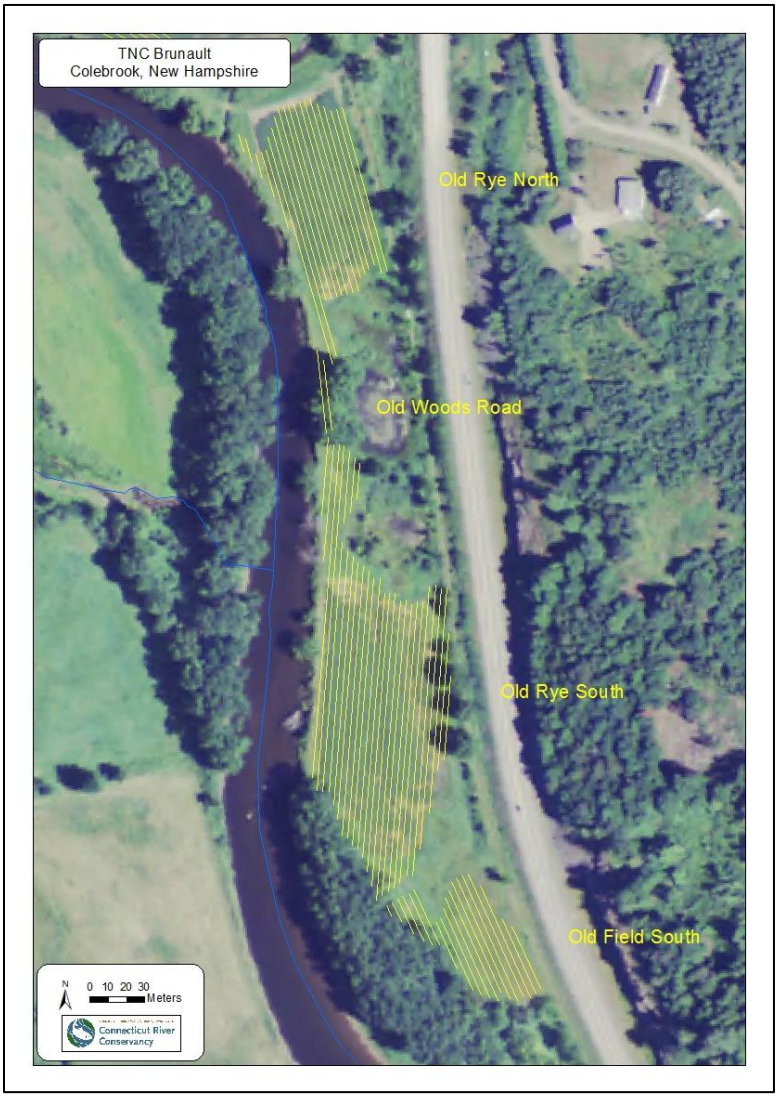

Figure 2. Map of areas where trees were planted in the southern half of the Connecticut River Drivers WMA in Colebrook, New Hampshire during October 2019. This map includes the areas referred to as (from north to south) Old Rye North, Old Woods Road, Old Rye South, and Old Field South.

The 40 DED-resistant American elms were planted in two of the recently-retired rye fields (Old Rye North and Old Rye South). Twenty elms – half of each of the five crosses - were planted in each of these two fields with five elms being planted in each of four rows in each field. These four rows were each separated by two rows of silver maples. Within each row, the elms were each separated by three silver maples and started three trees from the northern end of the row. Each elm

is marked with 1-2 white or yellow vinyl tags that identified their specific cross. All elms were mulched with hemlock bark.

*** DEL-2 *** VF *** EXP *** PRN *** R18-2 ***

*** DEL-2 *** PRN *** EXP *** VF *** EXP ***

*** DEL-2 *** EXP *** VF *** PRN *** DEL-2 ***

*** PRN *** VF *** EXP *** VF *** DEL-2 ***

Figure 3. Arrangement of the 20 DED-resistant American elms in four rows – each separated by two rows of silver maples – in the Old Rye North field at the Connecticut River Drivers WMA in Colebrook, New Hampshire. Silver maples are indicated by asterisks (*), and the American elms are indicated by the cross planted at each location (DEL-2, EXP, PRN, R18-2, or VF). In this diagram, north is to the left, and east is to the top.

*** EXP *** DEL-2 *** PRN *** VF *** DEL-2 ***

*** DEL-2 *** VF *** PRN *** R18-2 *** EXP ***

*** VF *** EXP *** DEL-2 *** EXP *** PRN ***

*** PRN *** EXP *** DEL-2 *** VF *** VF ***

Figure 4. Arrangement of the 20 DED-resistant American elms in four rows – each separated by two rows of silver maples – in the Old Rye South field at the Connecticut River Drivers WMA in Colebrook, New Hampshire. Silver maples are indicated by asterisks (*), and the American elms are indicated by the cross planted at each location (DEL-2, EXP, PRN, R18-2, or VF). In this diagram, north is to the left, and east is to the top.

Additional Planting

A small area between the eastern edge of the main rye field and the rail trail was inadvertently not planted in October 2019. However, this area was extremely wet this fall with both standing water and saturated soils, so that this area would have been very difficult to plant at best. Given how wet this area is, we recommend planting 50-100 shrub dogwood and shrub willow stakes, rather than silver maple, in this area in Spring or Fall 2020.

Invasive Species

In general, there were few invasive plants at this site beyond the non-native grasses, such reed canary grass, that were already treated with herbicide. However, we did observe one small patch of false spiraea (*Sorbaria sorbifolia*) along the river shoreline to the west of Old Rye North (GPS location 44.935475, -71.516079). It would be great to eliminate this small patch of false spiraea before it spreads farther in this area of conserved lands along the Upper Connecticut River.

Figure 5. Small patch of false spiraea (*Sorbaria sorbifolia*), an invasive species, growing along the riverbank of the Connecticut River Drivers WMA in Colebrook, New Hampshire on 17 September 2019.

A Note about Tree Wrap

As requested in the RFP for this project, we wrapped all 3,101 silver maples and American elms with tree wrap (Dewitt 3-Inch by 50-Foot Tree Wrap White TW3W). As noted earlier, we did not staple the tree wrap to the saplings given their small size and the fear that stapling would damage or even split the tree stems. However, we are not certain that the tree wrap will remain on the stems all winter or longer, especially following heavy rains, high winds, and flooding. It is my feeling (but it is only an educated guess) that girdling by voles will be minimal at this site, since it is mostly located in an area that floods repeatedly. If vole damage is a major concern, then perhaps either tree guards or even tree tubes might be placed around these trees; however, these products add considerable expense to any tree-planting project, as tree guards cost approximately $2.80 per stem (e.g. A.M. Leonard Vinyl Spiral Tree Guard) and tree tubes cost approximately $4.55 per stem (Nelson Corrugated LDPE Tree Guards) versus the roughly $0.20 per stem cost for tree wrap (although these are online prices and may not reflect bulk discounts).