

**High Line Canal Russian Olive Control and Restoration**  
Final Report



Prepared for:  
Colorado Healthy Rivers Fund Grants  
Attn: Chris Sturm

June 28, 2022

Mile High Youth Corps  
Grant Amount: \$31,350  
Prepared by: Claire Morrissy

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## **Introduction**

Mile High Youth Corps' "High Line Canal Russian Olive Control and Restoration" project is part of a much larger initiative. The High Line Canal was initially built in the 1880's to move water to agricultural land holdings through its 165 headgates along 71 miles. Historically, jurisdictions have maintained only the Canal trail and typically six feet on either side of the trail. This has left Denver Water to maintain the remainder of the 100' corridor, including the ditch and the majority of the vegetation. Denver Water's maintenance has focused on ensuring that irrigation water could move through the channel unimpeded, meaning that natural resource management along the corridor has been minimal. Now the Canal is being decommissioned for irrigation delivery and local jurisdictions are embracing the Canal as green stormwater infrastructure, improving water quality while providing a new source of water to preserve the Canal's natural character.

Beginning the process of restoring the High Line Canal through Russian olive mapping and removal represents a collaborative effort by the many stakeholders involved in stewarding the Canal's natural resources, including members of the Mile High Youth Corps Chainsaw and Pesticide Application Crew (known as *Corpsmembers*). This project was planned by the High Line Canal Conservancy and Mile High Youth Corps and is supported by Denver Water, the City of Centennial, the City of Greenwood Village, South Suburban Park and Recreation District (SSPRD), and the Southeast Metro Stormwater Authority (SEMSWA). The plan lays out clear guidance for re-purposing the historic Canal, improving the health of people and the environment, and increasing accessibility and enjoyment for generations to come.

## **Background**

As a Colorado Noxious Weed Act List B species, Russian olives are noxious weeds whose continued spread is required by law to be contained, suppressed or eradicated. The Colorado Department of Agriculture (CDA) characterizes Russian olive as a species which taxes water reserves, disrupts plant succession, and interferes with nutrient cycling patterns. Colorado Parks and Wildlife (CPW) notes that Russian olive is projected to displace native plains cottonwoods as a climax species.

The mapping, cutting and chemical treatment of Russian olive trees from 19.2 miles of the Canal running through Denver, Greenwood Village,

Centennial, and Unincorporated Arapahoe County will benefit trail users, increase the presence of native vegetation and improves overall biodiversity.

The project had three main objectives: data collection, invasive tree removal, and herbicide application. This project will help to advance an understanding of Russian olive control along the 71-mile corridor and provide invaluable data for future control and planting efforts. If the project were not undertaken, Russian olive would continue to spread unchecked along the Canal, taxing limited water resources, threatening existing plant communities, and hindering efforts to plant new trees.

The most recent data on the Canal's Russian olive population was collected in 2016 when the High Line Canal Conservancy, in partnership with Denver Water and the jurisdictions along the Canal, completed an inventory of trees on the corridor greater than 6" in diameter. It is important that a more recent Russian olive inventory along the corridor was initiated through the MHYC Corpsmembers data collection efforts so that the Conservancy and its jurisdictional partners can establish an accurate baseline of Russian olive infestation before future control efforts begin. The new data will also provide insight into the extent to which Russian olive has proliferated along the corridor since the 2016 inventory, which will inform future removal projects. Data collected by Corpsmembers included GPS location and diameter at breast height for all Russian olive along the project corridor, including those less than 6" in diameter such as resprouts and volunteer saplings and trees that were not removed due to their proximity to infrastructure like fencing.

Glyphosate was applied on the cambium layer of all live stumps immediately after cutting providing an immediate impact of lowered propagule pressure. This approach will mitigate the threat posed by upstream Russian olive populations by promptly addressing new growth within the treated reach. Mile High Youth Corps maintains a Commercial Applicator License through the Colorado Department of Agriculture and only trained applicators supervised under a Qualified Supervisor were able to apply herbicide.

### **Methods**

This project was implemented during the spring and summer of 2022. MHYC Chainsaw and Pesticide Application Corpsmembers were assigned to complete this project over three weeks. MHYC crews include a trained crew

of 7 to 9 Corpsmembers, and 1-2 crew leaders. The work of the crew was directed by the Crew Leaders who are responsible for all supervision of the crew members assigned to the project. The crew was equipped with 8 Stihl MS 361 Chainsaws, all associated safety equipment, fuel and lubricants as well as relevant hand tools such as pruning saws and loppers. Julia Clover Clark, High Line Canal Conservancy Natural Resource Manager, supported the MHYC crews by providing maps, training on GIS data collection, and chemical for cut-stump treatment. The Colorado Water Conservation Board grant funded three weeks of MHYC Chainsaw and Pesticide Application crews cutting and treating Russian olive, which will supplement a three week project funded by the Conservancy and their GOCO Conservation Service Corps grant which MHYC is also partnering on. Through data collection, invasive tree removal, and herbicide application the total six-week project will initiate a holistic approach to protecting and restoring the Canal's canopy.

MHYC Land Conservation program is devoted to the improvement and sustainable development of our two most important resources - our youth and our environment. Through a variety of service projects, an average of 150+ youth, ages 17-24, do their part to protect natural resources, respond to disasters, and promote community resiliency. Together, with project partners, Mile High Youth Corps delivers high quality services on over 70 land conservation projects spanning 23 Colorado counties, annually.

## **Results**

After three weeks, this project had the following outcomes:

- 140 new data points representing Russian olive trees were added to the High Line Canal Conservancy tree dataset
  - These are trees that were not in the Canal-wide dataset. MHYC Corpsmembers mapped the location and indicated if they removed the tree or just inventoried it. The data points included a reason for not removing, if applicable, such as complexity, size, or proximity to power lines and other structures
- 132 existing data points representing Russian olive trees were updated in the High Line Canal Conservancy tree dataset
  - These are trees that were already inventoried and MHYC Corpsmembers updated the points to say if they removed the tree, couldn't find the tree (it had been removed and not recorded in the database), or explained why they did not remove the tree.

- 14.2 miles of the Canal corridor treated
  - 12.7 miles of Canal in Denver & unincorporated Arapahoe County
  - 1.5 miles of Canal in Centennial
- 115 Russian olive trees removed

**Conclusions and Discussion**

High Line Canal Conservancy will continue to seek out youth corps-specific funding to secure on-going invasive-species treatment and watershed restoration efforts. A major lesson learned, as indicated by partner evaluations completed by High Line Canal Conservancy, was that biomass removal required more resources and planning than was allocated. The initial project proposal did not include funding for a chipper rental so High Line Canal Conservancy had to source a contractor to oversee the slash removal. In the future, funding for a chipper and chip removal service that can happen concurrently with the tree-cutting and chemical treatment will be sought out. This will prevent cut slash from having to be staged alongside the Canal which resulted in some vegetation damage and could have created tripping hazards along the trail.

**Actual Expense Budget**

**Budget & Timeline Table**

Task	Description	Task Start Date	Task Completion Date	Grant Funding Request	Match Funding*	Other Funding In- Kind	Total
1	MHYC Chainsaw and Pesticide Application Crew	5/1/22	6/30/22	\$31,350	\$31,350		\$62,700
2							
	<b>TOTALS</b>			<b>\$31,350</b>	<b>\$31,350</b>	<b>\$0.00</b>	<b>\$62,700</b>

\*High Line Canal Conservancy

**Appendix**



Members of the Mile High Youth Corps Chainsaw and Pesticide application crew work in sawyer/swamper/applicator teams to cut Russian olive trees, remove slash and treat stumps.