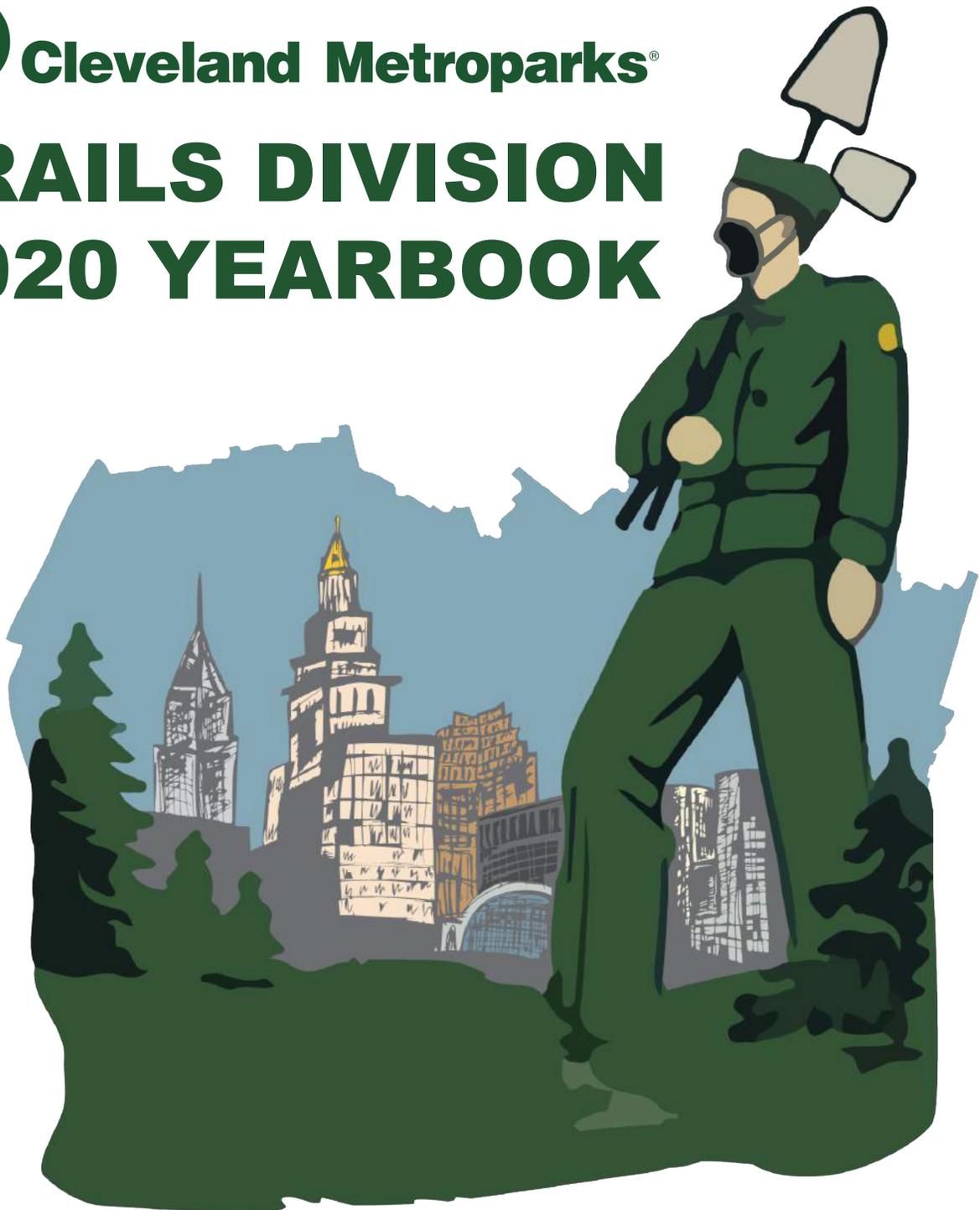




Cleveland Metroparks®

TRAILS DIVISION 2020 YEARBOOK



**Compiled by: Ralph Protano
Trails Development Manager
rlp@clevelandmetroparks.com**

Dear Reader,

It is hard to believe that it has only been eight years since the Cleveland Metroparks founded its Trails Division and made a commitment to embracing sustainable trail design in its construction and management practices. Without any former blueprint to build from, it has taken some time to set the cornerstones of the division and establish ourselves as a flourishing component of the park district. It required many pieces to put this program together including:

- Standardizing construction practices
- Structuring and training crews
- Acquiring equipment to complete projects efficiently with minimal impact
- Tracking down quality construction materials that blend into our native landscapes
- Cultivating volunteer support
- Learning the trail system and its management history
- Understanding our trail users and how they are using the park district
- Designing signage, wayfinding, and communication outlets to more effectively reach visitors
- Developing management strategies combining staff and volunteers to most efficiently preserve our trails & landscapes
- Observing national trends to ensure our trails are set up to best serve our communities for the next generation
- Triaging short and long-term work plans based on all of these factors

Today, after what seems like an eight-year scavenger hunt, it is beginning to feel as if our division has finally assembled all of the pieces necessary to take a leap forward. If you take a look back at our body of work over the last year, you would be provided with a glimpse of what we hope the next ten years of the Trails Division will look like: in total, a better trail system for both the landscape and its visitors.

This level of ambition and confidence would not be possible without the Trails Fund, which is entirely responsible for our ability to build the program this rapidly and for putting us in a position today to succeed in the future. This was exceptionally noticeable in 2020, as the pandemic took its toll on the park district and its operations. Despite many challenges, the Trails Division was able to put in a full body of work and make major strides toward our goals. It was for this reason that I felt especially compelled to compile this yearbook to share the accomplishments thanks to the amazing support of our community.

As a person who believes wholeheartedly in the transformative power of trails as a healing tool, I see my position in the park as far more than merely a job title or a way to make a living. This work is about cultivating something that Clevelanders can really be proud of. I envision a future where our trails, landscapes, and communities are interacting in harmony and where people can arrive at any trailhead in Cleveland Metroparks and know that a great trail experience is waiting beyond.

We are so humbled from all the support that we receive: staff, donors, volunteers, partner agencies, advocacy groups, trail users and beyond. It takes a village to do this work and we are grateful to have you on our team. Thank you for helping us to complete all we were able to accomplish in 2020 and we look are looking forward to reaching higher peaks in 2021.

Happy Trails,

A handwritten signature in black ink, appearing to read 'R. Protano', written in a cursive style.

Ralph Protano
Trails Development Manager

BRECKSVILLE GORGE PROJECT

The Brecksville Gorge is a restricted (but heavily used) area that provides access to the Chippewa Creek from the Hemlock Trail near the Brecksville Nature Center. Without a sanctioned trail, users have essentially torn up much of the hillside from years of trying to scramble down to visit the creek. The purpose of this project is to create sustainable access for trail users to visit this highly desirable location while maximizing the protection of the hillside and the sensitive resources that are found in this area.

The Brecksville Gorge Project consists of some of the most technical work the trail crew has embarked on since its inception in 2012. The terrain consists of a steep ravine that features many large rock outcroppings that are inaccessible using typical construction techniques.

The work commenced in Fall 2019 when the trail crew set up a rope highline and began belaying 500+ lb rocks down the hillside to create a dry-stone staircase starting directly at the base of the Chippewa Creek. In just over 2 months, the three-man team set nearly one-hundred rocks accounting for a total of 33 steps built entirely by hand.



When the crew was finally able to safely mobilize back to work in the Spring 2020, the Coronavirus Pandemic suddenly affected our ability to work on the project. Due to the close proximity required to move rocks by hand and little knowledge about the virus at the time, the work was postponed and the crew pivoted to another project where they could work under safer conditions. The crew decided to mobilize back to the Gorge when that job was completed in September 2020, this time with a mask-clad seasonal crew to provide additional support.

With the extra support, the crew broke into small teams and focused on completing all of the project tasks on the site outside of the main staircase. Although this is a small section of trail (only 750 ft), it required the construction of a series of significant structures overcoming this challenging terrain to create a trail. These structures were all built with extreme care in the model of the Civilian Conservation Corps to create a new legacy trail that was built to be enjoyed for the next Cleveland Metroparks Centennial.

BRECKSVILLE GORGE PROJECT

WORK SUMMARY TO DATE AND NEXT STEPS

Partial Build of Major Dry Stone Staircase Leading to Creek

- 33 steps have been set to date
- Over 100 large boulders and outcroppings have been moved and set by hand

New Sustainable Bench-Cut Trail Sections

- 450' machine cut trail
 - Many tons of boulder have been moved and set on the hillside to help retain trail gravel and surface material
- 170' handcut trail
 - Gravel imported via highline

Timber Crib Staircase

- Made from locust timbers in-house milled

Two Dry Stone Staircase Sections Connecting Trail Sections

- 18 steps, totaling over 60 rocks set

Log Ladder Built into Rock Outcrop

- 2 Staircase sections with landing
- 17 total steps built from in-house black walnut lumber
- Brackets fabricated in-house

Dry-Stacked Stone Retaining Wall

Drainage Structures

- Two short timber bridges
 - Features native timber processed-in house
- 4 rock waterbars
- 2 rock armored drains

Two Overlooks

- Constructed Deck/Bridge Overlook
 - Structure is pinned into stone ledges
 - Deck and railing built with in-house reclaimed lumber
- Improved Natural Talus Overlook
 - Features stone step approach
 - Minimal trimming to reveal overlook

Significant Bootleg Trail Restoration

- Over 1.5 acres of restored forest

As we wind down 2020, the crew had just rebuilt our "high-line" and begun to mobilize back to the main rock staircase when we were hit with over a foot of wet snow. For now, we are remaining optimistic there will still be a few more weeks where we will be able to work towards completing the main rock staircase and will continue to prioritize work on the job as long as the conditions are feasible. We are looking forward to officially opening next Spring and expect it to be an exciting new trail destination in 2021.

One of two shorter staircase sections completed along the main trail.

Before

After

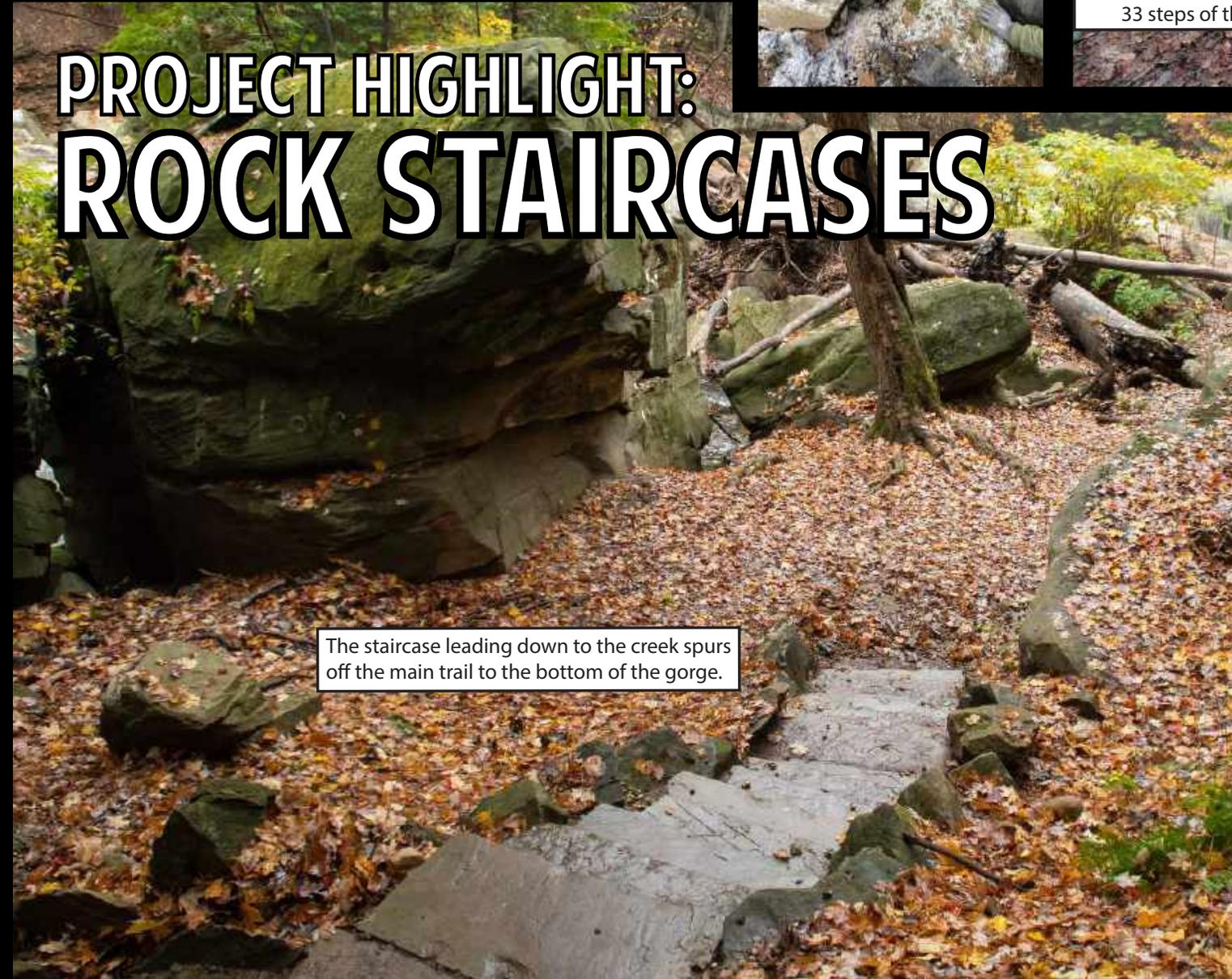


Rocks were shaped by hand on-site to form-fit each step.



The crew was required to move and set over 100 large rocks to build the first 33 steps of the main staircase.

PROJECT HIGHLIGHT: ROCK STAIRCASES



The staircase leading down to the creek spurs off the main trail to the bottom of the gorge.



The rocks used to build the staircase were belayed down the hill using pulleys hung in trees and a special tool called a "griphoist."

The rocks often weighed 300-450 lbs and needed to be moved in 3-man teams using heavy steel bars to set the steps correctly.



PROJECT HIGHLIGHT: NEW TRAIL CONSTRUCTION



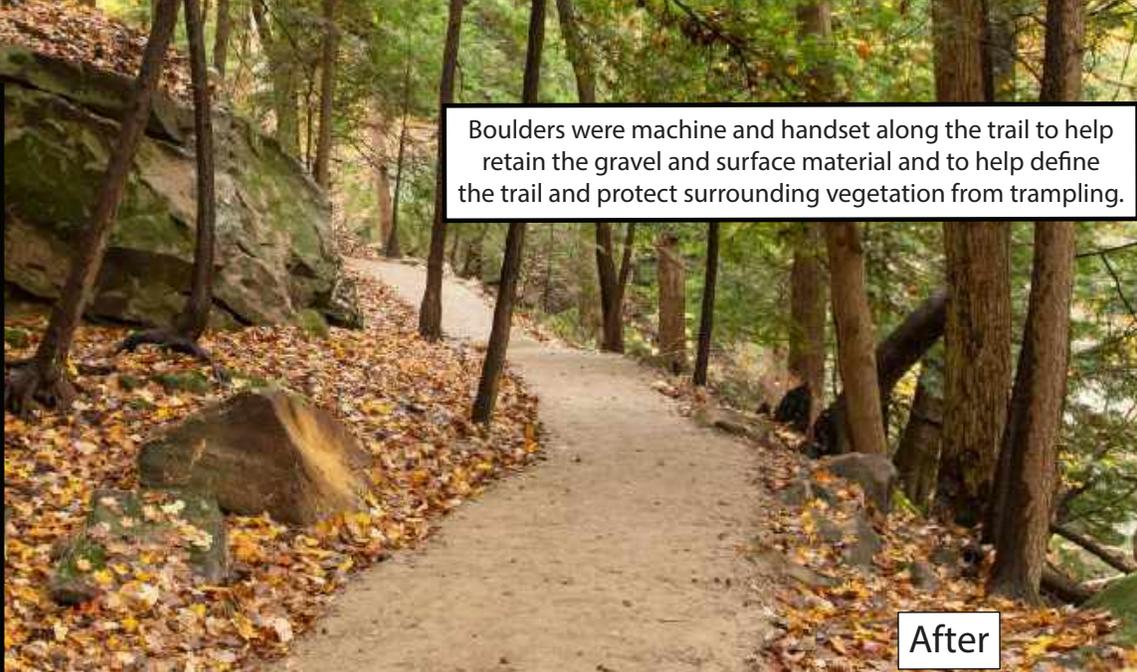
The crew was able to sneak in and use compact equipment to construct 450' of new trail contouring along the hillside in addition to 170' of trail that needed to be cut by hand.



The trail was hardened with locally-sourced crushed rock that matches the native bedrock of the area. The trail is topped with a custom-blended trail surface that is screened and mixed in-house.



Before



After

Boulders were machine and handset along the trail to help retain the gravel and surface material and to help define the trail and protect surrounding vegetation from trampling.

PROJECT HIGHLIGHT: OVERLOOK BRIDGE

The deck's railing and decking were made from park-sourced ash, cherry, walnut and white oak lumber that was milled in-house. The lumber was carried in and assembled entirely by hand at the difficult-to-access site.



Significant rockwork was required to support the trail up around the bridge.



The crew utilized rigging applications to set and pin large rocks on the steep hillside.



The surrounding bedrock was chiseled to fit the sills and were then anchored together using in-house fabricated brackets.



Extreme care was taken to not disturb the adjacent ledge and its vegetation.

PROJECT HIGHLIGHT: LOG LADDER



A 12' tall hand built dry-stacked stone retaining wall protects the ladders.



The gravel used to build the trail landings was crushed by hand using rock generated from around the site. The material was carried in with buckets and tamped by hand.



Park-Sourced Black Walnut Lumber and Osage-Orange Beams were milled in-house.



The materials were carried in and assembled by hand to minimize disturbance to the site.



The step risers are supported by brackets that were welded and fabricated in-house.



The sills are tied into the adjacent ledge using another in-house fabricated bracket.



PROJECT HIGHLIGHTS:

In the fall, the grass/straw/brush mixture captures fallen leaves that will break down into the ground and re-establishes the organic layer that was lost from the compaction caused from trampling by off-trail users.



Over 1.5 acres of compacted ground from heavy off-trail traffic was restored.

Before

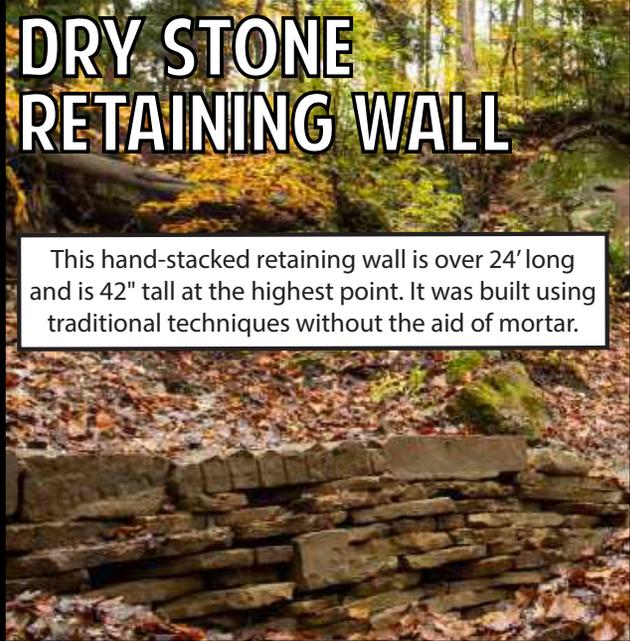


After

The crew tilled the compacted ground, covered it with straw, seeded with an annual cover crop and spread woody debris to help promote natural re-establishment at each site.

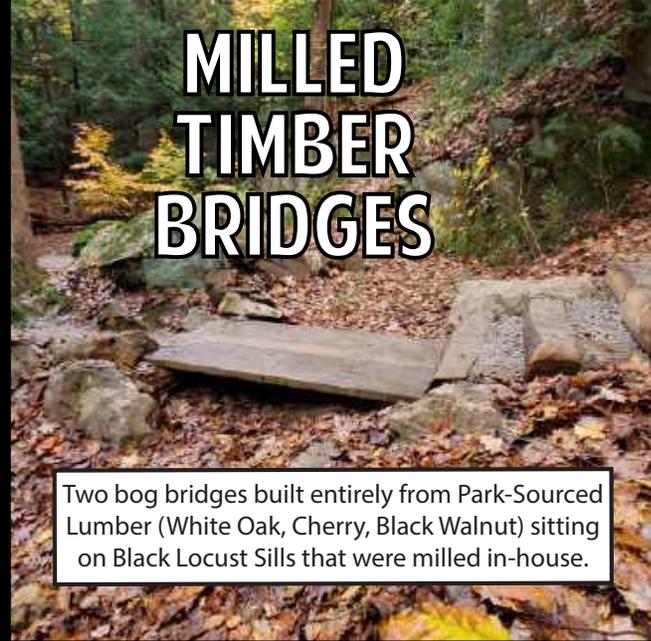


LAND RESTORATION



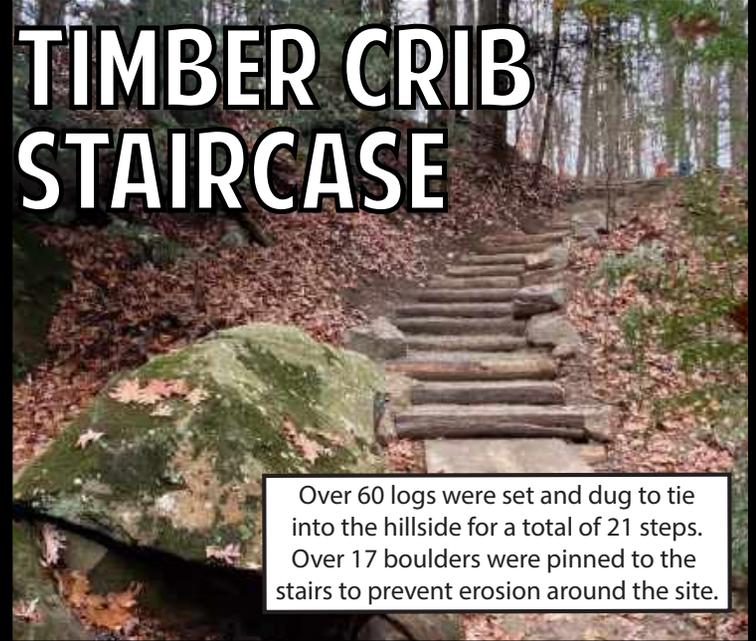
DRY STONE RETAINING WALL

This hand-stacked retaining wall is over 24' long and is 42" tall at the highest point. It was built using traditional techniques without the aid of mortar.



MILLED TIMBER BRIDGES

Two bog bridges built entirely from Park-Sourced Lumber (White Oak, Cherry, Black Walnut) sitting on Black Locust Sills that were milled in-house.



TIMBER CRIB STAIRCASE

Over 60 logs were set and dug to tie into the hillside for a total of 21 steps. Over 17 boulders were pinned to the stairs to prevent erosion around the site.

SNOWVILLE BUCKEYE TRAIL PROJECT

The Buckeye Trail between Ottawa Point and Snowville Road in the Brecksville Reservation offers almost 4 miles of some of the best primitive hiking in all of Cleveland Metroparks. As a connecting section of the Buckeye Trail with the Cuyahoga Valley National Park (CVNP), it also serves as a gateway into Cleveland Metroparks for many first-time visitors into our parks. Unfortunately, the trail in this area is exceptionally muddy, including a few places that were completely impassable during certain parts of the year, forcing hikers to post-hole through long sections of bog with little relief.

Over the last 3 years, the Cleveland Metroparks Trails Division has teamed up with the Buckeye Trail Association to eliminate all of these formally impassable sections, while still keeping true to the primitive nature of the area. In 2018-19, they rerouted 0.6 miles of trail and installed 5 bridges, focusing primarily on the north section of the trail near Ottawa Point.

In 2020, our attention turned to the southern section of the trail near Snowville Road, which featured probably the most difficult to remedy project along the entire section of trail. Here, the trail enters a wetland that is above knee deep in water for almost half of the year, with no hope for avoidance if hikers cared to continue on the trail. Additionally, the trail leading to this point traversed through two other wetland sections on the way to this area.

With the aid of a donation from the Buckeye Trail Association, the Trails Division planned a new bridge/boardwalk/puncheon combination to elevate the trail through this absurdly wet section. The plan was to work during the winter months and cap off the project with some joint trailwork around the Buckeye Trail Conference, which was planned to be at CVNP at the end of March 2020.



When the conference was canceled in March, it took until early August for the Trails Division to connect with the Buckeye Trail Volunteer Crew to convene on the site to finish phase one of the project. They worked with the crew to disassemble and haul out the retired bridge structure and rerouted another 0.3 miles of trail out of a wetland on to better ground, while restoring the original trail corridor. Additionally, the Buckeye Trail Crew cleared vegetation on over six miles of trail through the reservation and helped provide some cyclic maintenance to previous season work.

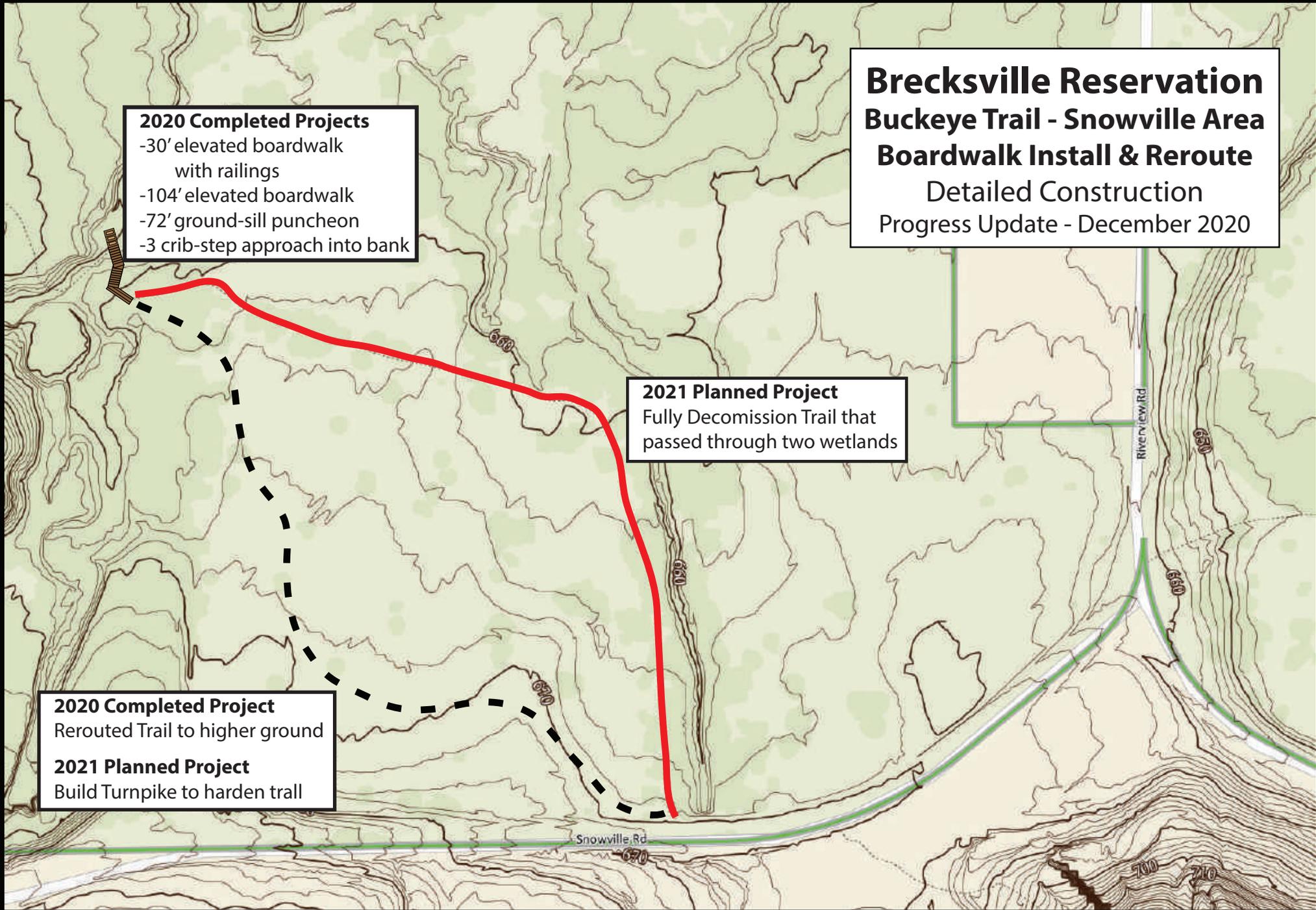
Looking forward to 2021, the two organizations will continue their partnership to improve the quality of the trail in this area by building over 1,700ft of turnpike to firm up the trail leading from Snowville Road to the boardwalk, further enhancing the quality of one of the premier hiking trails in all of Cleveland Metroparks.

Brecksville Reservation Buckeye Trail - Snowville Area Boardwalk Install & Reroute Detailed Construction Progress Update - December 2020

2020 Completed Projects
-30' elevated boardwalk with railings
-104' elevated boardwalk
-72' ground-sill puncheon
-3 crib-step approach into bank

2021 Planned Project
Fully Decommission Trail that passed through two wetlands

2020 Completed Project
Rerouted Trail to higher ground
2021 Planned Project
Build Turnpike to harden trail



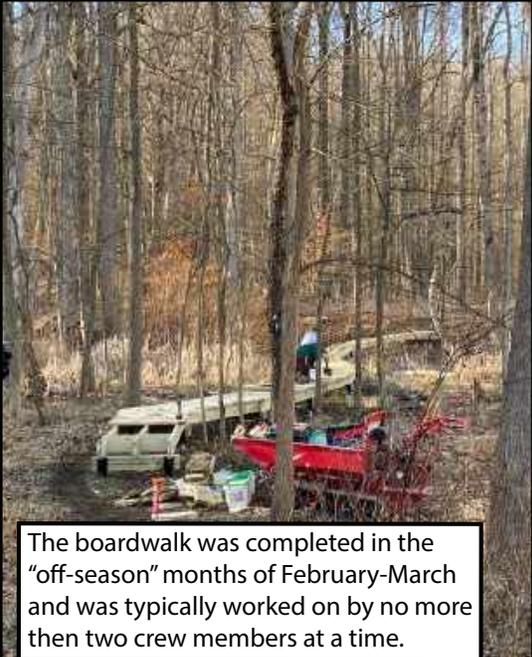
SNOWVILLE BUCKEYE TRAIL PROJECT HIGHLIGHTS:

The new trail begins with 3 steps that are tied into a bank before traversing over 170' of gently sloping raised boardwalk that transitions into a puncheon structure that sits just above ground level.



Hikers were forced to scramble down on the bank to a muddy bottom. A short old bridge helps aid users past the first knee-deep section onto a muddy landing. There, the trail met another small pond that was unavoidable before crossing into a muddy woodland site into the field.

The boardwalk sections set on 2.5" post pipes which account for a total of just 0.35 square foot of ground contact over 170' of linear boardwalk through the sensitive wetland area while allowing the trail to step down at a gentle grade from the woodland bank to the field near Snowville.



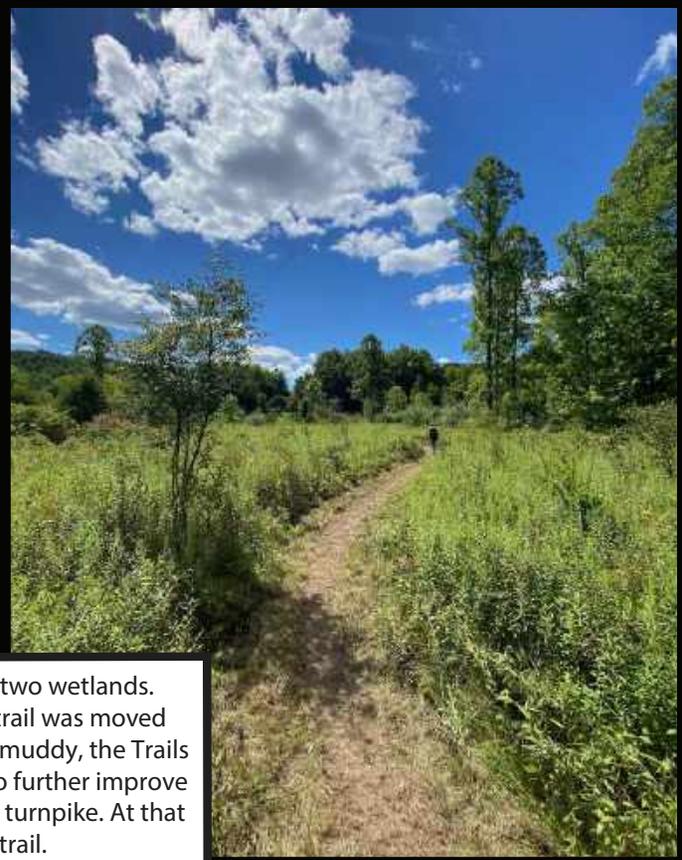
The added 72' of puncheon after the boardwalk slightly elevates the trail through some of the muddiest section of forest protecting the root systems of the trees in this area.

The boardwalk was completed in the "off-season" months of February-March and was typically worked on by no more than two crew members at a time.

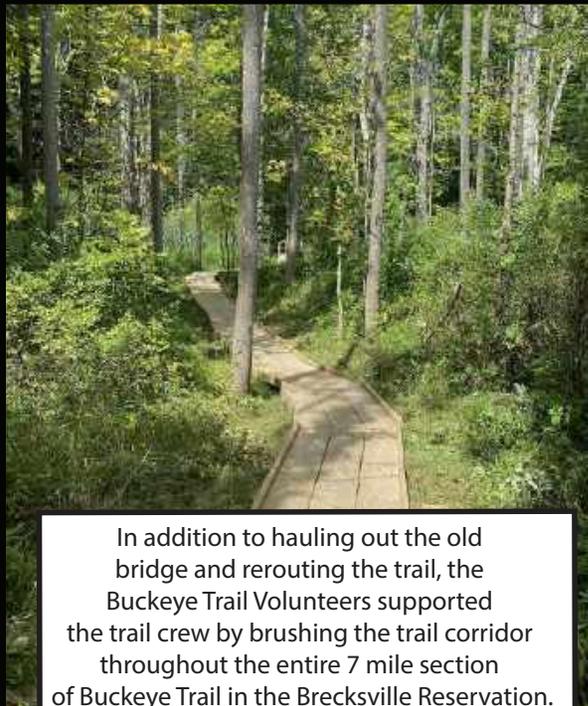
The crew waited for frozen conditions to move the lumber out on the site to minimize the impact on the ground leading out to the boardwalk project.



SNOWVILLE BUCKEYE TRAIL PROJECT HIGHLIGHTS:



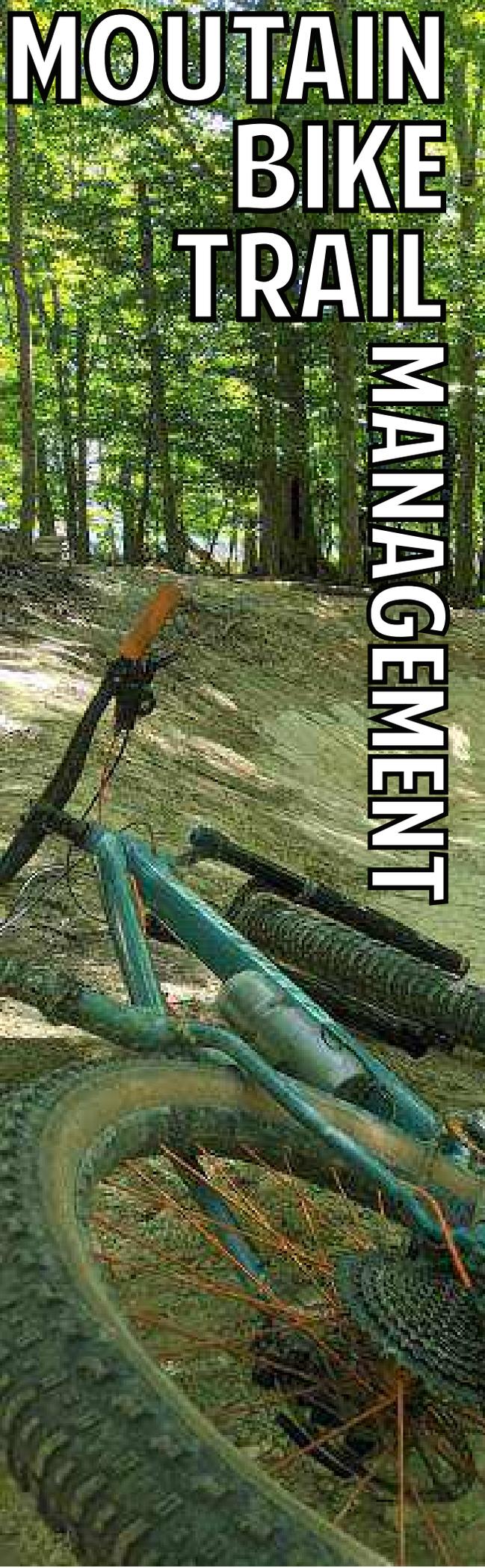
In addition to being muddy, the 0.3 miles of trail leading to the boardwalk site crossed two wetlands. Working with guidance from the Cleveland Metroparks Natural Resources Division, the trail was moved away from these wetland areas onto higher ground. Knowing the new trail would still be muddy, the Trails Division have made plans to partner their volunteers with the Buckeye Trail Association to further improve this section of trail in 2021 to raise the trail up through this area by constructing a 1,700ft turnpike. At that time, the plan will be to fully deconstruct and restore the ground on the old trail.



In addition to hauling out the old bridge and rerouting the trail, the Buckeye Trail Volunteers supported the trail crew by brushing the trail corridor throughout the entire 7 mile section of Buckeye Trail in the Brecksville Reservation.



To protect the bank from degradation, the boardwalk approach featured three locust crib steps that included a three tier landing and a waterbar at the top all made from park-sourced material.

A photograph of a mountain bike trail in a forest. The trail is a dirt path with some roots and debris. In the foreground, a green mountain bike is lying on its side. The background shows a dense forest of tall trees with green foliage. The title 'MOUNTAIN BIKE TRAIL MANAGEMENT' is overlaid on the image in large, white, bold, sans-serif font. 'MOUNTAIN BIKE TRAIL' is stacked vertically on the left, and 'MANAGEMENT' is written vertically on the right.

MOUNTAIN BIKE TRAIL MANAGEMENT

The Cleveland Metroparks has 4 sanctioned mountain bike trail systems totaling about 25 miles. Each trail system has had varying levels of management over the course of their existence. This year, the Trails Division sought to develop and establish standardized management practices that brought a sense of congruence to our mountain bike trail systems. The overarching goal of these management standards was to work towards creating a network of trails that are open as many days as possible without damaging the trails.

To get a better picture of the trail systems, both on an individual and network-wide level, the first two months of the year were spent using geospatial technology (GPS) to inventory and assess various problems present within the Cleveland Metroparks mountain bike trail network. From this, the Trails Division was able to highlight the most pressing issues that needed be addressed.

Once the season began, our evolving understanding of Covid-19 seemed to take control of the workflow. At the very start of the pandemic, the crew used flagstone armoring projects as a means to keep workers completely separated while making needed improvements on West Creek Trails. Also during this time, volunteering was prohibited throughout the Metroparks and staff was required to pick up all trail monitoring duties during the critical open/closure period of the year. All this occurred while an entire community of “locked-down” mountain bikers waited eagerly at their device each day for updates and an excuse to get out of their house and ride.

Once summer hit and volunteers and staff were permitted to return, we focused on the chance to complete a meaningful larger scale project that could be completed while maintaining social distancing between crew members. Based on the winter GPS work, the team identified a 2,000 ft stretch of poorly draining trail at Royalview. This project required a complete mobilization by our crew to complete the job over the summer with additional support from a small group of registered volunteers.

In addition to these major improvements, the trails were intensively maintained throughout the season. This included brushing vegetation in the summer, leaf blowing in the fall, and responding to downed trees (especially after major storm events). Additionally, attention was put towards continuing to improve communication with our user-base. This included varying degrees of updated signage at three of our trail systems and continuing to manage our monitoring program that opens and closes these trails based on ground conditions and reports back to the community via Twitter. Much of the experience that has been gained by from this maintenance work will serve as a baseline as we continue to grow and expand our management efforts throughout the entire park district.

IMPROVEMENT PROJECT: ARMORING

In line with the goal of having trails that are open as many days as possible, the Trail Crew began working on large-scale flagstone armoring project at West Creek in the early season. Understanding that tackling every section would not be an efficient way to utilize resources, the crews targeted 4 notoriously problematic spots and left the rest to be covered by a simple and temporary solution, mud mats.



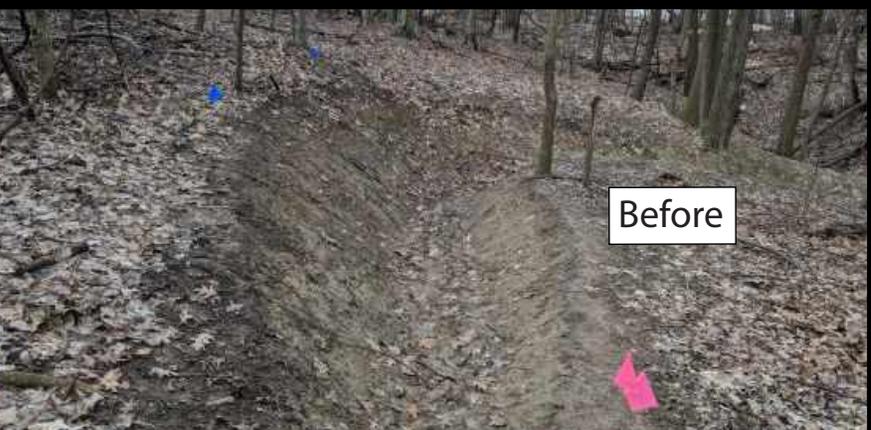
The work was prioritized by armoring the stretches of trail that were known for keeping the system closed. Four distinct locations were finished by late spring.



Eighteen tons of flagstone were moved, hand-shaped and precisely set to conform to complex angles on the trail.



Before setting the stones, the backslope was recut to optimize the angle of the turn for mountain bikers.

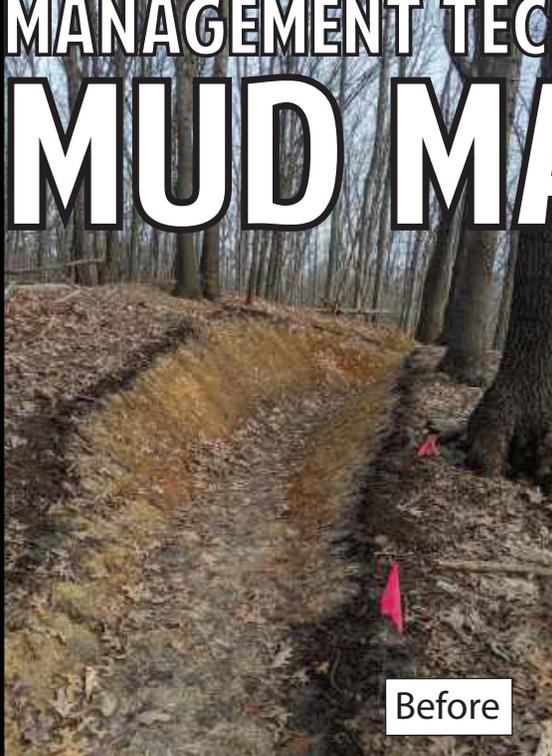


Before



After

MANAGEMENT TECHNIQUE: MUD MATS



Before



After



Mud mats serve as a temporary, low cost, and easy-to-install fix to extend riding season and a short-term alternative to stone armoring.



Some prep site work is required to make sure the entire mud mat is in solid contact with the ground before pinning.



Mud-mats are fabricated in-house using 1/2" sheets of pressure-treated plywood wrapped in stapled chicken-wire (for traction) and pinned on 4 corners using 18" bent rebar spikes made in our fab shop.



These mud mats installed at Bedford Singletrack solidified a formerly sketchy steep erasive section where the trail comes below an adjacent road.

IMPROVEMENT PROJECT: ROYALVIEW HARDENING

Once seasonal crews came into the picture, resources were mobilized to Royalview. In peak summer, the trail crew worked diligently on hardening a 2000 ft stretch of trail on the western portion of the red loop that was infamous for taking a while to dry out. Because of this inability to properly dry out, the trail had widened to over 30ft in some sections. To remedy this, crews reworked the trail to incorporate better drainage and laid down gravel and surface material screened in-house to improve the stability of the trail. In tandem with the gravel and sand, various timber structures were constructed to cross natural and designed drainage areas. The trail has now evolved from a section that could often take months to properly dry, to one that is dry and rideable the day after a normal weather event.

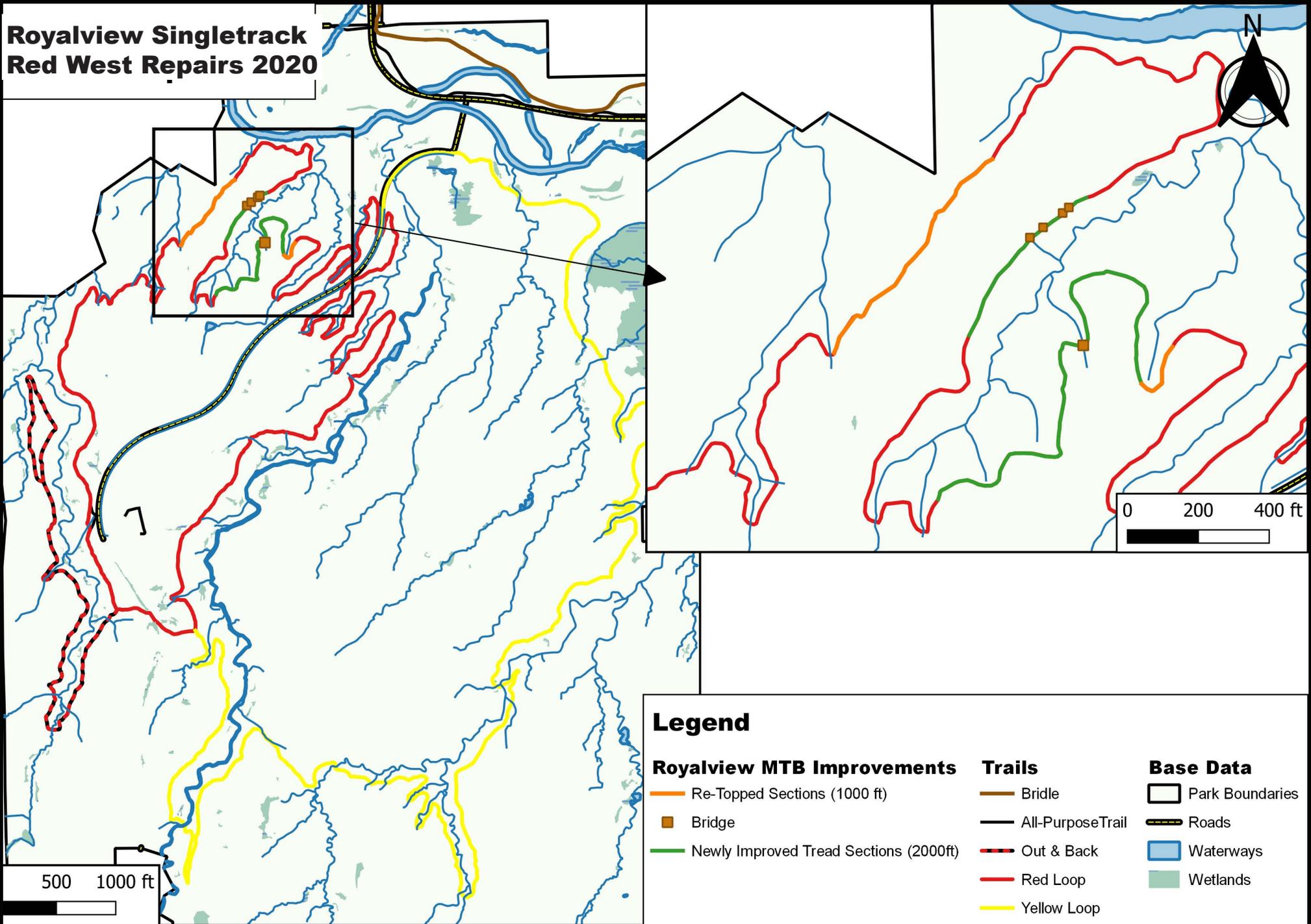


Before



After

Royalview Singletrack Red West Repairs 2020



Legend

Royalview MTB Improvements

- Re-Topped Sections (1000 ft)
- Bridge
- Newly Improved Tread Sections (2000ft)

Trails

- Bridle
- All-Purpose Trail
- Out & Back
- Red Loop
- Yellow Loop

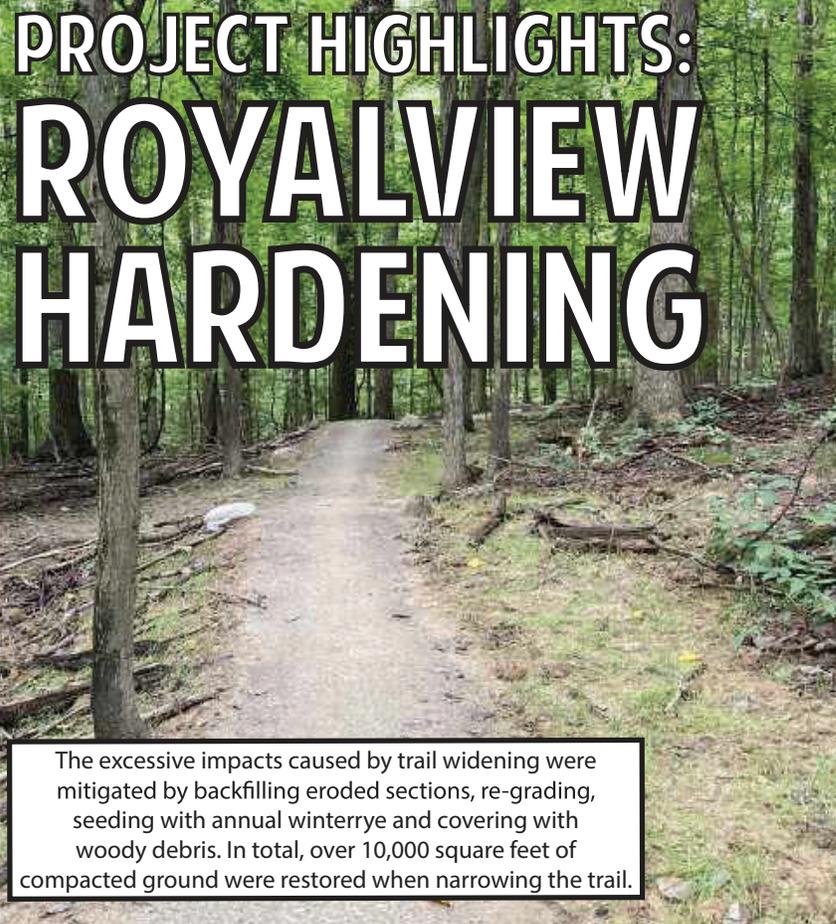
Base Data

- Park Boundaries
- Roads
- Waterways
- Wetlands

500 1000 ft

0 200 400 ft

PROJECT HIGHLIGHTS: ROYALVIEW HARDENING

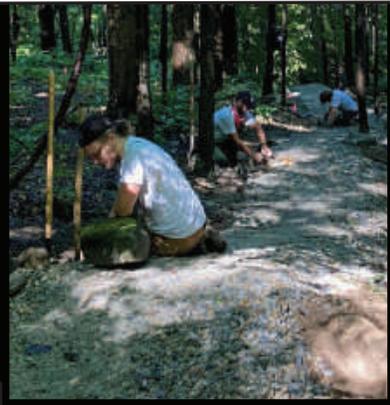


The excessive impacts caused by trail widening were mitigated by backfilling eroded sections, re-grading, seeding with annual winter rye and covering with woody debris. In total, over 10,000 square feet of compacted ground were restored when narrowing the trail.



Two box culverts and three bridges (plus approaches) support the trail in its poorest draining locations.

Forty-three logs and 18 rocks were set to define trail corridor and to prevent widening along the improved trail.



Just over 2000 ft of trail were improved this season using 250 tons of gravel and 130 tons of trail surface material. The crew used a combination of mechanized equipment and handwork as appropriate to finish the project.

MOUNTAIN BIKE TRAILS

As the fulltime CMEA crew prepped for transition to the next large-scale project, seasonal staff and volunteers were able to make large gains in the annual and cyclical maintenance on the mountain bike trails. Most of this work was corridor clearing in areas with heavy vegetative growth and re-establishing lines that were beginning to be lost, but the Trail Crew started doing prescriptive hazard tree clearing off the sides of the trail to reduce the impact windfallen trees have of trail closures throughout the year.

Ohio and Erie Canal Reservation

- o 300 ft of re-benching
- o 175 ft of social trail restoration
- o 2 miles of deep corridor clearing

Bedford Singletrack

- o Entire trail system blazes repainted
- o Cleared roughly 4.5 miles of trail with heavy vegetation in two passes during the summer
- o Entire trail leaf-blown on a 10-day cycle throughout the fall
- o Support for downed-tree clearance, particularly after major weather events
- o Re-decking & chicken wiring on 140' of boardwalk on Mars Quarry Trail
- o 55 ft of timber bridges chicken wired, working to chicken wire all bridges as they are re-decked

Royalview Trail System

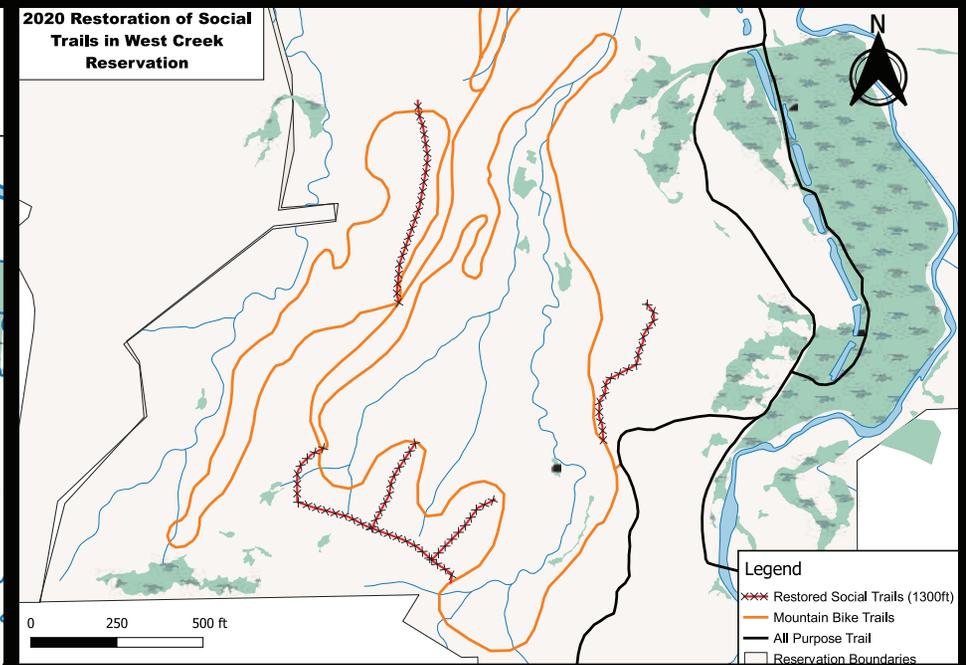
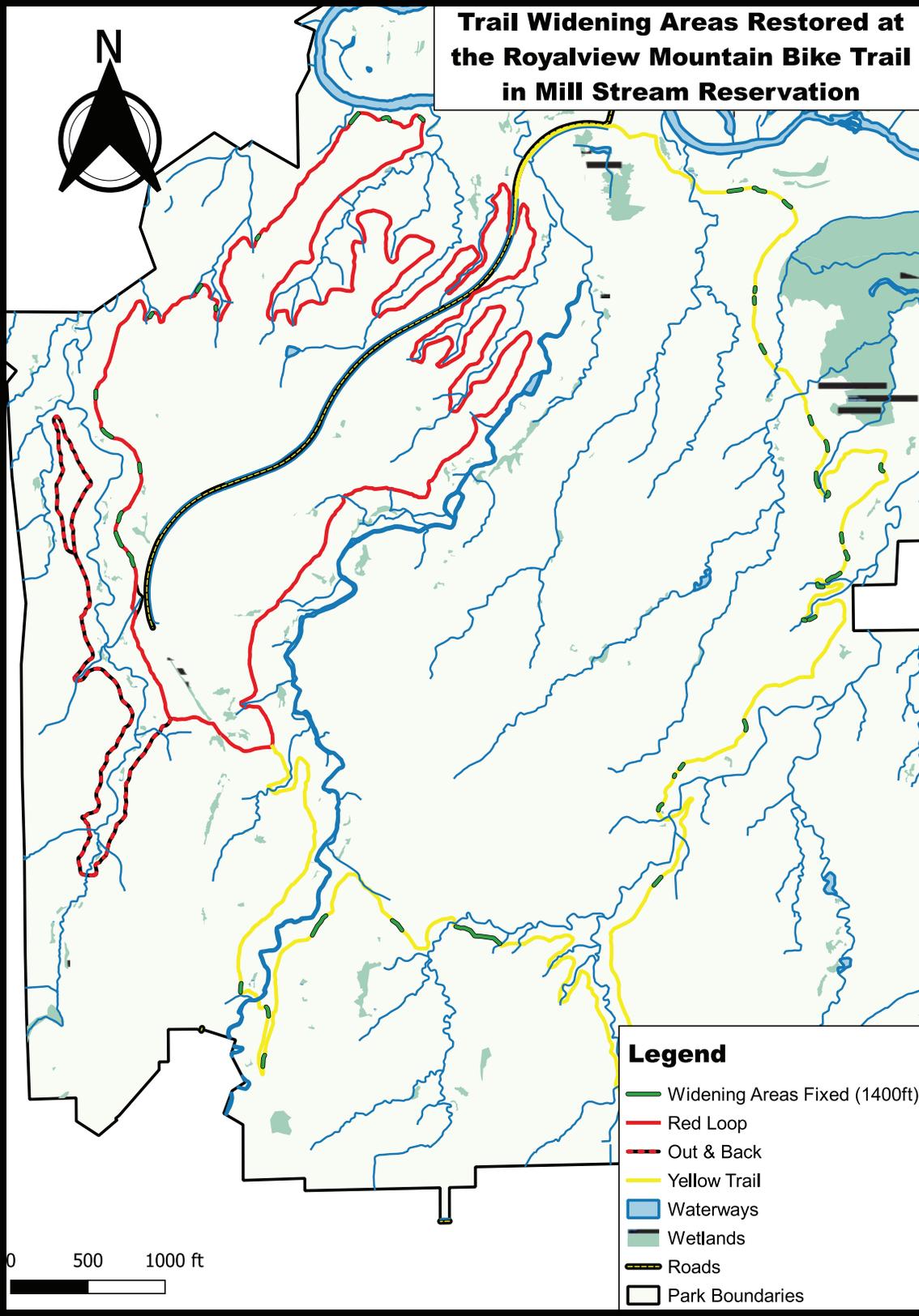
- o 1000 ft of break-in maintenance (re-topping 2019 projects with second lift of trail surface material)
- o 1400 ft of trail narrowing and re-benching
- o Entire trail leaf-blown on a 10-day cycle throughout fall
- o Support for downed-tree clearance, particularly after major weather events

West Creek Shared-Use Trails

- o 2 miles of tread re-benching & drain clearing work
- o Entire trail leaf-blown on a 10-day cycle throughout fall
- o Support for downed-tree clearance, particularly after major weather events
- o 1800 ft of total social trail restoration



ANNUAL MAINTENANCE

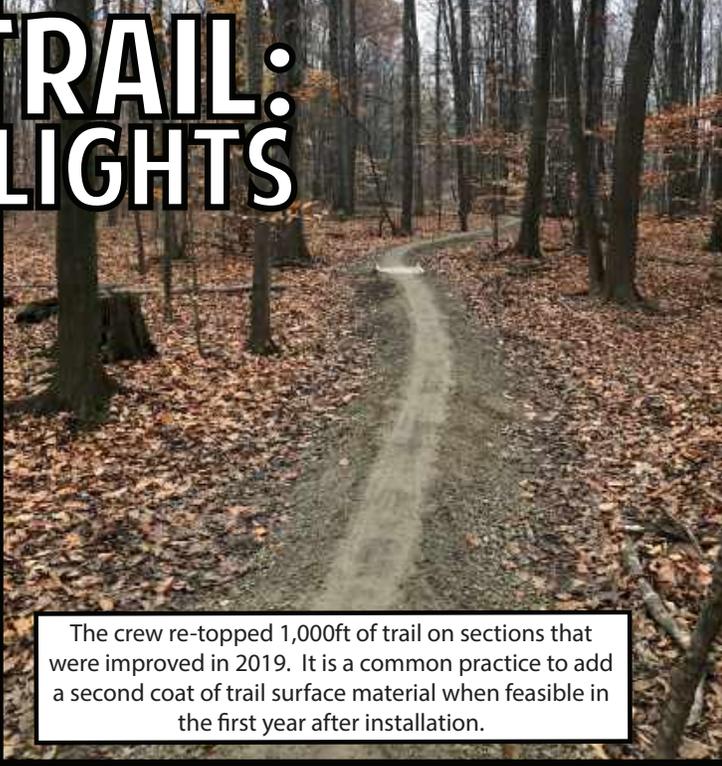


In addition to the 1,000 ft of major repairs on Red West, Cleveland Metroparks and CAMBA volunteers combined to narrow over 1,400 linear feet of trail throughout Royalview.

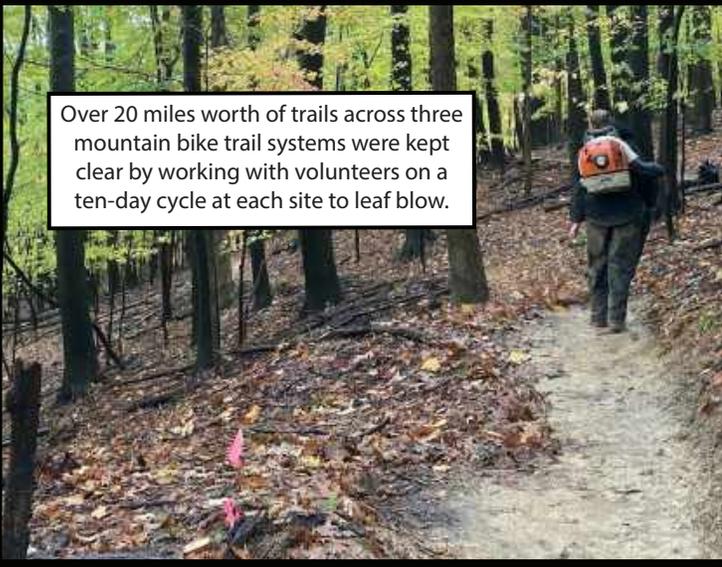
MOUNTAIN BIKE TRAIL: MAINTENANCE HIGHLIGHTS



Seasonal crews removed and re-benched over two miles of trail at West Creek, improving the rideability of the trail and preventing it from widening.



The crew re-topped 1,000ft of trail on sections that were improved in 2019. It is a common practice to add a second coat of trail surface material when feasible in the first year after installation.



Over 20 miles worth of trails across three mountain bike trail systems were kept clear by working with volunteers on a ten-day cycle at each site to leaf blow.



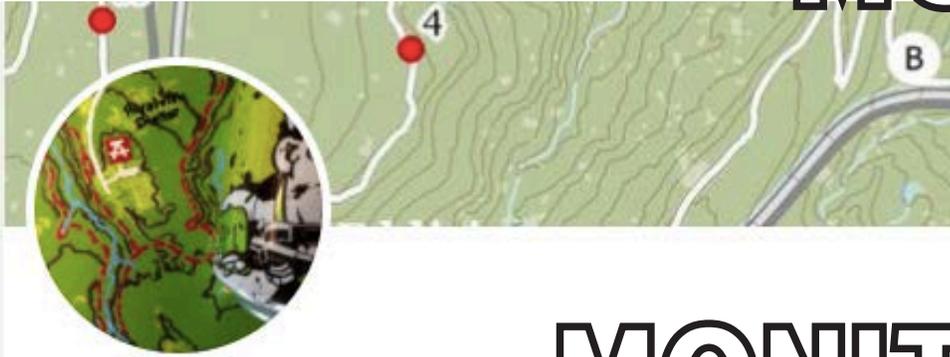
Seasonal crews cleared over 7 miles worth of heavy vegetation spread across three mountain bike trails to keep the sections rideable all summer.



Over 180' of chicken wire was added to bridges across Bedford Singletrack in addition to 120' of deckboard replacements at Mars Quarry Trail.



MOUNTAIN BIKE TRAIL MONITORING



Trail Conditions

@CMPmtb

The latest conditions for Cleveland Metroparks' Mountain Biking Trails. Updated daily by volunteers

📍 United States 📅 Joined February 2015

4 Following 3,392 Followers

Two



Looking at data from the last few years is a sound indicator for the overall condition of each trail network.

STATISTICS PERTAIN TO DAYS THE TRAILS ARE CLOSED

Royalview

2020 – 190 (52% of total possible days - 47.5" total precipitation so far)

2019 – 161 (44% of total possible days - 37.5" total annual precipitation)

2018 – 190 (52% of total possible days - 52" total annual precipitation)

Bedford

2020 – 168 (46% of total possible days - 51.5" total precipitation so far)

2019 – 130 (35% of total possible days - 43" total annual precipitation)

2018 – 130 (35% of total possible days - 49.5 total annual precipitation)

West Creek

2020 – 149 (40% of total possible days - 53" total precipitation so far)

2019 – 25 (20% of total possible days - 9.5" precipitation from Sept – Dec)

The foundation of our mountain bike trail management program are Trail Monitor volunteers. The soil composition and seasonal wet/dry cycles make it difficult to ride West Creek, Bedford, and Royalview when the ground is saturated after heavy rain or snowmelt. To accommodate these dynamic conditions, volunteers inspect these trails every day of the year and close if the ground is too tender to handle traffic. This information is communicated to the public using Twitter and has become well-respected by the mountain bike community.

MOUNTAIN BIKE TRAIL: SIGNAGE UPDATES

The new signs and markers at Bedford match the style of the ones installed at West Creek Trails last year to positive reviews.



In addition to maintenance and repairs, the Trails Division began working towards standardizing trail signage throughout the four trail systems this year. New wayfinding signage was installed at both Bedford and West Creek. These new signs were designed to improve wayfinding as well as briefly highlight important trail etiquette. At Royalview and West Creek, new trail closure chains and flip signs were installed to increase visibility of trail closure status as well as deter users who may try to access the trail during days it is closed.



Eleven chains and 4 flip signs were installed at Royalview and West Creek Trail Systems to help inform visitors and deter trail poaching during times when the trail is closed.

In total, 38 new trailhead and clarifying signs were installed (all old signs were removed and hauled out) to aid wayfinding on the ten-mile trail network.



The trail signage project is an effort to update and unify signage throughout the Park District. The old signage system is confusing, lacks information, and is inaccurate in places making it easy for park users to get lost. With the updated signage system, park users will be able to easily navigate their way through the reservations while being provided with more information about the trails they are using, including user type, trail name and symbol, and distance to other key locations in the park.

The signage project started in 2018, but really took off in Fall 2019 with the introduction of the Full-time Trails Coordinator along with the support of a new AmeriCorps Position. Since then, signage has been fully installed in Hinckley and North Chagrin. Additionally, at North Chagrin we have fully implemented a volunteer corps of "Trail Trackers" who are responsible for the ongoing monitoring of the newly installed signs and markers.

The updated trail signage program is implemented in 4 detailed phases: layout, production, installation, and sign management. Completing the last phase of this project by implementing the Trail Tracker Program is a crucial part to the upkeep and maintenance of the new signage system. Trail Trackers are looking for damage, vandalism, missing signs, unsanctioned trails and hazards, and then reporting back to us. This allows our crew to replace and fix any damage in a timely manner. Without this system, it had been difficult to keep track of the park district's sign inventory and signs and markers had become damaged or went missing without getting replaced.

In all, the Trails Division has installed over 985 new signs and markers. Hinckley received over 250 confidence markers, 30 clarifying signs, and 100 trailhead signs to cover over 17 miles of trails. In North Chagrin, we installed over 350 confidence markers, 80 clarifying signs, and 160 trailhead signs to cover almost 25 miles of trail. In addition to the replacements, we completely removed and hauled out every old marker and sign in both reservations.

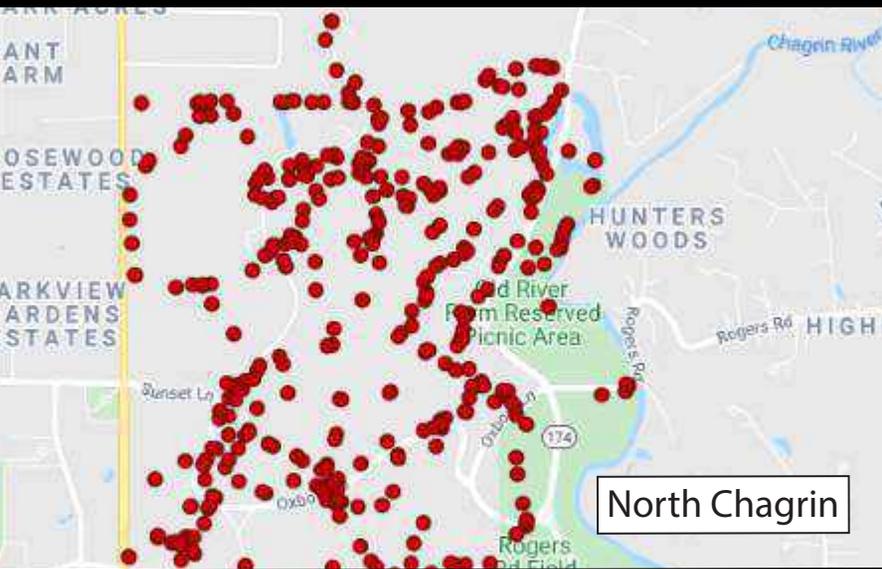
As we continue to move forward with this project, we will pivot back to Hinckley and begin the process of implementing the Trail Tracker Program there before switching over to Brecksville and completing a full replacement of their trail signs. This project has come a long way in the past year, and we are excited to keep the momentum going as we enter 2021.

TRAIL SIGN UPDATES



SIGN PROJECT PROCESS:

PLANNING



Trails Staff walked the entire trail system at both North Chagrin and Hinckley Reservations. They recorded any old signage that needed to be removed and drafted locations for new trailhead signs. They continued to log locations and inventoried new signs with catalogued photographs. In all, almost 1,000 data points were collected over the course of the year.

REMOVAL



The Trail Crew went to great lengths to make sure that every last piece of scrap left from old signage and markers were removed and hauled out even when the marker had become embedded.

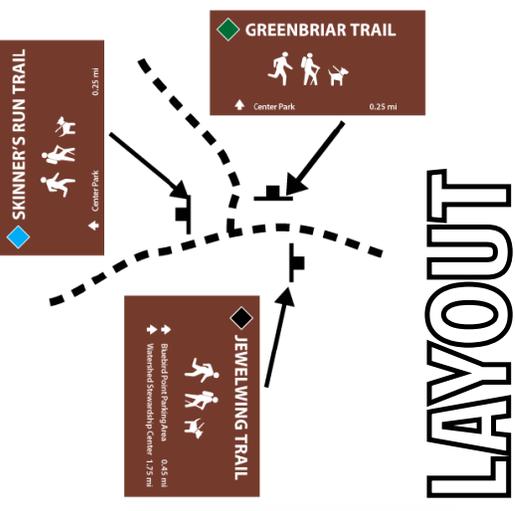
One inch of space is left between the new confidence marker and the tree to allow for growth. The screws are oriented vertically to accommodate tree growth and are periodically backed out to maintain the life of the marker with the least amount of impact to the tree. Backers made from scrap wood serve as a bumper and provide extra support for the tree.



The old markers were set up to fail after just a few years, causing signs to either break off or end up being totally engulfed by the tree.



Trail Junction layouts are designed to be flexible and are reviewed on location to ensure the signage choices make sense for the specific site.



PRODUCTION



Along with designing new sign layouts, Trails Staff supported the Visual Communications Team by helping to wrap metal signs.



All sign backers and post material are used from native and reclaimed wood produced in-house.

The new markers were set at a height of 7 ft to ensure they would be easy to spot by hikers and help guide them along the trail, regardless of their ability to read or identify colors.



TRAIL SIGN MANAGEMENT



Before



After

The prior trail sign system lacked detail, relying entirely on color and arrows and tried to combine information about multiple trails on a single post. With this limited palette, the signage would get confusing and colorblind trail users were left with no means of distinction at trail junctions. The new system is designed to allow users to easily navigate their way through the reservations while being provided with more information when on trails.

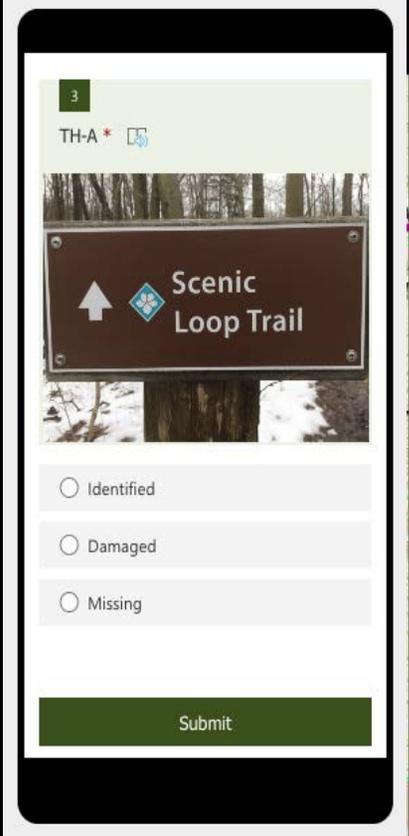
Unique clarifying sign for an unnamed trail connector.



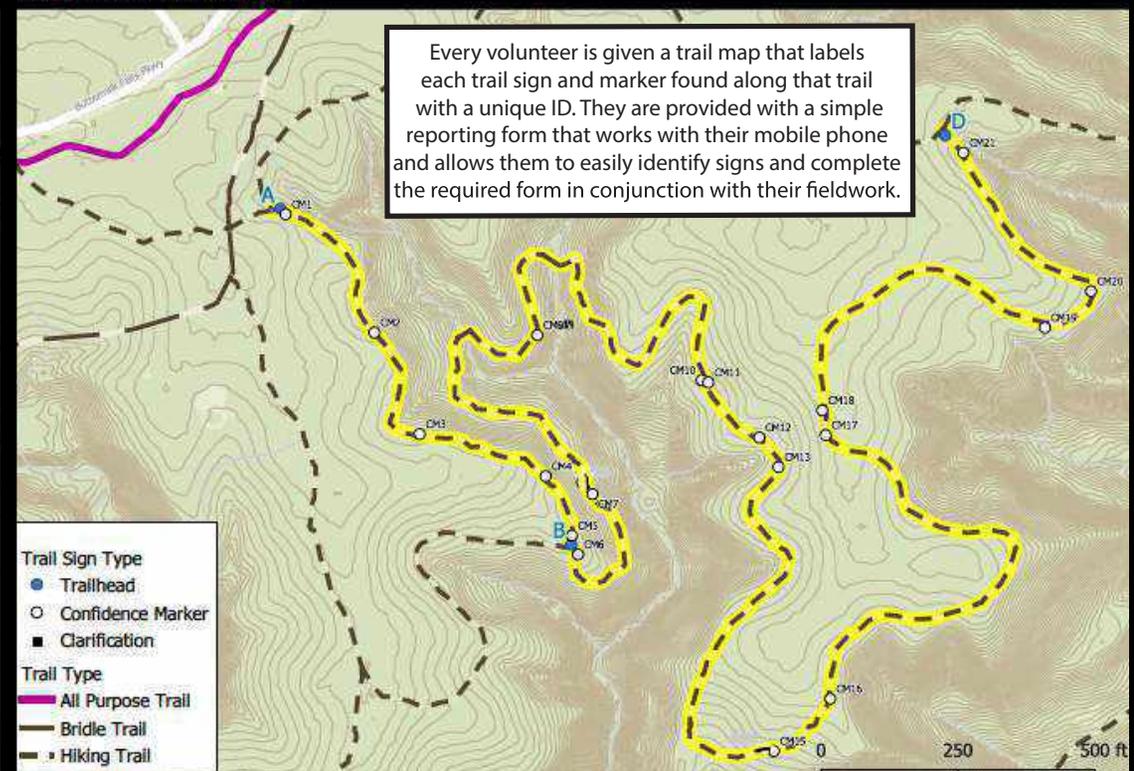
The new trail signs include the trail name with accompanying symbol and color, distances and directions to key locations and clear postings for permitted and restricted users on that trail.



Volunteers hike each trail once per month and confirm the sign and marker inventory. They let trails staff know if any maintenance is required or if anything is vandalized or stolen.



Scenic Loop Sign Inventory



TRAIL MANAGEMENT

While working on the Trail Signage Project, we had the opportunity to closely study reservation trail systems and their functionality. One key observation was the presence of user-created unsanctioned trails in high-use areas of the park system. In addition to being a scar on the landscape, these trails create confusing intersections with our sanctioned trails. To manage this confusion, we have standardized the practice of evaluating these trails: if they are not harming the landscape or serving as a redundant shortcut, we may sanction the trail into the system. However, if these conditions are not met, we will attempt to restore the landscape. By observing and working towards remedying these issues, we support both our trail wayfinding and land conservation efforts.

A second observation was severe overgrowth on many of our trails (to the extent that they were impassable during peak months of the year). These overgrown sections of trails have played a part in creating some of the park's bootleg trails from users seeking refuge from thick, prickly vegetation. Additionally, it is important to maintain visibility of trail signs and markers in the field (in all seasons) through cyclical trimming of branches and vegetation.

In order to begin addressing these issues, the Trails Division selected North Chagrin as a trial site because we already had the infrastructure of our new trail signage in place to support the work. Using the support of our volunteer corps, we set out to maintain trail clearing for all of North Chagrin. Additionally, we monitored all of our unsanctioned trail issues and began prioritizing work by treating two project sites this year.

For corridor management, we focused on clearing 5 hiking trails totaling 7 miles of trail. This project was done with the help of volunteers and staff members between the months of June-August. Opening these corridors provided season-long access to all trails in the network.

While we were already mobilized for trail clearing, we decided to use an open two-week window to bring in our entire team plus volunteer crews to complete one of our most ambitious restoration projects to date. Behind Squire's Castle there was an unsanctioned trail that ran about 900ft up to connect with NC2 Bridle Trail. The project was so successful that the seasonal crew remobilized at the end of summer to work on restoring steep erosive bootleg trails connecting the northern side of the Castle Valley Trail with Squire's Lane. The crews again broke all the ground up by hand and also properly seeded the sites. Temporary barriers were installed to help delineate the sites. In 2020, a total of 4,000 linear feet of unsanctioned trails have been restored at North Chagrin using these management techniques.

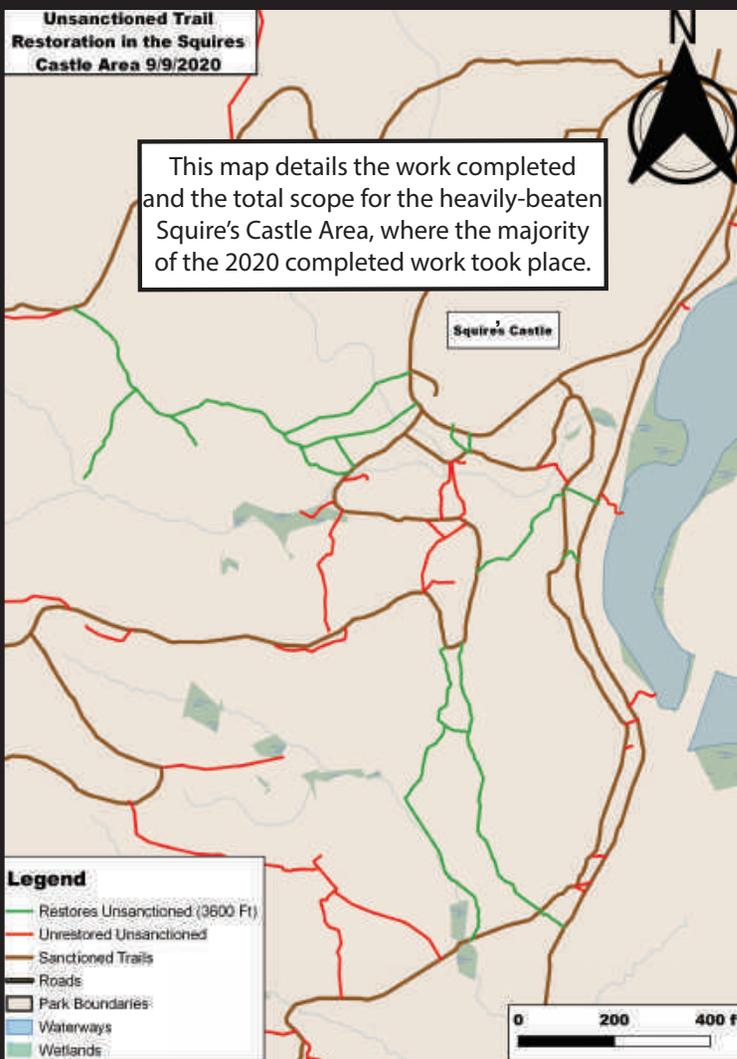
Moving forward, we hope to continue this work at North Chagrin, further standardizing workflow and goals as we try moving toward a more "complete" managed trail system. Additionally, we will be looking to introduce this same management model to Hinckley Reservation in conjunction with the implementation of trail sign management there in the coming year.



NORTH CHAGRIN -

TRAIL MANAGEMENT - RESTORATION

Unsanctioned Trail
Restoration in the Squires
Castle Area 9/9/2020



August 2020

This steep bootleg near Castle Valley Trail was broken up by hand and seeded by our seasonal crew in late summer. By fall, the established annual grass and straw was capturing fallen leaves, re-establishing the organic layer on the formerly beaten path.



Before



After

This major bootleg directly behind Squire's Castle was so clear and well-established, that many users assumed it was a part of the trail system. The crew installed a low, permanent barrier in this high-use area to clearly distinguish the former trail as a restoration area with restricted access.



November 2020



After + Railing Installed

This unsanctioned former cut-through often confused hikers around the Scenic Loop and White Pine Trailheads near the Strawberry Picnic Area. To support the new trail signs in the area, the trail crew spent an afternoon rehabilitating the site. Today, hikers happily ignore the old, confusing trail which has almost completely grown back in just one season. To support the work, Natural Resources planted saplings here and at other sites in the reservation.



March 2020



April 2020



August 2020

TRAIL MANAGEMENT - CORRIDOR

Heavy vegetation closes in much of the northern Castle Valley Trail. Before clearing, navigating the trail felt like a corn maze and it was common for hikers to unknowingly wander off the sanctioned trail.



Volunteers are given training on pruning techniques at the start of volunteer days and work alongside staff to make sure specifications are understood and met.



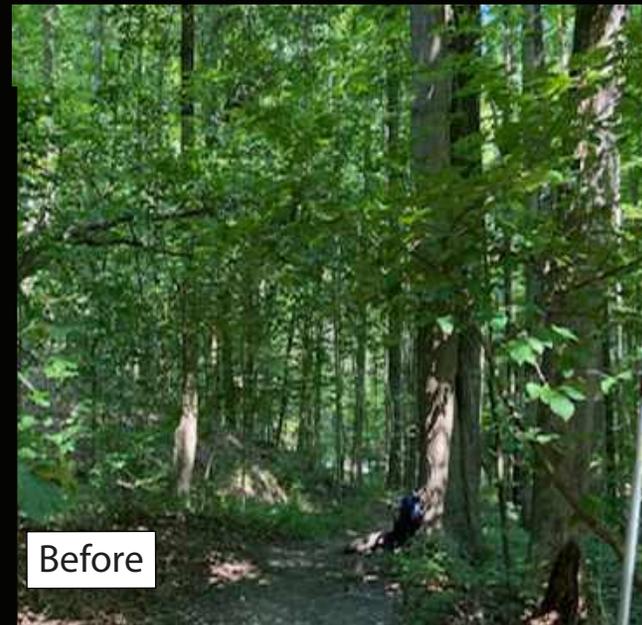
Before



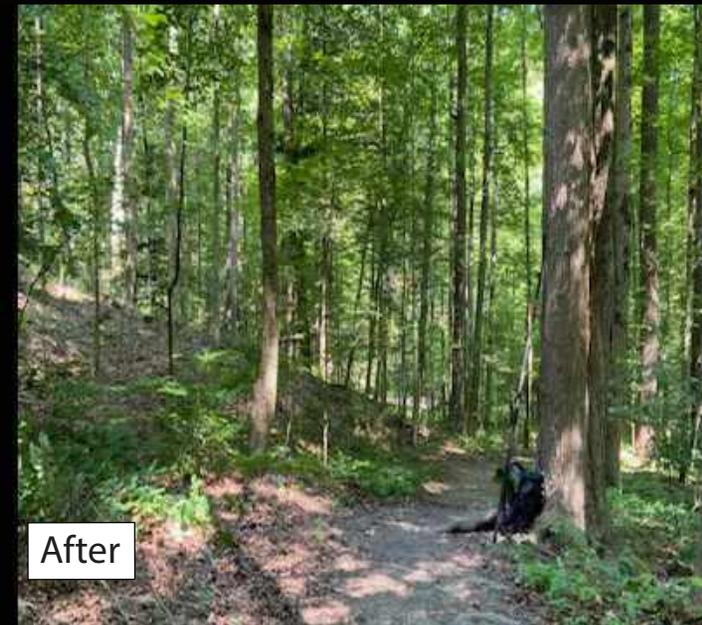
After



Volunteers work to scatter heavy debris off a totally engulfed section of trail in July 2020.



Before



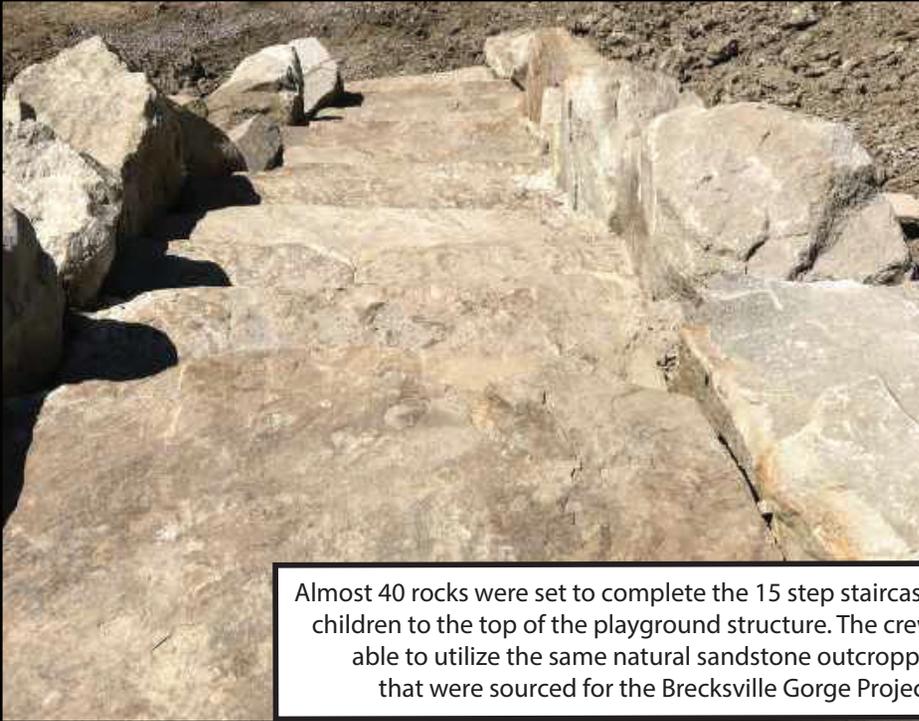
After

The crew passed through an open hardwood section and provided needed limb pruning. Removing these low branches to promote vertical tree growth helps maintain a safe clear corridor while allowing trees to mature in harmony with the trail.

LAKEFRONT PLAYGROUND

In addition to our typical projects, the Trails Division provided support for the completion of the new nature playground at the Lakefront Reservation. We were able to work alongside the Site Construction and Building Trades divisions in the completion of a dry-set stone staircase. We were able to provide help training the other divisions in the methods of building staircases while they were able to provide larger equipment that we do not typically have access to at our project locations to support with the build.

In addition to the staircase, we also took the lead on the installation of two natural playground structures: a log climb and a teepee. For both structures, the trails division harvested, milled and prepped black locust timbers that were used to build them. In addition to processing the wood, we were also able to fabricate brackets in-house that were used for the assembly of both structures.



Almost 40 rocks were set to complete the 15 step staircase leading children to the top of the playground structure. The crews were able to utilize the same natural sandstone outcroppings that were sourced for the Brecksville Gorge Project.



As is the case for many Trails structures, brackets were designed and fabricated entirely in-house for both the log climb and teepee structures.



Site Construction and Building Trades offered equipment and manpower to help Trails assemble the log climb structure.

MILLINING INITIATIVE

In the winter of 2013, the Trails Division first revived the practice of milling lumber for park projects by salvaging naturally fallen timbers from around the park. At the time, they set up a ripping chain on a chainsaw and worked on creating some simple deckboards for trail projects at Bedford Reservation. A year later, they used early Trails Fund donations to buy a very bare-bones portable bandsaw mill as a means to increase productivity. Although it was a finicky and at times difficult to operate machine, it was able to produce the lumber for some very special structures the Trail Crew has installed over the last seven years:

- North Chagrin Sylvan Loop Overlook Desk
- Hinckley Johnson's Creek Buckeye Trail Bridge and Boardwalk
- Rocky River West Channel Pond Boardwalks
- West Creek Skyline Overlook Deck
- Many of the Sign and Confidence Marker Backers for Trail Signs around the park district

At the start of 2020, again through the support of Trails Fund donations, the Trail Crew was able to acquire a Woodmizer Bandsaw Mill as a means to increase productivity and ease of work around the mill. This year, they were able to generate over 18,000 board feet of usable lumber equating to a total of almost 950 usable boards. This significant output produced more than double the board feet of our most productive milling seasons and the work was completed in nearly half the time.



MILLING INITIATIVE HIGHLIGHTS:



The new Woodmizer bandsaw mill is able to rotate logs through hydraulics, a task that was previously done by hand. An on-board computer sets the cutting depth creating some of the most consistent boards we have seen since we started the initiative.



The 18,000 board feet of lumber that was created between January-March 2020 more than doubled our most productive season by our former sawmill.



Timber is harvested from naturally fallen or hazardous trees from around the park district. Often a major storm event (which seems to happen at least once a year) will bring down enough trees to produce the lumber to support the Trails Division for an entire season.



In addition to creating the new lumber, we are also invested in protecting the integrity of our existing milled structures. We have begun to use a treatment that is used on log homes which has shown to have excellent protective qualities. Beginning with some of our earliest projects, we have begun rotating through some of our milled structures, cleaning them and applying the log oil when conditions are appropriate.