# Austin Parcel Intensive Invasive Management Plan, Annual Impact Report 2019


Prepared by:
Mandy St. Hilaire, Director of Sales, Intervale Conservation Nursery
Corrie Miller, Executive Director, Friends of the Mad River
Ross Saxton, Executive Director, Mad River Path Association

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Dates stewarded 2019: June 1st, June 19th, July 31st, September 9th, & October 19th

Zones stewarded: Zone 1, Roadside trail & Mill Brook; Zone 2, Reed canary grass; Zone 4, Mow/trail zone

## Review of 2019 Invasive Management Season at the Austin Parcel

**Photo 1. Community members planting trees around a decomposed interior Japanese knotweed patch, October 2019.**

For the past two years, the Austin Parcel in Waitsfield, Vermont has been a new model for invasive species removal, native enhancement plantings, and community engagement in floodplain forest restoration. These three endeavors have been administered by the Town of Waitsfield Conservation Commission (the Commission) in partnership with the Intervale Conservation Nursery (ICN), Friends of the Mad River (FMR), and the Mad River Path Association (Path Association). This second Annual Impact Report of the project provides a comprehensive look into successes and challenges at the Parcel and will provide recommendations for further stewardship success.

Over the course of the 2019 season, ICN's crew had three stewardship days, and the partnership organized two Community Stewarding Days. The total amount of labor hours on-site for ICN is 104.5 hours, and volunteer hours are 180 hours. In addition, partners organized outreach and press releases, and the Path Association maintained the Parcel path and mowed interior patches of Japanese knotweed. As shown in Table 1, ICN removed stumps and/or cut back 297 woody invasive species; Japanese knotweed was cut back for 25 labor hours. As seen in Table 2, the Path Association spent 62 hours weed whacking and mowing the Japanese knotweed interior patches in 2019. Four hours were spent planning knotweed removal while constructing knotweed composters required another four hours of work.

Native plant enhancements have been a key element of success during 2019. Between the Spring and Fall Community Stewarding Days and the three ICN crew stewarding days, 334 native trees and shrubs were planted this year at the Austin Parcel (Table 4). As shown above in Photo 1, the Japanese knotweed piles have not only decreased in surface area, but also scorched the patch enough to allow

grasses to move back in. This greatly expanded the planting area for native species to be planted and for natural regeneration to occur.

**ICN Stewardship**

The main focus of stewarding in 2019 was woody invasive stump removal and native plant enhancements. During each visit, ICN's crew removed woody invasive stumps, weed whacked knotweed, and planted native trees and shrubs. In 2018, the first step to removing the woody invasives was to cut back fruiting branches on "mother" plants, and girdle stumps by sawing them down within 2 feet of the ground. Piles of brush were made on the roadside section of the trail in Zone 1 allowing for future access to clear debris if desired.

Returning in 2019, the "mother" stumps had obvious signs of stress. During the first visit in June, there were fresh sprouts on many honeysuckle and buckthorn stumps, trying to bounce back from 2018 stressors. Due to "mother" stumps being so large and deeply rooted, it took anywhere from 30 to 75 minutes per stump to remove with one person.

By the second visit in late July, the sprouts on remaining stumps were significantly more stressed from the mid-season heat and even easier to find in tall herbaceous growth. Mid-way through Zone 1, roadside trail, has been the most infiltrated with honeysuckle "mother" plants. This area (about a 100 ft length of trail) was focused on for one full day in order to maximize space for native plant enhancements.

**Photo 2. ICN crew member, Maddie, kneels with a large honeysuckle stump successfully removed from Zone 1 in July.**

During the third visit, the focus was on stewarding the native plants in Zone 2, Reed canary grass zone, to remove bind weeds, clear grass and fix plant protection to give the plants space to continue growing without competition. In addition, most planted trees and shrubs were flagged with red flagging tape for easy identification. Repeated stewarding of plantings under 2 years old is important for site optimization. Japanese knotweed interior patches in Zone 2 were weed whacked, piled and moved to the quarantine area during all three visits to Parcel in 2019.

**Photo 3. ICN crew member, Emily, carries a large pile of weed whacked Japanese knotweed to the quarantine pile in June.**

**Photo 4. ICN crew member, Christine, plants a native silky dogwood tubling in a cleared honeysuckle patch at the end of the roadside trail in Zone 1.**

As shown in Table 1, the area of focus has been on three particular invasive species: Honeysuckle, Buckthorn, and Japanese knotweed. These three invasive species have proven to be the largest threats to the native woody perennials at the Austin Parcel. By removing invasive species manually, there is less risk to the existing native species on site. This increases resilience of the site and maintains native habitat for wildlife. Of the two woody invasive perennial species—Honeysuckle and Buckthorn—1,223 plants were manually uprooted or sawed down over the course of the project. In addition, ICN spent a total of 43 hours hand scything and weed whacking Japanese knotweed interior patches in Zone 2 and Zone 1, along the Mill Brook.

In addition to removing woody invasives during 2019 stewarding visits, ICN installed native plant enhancements throughout the Parcel. The areas to plant were determined by where there was the most disruption. Disruption means loose soil and sunny exposed areas. The intention with native plant enhancements is to replace the invasive plant, and to give the disturbed area a head start on out-competing future invasive sprouts. Species selection for the Parcel was determined by the existing ecosystem. During the initial visit in 2018, native woody species identified include: Chokecherry, American hazelnut, Red osier dogwood, Hawthorne, Grey birch, Yellow birch, Sugar maple, Basswood, White ash, Speckled alder, Shrub willow, Wild apples, American elm, Black cherry, and Elderberry. Table 4 has information on species and quantities planted at the Austin Parcel. These plants were purchased from ICN by a partnership with FMR and US Fish and Wildlife.

**Path Association Stewardship**

This season, the Path Association spent 70 hours mowing, clearing, and piling Japanese knotweed within the interior

sections of the Austin Parcel.

Both hand and power tools were used to remove knotweed. While knotweed has been the primary target, honeysuckle was also removed. Removing honeysuckle "mother plants" was the priority among honeysuckle removal as only cutting the stems allows honeysuckle to regrow. Knotweed was cut using a power brush knife, which is a three bladed trimmer. The knotweed was mowed down repeatedly throughout the summer and piled in specially designed knotweed compost piles adjacent to Route 100. Basic weed whacking was also completed throughout the year to maintain the public path that travels through the Austin Parcel. The majority of native tree plantings were completed by partner organizers.

**Community Stewarding Days**

The Austin Parcel hosted two Community Stewarding Days in 2019, one in May and one in October. Both community days were in Zone 1 & 2 with the focus on stewarding the previous Fall planting in Zone 2, planting more trees and shrubs, and weed whacking and piling Japanese knotweed interior patches. With the volunteers help, Zone 2 of the Austin Parcel has thriving native trees and shrubs and a highly reduced impact of Japanese knotweed on the site.

**Photo 5. Corrie, ED of FMR, and Mike, Manager of ICN, carry the containers of trees and shrubs to be planted during the Community Stewarding Day Fall 2019.**

The Community Stewarding Days were incorporated into the Invasive Management Plan because of community feedback on how to manage the Austin Parcel's invasives issue. During the initial planning stages, the Commission and FMR informed ICN of community back-lash due to former plans to spray glyphosate on invasive plants. With the high amounts of community feedback in favor of non-chemical treatments, the Commission chose this manual invasive removal project. The Community Stewarding Days were an opportunity for community members to participate in the new avenue for stewarding the Parcel. The Commission expressed throughout the project that they had hoped for higher community member turn out to the three Community Stewarding Days to foster a sense of ambassadorship for the Austin Parcel. After three community stewarding days, it is obvious that those in attendance, although fewer in numbers than hoped, have learned about invasive species management, native plant identification and planting, and land stewardship. In lieu of this, the community days have served their purpose to educate and create a platform for the Town of Waitsfield to continue stewarding this parcel.

## Looking forward: What next?

At the end of this two year Invasive Species Management Project, the question is: what comes next? ICN has recommendations for continuing efforts to steward the Austin Parcel, and offers a reflection on challenges faced over the course of the project.

### Stressing Japanese Knotweed: How do we keep it at bay?

Interior patches of Japanese knotweed in Zone 2 are at a perfect point right now for continued maintenance. With the Path Association regularly weed whacking and mowing, Zone 2 has a great opportunity to be a Japanese knotweed managed site success story. ICN recommends continuing to keep this pace in order to keep the Japanese knotweed at bay. Due to its aggressive nature, a minimum of two visits per month starting early June through end of October should be prioritized. The Path Association should still be working on Japanese knotweed in Zone 2 for 50-70 hours per year in perpetuity.

In the past two years, the compost piles on-site have successfully decomposed the stalks of the Japanese knotweed. While decomposing, they have greatly shrunk in size and discouraged more Japanese knotweed from growing in these areas. The Path Association has been maintaining these piles to maximize the composting process, and has successfully re-established grasses in pre-existing interior Japanese knotweed patches. ICN does not recommend continuing to use the quarantine section due to the success of the compost piles. In addition, the quarantine section has a much higher labor component from needing to pile, move, and cover the cuttings further way from the interior patches. As the piles and patches continue to shrink, ICN recommends planting more native species to keep these edges at bay.

### Removing Woody Invasives: How do we do it?

The non-chemical treatment, or manual removal, of invasives is time and labor intensive. It is worth it to maintain the native species on site; however it does require more time and money than spraying herbicide. If the Commission wants to continue efforts with manual removal at the Austin Parcel, regular visits multiple times per year will help maintain the effort from the last two years. The woody invasives in Zone 1 should be continuously monitored and removed for at least 50-75 hours per year or as needed. This should be maintained for the next two years, with a steady decrease in labor hours invested at the Austin Parcel after five years (2018-2022).

There are many small sprouts of honeysuckle and buckthorn in the understory in Zone 1, Roadside trail that need to be addressed before they become more established and begin fruiting. These are easily removed by bending over and lightly pulling up by the root crown or soil line, then hanging plants with

roots facing towards the sky in a nearby tree. This allows for the plant to dry out and not re-sprout, which often happens if it is touching the ground.

Due to “mother” stumps being so large and deeply rooted, it took anywhere from 30 to 75 minutes per stump to remove with one person. Tools used to remove included: shovels, pruners, loppers, chainsaws, hand saws, pick axes, and weed wrenches. ICN recommends removing future “mother” stumps with a pulley system for faster results.

If stump removal is not an option, girdling the stumps multiple times per year is necessary to prevent regrowth. Continuing to remove suckers and girdle stumps two to three times a year for multiple years will eventually stress the “mother” stumps out enough to eventually give up. Excess woody debris can be added to existing piles on site or in new piles.

Native plant enhancements will be key to this sites re-establishment success. Leaving disturbed soil un-attended from removals will encourage invasive species to move in. The partnership between FMR and Fish and Wildlife is an opportunity to continue purchasing native plants as needed in years to come.

**Floodplain Forest Establishment: What have we done and what more is needed?**

In the past two years, 416 native plants have been planted in Zone 2, Reed canary grass zone, and 118 have been planted in Zone 1, Roadside trail. The Natural Resources Conservation Services recommends a density of 250-400 plants per acre. As Zone 2 is one acre, the density goal has been met. In order to maintain this level of density, ICN recommends stewarding the native plants at minimum twice a year, once in Spring and once in late Summer. Each year, Zone 2, Reed canary grass zone should be inventoried for living and dead plants. Once inventoried, plant more native trees and shrubs to replace dead. This will maintain the current level of density for decades down the road.

As the Japanese knotweed piles continue to shrink and the interior patches become more stressed in Zone 2, ICN recommends continuing to plant native trees and shrubs in these areas. As the piles shrink, the areas to plant in Zone 2 are only increasing. Leaving open patches will leave the site vulnerable for Japanese knotweed and other invasives to move back in. Continuing to plant will provide more opportunity to keep the native woody plant density numbers high in Zone 2. By doing this and continuing to remove invasives, the functionality of the floodplain forest will only increase.

When ICN came on site in 2018, it was obvious that the Austin Parcel was functioning well as a floodplain forest, but that its trajectory was leaning towards invasive species takeover soon. In the first year of stewarding, this became more obvious as the Japanese knotweed came back more vigorously than previously observed. With the Japanese knotweed patches shrinking and the decreased number of fruiting woody invasives, the Parcel has been steered towards becoming a fully functioning floodplain

forest with a dominance of native species instead of invasives. In order to maintain this trajectory, the labor hours on site per year needs to remain steady.

**Maintenance: What still needs to get done?**

Removing invasives is an important piece to maintaining the Austin Parcel. An equally important aspect of maintenance here will be stewarding the native plants that have been thoughtfully planted throughout the site for two years.

Zone 2, Reed canary grass zone, and along the Mill Brook is where over half of the native trees and shrubs have been planted since the Community Stewarding Day Fall 2018. In these areas, the native plants are subject to girdling from bind weeds and small mammals, getting out competed by reed canary grass and Japanese knotweed, and normal herbaceous pressures. To ensure success, this area should be stewarded twice a year to give the planting a jump start to out compete the existing grasses and invasive pressures. Stewarding means removing bind weeds, stomping on or weed whacking existing grass to provide more light, watering in times of drought and fixing plant protection. This floodplain is fertile and provides fantastic conditions for the plantings, and a little attention will go a long way.

Native plant enhancements in Zone 1, Roadside trail, will also need to be stewarded. They are all marked with red flagging tape. Since they have all just been planted in 2019, at least one mid-season stewarding visit in 2020 will improve their chances of out competing surrounding woody invasive sprouting.

One Zone that was not stewarded in the two year project as initially outlined was Zone 3, Beaver wetland area. As the project continued, this Zone was noted as needing the least assistance in native species re-establishment. The wetland is affected by beavers, but is a thriving wetland with large established shrub willow and speckled alder. This area is currently maintaining itself, and keeping the Japanese knotweed at bay along the river bank.

**Community Engagement: How do we continue hosting community members to steward on site?**

Whether its community members or hired contractors, in order to maintain the efforts put into the Austin Parcel by the partnership the past two years, regular maintenance needs to be included in future planning for the site.

While there is value in hosting community days, the Commission should take a different approach to foster community engagement at this particular site. Often discussed at the Community Stewarding Days was the desire to have autonomy over removing invasives while visiting the Parcel. The Commission should consider this as an opportunity to create Austin Parcel Ambassadors that can visit the site two to three times per year and work on removing invasives and stewarding the native planting

areas. Is there a local restaurant that would donate gift cards to give to volunteers for this effort? Is there a local business that would sponsor the site to buy tools and pay for maintenance? ICN recommends this avenue be considered as a way to foster higher community engagement.

## Acknowledgements

ICN would like to thank the Commission for hiring ICN, FMR, and the Path Association to steward this Parcel. After two years, we feel like we can look back and see a success story that has unfolded. ICN would also like to thank FMR and the Path Association for coordinating outreach for the project, and being willing to adapt the management plan as we all learned what the site needed. We can all be proud of what has been accomplished on site.

The Austin Parcel is a beautiful site with easy access from Route 100. It boasts two swimming holes and a regularly trafficked trail. It abuts landowner's properties and has great views of the valley, hillsides, and Wu Ledges. There are large, mature trees and a plethora of native pollinator plants, encouraging bees, birds and butterflies to visit. For all these reasons and more, ICN enjoyed stewarding this site for the past two years. This site is obviously resilient, and with a lending hand from the Town of Waitsfield, it will thrive.

## Appendices

### Table 1. AMOUNT OF INVASIVE PLANTS REMOVED 2018 & 2019

| Species | Honeysuckle | | Buckthorn | | Japanese knotweed | | Species Totals |
|---|---|---|---|---|---|---|---|
| Year | 2018 | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 & 2019 |
| "Mother" plants cut back | 157 | 62 | 36 | 7 | | | 199 |
| "Mother" plants uprooted | | 52 | | 2 | | | 54 |
| Small shrubs | 587 | 162 | 209 | 12 | | | 970 |
| Hours spent hand scything | | | | | 6 hrs | 7.5 hrs | |
| Hours spent weed whacking | | | | | 12 hrs | 17.5 hrs | |
| **Totals** | **744** | **276** | **245** | **21** | **18** | **25** | **1,223** |

*A "mother" plant is considered the largest fruit bearing plant found in the area.*

### Table 2. AMOUNT OF PATH ASSOCIATION JAPANESE KNOTWEED & TRAIL MOWING IN 2019

| Date | Description | Hours |
|---|---|---|
| 5/9/2019 | Meet with Ned, Austin walk knot weed planning for 2019 | 2 |
| 5/11/2019 | Austin, knock down island stumps, Weed wacker maintenance | 3 |
| 5/16/2019 | Austin knot weed, Clean islands | 3 |
| 5/21/2019 | Meet with Ned and Mike Ingalls, Austin Walk knot weed | 2 |
| 5/24/2019 | Austin walk, knot weed composter construction | 2 |
| 5/25/2019 | Finish Compost construction at Austin | 2 |
| 5/28/2019 | Austin walk, weed wip path out to point, back to trail head, add sign | 4 |
| 6/1/2019 | Stewardship day, Austin walk knotweed maintenance | 5 |
| 6/10/2019 | Austin walk knotweed maintenance | 4 |
| 6/17/2019 | Austin walk knotweed maintenance | 4 |
| 6/25/2019 | Austin walk knotweed maintenance | 3 |
| 7/1/2019 | Austin walk knotweed maintenance | 4 |
| 7/8/2019 | Austin walk knotweed maintenance | 3 |
| 7/15/2019 | Austin walk knotweed maintenance | 3 |
| 7/22/2019 | Austin walk knotweed maintenance | 3 |
| 7/29/2019 | Austin walk knotweed maintenance | 3 |
| 8/7/2019 | Austin walk knotweed maintenance | 2 |
| 8/15/2019 | Austin walk knotweed maintenance | 3 |
| 8/20/2019 | Austin walk knotweed maintenance | 2 |
| 8/29/2019 | Austin walk knotweed maintenance | 3 |
| 9/12/2019 | Austin walk knotweed maintenance | 2 |
| 9/29/2019 | Austin walk knotweed maintenance, | 2 |
| 10/15/2019 | Austin walk knotweed maintenance | 2 |

| | | |
|---|---|---|
| 10/19/2019 | Austin walk knotweed maintenance, Stewardship day | 4 |
| **TOTAL** | | **70** |

**Table 3. NATIVE SPECIES PLANTED 2018 & 2019 BY TYPE AND QUANTITY.**

| Common Name | Latin Name | Fall 2018 | Spring 2019 | Summer 2019 | Fall 2019 | TOTAL |
|---|---|---|---|---|---|---|
| Balsam poplar | *Populus balsamifera* | | | 10 | 9 | **19** |
| Basswood | *Tilia americana* | | | | 7 | **7** |
| Black cherry | *Prunus serotina* | | | 4 | | **4** |
| Black willow | *Salix nigra* | | 20 | | | **20** |
| Box elder | *Acer negundo* | 45 | 37 | 5 | 7 | **94** |
| Chokecherry | *Prunus virginiana* | 15 | | 9 | 8 | **32** |
| Cottonwood | *Populus deltoides* | | 20 | | | **20** |
| Elderberry | *Sambucus canadensis* | | | | 2 | **2** |
| Grey birch | *Betula populifolia* | | 20 | 6 | | **26** |
| Highbush cranberry | *Viburnum trilobum* | | | 10 | 7 | **17** |
| Quaking aspen | *Populus tremuloides* | | | 6 | 8 | **14** |
| Red osier dogwood | *Cornus sericea* | 30 | | | | **30** |
| Shrub willow | *Salix spp.* | 30 | | | 15 | **45** |
| Silky dogwood | *Cornus amomum* | 15 | 20 | 51 | 10 | **96** |
| Silver maple | *Acer saccharinum* | 50 | 11 | | | **61** |
| Speckled alder | *Alnus incana* | 15 | | 14 | | **29** |
| Sugar maple | *Acer saccharum* | | | | 1 | **1** |
| Yellow birch | *Betula alleghanensis* | | 10 | 1 | 4 | **15** |
| Winterberry | *Ilex verticillata* | | | 2 | | **2** |
| **TOTAL** | | **200** | **138** | **118** | **78** | **534** |

*Plants purchased through $3,000 contribution from Friends of the Mad River & US Fish and Wildlife Service.*

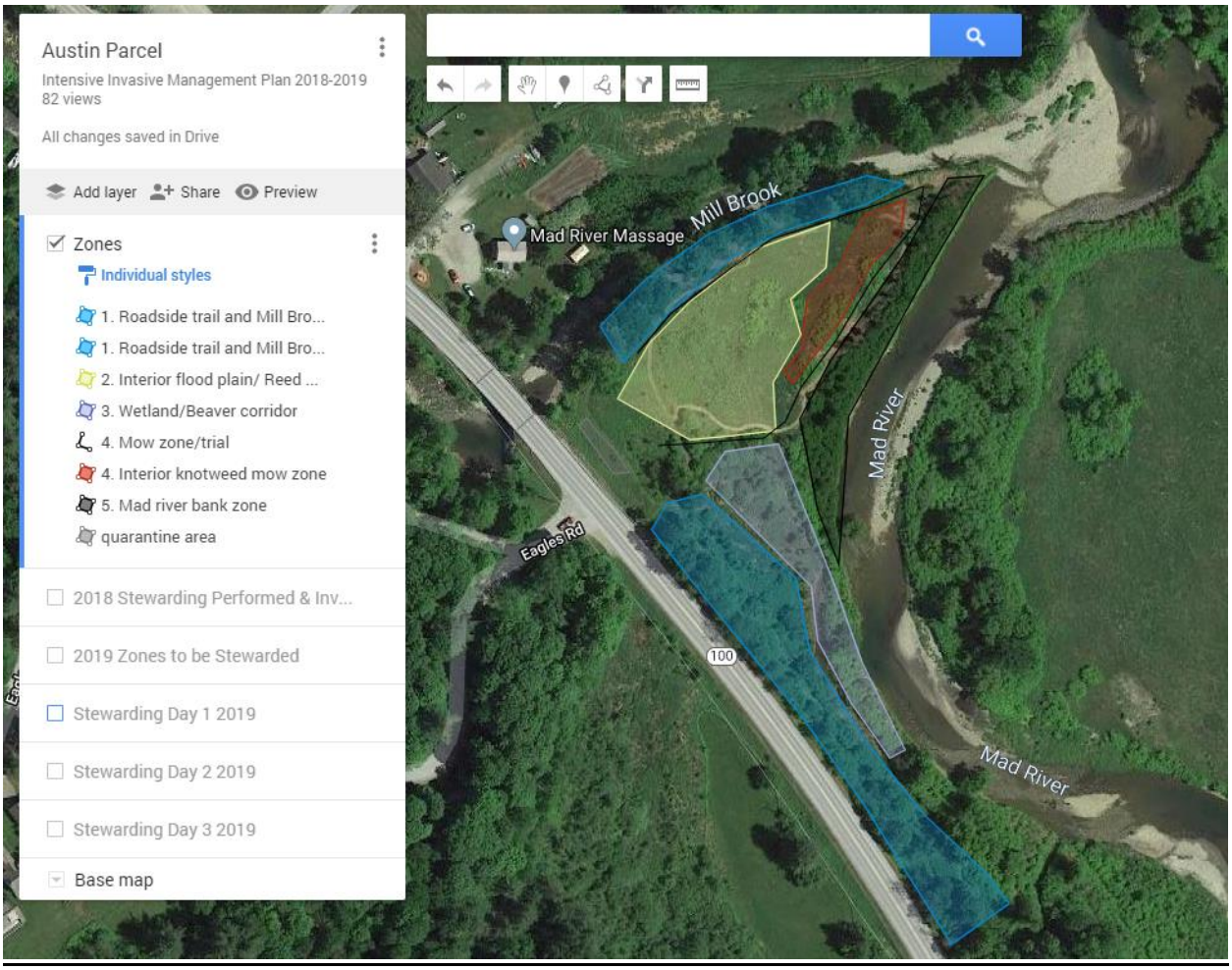
**Table 4. ICN LABOR HOURS ON-SITE AUSTIN PARCEL**

| | Hours on Site 2019 | Crew members 2019 | Total Hours 2019 | Total Hours 2018 | Total Hours |
|---|---|---|---|---|---|
| Stewarding Day #1 | 6 | 6 | 36 | 48 | 84 |
| Stewarding Day #2 | 5 | 6 | 30 | 36 | 66 |
| Stewarding Day #3 | 4.5 | 5 | 22.5 | 30.25 | 52.75 |
| Community Stewarding Day Fall 2018 | | | | 12 | 12 |
| Community Stewarding Day Spring 2019 | 4 | 2 | 8 | | 8 |
| Community Stewarding Day Fall 2019 | 4 | 2 | 8 | | 8 |
| **TOTALS** | **23.5** | **21** | **104.5** | **126.25** | **230.75** |

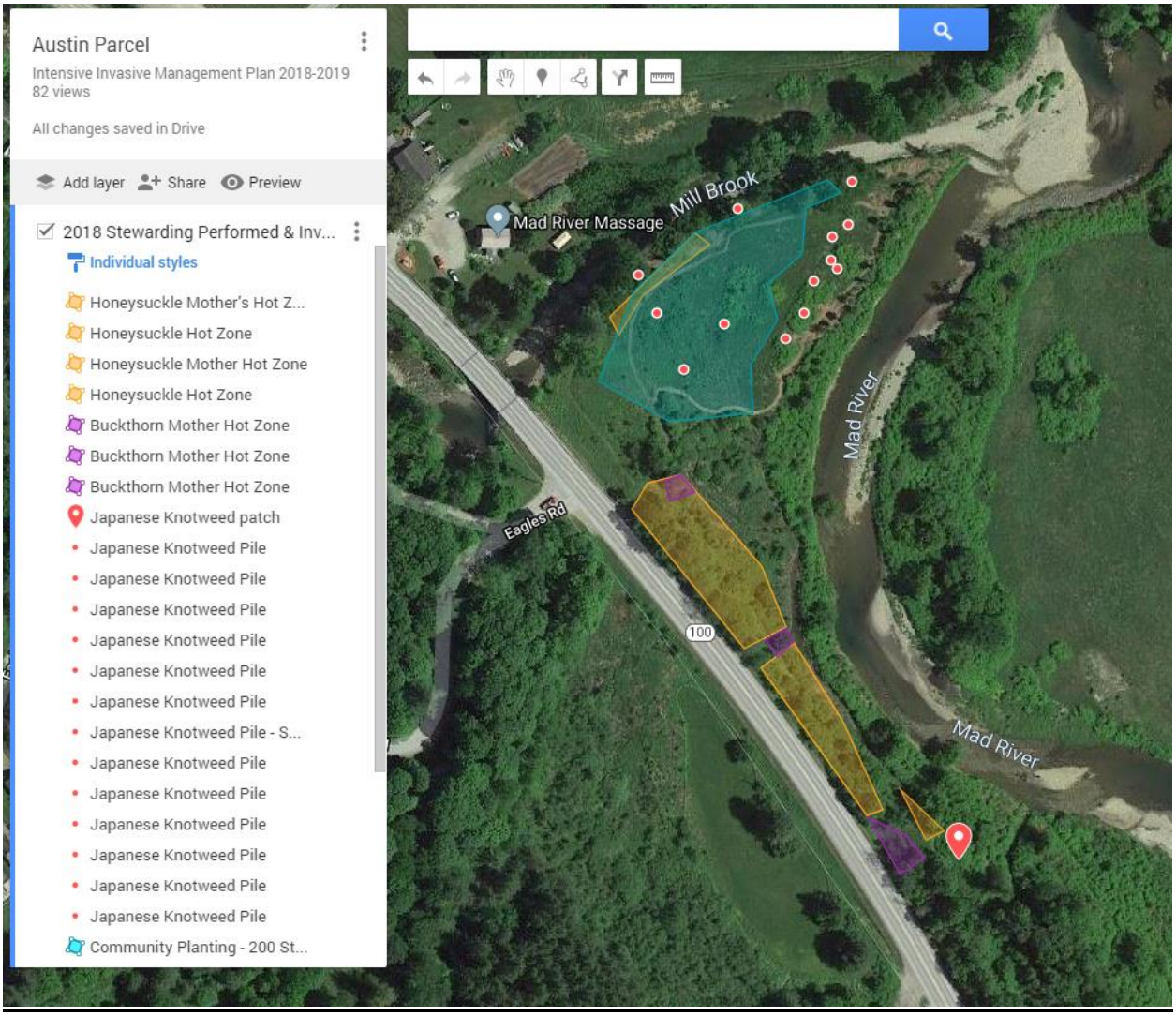
**Table 5. FRIENDS OF THE MAD RIVER HOURS for Project Coordination & Community Engagement 2018 & 2019.**

| | Total Hours | In-Kind Value |
|---|---|---|
| **TOTALS** | **50+** | **$2,000** |

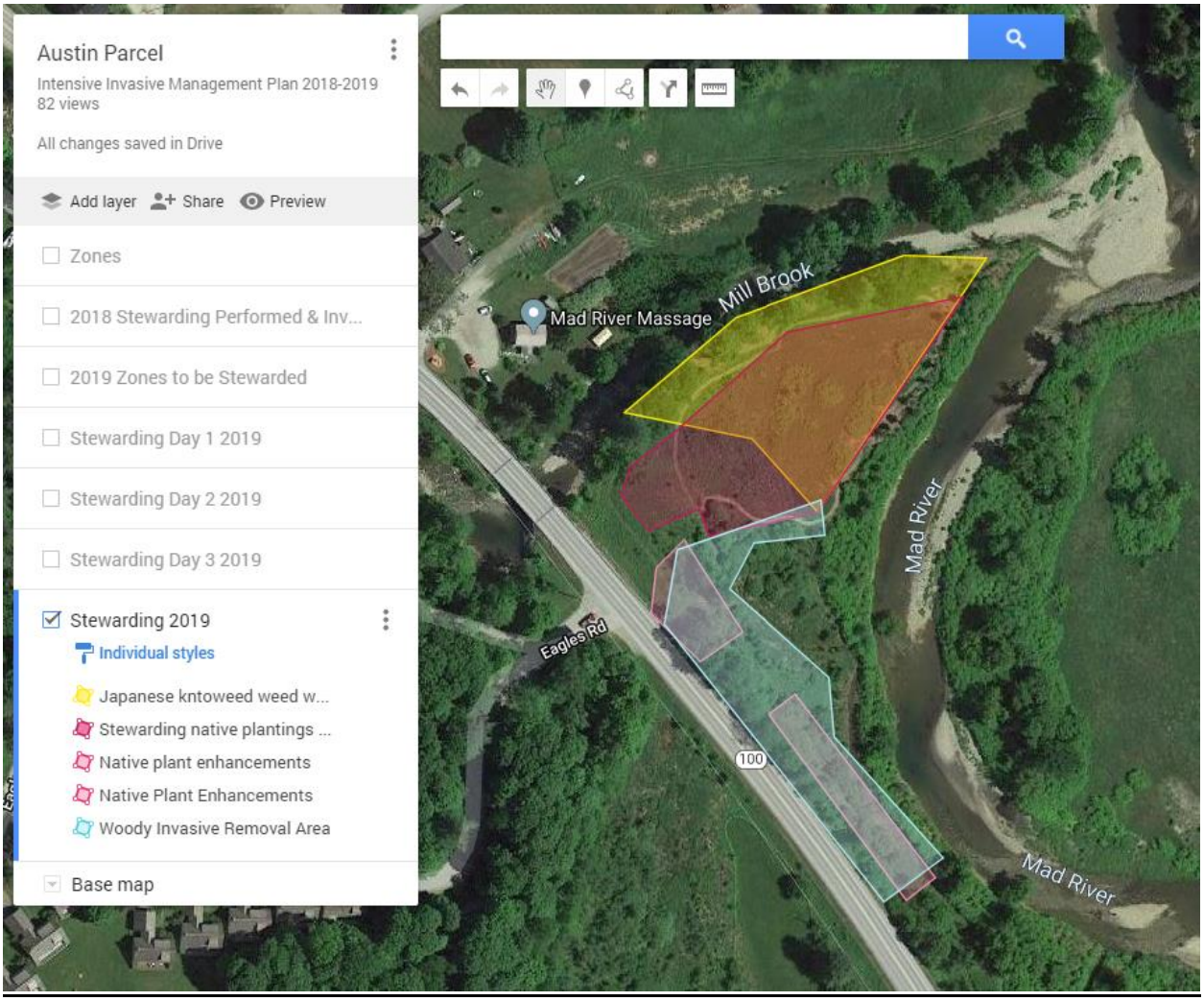
**Map 1. AUSTIN PARCEL INTENSIVE INVASIVE MANAGEMENT ZONES.**



## Map 2. AUSTIN PARCEL ZONES STEWARDED 2018 WITH INVASIVE SPECEIS HOT ZONES.



## Map 3. AUSTIN PARCEL ZONES STEWARDED 2019.




*To see all layers from project in an interactive online form, type this link into your online browser:*
*http://bit.ly/austinparcel*

## Additional Photos from Project

Greg, ICN 2018 summer intern, hand saws a large "mother" honeysuckle from the culvert area in Zone 1, Roadside trail.

Native plant enhancement along in Zone 1, Roadside trail, replacing honeysuckle hot zone.

ICN manager, Mike, cuts down and girdles a large "mother" buckthorn in Zone 1, Roadside trail, along the edge of the wetland zone.

Native plant enhancements ready to be planted along the roadside trail. Overlooking previous honeysuckle hot zone.

Thriving Grey birch planted in Zone 2, Reed canary grass zone.

Recently stewarded Silver maple in Zone 2, Reed canary grass zone. Planted 2018, stewarded 2019.

Image of stressed honeysuckle plant, cut back in 2018 and removed in 2019.

Scale photo of one "mother" honeysuckle root, removed in 2019.