

# Ranch at the Roaring Fork Noxious Weed Management Plan

## Introduction



The Ranch at the Roaring Fork open space is located south of state highway 82. It is further bounded on the east and west by other private properties and the southern property boundary is defined by the Roaring Fork River. Historically, before the parcel was subdivided and developed it was a ranch for at least 72 years (mostly hay fields and pasture). Currently of the original ranch, 323 acres are left as an open space for the residents of the neighborhood to enjoy.

Current recreational activities include running, biking, fishing, horse boarding and riding, bird watching and walking. In order to maintain water and flow through rights, the Ranch also keeps a number of fields (stands 6,3 and 7) in hay production and pasture for resident horses. In 2009 a fire jumped the river into stand 2 and then spread through the middle of the open space effecting roughly 1/3 of the property. As a result of the large disturbance (Fire) and lack of vegetation management after the fire noxious weeds have become a problem in this area along with previously controlled willows and other pioneer species. Because of this the ranch is under numerous threats. First, it is illegal to not keep these class B weeds under control. Second, there are many negative effects for these noxious weeds; for example, Tansy is a skin irritant, which will impede recreation if it spreads more and is unpalatable, Houndstongue has many alkaloids that can kill horses in areas where it is concentrated, and most of these plants are unpalatable for wildlife thus reducing not only the biodiversity and richness of your plant species but the animals as well. Basically, every weed on these lists were chosen because they were agriculturally, economically, or ecologically destructive. The willows are also growing at a much higher rate impeding recreation and damaging landowner landscapes.

After talking with a number of interested parties, a summary of the land objectives pertaining to vegetation management follow. The overarching goal for all activities is to maintain the land in order to

achieve ecological health, while facilitating and not impeding recreation and allowing for the maintenance of water rights. While keeping this in mind, the Ranch is also interested in forcing succession of the disturbed area to one more characterized by grasses and groups of large trees feathered by stratified native vegetation. The Ranch is also interested in improving the quality of its hay and pastures. Ideally, all these goals should be able to be met while controlling noxious weeds in the same process. Other than noxious weeds the main problem associated with meeting these objectives will be the social compromise required in order to agree on where, and how.

## Stand Descriptions and Prescriptions

### Stand 1:

Stand 1 is characteristic of what the ranch may have looked like before the fire as it is one of the few areas not in pasture that was not burned. The main reason why the fire probably wasn't able to quickly spread into this area was the fuel break of the field in Stand 3. However, some areas have heavy fuel loads that were probably present in the area that was burned. There are multiple trails running east-west through the stand along the streams. The weed species diversity and saturation are as shown below:

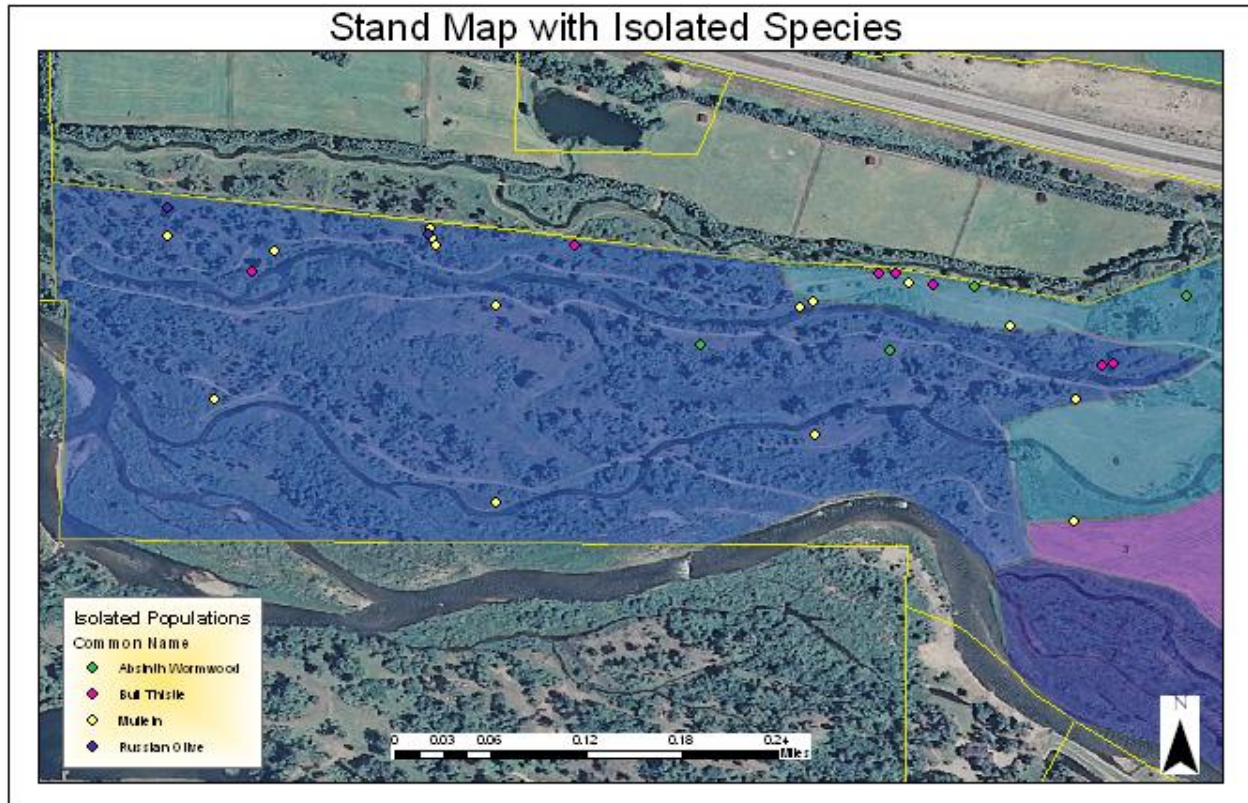
#### Stand 1

| Noxious Weeds      | Square ft       | Acres           | Perennial | Annual | Biennial | Biocontrol Available |
|--------------------|-----------------|-----------------|-----------|--------|----------|----------------------|
| Absinth Wormwood   | 1122.613        | 0.033117        | 1         | 0      | 0        | 0                    |
| Bull Thistle       | 72.0944         | 0.002127        | 0         | 0      | 1        | 1                    |
| Canada Thistle     | 10649.37        | 0.314156        | 1         | 0      | 0        | 1                    |
| Houndstongue       | 7075.55         | 0.208729        | 0         | 0      | 1        | 1                    |
| Mullein            | 473.7632        | 0.013976        | 0         | 0      | 1        | 0                    |
| Oxeye Daisy        | 11051.04        | 0.326006        | 1         | 0      | 0        | 0                    |
| Plumeless Thistle  | 7353.629        | 0.216932        | 0         | 0      | 1        | 1                    |
| Russian Olive      | 4284.467        | 0.126392        | 1         | 0      | 0        | 1                    |
| Saint Johns Wort   | 13378.66        | 0.39467         | 1         | 0      | 0        | 1                    |
| Tansy              | 4737.632        | 0.13976         | 1         | 0      | 0        | 0                    |
| <b>Grand Total</b> | <b>60198.82</b> | <b>1.775865</b> |           |        |          |                      |

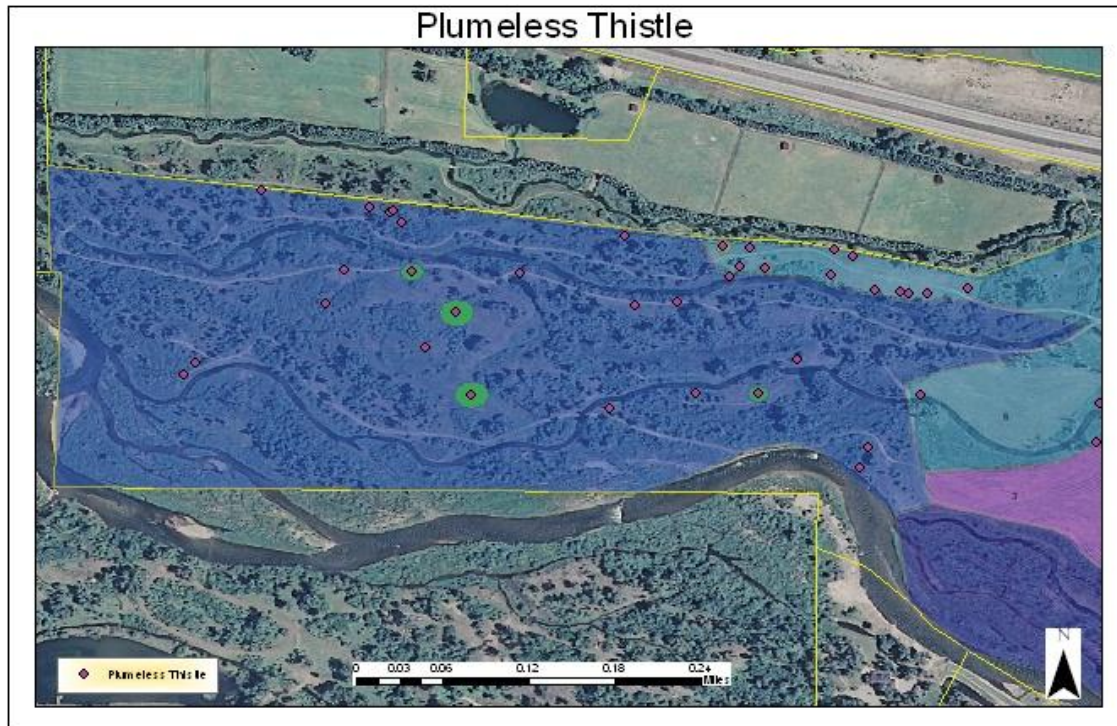
Stand 1 is 51 acres. The largest concentrations of weeds in this area are Canada Thistle, Oxeye Daisy and St. Johns Wort. The most isolated populations in this stand are bull thistle, mullien and Absinth Wormwood. Another noteworthy characteristic of this stand is that it has much less Tansy than the East side of the property.

Recommendations:

For Bull Thistle, Mullien and Absinth Wormwood being that they are limited in this area, they should be identified in the GIS layer mechanically removed and then sprayed with herbicide for any re-growth. Russian Olive should be treated with a cut-stem herbicide application. The herbicide is important for this plant in order to control root sprouts.



Canada Thistle, Plumeless Thistle, Houndstongue and Saint Johns Wort are all eligible for biological control (See Appendix X for recommended release areas and the CDA profiles for species). This introduction should be facilitated by the insectory in Palisade. However, biological controls are just a tool in weed control. As a result this should be combined with identification of large concentrated patches that should be treated mechanically and/or with herbicides. The Plumeless Thistle also has a thin but significant population in the fields in the center of this stand which could easily be targeted by a backpack sprayer or mechanical removal before they become more prominent.



The Oxeye Daisy and Tansy should be treated independently with herbicides if they are in large concentrated patches as well. Otherwise, both of these are usually concentrated along the pathways or the streams. Both of these areas receive periodic mowing which should be timed to keep these among other weeds in these areas from seeding. After mowing I would suggest using a foliar spray in order to further the stress already put on the plants due to having to the mowing. Areas with these weeds could be reseeded with perennial grasses in order to compete with the perennial weeds because they aren't broadleaved and should not be affected. If eradicated areas could also be reseeded with desirable, competitive perennial broadleaved plants.

In order to maintain a healthy stand some of the more dense areas in this stand could be thinned by using a single tree selection cutting. The material harvested (if cottonwood or similar species) could then be used to re-vegetate other areas using the pole planting method.

## Stand 2:

This area makes up most of the area that was burned during the fire and as a result has many weeds. Much like stand 1 it is primarily used for recreation activities. Trails also run east-west following the river and other streams. This stand is one of the primary areas considered for willow control. The weed species diversity and saturation are as shown below:

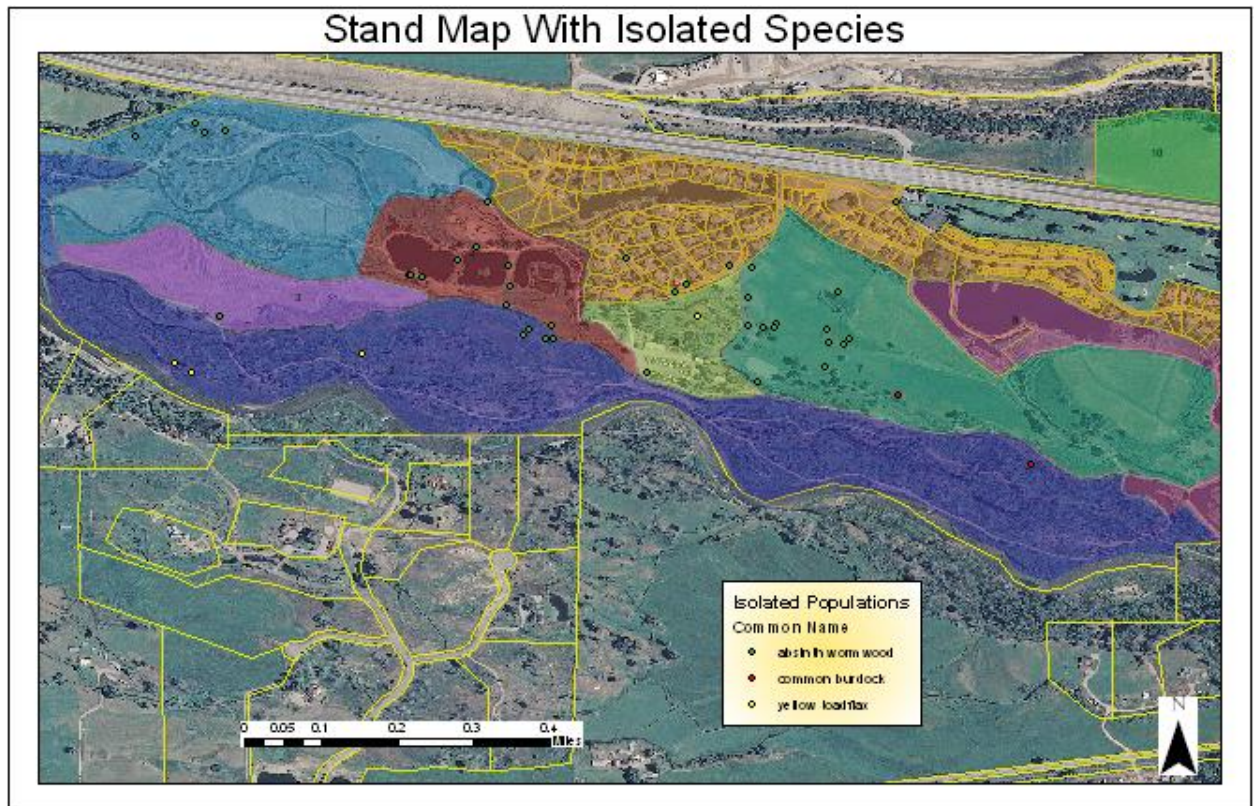
### Stand 2

| Noxious Weeds      | Square ft       | Acres           | Perrenial | Annual | Biennial | Biocontrol Available |
|--------------------|-----------------|-----------------|-----------|--------|----------|----------------------|
| absinth wormwood   | 41.1968         | 0.001215        | 1         | 0      | 0        | 0                    |
| canada thistle     | 1905.352        | 0.056208        | 1         | 0      | 0        | 1                    |
| common burdock     | 10.2992         | 0.000304        | 0         | 0      | 1        | 0                    |
| houndstongue       | 226.5824        | 0.006684        | 0         | 0      | 1        | 1                    |
| mullein            | 11699.89        | 0.345147        | 0         | 0      | 1        | 0                    |
| oxeye daisy        | 12245.75        | 0.36125         | 1         | 0      | 0        | 1                    |
| plumeless thistle  | 9228.083        | 0.272228        | 0         | 0      | 1        | 1                    |
| saint johns wort   | 19249.2         | 0.567852        | 1         | 0      | 0        | 1                    |
| tansy              | 32236.5         | 0.950977        | 1         | 0      | 0        | 0                    |
| yellow toadflax    | 267.7792        | 0.007899        | 1         | 0      | 0        | 1                    |
| <b>Grand Total</b> | <b>87110.63</b> | <b>2.569764</b> |           |        |          |                      |

This stand is 79 acres. Its main noxious weed is Tansy being double the presence of any of the other weeds in this stand. However, this stand is also unique that it has yellow toadflax which is a weed species that is not well represented anywhere else outside the property.

### Recommendations:

The less invaded species should again be found using the GIS layer and mechanically treated and sprayed with herbicide if they sprout again. This includes Absinth Wormwood, Burdock, and Yellow Toadflax. The Yellow Toadflax might also be a good candidate for biocontrol because its distribution around the property is sporadic and not usually in areas easily reached.



Other species that would be good to use biocontrol on are. Houndstongue, Canada Thistle, Plumeless Thistle, and Saint John’s Wort. Only the bugs for St. John’s Wort and Plumeless Thistle would make for good release points in this stand (See appendix X).

The Oxeye Daisy and Tansy should be treated independently with herbicides if they are in large concentrated patches as well. Otherwise, both of these are usually concentrated along the pathways or the streams. Both of these areas receive periodic mowing which should be timed to keep these among other weeds in these areas from seeding. After mowing I would suggest using a foliar spray in order to further the stress already put on the plants due to having to the mowing. Areas with these weeds could be reseeded with perennial grasses in order to compete with the perennial weeds because they aren’t broadleaved and should not be affected. If eradicated areas could also be reseeded with desirable perennial broadleaved plants.

Many of these same areas are mixed in with native vegetation, where herbicide may do more harm than good. One of the objectives was to force succession and make the area more open like it had been before the fire. As a result these areas could be opened up where there is a high concentration of weeds that would also facilitate access to the river or other recreational areas. In order to do this mowing, intensive grazing and herbicide could all be used in conjunction to achieve this goal.

## Stand 3

This area is a 15 acre field that historically was also a clay pigeon range. It is almost the same stand as 6 except that it has more and different weeds. The weed species diversity and saturation are as shown below:

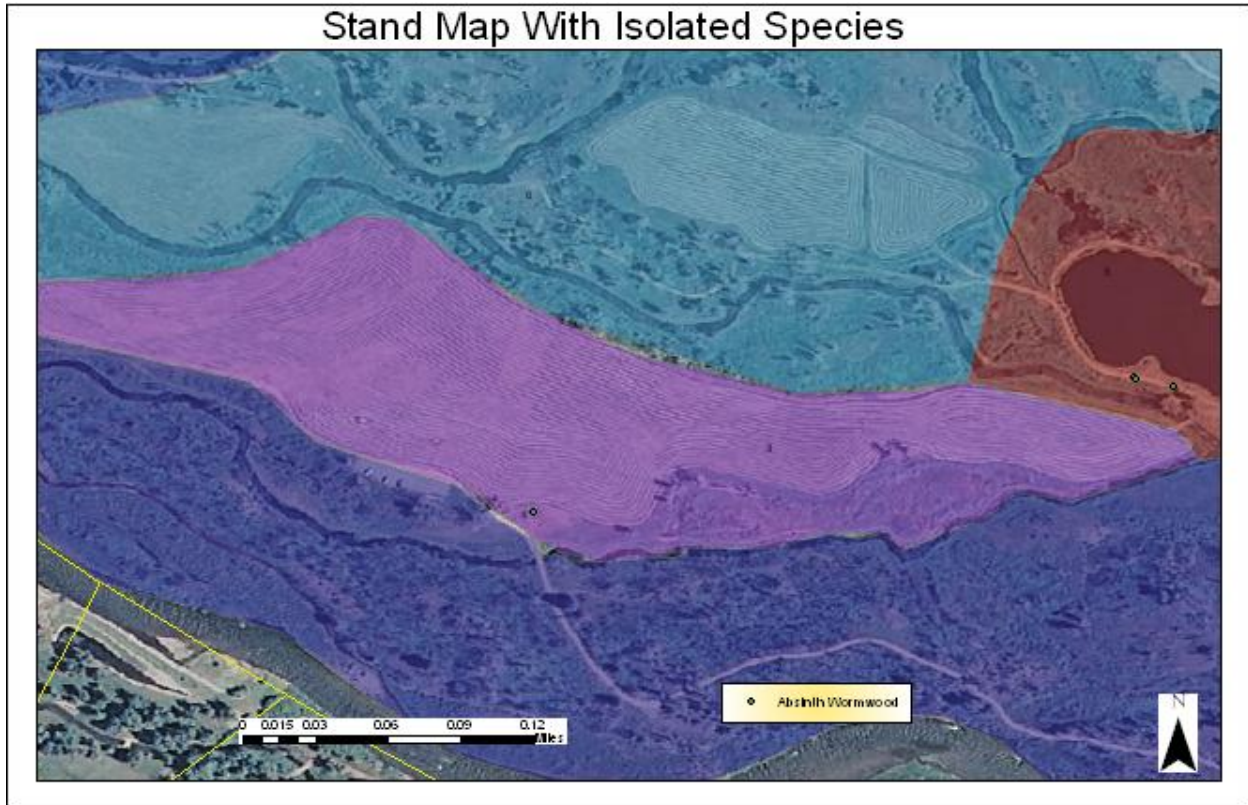
### Stand 3

| Noxious Weeds     | Square ft | Acres    | Perrenial | Annual | Biennial | Biocontrol Available |
|-------------------|-----------|----------|-----------|--------|----------|----------------------|
| absinth wormwood  | 164.7872  | 0.004861 | 1         | 0      | 0        | 0                    |
| canada thistle    | 762.1408  | 0.022483 | 1         | 0      | 0        | 1                    |
| Houndstongue      | 10.2992   | 0.000304 | 0         | 0      | 1        | 1                    |
| Mullein           | 453.1648  | 0.013368 | 0         | 0      | 1        | 0                    |
| oxeye daisy       | 4552.246  | 0.134291 | 1         | 0      | 0        | 1                    |
| plumeless thistle | 278.0784  | 0.008203 | 0         | 0      | 1        | 1                    |
| saint johns wort  | 370.7712  | 0.010938 | 1         | 0      | 0        | 1                    |
| Tansy             | 751.8416  | 0.022179 | 1         | 0      | 0        | 0                    |
| Grand Total       | 7343.33   | 0.216628 |           |        |          |                      |

### Recommendations:

The main small infestation to remove in this area is the Absinth Wormwood. Again, I would remove it mechanically and then treat resprouts with herbicide. Otherwise, the field itself should be cut in a timing to keep weed seeds out of the hay that will then be spread to other areas or should be fed to livestock only on the same site it was cut from. The fields should also be treated during the spring by spot spraying weed patches.

This field is also a good candidate to use the No-till Drill on after herbicide is used if the desired forage is different than what is present.



Again, the Oxeye Daisy and Tansy should be treated independently with herbicides if they are in large concentrated patches as well. Otherwise, both of these are usually concentrated along the pathways or the streams. Both of these areas receive periodic mowing which should be timed to keep these among other weeds in these areas from seeding. After mowing I would suggest using a foliar spray in order to further the stress already put on the plants due to having to the mowing.

## Stand 4

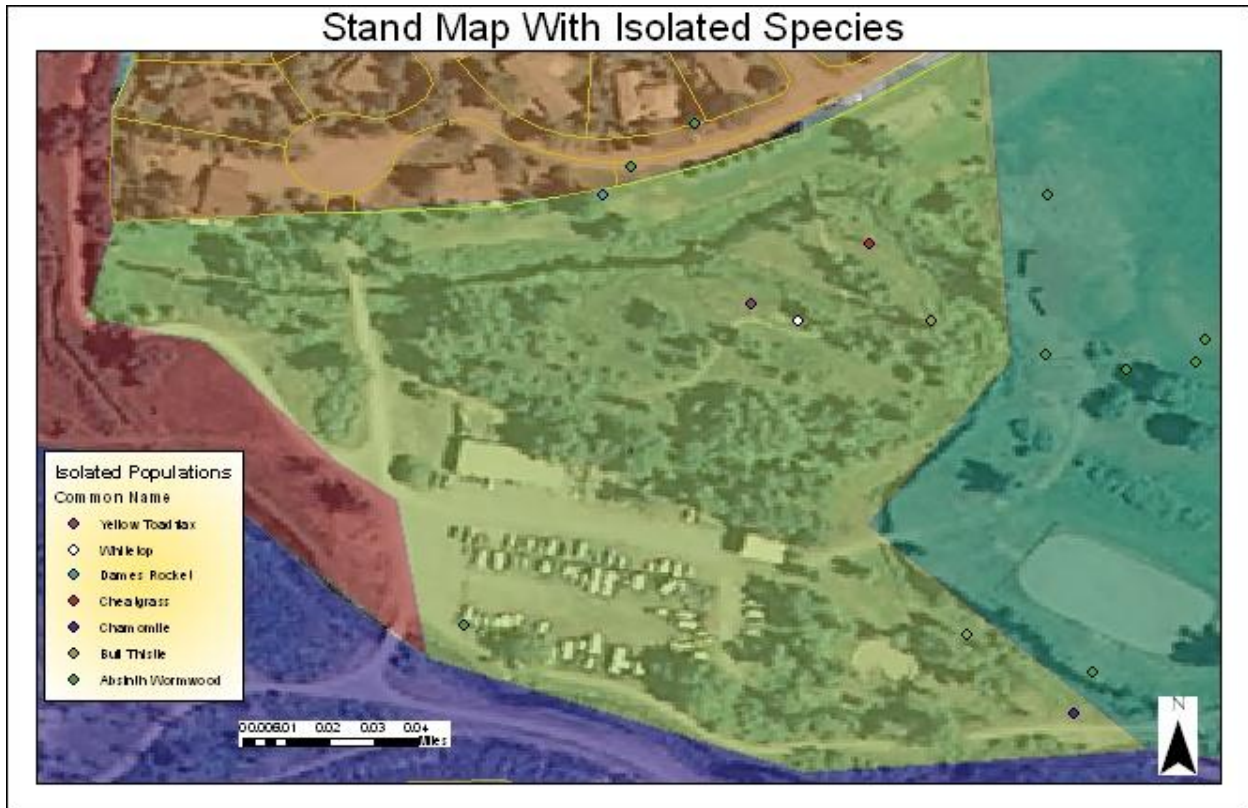
This 10 acre area is comprised of the shop where vehicles, tools and other equipment are stored and a park like area in the middle of some streams. Having healthy competitive vegetation in this area is important because this is a major vector for spreading weeds around the property due to the vehicles that are being parked from other areas, the heavy machinery bringing weeds from other parts of the property and it is a major access point to the open area. The weed species diversity and saturation are as shown below:

### Stand 4

| Noxious Weeds     | Square ft | Acres    | Perrenial | Annual | Biennial | Biocontrol Available |
|-------------------|-----------|----------|-----------|--------|----------|----------------------|
| absinth wormwood  | 10.2992   | 0.000304 | 1         | 0      | 0        | 0                    |
| bull thistle      | 20.5984   | 0.000608 | 0         | 0      | 1        | 1                    |
| canada thistle    | 226.5824  | 0.006684 | 1         | 0      | 0        | 1                    |
| chamomile         | 41.1968   | 0.001215 | 0         | 1      | 0        | 0                    |
| cheatgrass        | 92.6928   | 0.002734 | 0         | 1      | 0        | 0                    |
| dames rocket      | 10.2992   | 0.000304 | 0         | 0      | 1        | 0                    |
| houndstongue      | 267.7792  | 0.007899 | 0         | 0      | 1        | 1                    |
| mullein           | 576.7552  | 0.017014 | 0         | 0      | 1        | 0                    |
| oxeye daisy       | 92.6928   | 0.002734 | 1         | 0      | 0        | 0                    |
| plumeless thistle | 1194.707  | 0.035244 | 0         | 0      | 1        | 1                    |
| saint johns wort  | 1112.314  | 0.032813 | 1         | 0      | 0        | 1                    |
| tansy             | 1091.715  | 0.032206 | 1         | 0      | 0        | 0                    |
| whitetop          | 10.2992   | 0.000304 | 1         | 0      | 0        | 0                    |
| yellow toadflax   | 41.1968   | 0.001215 | 1         | 0      | 0        | 1                    |
| Grand Total       | 4789.128  | 0.141279 |           |        |          |                      |

### Recommendations:

This is proven by the very large diversity for such a small area. As a result the Absinth, Bull Thistle, Chamomile, Cheatgrass, Dames Rocket, Whitetop and Yellow Toadflax should all be treated mechanically and then any resprouts should be sprayed. A very active revegetation of competitive plants should be used to try and outcompete the weeds in this area especially around the parking/shop area.



Treat the Tansy and Oxeye Daisy as previous.

## Stand 5

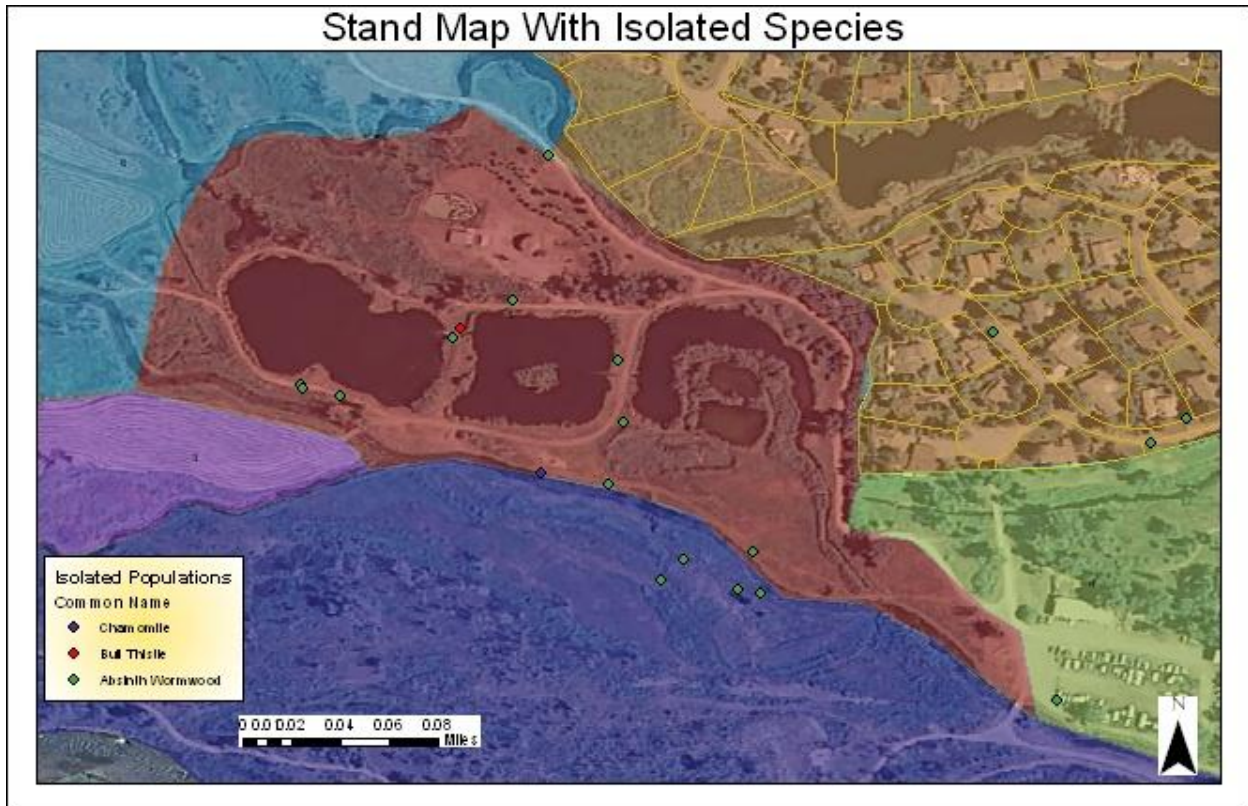
This area is comprised of several ponds and the waste treatment plant. As a result all herbicides used will have to be riparian certified (as with most of the other stands too), and probably none near the treatment area. The main vectors for seeding into this area are the water and animals. The weed species diversity and saturation are as shown below:

### Stand 5

| <b>Noxious Weeds</b> | <b>Square ft</b> | <b>Acres</b>    | <b>Perrenial</b> | <b>Annual</b> | <b>Biennial</b> | <b>Biocontrol Available</b> |
|----------------------|------------------|-----------------|------------------|---------------|-----------------|-----------------------------|
| absinth wormwood     | 123.5904         | 0.003646        | 1                | 0             | 0               | 0                           |
| bull thistle         | 10.2992          | 0.000304        | 0                | 0             | 1               | 1                           |
| canada thistle       | 957.8256         | 0.028256        | 1                | 0             | 0               | 1                           |
| chamomile            | 10.2992          | 0.000304        | 0                | 1             | 0               | 0                           |
| houndstongue         | 484.0624         | 0.01428         | 0                | 0             | 1               | 1                           |
| mullein              | 350.1728         | 0.01033         | 0                | 0             | 1               | 0                           |
| oxeye daisy          | 1091.715         | 0.032206        | 1                | 0             | 0               | 0                           |
| plumeless thistle    | 2574.8           | 0.075957        | 0                | 0             | 1               | 1                           |
| saint johns wort     | 144.1888         | 0.004254        | 1                | 0             | 0               | 1                           |
| tansy                | 1864.155         | 0.054993        | 1                | 0             | 0               | 0                           |
| <b>Grand Total</b>   | <b>7611.109</b>  | <b>0.224528</b> |                  |               |                 |                             |

### Recommendations:

Again the Absinth Wormwood, Bull Thistle, and Chamomile should all be mechanically removed and the resprouts should be sprayed. The Plumeless Thistle and other weeds around the treatment plant should be mechanically removed throughout the summer to keep them from seeding. Because Plumeless Thistle is a biennial the key to eradicating it, is controlling its seed production until there is no more left. I would also suggest reseeding after any disturbance in this area in the future to prevent weed establishment.



Otherwise, The areas around the ponds should be kept in the mowing/herbicide interval with the rest of the pathways.

## Stand 6

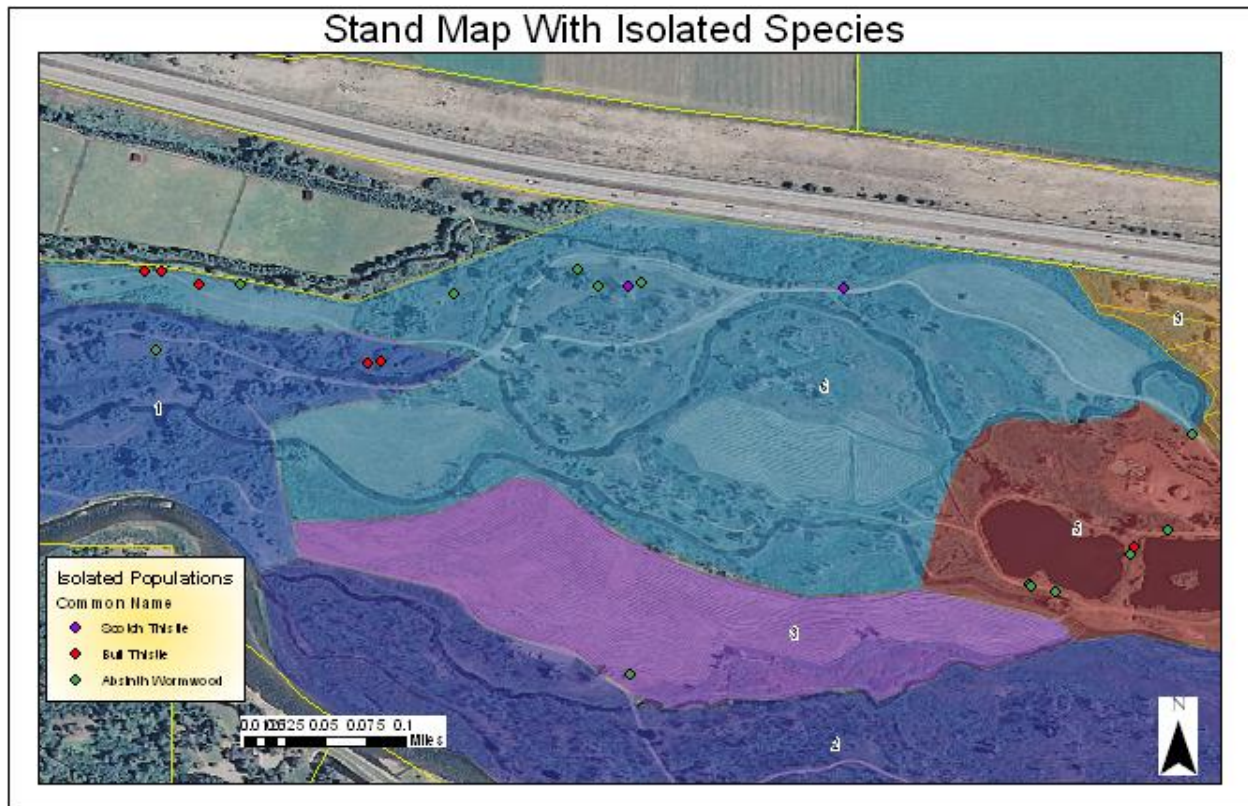
Stand 6 is a 43 acre conglomeration of fields on the northwest side of the property. It's primary infestation in this area is Plumeless thistle, followed closely by Oxeye Daisy. These fields are not nearly as invaded as the area around stand 3. The weed species in this area suggest that some unique vectors for seed originate in the neighborhoods and from across the road. The weed species diversity and saturation are as shown below:

### Stand 6

| Noxious Weeds     | Square ft | Acres    | Perrenial | Annual | Biennial | Biocontrol Available |
|-------------------|-----------|----------|-----------|--------|----------|----------------------|
| absinth wormwood  | 298.6768  | 0.008811 | 1         | 0      | 0        | 0                    |
| bull thistle      | 61.7952   | 0.001823 | 0         | 0      | 1        | 1                    |
| canada thistle    | 3254.547  | 0.096009 | 1         | 0      | 0        | 1                    |
| houndstongue      | 113.2912  | 0.003342 | 0         | 0      | 1        | 1                    |
| mullein           | 731.2432  | 0.021572 | 0         | 0      | 1        | 0                    |
| oxeye daisy       | 5190.797  | 0.153129 | 1         | 0      | 0        | 0                    |
| plumeless thistle | 6375.205  | 0.188069 | 0         | 0      | 1        | 1                    |
| saint johns wort  | 41.1968   | 0.001215 | 1         | 0      | 0        | 1                    |
| scotch thistle    | 20.5984   | 0.000608 | 0         | 0      | 1        | 1                    |
| tansy             | 587.0544  | 0.017318 | 1         | 0      | 0        | 0                    |
| Grand Total       | 16674.4   | 0.491895 |           |        |          |                      |

### Recommendations:

The smaller infestations that should be mechanically eradicated in this stand are the Absinth Wormwood, Bull Thistle, and Scotch Thistle. In this area the many of the fields have begun to grow species that are unpalatable to livestock and horses. As a result spraying these fields for broadleaved plants and then no-till drilling desirable crop seeds may be a good way to clean up these areas and make them more productive for haying and grazing.



This area would be a good candidate for introducing biological controls for the Plumeless Thistle. Otherwise the key to controlling this plant is going to be keeping it from seeding which can be done as a combination of herbicide and mechanical removal. The Saint John's Wort, Oxeye Daisy and Tansy along the streams and roads should be controlled as in previous stands.

## Stand 7

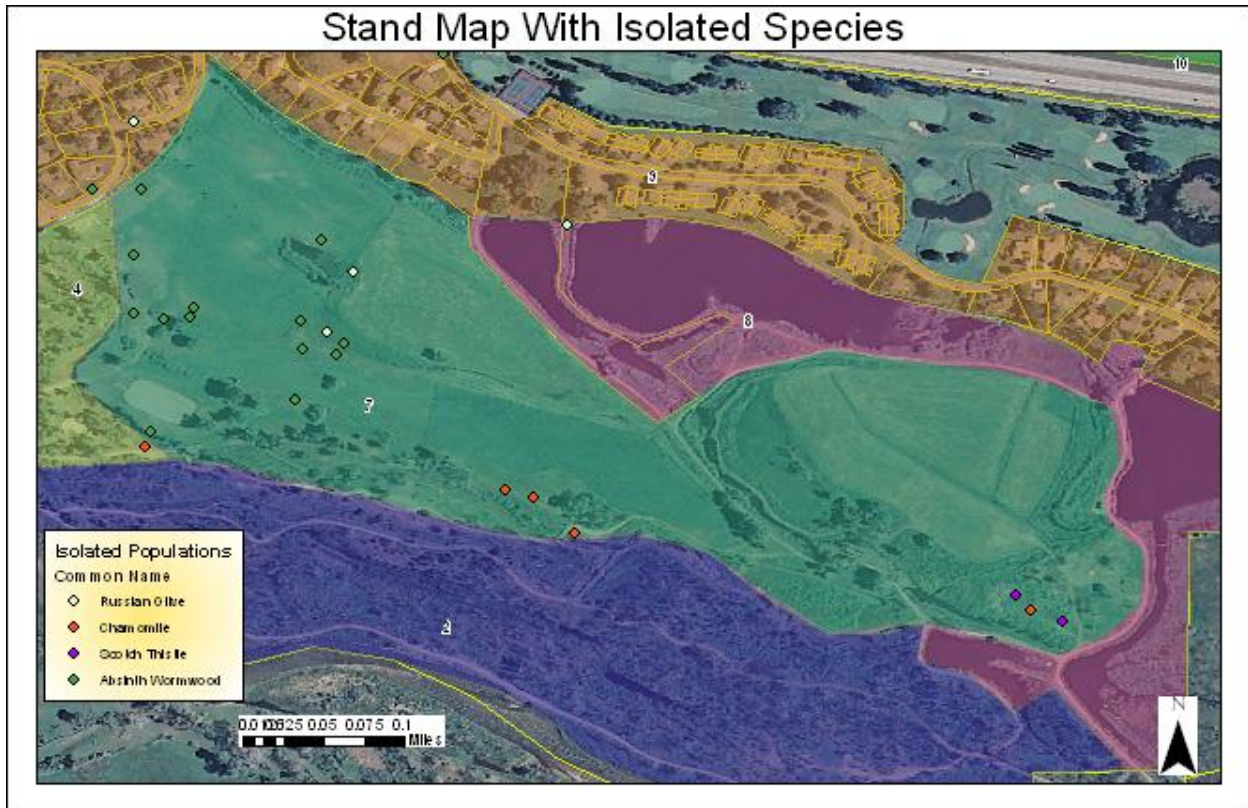
Stand 7 is another conglomeration of fields that seem to be grazed, and used more intensively due to the number of fences and gates. This stand is 51 acres. Stand 7 has the most acres of weeds mapped of any of the stands. The primary factor in weed establishment in this area is overgrazing mixed with the vast seed source around it. The weed species diversity and saturation are as shown below:

### Stand 7

| <b>Noxious Weeds</b> | <b>Square ft</b> | <b>Acres</b>    | <b>Perrenial</b> | <b>Annual</b> | <b>Biennial</b> | <b>Biocontrol Available</b> |
|----------------------|------------------|-----------------|------------------|---------------|-----------------|-----------------------------|
| absinth wormwood     | 3409.035         | 0.100567        | 1                | 0             | 0               | 0                           |
| canada thistle       | 8661.627         | 0.255518        | 1                | 0             | 0               | 1                           |
| chamomile            | 2080.438         | 0.061373        | 0                | 1             | 0               | 0                           |
| common burdock       | 10.2992          | 0.000304        | 0                | 0             | 1               | 0                           |
| houndstongue         | 968.1248         | 0.02856         | 0                | 0             | 1               | 1                           |
| mullein              | 164.7872         | 0.004861        | 0                | 0             | 1               | 0                           |
| oxeye daisy          | 9876.933         | 0.29137         | 1                | 0             | 0               | 0                           |
| plumeless thistle    | 1441.888         | 0.042536        | 0                | 0             | 1               | 1                           |
| russian olive        | 51.496           | 0.001519        | 1                | 0             | 0               | 1                           |
| saint johns wort     | 926.928          | 0.027344        | 1                | 0             | 0               | 1                           |
| scotch thistle       | 51.496           | 0.001519        | 0                | 0             | 1               | 1                           |
| tansy                | 75482.84         | 2.226744        | 1                | 0             | 0               | 0                           |
| <b>Grand Total</b>   | <b>103125.9</b>  | <b>3.042214</b> |                  |               |                 |                             |

### Recommendations:

The smaller populations that need to be eradicated are the Absinth Wormwood, Chamomile, Russian Olive and Scotch Thistle. However the largest problem in this stand is Tansy at 2.22 acres along with other creeping perennials, oxeye daisy and Canada thistle. Combined these species make up roughly 2.75 acres of the total 3 acres.



In this area especially Steve Jouen will make for a great resource on how to properly manage these fields however, for most of it, it should be possible to spray and then use the no-till drill again to plant desirable species for grazing and then use the horses or lease it for cattle grazing, into a rotation in order to keep the grasses competitive against the weeds. Again treat the paths and stream areas as in previous stands. This sort of grazing is done by using temporary fencing and solar powered electric fences to concentrate grazing for short time periods in order to ensure even grazing across the entire pasture. If done properly this should help with much of the weed problems.

## Stand 8

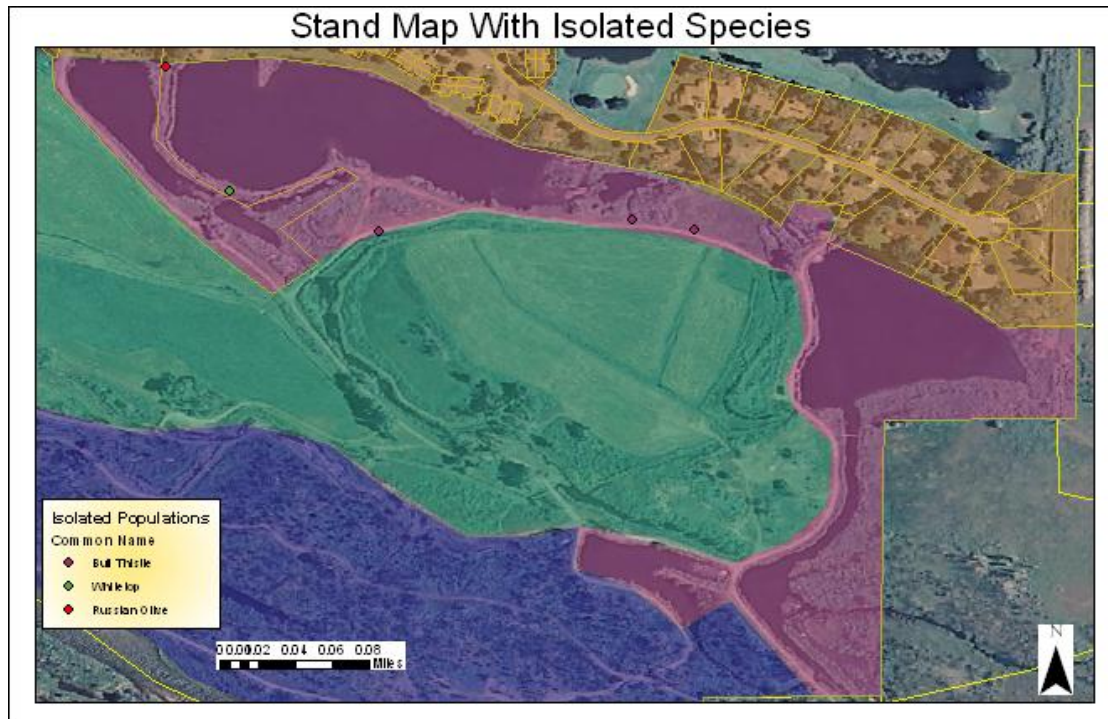
Stand 8 is the area surrounding the ponds on the east side of the property. Weed species composition and distribution indicates that most of the weeds are traveling along the trails. This area is 22 acres most of which is water. The weed species diversity and saturation are as shown below:

### Stand 8

| Noxious Weeds     | Square ft | Acres    | Perennial | Annual | Biennial | Biocontrol Available |
|-------------------|-----------|----------|-----------|--------|----------|----------------------|
| bull thistle      | 92.6928   | 0.002734 | 0         | 0      | 1        | 1                    |
| canada thistle    | 422.2672  | 0.012457 | 1         | 0      | 0        | 1                    |
| houndstongue      | 278.0784  | 0.008203 | 0         | 0      | 1        | 1                    |
| mullein           | 20.5984   | 0.000608 | 0         | 0      | 1        | 0                    |
| oxeye daisy       | 648.8496  | 0.019141 | 1         | 0      | 0        | 0                    |
| plumeless thistle | 597.3536  | 0.017622 | 0         | 0      | 1        | 1                    |
| russian olive     | 92.6928   | 0.002734 | 1         | 0      | 0        | 1                    |
| saint johns wort  | 92.6928   | 0.002734 | 1         | 0      | 0        | 1                    |
| tansy             | 1050.518  | 0.03099  | 1         | 0      | 0        | 0                    |
| whitetop          | 41.1968   | 0.001215 | 1         | 0      | 0        | 0                    |
| Grand Total       | 3336.941  | 0.09844  |           |        |          |                      |

### Recommendations:

The smaller populations that should be eradicated are the Bull Thistle, Russian Olive, and the Whitetop (Hoary Cress). Otherwise the same mowing and herbicide pattern should be followed along these trails as well.



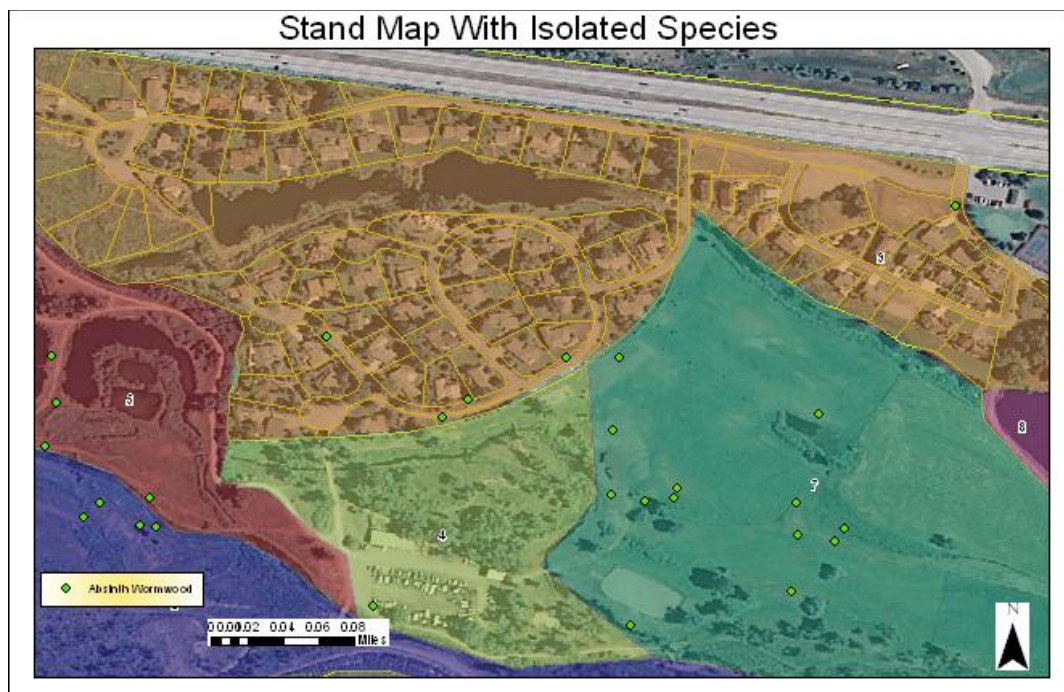
## Stand 9

This area is the neighborhood comprising of 54 acres. Mostly there aren't too many weeds however there are a few worth eradicating. The actual amount of weeds in this area is unknown because we only recorded the presence of weeds in front yards.

### Stand 9

| Noxious Weeds     | Square ft | Acres    | Perrenial | Annual | Biennial | Biocontrol Available |
|-------------------|-----------|----------|-----------|--------|----------|----------------------|
| absinth wormwood  | 61.7952   | 0.001823 | 1         | 0      | 0        | 0                    |
| canada thistle    | 82.3936   | 0.002431 | 1         | 0      | 0        | 1                    |
| common burdock    | 41.1968   | 0.001215 | 0         | 0      | 1        | 0                    |
| houndstongue      | 61.7952   | 0.001823 | 0         | 0      | 1        | 1                    |
| mullein           | 10.2992   | 0.000304 | 0         | 0      | 1        | 0                    |
| oxeye daisy       | 113.2912  | 0.003342 | 1         | 0      | 0        | 0                    |
| plumeless thistle | 566.456   | 0.01671  | 0         | 0      | 1        | 1                    |
| russian olive     | 92.6928   | 0.002734 | 1         | 0      | 0        | 1                    |
| tansy             | 257.48    | 0.007596 | 1         | 0      | 0        | 0                    |
| Grand Total       | 1287.4    | 0.037978 |           |        |          |                      |

The only weed that should be immediately removed is the Absinth Wormwood. Otherwise the only way to control noxious weeds in private yards is to inform or make it against the HOA rules to have noxious weeds in a yard.



## Stand 10

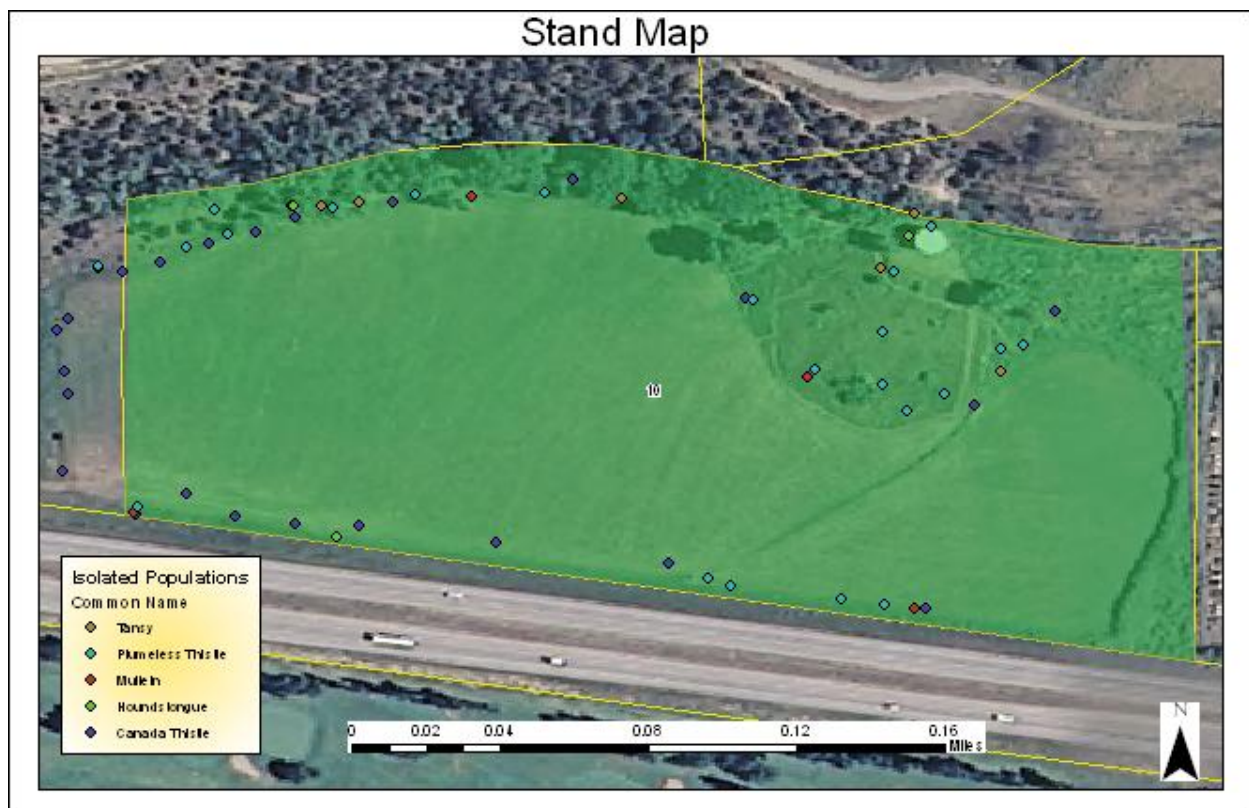
This area is the 15 acre field across the road. Most of the weeds in this area are shared by the neighboring landowners. The weed species diversity and saturation are as shown below:

### Stand 10

| Noxious Weeds     | Square ft | Acres    | Perrenial | Annual | Biennial | Biocontrol Available |   |
|-------------------|-----------|----------|-----------|--------|----------|----------------------|---|
| canada thistle    | 5870.544  | 0.173181 | 1         | 0      | 0        |                      | 1 |
| houndstongue      | 92.6928   | 0.002734 | 0         | 0      | 1        |                      | 1 |
| mullein           | 41.1968   | 0.001215 | 0         | 0      | 1        |                      | 0 |
| plumeless thistle | 4232.971  | 0.124873 | 0         | 0      | 1        |                      | 1 |
| tansy             | 679.7472  | 0.020053 | 1         | 0      | 0        |                      | 0 |
| Grand Total       | 10917.15  | 0.322056 |           |        |          |                      |   |

### Recommendations:

The biggest problem in this area is the Canada Thistle and the Plumeless Thistle. The Plumeless Thistle won't be able to survive in the field due to how many times it is cut, however it is spreading around the outside of the field rapidly and up the hillside. Canada thistle on the other hand is spread into the field and infesting the moister areas around the field.



## Appendix of Management Techniques and Contacts