Reed canarygrass herbicide FAQ:

What herbicide do you use and what concentrations?

We use "Custom RoundUP for aquatic and terrestrial use". The active ingredient is glyphosate (53.8%) other ingredients (46.2%).

Custom RoundUP for aquatic and terrestrial use is a non-selective herbicide that can effectively treat reed canarygrass at a 2% or less solution. This allows the Copper River Watershed Project (CRWP) to spray at very low concentrations.

- We spray a solution that is one ounce of herbicide for every gallon of water. This comes out to be roughly 12 ounces of herbicide (the size of a coke can) spread over 4 acres of reed canarygrass.
- After Application, this herbicide does not stay active in the soil. The herbicide tightly binds to soil particles and will not be taken up by plants or transported by water.

How do you spray?

We apply the herbicide solution via backpack sprayers. Backpack sprayers allow fairly precise application of the herbicide solution to individual plants. We can control the amount of spray coming from the nozzle and when the spray is being released, so we only spray reed canarygrass.

All people spraying are certified applicators and have gone through state testing and training in order to receive an applicator license.

Below are applications via backpack sprayers:

When and where do you spray?

When: We only spray on days with no precipitation and low wind, this decreases herbicide drift that could be blown onto nearby plants.

- In our published "Public Notice" we state a 2 week window within which spraying can occur, this provides applicators adequate time to pick an ideal weather window. On average, it takes the CRWP 1 day to spray 3-5 sites.
- When herbicide is applied to a site, it is only applied once a year.

Where: We only spray reed canarygrass infestations located in terrestrial environments.

- We will not spray within 10 feet of any waterbody, this includes puddles in ditches after a storm.
- Cordova locations include City of Cordova rights-of-way (ROW), City of Cordova snow dump sites, and AK DOT/PF ROW.

Why do you spray reed canarygrass?

Reed canarygrass is rated as an "Extremely Invasive" plant in Alaska. Plants are rated by their ecological impact, biological attributes, distribution, and response to control measures. Reed canarygrass is rated at 83 out of 100. Our goal is to prevent its spread to the Copper River Delta.

Alaska Center for Conservation Science (UAA) has more information on the subject if you are interested. The site AKEPIC is a great resource for invasive plants: https://accs.uaa.alaska.edu/invasive-species/non-native-plants/

Reed canarygrass can alter the natural environment by:

- Forming dense, persistent stands that exclude and displace native plants.
- Creating stands that are too dense to supply adequate cover for small mammals and waterfowl.
    - Reed canarygrass has created unsuitable habitat for waterfowl in infested wetlands of Washington and Oregon.
- Thriving in multiple habitat types, including disturbed areas along the side of the road, wetlands, and riparian zones.
- Promoting silt deposition along and within streams. Silt build-up can constrict waterways and alter aquatic habitat.

As of right now most of the reed canarygrass in Cordova is found along roadsides, and has yet to make it to the delta. We are fighting hard to keep it from any streams or riparian zones. If it does become established in streams, it will have detrimental impacts on both juvenile salmon habitat and adult salmon spawning grounds.

The plant reproduces via seed *and* rhizomes, making it a hardy species that requires multiple treatment methods over multiple years to eradicate. This also means that if we want to eradicate it from Cordova, we must get all the populations because it can spread via seed (and the seeds travel well on people, animals, cars, etc).

Here in Cordova we have the unique chance to fully eradicate it without worry of it being brought in through roadways from nearby towns. However, this means that we have to treat the sites that are not close to streams, otherwise our efforts will be null after a couple years of seed production. We work closely with the USFS Cordova Ranger District to fight reed canarygrass and keep it from spreading to our waterways.

Reed canarygrass ID:

- Stems can grow 3 to 6 feet in height

- Leaves are flat and hairless. Tend to be wider than most native grasses in Cordova
- Flowers are densely clustered, seed head shape is similar to an arrowhead.
- Seed heads bloom in July and can vary from green to purple, and eventually turn beige.



How else do you treat reed canarygrass?

The CRWP has been working to treat reed canarygrass for 9 years in Cordova. Over this time we have used a variety of treatment methods in an effort to keep reed canarygrass from invading the delta and our important salmon habitat. Below are treatment methods that are completed annually by the CRWP:

- **Digging – full plant removal:**
  Due to the dense and wide spreading root system it is feasible to dig only sites that are relatively small. If any roots are left behind the plant will continue to grow and reproduce at the site. We dig several sites throughout town, and spread native grass seed after removing the invasive reed canarygrass.
- **Mowing and tarping:**
  If the sites are too large to dig, we have used light excluding tarps. Blackout tarps are good for large patches of the invasive plant that are growing in a dense population. First the site must be mowed, and debris removed. Then tarps are laid down, staked, and weighted to keep in place. The tarps stay in place for 3 years and starve the roots by not allowing photosynthesis of the above ground plant. Reed canarygrass will send out rhizomes to the edges of the tarp and begin to grow along the perimeter, leading to follow-up treatment of digging.
  We try to use tarps where it is mostly reed canarygrass, instead of dense pockets mixed in with other native plants. We have used tarps throughout town, and recently removed a large tarp from the highway.
- **Seed head removal:**
  Removing the seed head does not stop the plant from growing and spreading via roots, it only stops it from spreading long distance via seeds. Seed head removal can be used on populations that cannot be treated with other methods due to location.
- **Herbicide use:**
  Herbicides are applied to specific infestations around Cordova, once a year. We have and will continue to use other treatment methods where they will be most effective. Herbicides have

only been used recently in our efforts against the extremely invasive reed canarygrass. We have observed success at sites with spraying, and anticipate to see continued success.

We are always happy to have volunteers help us clip seed heads, as this is labor intensive. If you want to help control reed canarygrass, please contact the Copper River Watershed Project to volunteer!

How do you notify the public?

For all spraying: We publish 2 consecutive "Public Notice" articles in the local paper prior to spraying. We also notify any owner of a public water system that is located within 200 feet of any application sites.

We work closely with land owners to meet any rules or expectations for spraying on their land.

- AK DOT/PF ROW: We follow the "10 steps to Success" from AK DOT/PF Integrated vegetation management plan (IVMP): http://dot.alaska.gov/stwdmno/ivmp/steps-success.shtml.
- City of Cordova ROW: We will notify residents near the City property that we are spraying.
    - We knock on doors and talk with people about our project, and if people are not home we leave informational cards at their doors or on car windows.
    - We also post temporary signs in all areas that we spray in City ROW.
        - A posted sign will state: "Herbicide treatment was applied on "x" date at "x" time, will be dry "x" date at "x" time." The sign outlines a 24 hour period to allow the herbicide to dry fully, but since we pick nice days to spray the herbicide it is generally dry within hours.
        - We return 24 to 36 hours later to remove the signs, and the area is safe to enter as all herbicide is dry and the herbicide is not active in the soil.

What are the hazards to humans and domestic animals?

The product is relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or ingestion of large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation.

The label warning to humans applies to applicators only, since most of the risk comes when mixing the herbicide before application. The label directs applicators to wear long-sleeved shirts and long pants with shoes and socks. As with animals, if a human were to ingest this product it could cause gastrointestinal problems, and poison control should be contacted.

Can you explain the "Environmental Hazard Warning" on the label?

The environmental hazard warning discusses depletion of oxygen in aquatic environments and possible fish death, it also gives a warning about where you clean your equipment.

This warning is for applicators that are spraying in the water, but it is not saying that the herbicide causes oxygen depletion or fish death. The warning refers to the natural decrease in dissolved oxygen that occurs in aquatic environments when plants die and are decaying.

If you treat, and kill, a large amount of plants in a single waterbody all at once, the oxygen levels will fall lower than what occurs naturally. This can impact/kill many aquatic organisms, including fish. The label is a reminder to applicators to be cautious of this fact, but is not stating that the herbicide has any direct impact on oxygen levels in aquatic environments.

Again, we do not spray in any waterbody (including puddles), and we do not spray within 10 feet of any waterbody.

How does this affect my berry picking?

We use Custom RoundUP used for spraying reed canarygrass. We pick optimal weather days to spray, and this will decrease any drift from the grasses to nearby plants (including salmonberry).

- We only spray on days with low wind and no precipitation.
- We use backpack sprayers to spray, and the applicator has full control on when and how much spray is being released. This means we have pretty good control over where the herbicide goes, and target individual stalks of grass by holding the spray nozzle close to the plant.
- The herbicide does not stay active in the soil, it binds to soil particles and will not be transported or taken up by plants (including salmonberry).
- After 24 hours the herbicide will be dry and it is safe to enter the area.

If you have any concerns about the low possibility of drift from our spraying, a good rinse of the berries won't hurt.

Please contact the Copper River Watershed Project with any questions: 904-424-3334