SAGEBRUSH in Prisons Project Newsletter

Institute for Applied Ecology

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The Sagebrush in Prisons Project is an ecological education & horticultural program for incarcerated adults. It is a partnership of the Institute for Applied Ecology (IAE), Bureau of Land Management (BLM),Wyoming DEQ, and State and Federal Correctional Institutions and is a part of the Sustainability in Prisons Project. The project is currently active at 9 prisons in 5 states including California, Idaho, Nevada, Oregon, and Wyoming.

Thank you to ALL DOC Staff who helped out with the sagebrush program this year!

-FiNAL 2020 PLANT NUMBERS-

Snake River C. F. in Ontario, Oregon grew 59,976 sagebrush.

South Boise Women's C.C. in Kuna, Idaho grew 14,696 sagebrush.

Idaho State C.C. in Kuna, Idaho grew 21,600 sagebrush and 2,416 bitterbrush.

Nevada & CA: Four prisons grew a total of 222,025 plants. Here is the breakdown by prison: **Lovelock C.C.** 68,063 **Warm Springs C.C**.46,272 plus 1,155 bitterbrush and 275 Mountain mahogany **Northern Nevada C.C.** Unit 5: 65,230 plus 5 trays of milkweed, Unit 3: 41,030 **FCI Herlong** didn't grow this year due to COVID-19.

Lakeview, Oregon contractor Crystal Knittel grew 17,632 sagebrush, and 6,900 bitterbrush plants.

The Wyoming Honor Farm in Riverton, Wyoming grew 15,600 sagebrush.

TOTAL: 360,845 PLANTS!

Growing Milkweed and Releasing Monarchs at Northern Nevada Correctional Center (NNCC)

by NNCC Unit 5 Sagebrush Crew

NNCC milkweed with Monarchs

After four years of growing sagebrush, we got to grow something new this year: milkweed for monarch butterflies! Super manly project for dudes in prison, "Save the Butterflies." With sagebrush, saving the sage grouse is understandable; guys around here hunt the bird. We thought the milkweed would also be planted in the wild, but this wasn't the case.

We were growing milkweed for a research project at the University of Nevada, Reno. This was something we all felt positive about. With no experience growing milkweed we had to devise our own techniques; everything from sowing the seeds to transplanting (due to a high germination rate per cone). It was really cool to see the plants blossom and bloom with tiny white flowers. We only planned on having two trays of plants, but we ended up with five.

Seeing pictures of our plants being used in the study brought a huge sense of accomplishment. Our work benefitting someone else's project made us feel like we were part of the project. To top off this season, we have been given some monarchs still in their chrysalises. On their arrival here, two had already emerged from their chrysalises. We released them in some milkweed we have planted in a little garden area. Now, the others reside in our cells at night, waiting to emerge. We hope to release them soon.

In closing, everyone on the "Rock Star" crew is excited about finishing up the season. We are also grateful to hopefully get another opportunity next season to make a little contribution. Thank you to our IAE contractors for all the help and support and also for believing in us.

Monarch caterpillar on unit 5 milkweed at UNR

Institute for Applied Ecology

SAGEBRUSH in PRISONS PROJECT

Wyoming Honor Farm Expands SPP for Sage-grouse Habitat in 2020

by Tina Russel, SPP Contractor for Wyoming

The Wyoming Honor Farm has expanded their sagebrush growing efforts to enhance habitat for Greater sage-grouse. For the second season adults in custody (AICs) are engaged in the sowing and care of over 15,000 sagebrush seedlings that will be transplanted in disturbed sagebrush ecosystems across Wyoming this fall. The project is a partnership with the Bureau of Land Management (BLM), Wyoming Department of Corrections, the Wyoming Department of Environmental Quality, and the Institute for Applied Ecology (IAE).

Gina Clingerman & Tina Russel with sagebrush in the Honor Farm Greenhouse

While many consider sagebrush to be perpetually hardy and a permanent fixture in the open expanses of Wyoming's desert prairies, the shrub is quite difficult to reestablish once killed, taking decades to centuries to regenerate. Wyoming is home to nearly 40 percent of the nation's current sage-grouse population and the state is heavily involved in natural resource extraction. This makes the Wyoming Honor Farm a perfect partner for growing sagebrush.

In the fall of 2019 sagebrush seedlings grown by the AICs were transplanted in designated reclamation areas across Wyoming to restore habitat primarily effected by wildfires and mining. In Fremont County, students at Lander Middle School and AICs at the Wyoming Honor Farm were involved in several different out plantings, resulting in the transplanting of nearly 11,000 sagebrush seedlings in the Gas Hills Uranium Mine District, about 45 miles east of Riverton. This year 15,000 of the sagebrush seedlings grown at the Honor Farm will be transplanted on those former mining lands this fall.

Since 2014, the Institute for Applied Ecology, the Bureau of Land Management, and 10 correctional facilities in five states have grown and planted nearly 2 million plants as part of the Sagebrush in Prisons Project. This program has proven to be a win-win, allowing for the BLM to receive quality plants for restoration work and giving the AICs a chance to learn new skills, as well as give back to the community at large.

Gina Clingerman an archeologist with the BLM, who has been instrumental in bringing the project to Wyoming said of the project,

Honor Farm SPP Crew planting the sagebrush starts that they grew.

"Growing sagebrush seedlings at the Honor Farm provides AICs with an opportunity to improve the fabric of the Wyoming landscape. It gives them renewed hope for themselves as they learn to tend to these tiny plants. I've said this several times and it rings true that this project is a two-fold reclamation project. The planting of the seedlings helps restore sagebrush to mined and disturbed areas and the growing of those seedlings helps reclaim the hearts and minds of the adults in custody who participate."

SRCI Sagebrush Crew member demonstrating the Dipping Station

Watering Sagebrush from Below: "The Snake River Dipping Station"

by Snake River Correctional Institution SPP Crew

Last year we experimented with watering our sagebrush by dipping the trays in a plastic tote full of water which was placed on the ground. This method worked okay, but picking the trays up from the ground over and over was hard on our backs. C.O. Larrow saw the struggle we were having and with Physical Plant Adults in Custody, designed the "Dipping Station." Physical Plant cut used plastic barrels in half lengthwise to make tubs, and then they assembled steel frames around them. The frame included flat metal steel along the top which we used to put a tray on that was just dipped to drain excess water back into the tub. Now we can dip trays at a comfortable height with less strain on our backs.

We appreciate SRCI staff members stepping up and introducing a sprinkler system to water sagebrush during the COVID crisis. Lt. Beaumont and Physical Plant team member Mr. Rojas, developed a system to water plants automatically because the institution was on lockdown and we Sagebrush Crew members could not go out.

When we were able to go back to work, the sprinkler system was set to run at 6 am For 45 minutes, this cut down on the actual time spent dragging hoses out and spending at least an hour and a half manually watering. Due to the hot weather this year, we experienced trays of plant on the edges and ends of rows drying out. The Dipping Station was used with great success, dipping the trays for approx. 30 to 40 seconds allowed us to keep up with the other plants as well as jump start the conetainers that were drying out. Even after rotating trays, because of the extremely hot weather this year, we ended up dipping trays in those same locations several times. Once the sprinkler system was set up to where the majority of trays were being hit with water, we no longer needed to dip. Dipping the trays was a great idea and was beneficial to the sagebrush, as the plants grew the roots stretched down through the soil in the cones, if there is no water down there the plant won't grow.

Take the Sagebrush Whiz Quiz:

Adapted from the Sage Grouse Initiative website

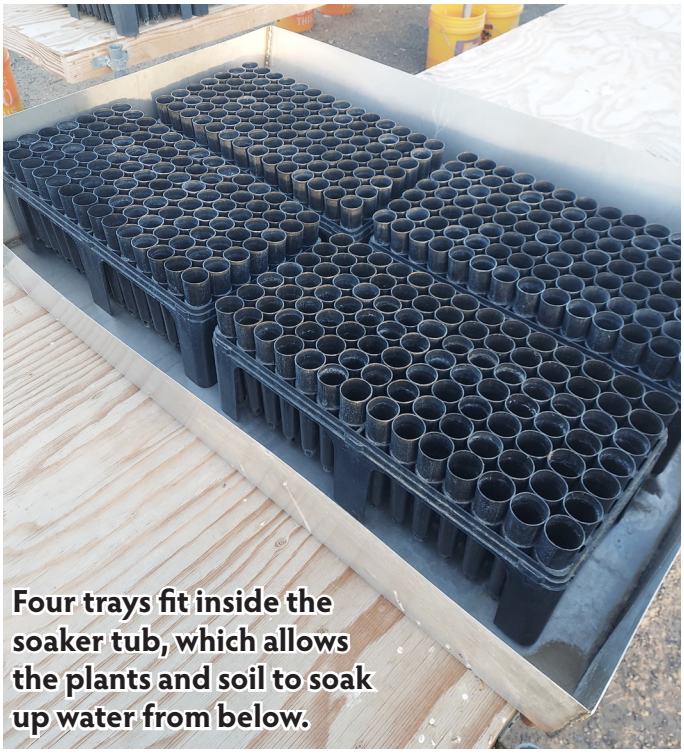
- "Conifer" refers to any plant that produces cones. Some conifers, like pine trees, have easily recognizable cones. Others, like like juniper trees, have cones that look like berries.
- Most conifers have needles for leaves, but not all conifers keep their needles year-round. For example, tamarack a.k.a. larch trees have needles that turn a golden yellow in the autumn before dropping to the ground.
- Conifer trees like pinyon pine and juniper have always been present on sagebrush and grassland landscapes and over the last 150 years have been expanding into areas where they didn't historically grow.

Check your answers on the bottom of the last page

1. **Why are conifer trees expanding into sagebrush and grassland ecosystems?**
   A. Favorable climatic conditions in the late 1800s allowed conifer trees to expand into those areas.
   B. Wildfire suppression by humans has allowed conifer trees to expand into those areas.
   C. Both A & B
2. **What effects do conifer trees have on sagebrush and grassland ecosystems?**
   A. Conifer trees reduce water availability for other native plants.
   B. Conifer trees displace native plants and cause wildlife like sage grouse to abandon that habitat.
   C. Conifer trees exacerbate wildfires because they provide additional fuel for fires to burn more severely.
   D. All of the above
3. **When is the best time to remove conifer trees that have moved into sagebrush ecosystems?**
   A. When the trees have become fully established and are the dominant vegetation type.
   B. When the trees are just starting to move into an area but are not the dominant vegetation type.

Another Innovative Way to Water Sagebrush: "The Herlong Soaker Method"

by Federal Correctional Institution, Herlong SPP Crew

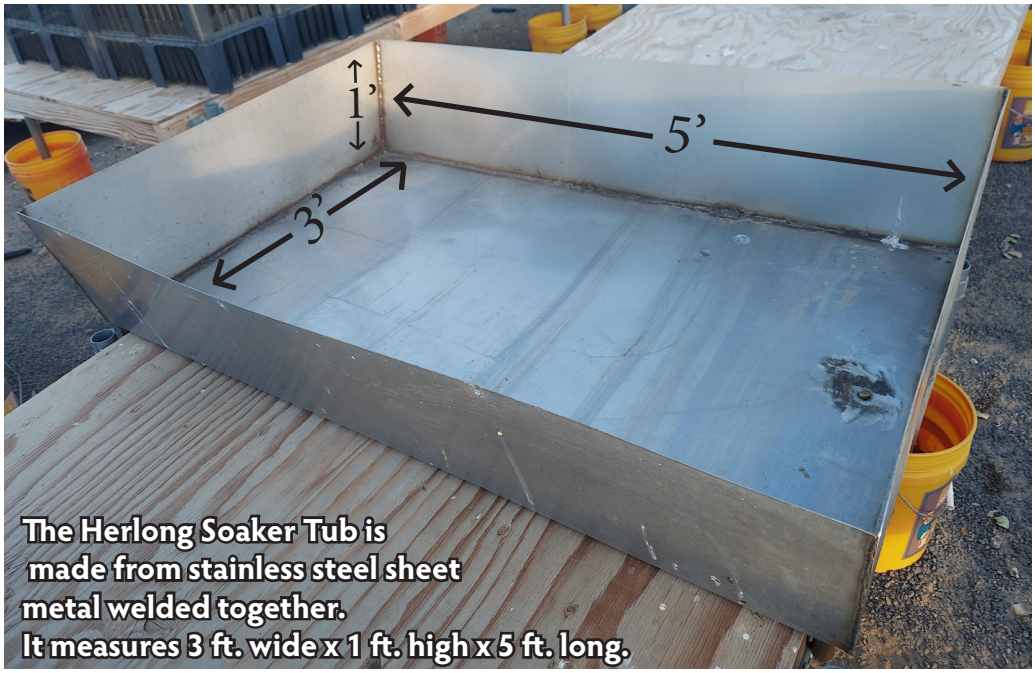


Four trays fit inside the soaker tub, which allows the plants and soil to soak up water from below.

FCI Herlong was not able to grow plants this season due to COVID-19 but was participating through the education programming.

In crafting a hydration plan tailored to the Federal Correctional Institution, Herlong sagebrush project, we were confronted with several obstacles. These obstacles center around being located in northern California's high desert at roughly 5,000 feet of elevation, resulting in extreme heat during the day, biting cold at night, and lower than usual barometric pressure.We sought to develop a watering system where the plants could adequately absorb water into the soil of the conetainer.. The solution arrived at, was a bottom up system of hydration that blossomed into the Herlong Controlled Hydrosphere Method, (HCHM) also known as the Herlong Soaker Method.

Bottom up irrigation was achieved by submerging trays holding 98 conetainers in a water bath for 10 to 20 seconds one time per-day - every day, seven days a week. Submerging these plants for a controlled period achieved root hydration that avoided the irregularity of traditional top down irrigation. This process also mitigated the often resulting; "pooling" leading to root rot, and droplets on leaves leading to leaf rot. The speed of this method allowed the complete hydration of all cones, on all planting tables in such a short period of time that the specific time of day most beneficial to water these plants (6am to 7am) could be targeted with ease. To retain efficiency, stainless steel (3' x 1' x 5') submersion tubs were constructed so that two participants (one on each side of a planting table) could uniformly rotate trays of conetainers from either side of a planting table. This rotation allowed for the location of the tray, and it's position on the planting table to be cycled each day as the HCHM hydration takes place. One submersion tub, was found to be efficient for every 2 planting tables. Additionally participants found that dry planting cones were prone to float, while adequately hydrated cones sank, allowing participants to gauge hydration with far greater accuracy than traditional top down irrigation.



The Herlong Soaker Tub is made from stainless steel sheet metal welded together. It measures 3 ft. wide x 1 ft. high x 5 ft. long.

Education staff Stephen Heidt readies plants for boxing.

Idaho State C.C. Education Staff Box it Up

by Holly Hovis, SPP contractor for Idaho & Eastern Oregon

In a normal year, Adults in Custody (AIC) and Institute for Applied Ecology (IAE) Staff would work together to box up plants and close out the growing season. Unfortunately, the AIC sagebrush crew at Idaho State Correctional Center (ISCC) were experiencing restrictions as the facility managed COVID-19 cases. IAE contractors Ann DeBolt and Holly Hovis pulled together with the Education Staff to box up bitterbrush and sagebrush for the BLM Shoshone Field Office. Two long days were needed to box up 22,000 sagebrush seedlings and another half day to box up bitterbrush plants. As the Education Staff and IAE crew limped out of the prison gates, appreciation was high for all the work that the AIC sagebrush crew does for the program. The sagebrush and bitterbrush plants were transferred to the Dog Creek Fire near Gooding, Idaho where Mule Deer Foundation members planted into summer-baked hard dry soils with the goal of improving habitat for sage-grouse and other wildlife. In addition to the ISCC plants, IAE Ecological Education Coordinator Tyler Knapp brought around 2,000 plants from Lakeview, Oregon to round out the planting. Everyone's efforts were rewarded as rain fell after the last plant was placed in the ground.

Thanks to ISCC staff for so graciously offering to work long days to get the job done and for being so flexible with scheduling. We appreciate your efforts to sustain the program and look forward to a more "normal" year to come.

Rich Murrison usually teaches a GED course to AICs and now is a sagebrush boxing professional and general sagebrush nursery coordinator.

Stephen Heidt, Vicki Wolters, Ann DeBolt, and Brenda Davis boxing sagebrush in the warm October sun.

Locally raised plants to help in fire restoration

By Toni Bailie originally published in the Lake County Examiner

Marilyn and Crystal Knittel work on thinning sagebrush plants in Lakeview, Oregon where they grew 25,000 sagebrush and bitterbrush seedlings.

Stacy Moore, manager of the Sagebrush in Prisons programs, came to Lakeview last week to help package 25,000 sagebrush and bitterbrush seedlings. This year, due to COVID-19 restrictions, the Warner Creek Correctional Facility (WCCF) Adults in Custody (AICs) were not allowed to raise the plants. Instead IAE contractor Crystal Knittel nurtured the seedlings in Lakeview. With the help of husband Jerry and daughter Marilyn, Knittel watered, fertilized and thinned the growing plants.

During the hot summer months, they had to water the seedlings twice a day and keep them covered with a shade cloth. As the plants were growing, they sent pictures to Moore who monitored their progress. "I have a sense of accomplishment," Knittel said. "It's scary being responsible for that many plants."

"I appreciate Crystal and her family for their hard work growing the plants," Moore said. It took five days to box up the crop. The sagebrush and bitterbrush will be used by Bureau of Land Management (BLM) crews for habitat restoration on wildfire burns. This year the planting will be done at Applegate, Twin Falls, Idaho Falls and Klamath Falls BLM districts.

After a burn, it takes 30-50 years to naturally re-establish sagebrush and bitter brush. Transplanting seedlings with developed root systems gives the plants a head start over invasive cheat grass. The new plants will provide food and cover for greater sage grouse and 300 other species of wildlife, including elk and deer.

Moore, who is also Ecological Education Program Director for the Institute for Applied Ecology (IAE), manages the Sagebrush in Prisons program for 10 correctional facilities in Oregon, Idaho, Nevada, California and Wyoming. IAE partners with BLM and five Departments of Corrections, with funding coming from BLM's national office in Washington D.C.

Moore is hopeful that the program can return to WCCF next spring and again involve AICs in the project. This year at WCCF, Tyler Knapp IAE Ecological Education Coordinator, offered a lesson on owls, which included dissecting owl pellets. The lesson was limited to 10 AICs per session and everyone was wearing masks to comply with COVID-19 protocols.

Quiz Answers: 1.C, 2.D, 3.B