

September 2, 1993

MEMORANDUM

TO: IPM File

FROM: Biological Technician

SUBJECT: 1993 Summer Season Exotic Plant Control Efforts

During the month of August and the early part of September the areas listed below were visited and treated. The method of treatment consisted of manually pulling weeds. Since no one in the monument was certified by the state to apply herbicides during the 93 season, this method, although more effective, was not utilized.

The month of August appears to be the best time for pulling weeds. With most plants, if they are pulled too soon, the plant will only grow back if all the root is not removed, and a second sweep of the area would be necessary. Also, at this time in the season, plants are in bloom but have not yet gone to seed. It is crucial that the plants are not allowed to go to seed. This eliminates the spread of the exotic plants through seed dispersal, especially since many plants seeds can remain viable in the soils for decades!.

Of course, perennials are treated differently. In all the material that is available, it suggests that perennials are best controlled with the application of an herbicide in the early spring growth stage and again in the fall after they have flowered. If herbicide application is not possible, it is important that the plant be pulled on a regular basis. This method drains the plant of any food starch reserves in the roots and eventually, theoretically, starves the plant out of existence. This method was utilized in a couple of spots within that park that contain perennials such as dandelion and canadian thistle.

HIGHWAY 93 FROM THE WEST TO THE EAST BOUNDARIES.

The following predominant plants were found along the highway corridor. Other species of exotics also exist but in smaller populations. They too were pulled when spotted.

Russian Thistle (*Salsoa kali*), Koshia (*Koshia scoparia*), and many other species of the Halophyte family have heavily infested the south side of the highway, west of the loop drive entrance. These plants are annuals, therefore, once the plants and roots were removed, they did not appear to return. Of course this is true because the plants were pulled late in the season when they could not grow back. All of the Halophytes were treated as priority species because their seeds are many and they can spread very rapidly in areas outside of the highway corridor.

Common Mullein (*Verbascum thapsus*) grows all along the highway but is densest nearer the eastern boundary. This plant is a biannual, appearing as a rosette the first year and having a flowering spike the second year. This plant spreads by seeds only, therefore, it is important that this plant not be allowed to go to seed. It appears helpful to pull as many of the 1st year rosettes as possible, being sure to get as much of the root as possible. This should prevent the plant from showing up next year with a supply of seeds. Because Mullein can, and has strayed from the highway corridor into the lavas, and because there are examples outside that monument attesting to its ability to take over an area, it was treated as a priority species.

Spotted and Diffuse Knapweed (*Centaurea maculasa* and *C. diffusa*) are both present along the highway both east and west of the loop entrance. However, the area between the highway summit of sunset cone and the pullout east of the loop drive entrance is where the plants are

thickest. The area just west of the former pullout (that is closed off by a berm) and the highway traffic counter on sunset highway summit and the area around the north end road need special attention. The state and county both spray the shoulders of the road in early summer, which helps, but it is necessary to patrol these areas in late August when the flowers come in to bloom, making them easier to detect. The knapweeds were treated as priority species not only because state laws required efforts be made to control it, but also because of how quickly and completely this genus can invade an area.

Sweet Clover (*Melilotus officinalis*) grows along the entire stretch of the highway and is very difficult to pull up. Manual control efforts of this species were very time consuming and exhausting. Therefore, the best recommended control of this species would be to apply herbicide on a regular basis throughout the season. It hasn't spread much beyond the highway corridor, and as a result, was not a priority species. Efforts to eradicate this species should be beefed up when there is someone in the park who is certified to apply herbicides.

Common Knotweed (*Polygonum aviculare*) is common along the entire length of the highway, mostly on the gravel shoulders. The same holds true with this species as with the Sweet Clover. It appears to be contained with the gravel shoulder areas of the highway, and, unless herbicide is used to control it, manual efforts are too overwhelming for the resources at hand. It was not a priority species.

Cheat Grass (*Bromus tectorum*) is common along the entire length of the highway and throughout the monument. Control methods for this species are very limited and as of yet have not yet been applied within the monument. The extent to which this species has spread makes it impossible to control, therefore, no efforts were made.

A *Penstemon* species planted by the state along the highway has started to make its way into the park via highway at the east boundary. The exact species is not known at this time although a common name for the species is bladder penstemon. The plant appears to spread by seed and resembles a perennial, appearing in a rosette form as well as a stalked plant. Whereas this species is pretty much contained within the highway corridor, it is spreading and could become widespread if not attended to. One individual of this species was found along the loop road near the North Crater Flow Trail parking lot, demonstrating its potential ability to spread out. Hence, this species was considered a priority

Gumweed (*Grindelia squarrosa*) is a native of Idaho, although it is not clear whether the variety of the species found in Craters is a native or not. However, it does not appear that this plant is a native of the monument, therefore, it is currently being treated as an exotic. Nonetheless, Gumweed was not a priority species since it is an Idaho native. Efforts to eradicate this species were dependant on the availability of time and people power which was very limited.

BONEYARD

The area just east of the log building has been used as a depository for old sod, asphalt, etc. As a result, it has become infested with numerous exotics, including:

Common Mullein (*Verbascum thapsus*). This species appears to love dead sod and has been found in large populations in this area. Both rosettes and stalked plants were pulled. Some rosettes did come back and the site had to be revisited later to remove the regrowth. See Highway section for more info. on Mullein.

Goosefoot Family (Halophytes) appear in many species, predominately *Kochia* (*K. scoparia*) and two *Chenopodium* species (Lamb's Quarters - *C.*

album and *C. leptophyllum*). See Russian Thistle in the Highway section for more information on this group of plants.

Field Pennygrass (*Brassicaceae*) is pretty wide spread in disturbed areas within the monument, however the population is small enough at this site that eradication efforts were worth it. This plant was best pulled in July while the plants were still in flower. Once they have gone to seed, the seeds fell off at the slightest disturbance.

Cocklebur (*Xanthium strumarium*) is considered a native of the U.S., but again, because it is not considered a native of the monument, it was removed.

Cut-leaved Nightshade (*Solanum Triflorum*), although not common within the monument, does occupy lot of area within this site. It is a native of the Great Plains but is not considered a native of Craters. Therefore, it too was removed.

Because these areas are so small and effort requirements were minimal, priorities were not assigned and all exotics were removed.

****Caution should be exercised when removing exotics from this site. Wild Tobacco (*Nicotiana attenuata*), Scorpion Weed (*Phacelia hastata*) and a number of small white flowers belonging to the Borage family are all native species and appear to like disturbed areas. The Wild Tobacco, in particular, can appear to be a weed - similar to a plantain or dandelion type plant - in its earlier rosette stages before the flowering stalk has begun to grow.****

RESIDENCES/VISITOR CENTER

The areas between the houses not been watered in at least 2 years and the dead sod has become host to a number of exotics. In addition, the areas along the edges of the lawns, particularly behind the seasonal apartments and the western-most visitor center lawn are lined with exotics, primarily Mullein. Since fall plans include the removal of the lawns and reseeding of native grasses, a limited amount of effort was put towards the control of exotics in these areas. However, an attempt was made to remove any Mullein that was in the flowering stages to prevent the dispersal of any additional seeds.

The lawns in front of the seasonal apartments were removed in the fall of 1992 and native vegetation was transplanted from bordering BLM land. During the 1993 growing season a number of dandelion plants and a few bunches of remanent bluegrass reappeared in the area. The exotics were pulled at least twice during the season. It is recommended that herbicide be used regularly on the perennials like the dandelion for a more effective effort in control of these species. Until then, repeat visits to the plots and manual pulling is most effective.

Canadian Thistle (*Cirsium arvense*) has invaded the island in the first parking area. In 1992 and 1993 efforts were made to pull the plant up. It has spread rapidly through creeping rootstocks and it appears that focused efforts and repeated visits will be necessary next spring to pull the plant up during the sprouting season. This is of course if there is no one in the park certified to spray herbicide by then.

****Because it appears that Mullein approves of dead sod, it will be necessary to increase patrols and efforts towards controlling this species (and others) next spring, and in years to come, after the lawns have been removed. Once a healthy population of natives is established, natural controls will help limit the number of species of exotics that can become established. It is crucial that the Resource Management staff are committed to this effort or whole idea of returning these areas to native vegetation will be lost to Mullein, Kochia, dandelions and other exotics.****

TRAIL FROM CAMPGROUND TO VISITOR CENTER

Once again, Mullein has strayed from the road corridors and has made its way into the lavas. Plants were removed in early August. A second patrol conducted in late August revealed only a couple regrowth/missed plants.

LOOP ROAD

Generally speaking, the loop road is pretty clean of exotics. However, there are a few areas along the road where exotics have appeared. Periodic patrols were conducted and exotics spotted along the way were removed. Some spots to watch are:

Inferno Cone parking area - Knapweed was found along the edge of the lot in 1992, although in 1993 this area has come out clean.

Inferno Cone backside on steep downgrade - a small patch of canadian thistle has appeared just at the bottom of the hill. Plants have been pulled both in 92 and 93. Recommend applying herbicide.

At the Spatter Cones parking area, knapweed was found.

Tree Molds road at bend in road at picnic area - Mullein has been found on both sides of the road in this area. Others plants associated with wetter areas, such as the north end of the park, have been found here as well. One particular species was identified as a goldenrod species while another, found closer to the lava cascades, was identified as a pussytoes species. Pussytoes was determined to be native while the goldenrod has yet to be completely identified. Until identification is confirmed, the plant was left undisturbed. Where the tree molds road cuts off from the loop road, knapweed was also found.

The penstemon species that the state seeds along the highway was found in the curve in the road at North Crater Flow Trail, opposite the parking area. The plant was pulled and checked for regrowth.

NORTH END ROAD

Stinging Nettle (*Urtica dioica*), Cow Parsnip (*Heracleum lanatum*), Mullein (*Verbascum thapsus*), Pennygrass (*Thlaspi arvense*), Bull Thistle (*Cirsium vulgare*) and Salsify (*Tragopogon* sp.) are among the exotics that are widespread and well established within the north end of the monument. They can be found primarily along the creeks and the roadways.

The efforts this year were focused on the Mullein and Salsify growing along the road between the North End entrance and the parking area just below the Martin Mine. Although the Mullein seems to be somewhat under control along the roadway, ventures into the riparian area and across the stream revealed large stands of Mullein. Some of these patches are starting to make their way up the hillsides.

I believe Mullein could be controlled but it would take a lot of people and effort and a commitment to stick with it every year. Other hot spots for mullein include the research camp, the meadow south of the research camp road, and the well area.

The other exotics have taken such a strong hold, it would probably take an army, and that is no exaggeration. The use of herbicide is not entirely feasible since most of the plants are growing in the stream bed, nonetheless, consideration may be given to those plants growing in the flood plain of the creeks. A decision needs to be made concerning what the efforts on exotic control in the north end should be.