

Botany Input to Rim 2500-8

The Rim Fire resulted in heavy impacts to the native plant communities over large portions of the burned area. The large scale loss of vegetative cover has resulted in ecosystems which are highly vulnerable to weed invasion. There are numerous known weed sites within the burned area on National Forest System lands, plus private and BLM lands all of which were subjected to impacts by dozers resulting in the likely spread from infested areas into uninfested natural communities. Weed species include the California A-Rated spotted knapweed (*Centaurea stoebe* ssp. *micranthos*) and the B-Rated barbed goatgrass (*Aegilops triuncialis*). Most of the dozers were not cleaned prior to entering the burned area and likely vectored weeds into the burned area from beyond the Forest boundaries. The Tuolumne base camp was heavily infested with the noxious weed yellow star-thistle (*Centaurea solstitialis*). While the infested areas were dozed to scrape away the star-thistle, seed would have been present in the soil which was then watered for dust control. Seed was then likely picked up in the resulting mud sticking in tire treads and undercarriages of any vehicle which drove into the parking areas. The seed was likely vectored on at least some of these vehicles to the burned area.

The value at risk is the ecosystem health and integrity of the native communities within the burned area. The threat is the potential loss of that health and integrity due to new weed introductions and weed spread from existing weed infestations which could inhibit the return of the native plant communities and crowd out recovering native vegetation resulting in nonfunctioning or poorly functioning ecosystems. Dense non-native weeds make forage for wildlife unavailable. Germination and growth of native vegetation, particularly herbaceous species and trees, would be inhibited by dense infestations of weeds. Most of the weeds of high concern have deep taproots and few fibrous roots making soil erosion in dense stands a concern. The deep taproots of these aggressive species are able to access soil water previously utilized by native vegetation, making it unavailable to the new growth of the native species. For these reasons, loss of the ecosystem health and integrity of the native plant communities from weed invasion in the burned area is an emergency needing to be mitigated.

The treatments which are designed to mitigate the emergency include rapid response manual or mechanical weed eradication treatment of new infestations discovered during a post-fire detection assessment:

- 1) post-fire weed detection assessment in the spring and summer of disturbed areas in the National Forest including approximately 157 miles of dozer lines, 12 miles of hand lines, 10 helispots, 20 drop points, 8 staging areas, 6 repeater sites, 5 water drafting sites, 2 mobile weather station sites, a spike camp, 8 meadows, 22 streams crossed by dozers, an undetermined number of safety zones, deployment zones, roadsides and other areas disturbed during suppression and rehab activities. Assessment would entail conducting surveys for new weed sites in these disturbed areas. Much of the burned area had been surveyed in support of past projects resulting in databases of known weed sites (two Ranger Districts burned, therefore two databases exist). Therefore, it would be reasonably easy to determine when an

encountered weed site is the result of the fire suppression activities rather than a pre-existing weed site.

Included in the 157 miles of dozer line is a 0.75 mile piece of dozer line on a corner of BLM land. The BLM line must be crossed in order to complete the work within the Forest. It makes economic and efficiency sense to include this piece in the Forest Service assessment. This work would be accomplished under the National Service First interagency agreement (U.S. Forest Service Agreement No. 12-1A-11132400-094).

2) When new infestations of weeds are discovered, rapid response treatment of the weeds using manual or mechanical methods would be implemented. This "seek and destroy" treatment has been highly successful in previous fires in the Stanislaus. Manual methods would include hand pulling or digging. Mechanical methods would include "weed whacking" with string trimmers or cutting with loppers or hand pruners. Tarping with landscape cloth might be conducted to treat new infestations of barbed goatgrass or weeds with rhizomes.

The area needing assessments and rapid response weed treatments was calculated at 2,102.35 acres. Manual and mechanical weed treatments have typically averaged about REDACT per acre on the Groveland Ranger District. Surveys typically run much less. A compromise figure of REDACT per acre to conduct both the assessment and treatments was used to compute the cost of treatments. The reason for this high cost is the expectation that the many vectors and known weed sites have resulted in a high rate of weed spread and introduction. Also, negotiating across rehabilitated dozer line is very slow going because of the brush and trees laid back onto the lines. The result, at REDACT per acre, is REDACT to cover the costs associated with the post fire assessment and weed treatments (an early figure amounted to REDACT but included duplicate GIS data).

REDACT. Given the many modes of weed introduction and spread in this fire, it is likely that there will be many more new weed sites to treat than from a typical fire. It is also likely that some uncertain number of new infestations will be large sites caused by the massive amount of dozer work on some of the dozer lines. The Forest will have to prioritize the assessment work, designating the highest priority as areas where weeds were previously not present to ensure the highest likelihood of success for those areas. The Forest will be forced to conduct a triage at each weed discovery site, determining if it is too large to treat within the budget allowed. Some unknown number of weed sites will go untreated, resulting in damage to the ecosystem health and integrity of the recovering plant communities. It is likely that with only about half of the funding needed, new weed sites will be left untreated and ecosystem health of some communities will suffer.