

Peter M. Lacy (“Mac”) (OSB # 01322)
Oregon Natural Desert Association
917 SW Oak Street, Suite 408
Portland, OR 97205
(503) 525-0193
lacy@onda.org

Stephanie M. Parent (OSB # 92590)
Pacific Environmental Advocacy Center
10015 SW Terwilliger Blvd.
Portland, OR 97219
(503) 768-6736
(503) 768-6642 (fax)
parent@lclark.edu

Attorneys for Plaintiffs

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF OREGON**

OREGON NATURAL DESERT ASS’N et al., Case No. 03-CV-213-KI

Plaintiffs,

v.

UNITED STATES FOREST SERV. et al.,

**THIRD DECLARATION OF
JONATHAN J. RHODES**

Defendants,

and

ROBERTSON RANCH et al.,

Intervenor-Defendants,

and

OREGON CATTLEMEN’S ASS’N,

Intervenor-Defendants.

I, JONATHAN J. RHODES, state and declare as follows:

1. My name is Jonathan J. Rhodes. I am the same Jonathan J. Rhodes who submitted a first and second declaration in this case. My qualifications are described in my first declaration.

2. In my previous declarations I listed and described the material that I had reviewed at that time. Since then, I have also I personally observed and evaluated the condition of stream channel, fish habitat, riparian areas, and watershed conditions, on October 20 and 21, 2004 with Dr. Robert L. Beschta in allotments draining into the Malheur River WSR corridor, including Dollar Basin/Star Glade, Summit Prairie, and Bluebucket allotments and the North Fork Malheur River WSR corridor, including the Flag Prairie, North Fork, and Spring Creek allotments on the Malheur National Forest (MNF). As part of this field evaluation on October 20 and 21, 2004, I also personally observed the conditions of stream channel, fish habitat, riparian areas, and watershed conditions in grazing allotments in the Murderers Creek watershed, which provide salient evidence of the impacts of grazing on riparian and stream conditions. During these field evaluations I recorded my observations in field notes, which I augmented with annotated photos.

Scope of Review

3. I submit this declaration to describe my observations during my October 2004 field review and to augment and update my first two declarations, which explain how livestock grazing in the watersheds and Wild and Scenic River corridors for the Malheur and North Fork Malheur Rivers is affecting Outstandingly Remarkable Values (ORVs), attainment of INFISH Riparian Management Objectives (RMOs), and the riparian area requirements of the Malheur National Forest Land and Resource Management Plan (LRMP), through the effects of grazing on riparian vegetation, water quantity, bank conditions, soil erosion and stream sedimentation, soil

conditions, channel form, water quality, and bull trout and their habitat conditions.

4. As part of this declaration, I also reviewed other relevant scientific literature that relates to the effects grazing on riparian conditions, water quality, and bull trout habitat in affected streams. This scientific literature is too lengthy to list here, so I have listed it at the end of this declaration. In my review, I also drew on my professional judgment and experience.

Riparian and stream conditions that I observed during my October 2004 field evaluation are consistent with the statements in my previous declarations regarding the effect of grazing on INFISH RMOs, WSR ORVs, bull trout habitat, stream channels, and riparian areas.

5. The conditions that I observed in October 2004 in the watersheds of the Malheur Wild and Scenic River corridor in the Dollar Basin/Star Glade, Summit Prairie, and Bluebucket allotments and the watersheds of the North Fork Malheur Wild and Scenic River corridor, including the Flag Prairie, North Fork, and Spring Creek allotments are consistent with the statements and conclusions contained in my first declaration and corroborate that declaration. I stand by all of the findings and conclusions in my previous declarations regarding the effects of grazing on aquatic resources in the WSR corridors of the Malheur and North Fork Malheur Rivers, including ORVs, RMOs, the riparian standards for the MNF LRMP, riparian areas, streams, and bull trout habitat.

Despite rest or minimal use in some units on some allotments, stream conditions remain degraded and re-initiation of grazing will impede recovery of the condition of riparian areas, streams, bull trout habitat, and attainment of INFISH RMOs.

6. In my October 2004 field review, I observed that riparian areas appear to have been rested from grazing in the following areas in the watersheds of the Malheur River and North Fork Malheur River wild and scenic river corridors: a) the Dollar Basin/Star Glade

Allotment, South Star Glade Unit,¹ flanking the Malheur River downstream of the private land boundary; b) the Summit Prairie Allotment, Sagehen Unit, flanking Summit Creek, downstream of the Summit Creek enclosure; c) the Flag Prairie Allotment, River Unit, flanking the North Fork Malheur River to the south of trailhead 381; d) North Fork Allotment, South River Unit, flanking the North Fork Malheur River; d) Spring Creek Allotment, South River Unit, flanking the North Fork Malheur River, north and south of road 1370. In these areas, rest, or very minimal livestock use, was indicated by a dearth of recent cattle feces and the condition of vegetation.

7. This rest allowed the initiation of incremental ecological recovery of streams and riparian areas, consistent with the statements in my previous two declarations, including numerous studies I cited on the effect of grazing rest on riparian vegetation and stream conditions. In contrast to the damage to riparian, stream, and bank conditions by grazing in previous years, the season of rest has allowed some nascent recovery to occur in some riparian conditions. However, although some recovery has been initiated through a respite in riparian and stream damage by livestock grazing, the level of recovery has been minimal and is likely to reversed or impeded if livestock grazing occurs in the future.

8. For instance, the Malheur River in the area of the Dollar Basin/Star Glade Allotment, South Star Glade Unit remains wide and shallow; the width-to-depth ratios remain well above the INFISH RMO of width/depth ratio of less than 10. A sizable fraction of the banks remain unstable despite a season of rest (See Attachment 1, photos 1 & 2). These banks are contributing elevated levels of fine sediment to the Malheur River, which retards the

¹ In my first declaration in paragraphs 26, 43, and 53 and attachments 25 and 28, I mistakenly referred to the South Star Glade unit as the North Star Glade unit. This misidentification of the unit name does not, in any way, alter my observations, conclusions, with respect to their ramifications for riparian and aquatic conditions in the Malheur Wild and Scenic Corridor.

recovery of pools and width/depth ratios, both of which are INFISH RMOs that are not currently met in this wild and scenic river corridor. The fine sediment from unstable banks also contributes to reduced bull trout survival, as I noted in my first declaration.

9. Overhanging banks, a vital aspect of salmonid habitat, and an INFISH RMO, remain largely absent in this reach of the Malheur River. I closely examined banks along more than 1000 feet of stream on the Dollar Basin/Star Glade Allotment in the South Star Glade Unit and did not find any stable overhanging bank in the reach. This represents a grossly degraded state. The unstable banks and depressed conditions of deep-rooted deciduous vegetation contribute to the lack of recovery in overhanging banks. Although one season of grazing rest provided respite from additional bank damage, many more years of rest will be needed if overhanging banks are to recover in unimpeded manner.

10. There has also been no significant increase in the number of newly established, deep-rooted deciduous trees and shrubs in the riparian area of this stretch of the Malheur River, despite a season of rest. This riparian area remains impoverished with respect to deep-rooted deciduous trees and shrubs. There are only about 39 willows in one mile-long reach of the riparian area of the Malheur River in the South Star Glade Unit, based on my count of caged² willows on this reach. This is an extremely and unnaturally small amount of willow in this type of riparian area. This roughly equates to only about 0.022% of the riparian area³ with willow cover. Undamaged or recovered riparian areas can have much more than this amount of willow cover. For instance, in the Summit Creek livestock grazing enclosure on the Summit Prairie

² In this reach of the Malheur River's riparian area, it appeared that all remaining willows in this riparian area had been caged in fences. See Attachment 1, photo 3. During my inspection, I did not find any willows outside of these cages.

³ This estimate is based on an average area of nine square feet within the cages and average riparian area of width of 300 feet.

Allotment, there are about 35 willow clumps per 100 feet of stream, based on our counts. On a lineal basis this about 47 times the amount of willow per lineal distance as those in cages in the riparian area of the Malheur River. Further, the willows in the Summit Creek enclosure are far larger than the caged willows along the Malheur River, which have been suppressed by years of grazing. Notably, in the absence of livestock grazing, the willows and other deciduous woody shrubs in the Summit Enclosure are continuing to increase in height, number, and the amount of riparian area that they cover, so may not yet provide an example of the abundance of willow that would occur in the absence of grazing.

11. The low amount of cover by willows and other deciduous vegetation on the Malheur River within the wild and scenic river corridor on the Dollar Basin/Star Glade Allotment indicates that a much longer period of rest will be needed for willows and other deciduous vegetation to become significantly re-established within this riparian area. As noted in my previous declarations, a large number of studies consistently indicate that grazing thwarts the recovery of deciduous riparian vegetation.

12. Notably, none of the caged willows that I counted in this area along the Malheur River were on streambanks, where such vegetation provides the greatest positive effects on stream conditions, including bank stability and stream shade. The lack of shade on Malheur River in the South Star Glade Unit, due to the lack of deep-rooted deciduous trees and shrubs, together with degraded width/depth conditions, contributes to the elevated water temperatures in the Malheur River. These elevated water temperatures adversely affect bull trout and water quality, as I described in my first declaration.

13. A year of rest on this reach of the Malheur River has allowed some vegetation to grow on some of the banks that were previously unstable and bare. If not reversed by grazing,

this nascent step in the recovery of banks and vegetation will ultimately contribute to increases in bank stability and overhanging banks and reductions in channel width, over time. However, it will require many years. Kauffman et al. (2000) noted that their research on the effects of grazing elimination on deciduous vegetation in areas similar to watersheds of the wild and scenic corridor, including Summit Creek, showed that “...the full effects of vegetation response to livestock exclusion may require over 20 years for the full expression to occur. The benefits, ecosystem services, and values of the stream reaches excluded from livestock increase through time and may not be fully realized until decades after exclusion.” This research indicates that at least 20 years of grazing rest may be needed to allow significant recovery of vegetation that is vital to the recovery of bank stability and channel width.

14. The exclosure on Summit Creek also provides an indication that a considerable period of rest from grazing is needed to allow riparian and stream recovery. The Summit Creek exclosure is now about 26 years old (Kauffman et al., 2002). Although there has been considerable recovery of banks, channel form and vegetation due to the elimination of grazing (Kauffman et al., 2002), conditions indicate that bank stability recovery is ongoing and still not complete—there are still some vestiges of unstable banks that are continuing to recover within this 26 year old exclosure. Similarly, willow and other deciduous vegetation, critical to ecological recovery, are continuing to increase in size and abundance.

15. The recovery of channel width and depth typically occurs well after the recovery of vegetation and banks. Therefore, the recovery of channel width/depth ratio and pool frequency, which are both extremely degraded in the Malheur River, as described in my previous declarations, will require even more time for recovery than streambanks and vegetation.

16. Re-initiation of grazing will reverse or retard the recovery that has occurred with

rest via several mechanisms, as described in my previous declarations. Livestock grazing severely damages banks, reducing bank stability and increasing sediment delivery by suppressing the recovery of riparian vegetation and trampling streambanks. As I noted in my second declaration, the latter impact always occurs and is particularly acute, because cattle exert more than five times the pressure per square inch on banks and soils than does a D-9 Caterpillar tractor (Cowley, 2002). Cattle are drawn to riparian areas and streams. The banks of the Malheur River are vulnerable to bank damage from livestock due to the lack of deep-rooted, woody vegetation on the banks and the nature of the soils that comprise the banks. Rosgen (1996) noted that streams with the attributes of the Malheur River have a very high sensitivity to disturbance by grazing, including increases in sediment delivery, very high potential for accelerated streambank erosion and that deeper rooted, woody species are critical to bank stability. As noted in my previous declarations, the banks of the Malheur River are highly susceptible to bank damage due to the lack of woody vegetation on their banks and the seasonally-saturated, fine-grained non-cohesive soils that comprise the banks (Rhodes et al., 1994; USFS, 2000b). In such areas, livestock grazing causes significant bank damage (Rhodes et al., 1994; USFS, 2000b). The high degree of bank damage, depressed bank stability, extremely low levels of overhanging banks on this river also attests to the susceptibility of this river to bank damage from livestock grazing.

17. Bank damage retards the recovery of stream channel width/depth ratios. Damaged, unstable banks are more prone to bank erosion, which thwarts or impedes the stream channel narrowing that is needed to allow recovery of width/depth ratio. Sediment from eroded banks also contributes to increasing channel width-depth ratios. Bank damage together with the loss of vegetation also significantly hampers the development of stable overhanging banks, which require stable banks anchored by thick root masses from vegetation for formation. Pool

development is thwarted by bank damage, elevated bank erosion, and widened stream channels (Buffington et al., 2002). Due to the well-documented effects of grazing and the attributes and condition of the Malheur River and its tributaries, re-initiation of grazing is likely to negate or reverse the recovery that has occurred with grazing rest. It will also retard or prevent the attainment of the INFISH RMOs for overhanging banks, bank stability, width/depth ratio, water temperature, and pools in the Malheur River Wild and Scenic River corridor. These effects of grazing, if re-initiated, will also continue to impair water quality and the survival and production of bull trout in the Malheur River.

18. The situation is similar on the rested areas that I observed on the North Fork Malheur River. A season of rest has allowed some revegetation of unstable and previously unvegetated banks. While this is a positive development in response to grazing rest, it is subject to rapid negation or reversal if grazing is re-initiated, as previously described. There is still a high degree of bank instability, and bank stability recovery has been nominal, as can be seen by comparing the photos of streambanks in October 2004 (Attachment 1, photo 4) with a photo taken in the same area in October 2003 (Attachment 1, photo 5). There has been no apparent increase in the number of newly established deciduous trees and shrubs, which are vital to the recovery of channel form, bank conditions, and water temperature. This lack of rapid recovery is consistent with studies on the effect of grazing rest on deciduous, woody riparian vegetation. It is also not surprising given the relative paucity of sources of deciduous, woody riparian vegetation due to impoverished condition of this vegetation caused by livestock grazing.

19. Width/depth ratios in rested areas on the North Fork Malheur River remain in excess of standards. The recovery of this stream attribute condition will plainly require a longer period of rest. The re-initiation of grazing will appreciably retard the recovery of width-depth

ratios. It is very likely that far more than 10 years will be needed for significant recovery of width/depth ratios, even with full rest.

20. If grazing is re-initiated on the riparian areas, it will very likely negate the incremental recovery that has occurred with rest and will definitely impede recovery. As previously described, this will occur in response to the effects of grazing on vegetation, streambanks, and sediment delivery. These impacts will prevent or retard the recovery of the INFISH RMOs for overhanging banks, bank stability, width/depth ratio, water temperature, and pools. These effects of grazing will also impair the survival and production of bull trout.

Livestock grazing is damaging streams and water quality in allotments subjected to grazing, impeding the attainment of INFISH RMOs in the wild and scenic river corridors and contributing to bull trout habitat damage.

21. The Rock Springs Unit of the Bluebucket Allotment was obviously grazed during the 2004 grazing season. This resulted in observable bank damage on tributaries to the Malheur Wild and Scenic River corridor. These tributaries include Bear Springs⁴ and tributaries to Black Canyon and Cliff Canyon, which are tributaries to the Malheur River Wild and Scenic corridor. As I have previously explained in some detail in this and my other declarations, this bank damage contributes to retarding progress towards attainment of INFISH RMOs for water temperature, pools, and width/depth ratios in the Malheur River Wild and Scenic corridor. It also reduces water quality and contributes to impairing the survival and production of bull trout.

22. This grazing also significantly impedes the recovery of riparian vegetation. This, too, works against the recovery of INFISH RMOs and improvements in bull trout survival.

⁴ In my first declaration in Attachment 10, I mistakenly referred to Bear Springs in the Rock Springs unit of the Bluebucket Allotment as Rock Springs. This mistake does not, in any way, alter my observations, conclusions, or their ramifications of the effects of grazing in this area with respect to its impacts on RMOs or ORVs in the Wild and Scenic Corridor of the Malheur River.

Caging existing deciduous vegetation will not be adequate to allow riparian and stream recovery in areas subjected to grazing.

23. As mentioned, the very few remaining willows in the riparian area along the Malheur River on the Dollar Basin/Star Glade Allotment, South Star Glade Unit, have been placed in small, fenced cages. Regardless of why this was done, there are several reasons why it will not be adequate to allow riparian and stream recovery in areas subjected to grazing.

24. Caging existing willows does very little to promote the increased establishment of willows across the riparian area and on streambanks. Increases in the amount and number of willows and other deep-rooted vegetation throughout the riparian area, and especially on streambanks, are needed for the recovery of riparian and stream conditions, including those that affect bull trout and/or are set as INFISH RMOs. Caging willows only provides a source for willow establishment. However, grazing impacts across the riparian area are the likely primary cause of the lack of willows in this and other riparian areas in the Malheur River and North Fork Malheur River watersheds. Caging willows does nothing to abate the impacts of grazing over the vast majority of the riparian area.

25. As previously discussed, the area of the caged willows along this reach of the Malheur River only affects an extremely miniscule portion of the riparian area, on the order of 0.022%⁵ or 22 square feet per 100,000 square feet of the riparian area. Providing some nominal protection to existing willows over this small area will have a negligible effect on ecological recovery of the riparian area if grazing continues. It will do nothing to protect banks and riparian areas from damage by trampling from livestock. Neither will it have any significant effect on promoting the establishment of other willows along this reach of the Malheur Wild and Scenic

⁵ Even if this estimate is off by a factor of 10, the amount of the riparian area involved in the cages is still miniscule: 0.22 %

River.

26. The overwhelming majority of the caged willows are not affecting streambanks or providing stream shade during the time of day when the greatest amount of solar heating occurs. Therefore, providing some protection of these few remaining willows will not significantly aid in increasing bank stability or reducing shade.

Summary and Conclusions.

27. Grazing rest, where it has occurred, has allowed some recovery to occur with respect to the growth of sedges, grasses, forbs, and other groundcover vegetation. It has also allowed the few remaining willows to grow without suppression during the grazing season. However, although this is important, the single season of rest has not triggered significant recovery of channel width/depth, pools, overhanging banks, bank stability, and water temperature. The single season of rest has also not yet allowed significant re-establishment of critically important deciduous woody vegetation. Available information indicates that many more years of rest will be needed for several of these attributes to change significantly. Some attributes, such as channel width/depth ratio and pools will likely require even more time to respond to the beneficial effects of grazing rest. Based on available information, it is likely that this will require at least 20 years of rest.

28. There is some uncertainty involved in how long a period of rest is needed to allow appreciable recovery of attributes set as INFISH RMOs, due to a number of factors. However, there is no uncertainty that the most rapid approach for the attainment of these RMOs is to completely rest the system until the RMOs have been met.

29. In contrast to the issue of the time needed for significant recovery of the damaged riparian and stream systems, there is no uncertainty regarding the effect of grazing on the rate of

recovery of damaged stream and riparian attributes, including those that affect INFISH RMOs and bull trout survival. Available scientific information, including that from research in the area, all clearly and consistently indicates that grazing retards the rate of recovery of banks, pools, water temperature, soil erosion, soil productivity, sediment delivery, stream width/depth, riparian vegetation, and water quality. Therefore, the re-introduction of any significant livestock grazing will retard the recovery of these conditions and the processes that influence them. Due to the status and character of riparian areas, banks and streams, re-initiation of any significant grazing is likely to prevent the recovery of stream conditions, RMOs, and habitat attributes necessary for bull trout survival. In the areas where grazing has continued, it is retarding recovery and causing damage to streams, riparian areas, and water quality.

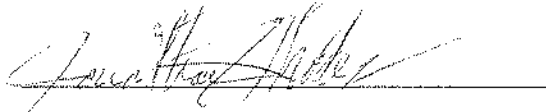
30. The re-initiation of grazing is also likely to negate recovery where it has occurred with rest. Most of the riparian areas and streams within these watersheds simply are extremely vulnerable to damage from livestock grazing due to their inherent attributes and degraded condition.

31. Available information clearly documents that grazing retards or prevents the recovery stream attributes that are set as, or affect the attainment of, RMOs and ORVs. Therefore, it is essential if grazing is continued in the watersheds, that there be adequate monitoring to ascertain these effects and that measures be taken to require rest where attainment of RMOs and progress towards recovery has been measurably slowed. This will require establishing many large, representative grazing exclosures on stream reaches throughout the watersheds of the wild and scenic corridors where rigorous monitoring of RMOs, LRMP standards, riparian vegetation, and other attributes that affect ORVs is conducted annually for comparison with the results of rigorous monitoring of the same conditions in grazed areas

outside of exclosures. Where the rate of recovery in exclosures is greater than in grazed areas, as will be documented with adequate monitoring, grazed areas should be required to be rested until, at least, RMOs and other required management targets are met. Otherwise, the MNF has no basis or mechanism for ascertaining the degree to which any significant grazing is retarding the recovery of RMOs, ORVs and LRMP standards. Notably, none of these necessary aspects of monitoring and grazing management has been conducted or required by the MNF.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

DATED this 11th day of November 2004.



Jonathan J. Rhodes

Literature Cited

Buffington, J.M., T.E. Lisle, R.D. Woodsmith and S. Hilton. 2002. Controls on the size and occurrence of pools in coarse-grained forest rivers. *River Research & Applications*, 18: 507-531.

Kauffman, J.B., Bayley, P., Li, H., McDowell, P., and Beschta, R.L., 2002. Research/Evaluate Restoration of NE Oregon Streams: Effects of livestock exclosures (corridor fencing) on riparian vegetation, stream geomorphic features, and fish populations. Final Report to the Bonneville Power Administration, Portland, OR

Cowley, E.R., 2002. Monitoring Current Year Streambank Alteration. Bureau of Land Management, Idaho State Office, Boise, ID

Rhodes, J.J., McCullough, D.A., and Espinosa Jr., F.A., 1994. A Coarse Screening Process for Evaluation of the Effects of Land Management Activities on Salmon Spawning and Rearing Habitat in ESA Consultations. CRITFC Tech. Rpt. 94-4, Portland, OR.
http://www.critfc.org/text/tech_rep.htm

Rosgen, D., 1996. Applied River Geomorphology. Wildland Hydrology, Pagosa Springs, CO.

USFS, 2000b. Sierra Nevada Forest Plan Amendment DEIS, USFS PSW Region, San Francisco, Ca.

THIRD DECLARATION OF JONATHAN J. RHODES