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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF OREGON

OREGON NATURAL DESERT ASS'N
CENTER FOR BIOLOGICAL DIVERSITY
and **WESTERN WATERSHEDS PROJECT**

Plaintiffs,

v.

ABIGAIL KIMBELL, et al.,

Defendants

v.

HARLEY & SHERIE ALLEN, et al.,

Defendants-Intervenors.

Case No. 07-1871-HA
[Related Case No. 08-151-HA]

THIRD DECLARATION OF ROBERT L. BESCHTA, Ph.D.

I, ROBERT L. BESCHTA, Ph.D., state and declare as follows:

1. My name is Robert L. Beschta. I am the same Robert L. Beschta who has submitted two previous declarations in this case. My qualifications are described in those previous depositions.

Scope of Review

2. In addition to material identified in my previous two declarations, I reviewed recently submitted declarations [date submitted in brackets] by the defendant's experts: W.C. Krueger [5 May 2009], J.C. Buckhouse [6 May 2009], P. Larson [14 April 2009 and 6 May 2009], T.K. Stringham [11 May 2009], B.B. Roper [11 May 2009], T.A. Burton [11 May, 2009], D.W. Elmore [11 May & 18 May 2009], and S.E. Namitz [18 May 2009]. I have also reviewed PACFISH Grazing Guidelines (1995), Henderson et al. (2005), and the Biological Assessment (2007) for the Malheur National Forest.

Discussion Points

A. PACFISH/INFISH standards and guidelines were implemented because of concerns about degraded fish habitat. Those standards and guidelines provide both generalized and quantitative goals that are not currently being met.

3. Krueger and Buckhouse agree that riparian areas and associated streams on the Malheur NF, as well as elsewhere in eastern Oregon, generally experienced severe damage from livestock grazing practices of the early 1900s. However, since that time they contend that riparian and stream conditions have improved due to the implementation of appropriate livestock grazing practices. If such grazing practices had allowed significant recovery of degraded fish habitat there would have been no need for regional PACFISH Grazing Guidelines (1995) and the reaffirmation of

PACFISH/INFISH standards and guidelines by the Malheur National Forest (Biological Assessment 2007). The fact that it was necessary for the Forest Service to formulate, implement, and monitor Riparian Management Objectives (RMOs) specifically directed at grazing is indicative of the concerns that historical and contemporary grazing practices have had on watersheds, riparian areas, and stream channels, all of which can affect fish habitat.

4. PACFISH Grazing Guidelines (1995) were expected to attain the following on-the-ground attributes:

(1) Floodplains are inundated by relatively frequent events (i.e., 1-3 years).

(2) Stream sinuosity, width/depth ratio, and pool frequency reflect the capabilities of the setting (i.e., landform, geology, and bioclimatic region).

(3) Lateral stream movement is associated with natural sinuosity (i.e., streambank stability reflects the inherent capabilities of the setting).

(4) The overall system is vertically stable.

(5) Streambank morphology reflects the inherent capabilities of the ecological setting.

(6) Upland watershed conditions within the allotment are not contributing to degradation of riparian habitat conservation areas.

(7) Riparian vegetation characteristics: diverse age structure for woody species (where such species are a part of the natural system); plants exhibit high vigor; species present indicate maintenance of riparian soil moisture; streambank vegetation protects stream banks and dissipates energy during high flows (i.e., consider community type composition, rooting characteristics, and plant density); and provide

an adequate source of coarse and/or large woody debris (where such debris is a part of the natural system).

PACFISH Grazing Guidelines (1995) also indicate that "near natural rates of recovery can be provided if we limit environmental effects to those that do not carry through to the next year, thereby avoiding cumulative, negative effects." It is my opinion that the above attributes are seldom being met for riparian areas and streams associated with grazing allotments of the Malheur National Forest and that a "near natural rate of recovery" is not occurring. Furthermore, none of the recent declarations by the defendant's experts in range or fisheries have indicated such attributes are currently being met or that they are improving at "near natural rates of recovery".

5. The Biological Assessment (2007) of the Malheur National Forest reaffirmed that "The Forest is expected to meet certain riparian management conditions that are the components of the Riparian Management Objectives (RMOs) and to meet the 'near natural rate of recovery' (NNRR)." It was further stated that "PACFISH/INFISH standards for grazing activities (GM-1 through GM-4) are designed to avoid adverse effects to anadromous and inland native fish species by ensuring that indirect effects to habitat for anadromous and inland native fish species do not result in adverse habitat modification." PACFISH/INFISH standards are intended to "not retard or prevent attainment of RMOs" where retard is defined as "slowing the rate of recovery below the natural rate of recovery." Not only are RMOs such as 1) bank stability, 2) lower bank angle [overhanging banks], and width-to-depth ratios identified, but it is also indicated a "good mix of age class distribution" is desired for riparian shrubs.

6. In my previous declarations, I have indicated that historical cattle grazing on allotments of the Malheur National Forest has resulted in a decline in habitat for fisheries

and contemporary grazing practices are preventing recovery. The closest I can come to finding any areas on the Malheur National Forest that are attaining a "near natural rate of recovery" is within areas excluded to cattle. Within such excluded areas, I commonly observe the following: 1) stable banks (since trampling effects from cattle no longer occur), 2) overhanging banks (i.e., stable bank features due to the presence of sufficient vegetation biomass that physically hold soil and are resistant to the forces of high flows), and relatively small width-to-depth ratios (since healthy and intact plant communities can encourage sediment deposition during periods of high flow that incrementally builds up streambanks and floodplains). Outside of these excluded areas, I commonly observe a high proportion of unstable (eroding banks), a near absence of overhanging banks, and relatively large width-to-depth ratios. In very simple fashion, these cattle exclusion areas illustrate the recovery potential for riparian vegetation, streambanks, channels, and fish habitat. In contrast, areas that continue to experience the effects of grazing illustrate the profound level of impacts that cattle have historically had and are continuing to have. Buckhouse's second declaration indicates "much of the literature on grazing compares abusive grazing practices to total exclusion. Given that comparison, grazing always fails". Since current grazing management is not allowing recovery at near natural rates, I would consider it by definition to be an "abusive practice" and indeed it has failed and will continue to fail in comparison to total exclusion.

7. Declarations by both Kruger and Buckhouse make general statements that riparian areas of eastern Oregon have improved over the last 30+ years. Improvement in some riparian areas in some parts of the State may well have occurred, but PACFISH/INFISH standards and guidelines for the Malheur National Forest require a

"near natural rate of recovery." Stringham's declaration provides no data or opinion that any allotments on the Malheur National Forest have improved since implementation of the PACFISH/INFISH Grazing Guidelines of 1995. Elmore indicates it is his professional opinion that proposed grazing strategies for 2009 "if followed, will allow the riparian areas in these allotments to improve over time and avoid causing any irreparable injury to such areas." Attaining some level of improvement or avoiding irreparable injury is not what PACFISH/INFISH standards and guidelines are calling for. Nowhere in their declarations do these range experts provide any data or opinions that riparian areas on grazing allotments of the Malheur National Forest are attaining anything close to a "near natural rate of recovery."

8. Declarations by fisheries biologists Namitz, Burton, and Roper range from contradictory to non-committal on whether grazing practices on the Malheur National Forest are improving riparian systems and aquatic habitat for fish. For example, Namitz indicates "It is my professional opinion that implementation of the prospective 2009 grazing strategy for the Lower Middle Fork Allotment…would not result in any irreparable injury to such fish or critical habitat." Burton generally dismisses most concerns of Christie, Rhodes, and Beschta, but offers no data or opinion on whether proposed grazing on Malheur National Forest are allowing allotments to attain any level of recovery. Roper summarizes a large amount of data collected as part of the PACFISH/INFISH Biological Opinion Effectiveness Monitoring Program (PIBO EMP). Based on these data sets, Roper indicates it is his "reasoned opinion" that 1) "there has been little change in stream habitat conditions on federal lands within the John Day River Basin", 2) "the trend in the conditions of integrator reaches evaluated on the Malheur

National Forest is similar or slightly better than those of other integrator reaches within the John Day Basin", and 3) "the trend in DMA [Designated Monitoring Area reaches] within the Malheur National Forest are similar (or slightly better) than those of other DMA reaches within the John Day River Basin." Most incredibly, perhaps, Roper states that "it is hard to understand how a decision to graze in the current year would result in imminent harm to steelhead populations or preclude future management options." Terminology associated with the effects of grazing on fish habitat by fisheries biologists such as "would not result in irreparable injury", "little change", "similar or slightly better", a lack of "imminent harm", or not "precluding management options" clearly do not speak to PACFISH/INFISH concerns that degraded fish habitats need to attain a "near natural rate of recovery" and that "grazing activities will not retard or prevent the attainment of RMOs" (Biological Assessment 2007) on the Malheur National Forest.

9. In a "Grazing Intensity Comparison" that is attached as an exhibit to the reply brief, the calculated AUMs on allotment units that are to be grazed in 2009 represent approximately a 3% increase in previous grazing levels for those same units. Regardless of whether any of these units had experienced a year of rest or not, an increase in grazing in total AUMs does not constitute an opportunity for the recovery of fish habitat in streams draining those units. While one year of rest represents an important milestone in the recovery of degraded fish habitat for cattle allotments that has experienced the long-term effects of excessive grazing, full restoration will require an extended number of years of no grazing impacts.

B. RMOs of 1) stable banks, 2) overhanging (undercut) banks, and width-to-depth ratios are reasonable concerns for streams draining grazing allotments on the Malheur National Forest.

10. As indicated in the Biological Assessment (2007), one of the parameters for assessing grazing impacts is that bank alterations of up to 20% of a streambank are allowed at the end of a grazing season. While I understand the need for having discrete standards to assess compliance, it should be noted that allowing up to 20% bank alteration is a very "generous" standard that not only allows significant damage to streambanks, but damage that typically carries over from one year to the next. Streams that I have observed in my professional career and which were in good ecological condition seldom have any bank damage.

11. In my previous declarations, I have cited and summarized field data by Christopher Christie indicating that more than 20% bank alteration is common in grazing allotments of the Malheur National Forest. Year-after-year bank alterations of 20% or more indicate that overhanging banks would have been largely destroyed over time, significant amounts of eroding streambanks would be present, and that the channel would either have widened (i.e., a large width-to-depth) or incised. In many instances, both channel widening and incision have occurred. Overall, there is urgent need to eliminate the continuing effects of cattle grazing upon riparian vegetation and channels if fish habitats are to recovery.

12. Roper's declaration cites various statistics regarding channel characteristics that are based on PIBO EMP data and indicates that "reference reaches" are an important part of that monitoring effort since they help to "discern natural effects from management

effects." Reference reaches used in PIPO EMP monitoring across Forest Service Regions 1, 4, and 6 were selected from watersheds with little timber harvesting, few roads, no mining, and which have not been "grazed by livestock in the last 30 years" (Henderson et al. 2005). It is this last restriction that largely relegates reference reaches to wilderness areas. Thus, reference reaches are relatively scarce in Region Six. For example, of the 150 reference reaches sampled from 2001-2004, 77 were in Region 1 (western Montana), 59 in Region 4 (Idaho) and only 14 in Region 6 (Oregon and Washington). In fact, the Malheur National Forest has no "references reaches" from which to "discern natural effects from management effects." Furthermore, the comparisons of "managed reaches" on the Malheur National Forest relative to other "managed reaches" on other National Forests in the John Day Basin is equivalent to comparing the condition of sick patients in two different hospitals. Even if one hospital shows patients in better condition, it does not allow one to conclude that patients in either hospital are recovering or are recovering at a "near natural rate".

13. Over the years I have authored or coauthored several publications regarding the restoration of degraded riparian/aquatic ecosystems for recovering ecological functions and improved fish habitat (i.e., Elmore and Beschta 1987, Beschta 1991, Sedell and Beschta 1991, Beschta 1994, Beschta 1997, National Research Council 1996, Kauffman et al. 1997, National Research Council 2000). In each of those publications, the recovery of streamside vegetation has been a central theme since it is fundamental to the long-term recovery of riparian functions, channel morphology, and fish habitat. Furthermore, it should thus come as no surprise to Forest Service administrators of grazing allotments on the Malheur National Forest that recovery of fish habitat from the

historical and contemporary impacts of grazing, impacts that have been ongoing for multiple decades, will similarly require many years and perhaps decades of grazing non-use. In other words, the approach most likely to attain a "near natural rate of recovery" is to simply remove all cattle impacts until the recovery of vegetation, channels, and fish habitat has actually occurred.

C. The PACFISH Grazing Guidelines (1995) and the Biological Assessment (2007) indicate a need to attain diverse age structure for riparian shrubs (e.g., willow cottonwood).

14. In my previous two declarations, I expressed concerns about intensive cattle grazing precluding shrubs from becoming established and growing above the browse level of cattle. In support of that concern, I provided data on the growth of willows and cottonwoods on the Hiyu Unit of the Long Creek Allotment that were protected from being browsed by small wire exclosures. Inside these exclosures, both willow and cottonwood were able to reach a height of over 5 ft tall after only four years of protection. For comparison purposes, only willows were measured outside of these exclosures (since no cottonwoods were available) and they averaged only 1.4 ft in height and were being heavily hedged (i.e., experiencing such high levels of browsing that vertical height growth above 1.4 ft was being prevented). In addition, all of the willows measured outside the exclosures had been browsed in the weeks or months prior to October 1, 2008 (the date I measured their heights). The importance this later information is that it indicates browsing of these plants occurred during summer/early fall when cattle were on the allotment and not during the late fall/winter which is the normal period of use by wild ungulates (e.g., elk, deer). Thus, I would conclude that the collected data supports my concerns that browsing by cattle are preventing the recovery of riparian shrub communities. The fact the Forest Service must go to nearly heroic efforts

(i.e., put exclosures around individual willows, cottonwoods, or other riparian shrubs) to ensure their survival along streams is tantamount to explicitly acknowledging that historical and contemporary grazing practices have been largely responsible for the lack of a "diverse age structure" of riparian shrubs along grazing allotment streams, a diversity that is required under PACFISH/INFISH guidelines.

15. In Stringham's declaration, she notes the shrub height data that I provided in my previous declarations is "difficult to interpret". I have published shrub height data from sites in Wyoming, Utah, South Dakota, California, and Washington in recent years and it is data similar to that which I have presented in my previous declarations. As fundamental as shrub height and browsing data are to understanding the impacts of cattle, as well as elk, deer, and horses, to riparian plant communities, the data I presented in my previous declarations (and have briefly summarized herein) is the only actual shrub height data I'm aware of for any of the grazed allotments on the Malheur National Forest. Furthermore, this data is in direct conflict with the estimated browsing levels provided by the Malheur National Forest in their 2008 End of Year Grazing Report for the Blue Mountain Ranger District, where they indicate 6 grazing units had "light hedging" and 83 grazing units had "light to moderate hedging" (including the Hiyu unit where I collected shrub height and browsing data). In allotments that I have visited on the Malheur National Forest, I seldom have seen light or moderate hedging. Instead, I would consider shrub utilization to be "heavy" over a period of decades as evidenced by the lack of a diverse age structure of palatable shrub species.

16. My reason for emphasizing shrubs in all of my declarations is that they are clearly identified in PACFISH/INFISH guidelines as an important management objective. The woody root systems of shrubs provide bank stability that sedges cannot replicate, the

above-ground stems can prevent cattle (as well as wild ungulates) from physically trampling streambanks, the multiple stems of shrubs are very important for stabilizing streambanks and for providing hydraulic roughness during high flows that encourages sediment deposition, their canopies shade streams and help to prevent temperature increases, and their leaves are often palatable to invertebrates which are an important source of food for fish. Thus, unless palatable shrubs such as willow, cottonwood, and others are able to grow above the browse level of cattle and attain a "diverse age structure", it is apparent that a "near natural rate of recovery" is not possible for riparian areas, channels, and fish habitat in cattle allotments of the Malheur National Forest.

D. In various declarations there has been some concern that wild ungulates (elk, deer, and horses) are the primary causes of channel and fish habitat degradation, and not cattle, for streams of the Malheur National Forest.

17. In recent years, I have been involved in research in a number of national parks where excessive numbers of wild ungulates (i.e., elk, deer), in the absence of a major predator or other population controls, can indeed cause major impacts to riparian areas and streams. With regard to feral horses, Stringham notes that they are "notorious for damaging riparian areas and have been found to spend the majority of their time loafing and grazing in meadows, streamside areas and near seeps and springs." Interestingly, Roper notes that "when drought conditions exist livestock are more likely to concentrate near water making livestock management more challenging." In my opinion, livestock management is indeed "challenging" during dry summer-time conditions since this is a period when they, like horses, tend to concentrate along meadows, streamside areas, and near seeps and springs, thus creating serious impacts to riparian vegetation, channels, and fish habitat.

18. If administrators of the Malheur National Forest feel that their cattle allotments have too many riparian impacts from wild or feral ungulates, as Stringham and Buckhouse suggest, this would be all the more reason for cattle to be removed from such allotments so that upland and riparian plant communities, stream channels, and fish habitat, can begin a long process of recovery.

E. Larson's recent declarations are particularly disconcerting with regard to how science is viewed and discussed relative to the issues affecting fish habitat on Malheur National Forest grazing allotments.

19. In Larson's 4th declaration, her discussion of how cattle do or do not impact sedimentation in streams, shading and stream temperature, channel morphology, and fish habitat are in conflict with a broad literature. Over the last 30+ years of my professional career, I have undertaken various research projects and accumulated a considerable number of research publications on forestry and grazing impacts to riparian systems and channel morphology, on instream sediment transport and deposition, and energy budgets and factors affecting stream temperatures. In my humble opinion, and with all due respect, I find Larson's discussions and use of citations typically misrepresent the fundamental science on these various topics.

19. Larson (5th declaration) indicates that "photo files cannot substitute or be a surrogate for data". Similarly, Roper expressed concerns about the use of photographs by the plaintiffs (but was silent about the use of photographs in declarations of the defendants). It has been my professional experience that photographs are able to quickly convey qualitative perspectives regarding a particular issue. Perhaps the old adage that a picture is worth a thousand words is appropriate here since a photograph of an over-

widened channel with eroding banks and an absence of riparian vegetation quickly conveys the message of degraded fish habitat. If such a photo was representative of a particular stream reach, then intensive data collection along that reach will simply confirm the specific degree of channel widening, eroding banks, and absence of riparian vegetation, but will not alter the overriding conclusion that is apparent in the photograph. In the last twenty publications that I have authored or coauthored in recent years, each includes one or more photographs as a means of conveying to readers, in a straightforward fashion, the kinds of ecosystem changes that were occurring to plant communities or stream systems (some photos indicating improvement and others indicating degradation, depending upon the situation). Thus, I would conclude that photographs are a legitimate and important means of demonstrating cattle-caused impacts to riparian areas, channel morphology, and fish habitat.

20. Based on information, data, and synthesis presented in this and my previous two declarations, I would conclude that cattle grazing on allotments of the Malheur National Forest has caused, and is continuing to cause, degraded riparian plant communities (e.g., overuse of sedges/rushes, heavily hedged shrubs), degraded channel morphology (e.g., relatively wide and/or incised channels, loss of overhanging banks), degraded water quality (e.g., increased temperatures and sediment loads), with significant and adverse impacts to fish habitat. If "near natural rate of recovery" is a true benchmark for assessing whether these systems are improving (PACFISH Grazing Guidelines 1995, Biological Assessment 2007), that would indicate the removal of cattle from streamside areas, and potentially from watersheds if they are having similarly adverse effects on

uplands (e.g., accelerated soil erosion), clearly represents the approach that can best achieve fish habitat restoration goals.

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 _28th___ day of May 2009.

_s/ Robert L. Beschta_____

Robert L. Beschta, Ph.D.

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