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Sent via email to BLM_WY_LRMP_WYMail@blm.gov, BLM.Lander@icfi.com and US Postal Return Receipt

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RE: Comments to the Lander Resource Management Plan Revision Project and Draft Environmental Impact Statement

Dear Kristin,

Thank you for the opportunity to provide comments on the Lander Draft Resource Management Plan Revision Project (DRMP) and Draft Environmental Impact Statement (DEIS). Trout Unlimited (TU) offers these comments in an effort to identify issues and provide potential solutions for the new resource management plan effort. TU understands that this DRMP Revision Project includes the revision of Lander Resource Management Plan last completed in 1987. At stake is the future multiple-use management of 6,487,464 million acres of public land in Carbon, Fremont, Hot Springs, Natrona and Sweetwater counties.

Background

TU is a private, non-profit coldwater conservation organization that has more than 144,000 members nationwide dedicated to conserving, protecting and restoring North America's trout and salmon fisheries and their watersheds. Since 1959, TU has dedicated staff and volunteers toward the protection of sensitive ecological systems necessary to support robust native and wild trout and salmon populations in their respective range. TU recognizes that the value of public lands is unparalleled in providing habitat to coldwater fisheries and wildlife. TU's recognizes the importance of protecting public lands for the protection and restoration of wildlife and fisheries, and the hunting and fishing opportunities.

In Wyoming, TU has over 1,500 members and 12 state chapters, including a chapter in Lander, whose members actively enjoy and value the resources of the many rivers, lakes

and watersheds located on BLM lands in Wyoming. Members of our chapters regularly participate in on-the-ground restoration and enhancement projects within the Lander BLM resource area in an effort to help restore, protect and maintain valuable fisheries habitat.

TU knows how important the RMP planning process is for determining the future management of BLM lands and minerals in the Lander resource area. We will address our comments to the issues that directly relate to our organization's mission and focus. We will also propose suggestions for alternatives, management standards and restrictions on uses that could compromise not only existing resources, but also opportunities to restore watersheds and maintain critical riparian components of those watersheds in the Lander resource area. TU hopes that these comments are helpful and constructive for the Planning Team.

General Analysis

TU is supportive of Alternative D (the BLM's Preferred Alternative), with additional recommendations that focus on the protection of coldwater fisheries and wildlife habitat. While Alternative B provides strong habitat and watershed protections, but we feel our support for Alternative D with additional recommendations for increased management actions promotes a better use option. Looking at the range of alternatives, TU supports Alternative D as the alternative that provides the best balanced approach to managing our public lands for a wider range of uses.

Through the use of new technological advances in the extraction industry and the implementation of the best of Best Management Practices, TU's approach to responsible energy development assures our fish and wildlife resources remain protected for future generations. Our recommendations include language that requires oil and gas development complies with common-sense regulations which are designed to minimize impacts from oil and gas drilling on our public lands. Alternative C emphasizes resource extraction use at the expense of jeopardizing vital fish and wildlife habitat. Impacts to these resources place our hunting and fishing heritage at risk. By implementing Alternative D, with some adjustments, The Lander Field Office will continue to sustain excellent fish and wildlife habitat and a wide range of resource uses.

Review and Discussion of Environmental Resources

4.1 Physical Resources

4.1.3 Soils

The planning area has arid to semi-arid conditions, receives little moisture, with soils that are saline, alkaline and shallow with many soils having cryptobiotic soil crusts that aid in protection and allows increased water infiltration. Disturbance to these unique soils can have profound productivity and stability issues. Soil surveys and site stability assessments for the planning area are incomplete and currently out of date, with the last

soil survey completed in 1981. According to the DRMP, activities including mineral development, oil and gas development, and other impacting actions have negatively affected the soil conditions and have hampered reclamation (Chapter 3, p.256). Additionally, many oil and gas projects involve locations where development on slopes occurs. Since the Natural Resources Conservation Service (NRCS) indicates that most soils on slopes greater than 15% experience soil erosion loss rates that are difficult to control with standard erosion control measures and are equally difficult to reclaim, TU asserts that assigning general soil stipulation measures to oil and gas leases will not effectively protect soil conditions in the Lander resource area. TU stresses the importance of having updated soil resource data when it comes to attaching stipulations and conditions of approval on oil and gas projects. Without an updated survey of soil conditions and health standards of the current conditions of an area, incorrect assumptions may be made, coupled with inadequate stipulations attached to leases. In order to comprehend the true soil erosion potential for this resource area, we request that the final RMP include the provision that additional erosion predictions and surveys must be completed prior to the approval of surface disturbance activities. Based on the oil and gas Reasonable Foreseeable Development (RFD) scenario under any of the alternatives, we feel the BLM must have thorough baseline knowledge of the soil surface conditions prior to the exploration and development activities that degrade soil conditions.

As recognized in the DRMP, erosion issues remain significant and contribute to poor water quality and vegetative stability from increased sedimentation and erosion in the Lander resource area. In fact, more than 50% of the BLM surface area is identified as having soils with severe wind erosion, followed by severe water erosion conditions of 37 percent. Additionally, the condition of vegetative cover has decreased in the last decade due to drought. Effective streamside vegetation, healthy riparian areas, and soils stability and erosion can have significant impacts on watersheds and the fisheries they contain. Effects on fish include direct and sublethal effects that could threaten the existence of coldwater fisheries. The Lander resource area contains a significant amount of trout habitat including sensitive species such as Yellowstone cutthroat trout. Mortality, disease, reproduction, growth and behavioral impacts, and impacts to the fisheries food supply can be linked to sedimentation issues. The control of sedimentation dynamics is one of the most beneficial services that can occur with successful management of sensitive soil areas.

Because Alternative D would result in more adverse impacts to soil resources than Alternative B, we support Alternative B's limited surface disturbance buffer recommendation of 1,320 feet (or .25 mile) of surface water, riparian-wetland areas, playas, and 100 year floodplains TU also supports Alternative D's proactive management actions to improve reclamation efforts. The Wyoming BLM State Reclamation Plan (2010) offers a coordinated statewide standards process that includes more progressive methods for handling difficult-to-reclaim soils, such as that which exists in the Lander resource area. We recommend that the final RMP reference the use of more intensive reclamation efforts and incorporate the statewide BLM reclamation document in project review and approvals.

We feel that the watershed improvement practices, stabilization of failed watershed projects and higher reclamation standards would greatly benefit the watersheds within the planning area. TU considers this part of a responsible energy development platform and request the BLM strengthen Alternative D in a manner which results in stronger resource protection.

Summary of Soils Recommendation(s):

- Update the resource areas soil surveys and development strategies which acknowledge the unique soil qualities and challenges inherent in this area.
- Implement a watershed protection plan requirement that reduces the incidence of all types of runoff and erosion, particularly for surface disturbance activities such as oil and gas development.
- Require a reclamation plan prior to authorizing surface disturbing activities.
- Implement the BLM's Statewide Reclamation Policy Standards established in 2010 by a collation of organizations, state agencies, and groups.
- Implement a soil erosion monitoring matrix that provides incentives for companies which meet minimal soil loss expectations and high native reclamation success.
- Strengthen all stipulations for sensitive soil conditions and prohibit surface development activities on highly erosive soils and highly erosive slopes greater than 15% (as described in Alternative B).

4.1.4 Water

Discussion on watershed and water quality issues in the DRMP should be expanded upon in more detail to include potential harms from oil and gas development activities. Once groundwater is contaminated, it is difficult, if not impossible, to completely restore groundwater quality.

There is a lack of a discussion or reference in the DRMP regarding the protection of watersheds from future contamination incidents. TU disagrees with the DRMP's assumption (Chapter 4, p.596) that substantial disturbances to waters can only be addressed at the site-specific level. Implementing stronger protection measures on a landscape RMP level helps lessen the sedimentation, erosion, compaction, and vegetative loss issues associated with surface and subsurface uses of public land resources. We do agree that site-specific analysis impacts can also be mitigated to address each resource issue but it is much better to start with a strong protective bar than one that is too small to mitigate around.

Similar to our concerns addressed under the Soils discussion, Alternative D would result in impacts that are more adverse to water resources than Alternative B; thus, we support Alternative B's limited surface disturbance buffer recommendation of 1,320 feet (or .25 mile) of surface water, riparian-wetland areas, playas, and 100 year floodplains. In implementing such a buffer (see discussion on buffers under fisheries), it not only

maximizes protection of a watershed and habitat, it adheres to the guidelines outlined in the BLM's IM 2010-117 which calls for consistency in stipulation language across administrative boundaries among BLM field offices and regions. Across the West, many BLM and USFS offices are implementing .25 mile and .50 mile buffers along perennial waters and sensitive coldwater fisheries.

With the increase in oil and gas development there is a significant chance of incidents which could contaminate water resources. The lack of groundwater discussion and protective water management actions from future contamination incidents is alarming. Every effort must be made to include actions that protect the planning areas watersheds. In order to reduce the risk of groundwater contamination incidents, the DRMP must include the requirement for the BLM to complete a groundwater vulnerability assessment in order to understand the impacts of oil and gas development to the planning resources watershed. Such an investment should determine the risk factors associated with chemicals of concern released during oil and gas operations and mineral development which impact groundwater within the Lander field office (LFO) planning area. Once groundwater is contaminated, it is difficult, if not impossible, to completely restore groundwater quality. Such an assessment would increase the ability to provide protection measures which benefit everyone in the resource community.

TU recommends including language in the final RMP that reinforces collaborative and regulatory activities required by Wyoming's resource regulatory agencies. For example, communication between and among aquifers penetrated by wells should be avoided and/or prevented by the use of appropriate cementing and casing for the complete well depth. While the Wyoming Oil and Gas Conservation Commission (WOGCC) requirement attempts to maintain successful well development, it does not always mean that a well is contamination-free. As the public lands administrator, the BLM must provide an adequate monitoring infrastructure that provides annual reporting documentation readily available for public review. The BLM, within the scope of its authority to do so, may go beyond simple regulatory requirements in order to prevent unnecessary or undue degradation of the public lands and their associated resources.

The question of how to handle the waste water used in the fracking process must be addressed in further detail. Used in the fracking process, this water will need to be removed and either recycled or processed to remove the impurities that have been added during the fracking process. Either way this water is removed from the ecosystem and its use must be addressed. Conservation and treatment of produced water from energy development in this arid resource area should be a high priority. In the case of oil and gas development, produced water has the potential to negatively impact fisheries, riparian areas, surface and groundwater, and its disposal should be managed with a more conservative approach. Produced waters contain, in addition to numerous types of salts and petrochemical additives, chemically laden hydraulic fracturing ("fracking") fluids which can have negative impacts to waters and habitat. .

TU recommends that the BLM include additional proactive language in the final RMP that strongly advocates for better produced water and contamination management.

TU recommends implementing the restrictions placed on produced water that are outlined in Alternative B (4-650). Additionally, requiring the use of closed loops systems, such as those being required in the Pinedale gas fields, makes economic and environmental sense. This is particularly true based on the DRMP discussion about projected future water demand and potential water shortages. Use of closed loop systems would also result in decreases in soil erosion from heavy truck traffic, decreases in air pollution from diesel emissions from trucks, and decrease in wildlife disturbances and mortalities. Treatment facilities are being developed in Wyoming that effectively treat produced waters and a potential economic opportunity might be a beneficial outcome from the result of more strict treatment and disposal for the increase in produced waters expected to occur in the Lander planning area.

Finally, for all of the LFO resource area, maintaining water quality remains a high priority based on our dependency of so many uses. Efforts are underway to better understand water use and energy development's impact on that use. The DRMP does not discuss recent study efforts and reports compiled by EPA and the Department of Energy (DOE). EPA is undertaking a study on hydraulic fracturing and its impacts on drinking water. The Department of Energy's (DOE) recent subcommittee report on hydraulic fracturing emphasizes the need for government agencies to take a more proactive role in management of oil and gas development projects. The report also emphasizes the need to recognize the public's perception of fracking and the issues of concern the public has from all aspects of drilling (US Department of Energy. The SEAB Shale Gas Production Subcommittee Ninety-Day Report. August 11, 2011).

Additionally, the BLM is in the middle of developing a hydraulic fracturing management plan for public lands. In light of the current controversies and high public interest with respect to hydraulic fracturing and contamination issues TU recommends the BLM provide a more thorough discussion of the impacts from various methods of oil and gas development practices, including fracking, in the final RMP.

Summary of Water Recommendations:

- Update the projected demand on water use given the projections for oil and gas development and other water uses in the area
- Require groundwater vulnerability assessment studies and analysis prior to oil and gas project implementation to better understand and protect future groundwater uses.
- Increase buffer widths to 1,320 feet (.25 mile) to surface waters and riparian-wetland areas.
- BLM should require the use of closed loop systems for managing produced waters to increase conservation potential and minimize environmental harm.
- Limit the number of roads in oil and gas fields and minimize well pad size and surface disturbance to minimize sedimentation, erosion, and surface runoff contamination issues.

- Installation of water quality monitoring devices where roads are constructed over and near streams and where well pads are located within 500 feet of fish bearing waters.
- Increase the requirements for reclamation standards, including stronger language that encourages the benefits of reclamation. Maintain a minimum of 50% but ideally a 70% of potential effective ground cover to provide nutrient cycling and protect soil erosion and water quality. Incorporate a more substantial timing period for reclamation expectations that are reflective of the various habitat types which exist within this resource area.
- Alternative D should include the same prohibition to permanent facilities in riparian-wetlands and floodplains in order to better protect the area's water resources.

4.1.6 Lands with Wilderness Characteristics

TU supports Alternative D as it applies to the Little Red Creek Complex. Because of the high value of fish and wildlife resources within this area, we feel that any surface disturbing activities such as oil and gas development would unquestionably alter the unique characteristics of this area.

4.2 Mineral Resources

4.2.4 Leasable Minerals -- Oil and Gas

Concerns about water quality issues remain high with TU. As discussed under the section on Soils and Water, both surface water and groundwater issues are of significant importance as the amount of drilling increases in this resource area. In addition to the obvious degradation issues from surface disturbances, other disturbances such as non-point source pollution, point source pollution, and hydraulic fracturing are resource impacting activities that cannot be ignored. While it remains difficult at this time to determine whether “fracking” is contributing to recent water contamination issues associated with oil and gas drilling, TU recommends that the BLM attach stipulations to the lease parcels that include baseline water testing prior to any drilling, to conduct monthly sampling during drilling, and finally, to sample after drilling has been completed. Such requirements would support the WOGCC recommendations to conduct baseline water sampling as they work to further protect water quality resources.

We support applying NSO buffers of .25 mile for perennial streams, riparian and wetland areas, and all water bodies containing native trout fisheries. Additionally, we recommend that a .25 mile NSO stipulation be applied to suitable and potential Yellowstone cutthroat trout habitat to ensure that opportunities for expansion and reintroduction of YCT populations are not compromised by water quality degradation. Without such protection measures that promote future population expansion these sensitive species will always be imperiled and will remain susceptible to local and regional extirpation (see Figure 1.).

In order to better implement mitigation measures for road development and management, TU recommends the final RMP include language that will lessen road infrastructure,

mitigate for potential road impacts, and call for road designs that account for soils, geology and terrain structure, wildlife movements, and fisheries impacts.

New technology in oil and gas development is enabling the operator to obtain access to bottom-hole oil and gas locations more efficiently and cost-effectively, while protecting important surface and groundwater resources. Yet, the DRMP fails to discuss the more positive technological advances that have occurred in the last decade in the oil and gas industry that have advanced such extraction to occur. Rather than offering reasons why various important habitat restrictions would be negatively impacting oil and gas development, TU suggests that the BLM include discussions in the final RMP that focuses on the future of resource development coupled with environmental protection. This includes directional drilling (which was briefly mentioned in the DRMP), multiple wells per pad potential, native plant and shrub reclamation, minimization of fragmented habitat disturbances, restricting the use of diesel engines, use of solar powered monitoring stations, use of natural gas rigs, advanced rig standards, increasing buffers, noise control, air quality monitoring, and working collaboratively with partners. Based on the acreage disturbance projections per well (6-12.5 acres depending on type of well drilled) the DRMP refers only to one well per one pad. The leap in technological advances in oil and gas recovery has provided industry with considerable incentives to drill better, faster, cheaper, and deeper. Such a discussion places the BLM in a more proactive approach to multiple-use, particularly when faced with the potential for a significant oil and gas development scene within this resource area.

Though discussed under the Fisheries and Wildlife section, the DRMP fails to adequately discuss impacts from oil and gas development to sensitive coldwater fish species such as Yellowstone cutthroat trout (YCT). TU's main concern with the DRMP is the lack of discussion of how oil and gas development could affect native cutthroat trout population persistence, population abundance and habitat patch size both within the planning area perimeters and downstream from the planning area boundaries.

To protect fisheries and riparian areas, TU supports the NSO (No Surface Occupancy) restrictions but with a recommended increase of buffer widths to .25 mile for those streams containing sensitive native fish species and potential expansion habitat for YCT. Additionally, we strongly urge the BLM to implement a .25 mile buffer on all perennial streams. TU also supports Alternative D's seasonal timing limitations expanded into Operation and Maintenance activities.

TU supports the exiting withdrawals of minerals as described under Alternative D. In particular, we support the closing oil and gas exploration in the entire Dubois area. The Dubois area contains high value fish and wildlife resources and low oil and gas potential, making it a logical place to withdraw from mineral development. Closing areas having high quality fish and wildlife habitat to future oil and gas leasing should be viewed as a conservation investment action.

In most cases careful planning and monitoring can lead to responsible energy development; however there are certain places that are best conserved by withdrawing from oil and gas development. The business of oil and gas development can lead to a

variety of activities that are damaging to the environment, despite collaborative efforts to minimize such damages. Direct impacts such as those which occur at the start of construction, spills and produced fluids and their constituents, leaking pipes, pit liners, diesel spills, and well contamination, all affect both upstream and downstream groundwater and surface waters. Protecting high value areas is a prudent move and prevents future listing potential from loss of habitat and fish and wildlife populations. Having high value fish and wildlife habitat also helps maintain a healthy economic outlook for recreation and tourism businesses, outfitters and guides, and county and city infrastructure.

We also feel that the delineation of Designated Development Areas is a good approach. Having areas where development can be concentrated, in contrast to other areas where there is an increased conservation priority, is a good way to balance fish and wildlife habitat with energy development.

Summary of Mineral Recommendations:

- Attach stipulations to lease parcels that require baseline water testing and monitoring prior, during and after drilling activities in accordance with science-based monitoring protocol coordinated between BLM, wildlife management agencies, regulatory agencies and industry.
- Include more discussion on actions that encourage implementation of responsible energy development by operators. This should include discussion of new technology applications that aid in environmental protections including multiple wells per pad.
- Apply .25 mile buffer restrictions for native and wild trout fisheries and .25 mile buffer for streams suitable for native trout reintroduction for all surface development.
- Include a more thorough discussion that incorporates the latest BLM statewide management guidelines for reclamation, hydraulic fracturing, and renewable energy development compatibility with nonrenewable energy development.
- Restrict salable mineral development within .25 mile of native and wild fisheries habitat.

4.4 Biological Resources

4.4.4 Riparian/Wetland Resources

TU supports Alternative B's Surface Disturbance Management Recommendation to prohibit surface disturbing activities within .25 mile of all riparian/wetland areas. Such restrictions protect streams, rivers and the fisheries they contain. TU agrees with Alternative D's statement (Chapter 4, p. 774) that the more limits on surface disturbances in the alternatives the more beneficial impacts to riparian and wetland areas, which is

why we request that Alternative D be strengthened to include stronger buffers (see discussion on buffers under Fisheries).

Finally, TU recommends that the BLM include language that incorporates cooperation with other organizations in addition to local governments in developing watershed improvement practices. Currently TU is heavily involved in developing watershed protection and improvement projects on both private and public lands in the resource planning area.

4.4.5 Fish and Wildlife Resources -Fish

TU finds Alternative B much more conducive to fish and water resource protection than any of the other alternatives. For that reason we would like to see several components of the fisheries section under Alternative B added to Alternative D. We support management actions prohibiting surface disturbing activities during seasonal spawning periods, barriers that prevent fish passage, and any new actions that result in the removal or depletion of water. TU works hard at incorporating these particular management actions in the habitat improvement and restoration work completed in this state and within the LFO area. Alternative D should include these simple management objectives that end up producing so many advantages to the health of a watershed and to fish and wildlife. TU strongly recommends the LFO include the language in Alternative B in their preferred alternative selection.

The LFO resource planning area contains stream habitat of core conservation populations of YCT (see Figure 1). YCT are designated by federal (BLM and US Forest Service) and state (WGFD) agencies as a species of special concern and/or a sensitive species. Although petitioned for listing was found unwarranted in 2006 by US Fish and Wildlife Service, recent events continue to result in population declines in many areas. Such events include the introduction and competition of non-indigenous lake trout, the spread of whirling disease, hybridization with introduced rainbow trout and extended drought conditions in the Intermountain West. Additionally, habitat degradation (including mineral extraction, timber harvest, road building, and surface water diversions), fragmentation of habitat, increasing isolation of remaining populations, and climate change also challenge the stability of YCT (Yellowstone Cutthroat Trout [*Oncorhynchus clarkii bouvieri*]: A Technical Conservation Assessment. June 2009. Prepared for the USDA Forest Service Rocky Mountain Region, Species Conservation Project. Robert E. Gresswell). Wyoming Game and Fish Department's Strategic Wildlife Action Plan (2010) ranks the YCT as imperiled because of rarity or factors making it vulnerable to extinction.

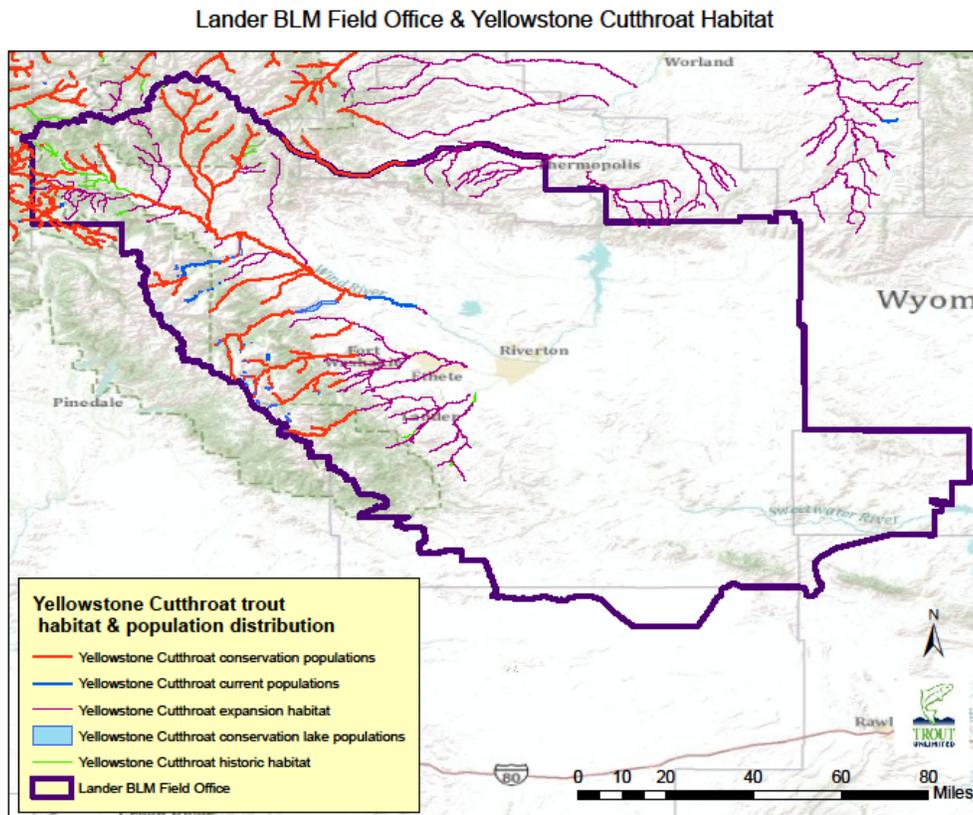


Figure 1. Yellowstone cutthroat trout habitat and population locations in the Lander BLM Field Office region.

The BLM is one of the many agencies charged with the primary responsibilities to manage and conserve YCT through their role as manager of aquatic habitats. As one of many signatories to the 2000 Memorandum of Understanding (MOU) for Yellowstone Cutthroat trout developed to coordinate a conservation effort, the BLM committed to the goals of ensuring persistence of YCT within the historical range and to preserve genetic integrity and provide adequate numbers and populations to provide for the protection and maintenance of intrinsic and recreational values of YCT. Additionally, the BLM is a partner in the Yellowstone Cutthroat Trout Interagency Coordination Group which has the goals of maintaining fish status information, promote conservation actions, and gather scientific information appropriate for conserving YCT. Finally, the BLM policy advocates that the BLM should not contribute through any actions activities that would cause the YCT to become listed as a candidate, threatened, or endangered under the ESA (BLM, 2004). For the new planning effort underway with this RMP revision, we request that the BLM increase its participation in cutthroat trout habitat conservation and management.

Populations of YCT occupy 49% of watersheds within their historic range, with land protection securing many of the core populations. Populations along the margins of the subspecies' range are fragmented to the extent that many no longer meet the minimum criteria for long-term persistence. Hybridization with non-native salmonids, particularly

rainbow trout, is the greatest threat to the genetic integrity of YCT. Pure or core conservation populations are classified as genetically unaltered if they are 99% pure throughout 80% or more of their occupied habitat. They are classified as hybridized if 80% or more of the occupied habitat contains fish that are at least 10% introgressed. And in situations where both pure and hybridized individuals are found within different reaches of a single population and neither occupies more than 80% of the habitat, the entire population is classified as “mixed”.

The Wind River has historically supported large interconnected core populations of YCT. However, today many of these populations have been cut off from their historic habitat and no longer support a migratory life history. The Wind River sub-basin supports 7 pure populations (genetically unaltered with less than 1% introgression) occupying a little more than 231 miles of habitat (*“Developing a Diverse Conservation Portfolio for Yellowstone Cutthroat Trout”* Trout Unlimited, 2011). Four of those 7 populations have extents of less than 6.2 miles and do not meet persistence criteria; in other words, they remain vulnerable.

To address this concern TU has been working on several projects to reconnect and restore YCT habitat within the planning area. This effort includes three telemetry studies: one on the Wind River upstream from Dubois, one on Sheridan Creek (tributary to the Wind River), and the third on the East Fork of the Wind River downstream from Dubois. The purpose of these studies is to determine trout movement patterns and spawning locations within the watershed. The study data will help prioritize projects in the drainage. Additionally, we have installed two fish screens, one on a large irrigation ditch on Bull Lake Creek (tributary of the Wind River) and the other on Holmes Ditch, to prevent the entrainment of wild and native trout. Additionally, TU has replaced a diversion structure on Horse Creek to reconnect native trout habitat. TU has spent over \$400,000 dollars on these efforts, with support and contributions from partners including the US Forest Service, WGFD, Wyoming Wildlife Natural Resource Trust Fund, U.S. Fish and Wildlife Service, and The National Fish and Wildlife Foundation. To date these projects were completed on state or private land but within the Wind River watershed which is affected by management actions within the DRMP.

There is strong momentum from a combination of local, state and federal agencies to prioritize projects that address aquatics and native fish issues within the Wind River drainage. Through this collaboration, the stage is set for future projects and partnership opportunities in the coming years to address critical natural resource issues and ensure the large scale restoration of a critical aquatic system and native fish assemblage. Due to our high level of commitment and investment into the Wind River area TU wants to see these opportunities persist into the future. While some of the project work might occur on private or state lands the BLM manages significant portions Wind River watershed and TU recommends the BLM include actions in the final RMP that support the protection and restoration of native trout and do not impair the health of the watershed. We are pleased to see that Alternative D provides a directive to design and retrofit culverts to restore fish passage on a priority basis. By including these recommendations

in the final RMP it will ensure the maintenance and enhancement of coldwater fisheries now and into the future.

TU recommends that surface disturbing activities be prohibited within .25 mile of streams containing populations of YCT. This sensitive species requires additional protection and applying a .25 mile buffer is one of the most effective ways to ensure habitat remains intact. Due to highly erosive soils and general lack of adequate streamside vegetation in many areas throughout the planning area buffers greater than 500 feet are warranted.

The DRMP (Chapter 4, p.771) states that a 500 foot buffer would likely be adequate to protect riparian and wetland areas based on slope and soil type. This statement omits the most obvious and significant impact to riparian stream and wetland areas—that of oil and gas development. While there is a lack of supporting evidence to suggest that a buffer of 500 feet is sufficient, current science tells us that the larger the buffer the greater the benefit to the watershed. For this reason federal land management agencies across the West are adopting increased buffer setbacks for watersheds. From a planning perspective, increased buffers are a simple and cost effective way to ensure the health of fisheries and the watersheds they occupy.

We find a lack of information in the DRMP regarding buffers for intermittent and ephemeral streams. These types of drainages quite often provide important spawning and brood-rearing habitat from spring runoff. The protection of intermittent and ephemeral streams merits further consideration and explanation in the DRMP. In most mountain regions during runoff or sudden event storms, ephemeral drainages can become perennial streams in a matter of hours and can run for a period of weeks or often months (Elmore, 2008). Trout may enter these drainages and may be spawning or have spawned and are at an early life stage. A thorough inventory of the streams and drainages in the planning area would potentially reveal those areas containing new flow systems or potential flow systems and would be subject to stronger buffering protections. Again, as we have mentioned above, by implementing a planning wide buffer requirement at the RMP level (such as that recently completed in Colorado for the Little Snake FO RMP; October 2011), it will be easier to mitigate specific project cases to a more reasonable buffer based on case by case project applications and review.

The discussion in the DRMP on long term and short term impacts should be expanded to better qualify the impacts to wildlife and fish longevity. The DRMP defines short-term impacts as less than 5 years and long-term impacts as anything over 5 years. It fails, however, to discuss the relevance as to what 5, or 7, or 10 years may mean to each species' survival. For fish, 2 years worth of sediment loading may be a death sentence. In Michael Young's paper on the assessment of CRCT ("*Colorado River Cutthroat Trout (Oncorhynchus clarkii pleuriticus)*): A Technical Conservation Assessment", prepared for the USDS Forest Service, Rocky Mtn. Region, March 2008), the identification of primary threats includes a discussion of how CRCT populations located in small isolated headwaters (typical of those streams in the planning area) become vulnerable to extirpation from disturbances in the short-term due to lack of connectivity to other

populations. While unique, their isolation makes them vulnerable. Thus, a short-term impact (such as a landslide or a gas spill) can permanently eradicate a population. For mule deer, 10 years worth of impacts was determined to have a significant detrimental effect on the status of the Sublette mule deer population (Sawyer, et al. 2010) in Pinedale, Wyoming. TU finds the DRMP's use of such timeline references broadly and vaguely defined, unsupported and in need of further analysis.

Because of the chances for accidents and contamination through surface runoff from well pads, TU strongly advocates for the implementation of stronger, more effective buffers along perennial streams. Riparian setbacks, or buffers, are valuable in a variety of ways. From headwaters to downstream municipal communities, protection of our nation's water systems remains a top priority for many reasons. Ecologically, waters are the most important element in any living system. Protecting water systems provide a healthy benefit for more than just fish; terrestrial wildlife including big game, large and small mammals, birds, insects, amphibians and reptiles all benefit by having clean water. Additionally, livestock and agricultural operations benefit from managed riparian areas. The implications of current scientific literature for management are that a stream buffer, a riparian setback, or forested buffer should be viewed as not only a parcel-specific best management practice, such as a stormwater management pond or a bioretention structure, but also as a watershed-scale management system (Chagrin River Watershed Partners, Inc. 2006. "*Riparian Setbacks: Technical Information for Decision Makers.*").

Implementation of buffer zones is viewed as an environmental management tool for reducing impacts of land use activities on aquatic resources (Ryan, Stephanie. 2004. "*Review of Riparian Buffer Zone Effectiveness*". MAF technical Paper No. 2004/05. September 2004). Finally, the National Academy of Sciences concluded in 2002 (NRC, "*Riparian Areas: Functions and Strategies for Management.*" Committee on Riparian Zone Functioning and Strategies for Management. 2002. Washington, D.C.: National Academy Press. 428.) that buffers provide once of the most effective means to manage against damage by stating:

Future structural development on floodplains should occur as far away from streams, rivers, and other water bodies as possible to help reduce its impact on riparian area. Thus, preventing unnecessary structural development in near-stream areas should be a high priority at local, regional and national levels [1].

Effectiveness of a riparian buffer zone is widely recognized. In a New Zealand study, Smith (C.M. Smith. 1989. "*Riparian pasture retirement effects on sediment, phosphorus and nitrogen in channelized surface run-off from pastures.*" New Zealand Journal of Marine and Freshwater Research 23. 139-146) found that suspended sediment and particulate nutrients from runoff were reduced by more than 80% in pastures that had been retired from grazing and had a strong vegetative cover. Muscutt (ibid, 1989) also found that by improving the capacity of the buffer area also improved the efficiency of the buffers to handle soluble nutrient removal. Thus, the wider the buffer zone, the more efficient the area is in handling the impacts associated with any type of runoff or spill event.

TU's concerns center on the harms done to riparian and stream areas when an oil or gas pad is situated too close to a water body. Surface runoff from rain and/snow events provides both benefits and damage. On well pads where industrial contaminants including oil, diesel, chemicals and an assorted variety of other equipment lubricants, transporting of these harmful materials becomes a problem when a pad is situation too close to water. Surface runoff is a conduit for sediment and particulate pollutants, particularly in areas that have little vegetative material (or buffers) or on steep slopes with erodible soils.

We are now beginning to understand the greater role of water quality on the physical association between streams and their riparian corridor. Moreover, small first order streams that generate more of the runoff in watersheds and are home to Wyoming's cutthroat trout species appear to play a significant role in intercepting runoff that reaches the downstream system. These small streams provide important water quality filtration services that extend far downstream and enhance water quality throughout the watershed. When these systems become contaminated with pollutants, large acreage distribution of these pollutants becomes a significant impact, affecting more than just the localized surface area. It affects the entire watershed. Burkhart (Burkhart, M.R., D.E. James, and M.D. Tomer. 2004. "*Hydrologic and terrain variables to aid strategic location of riparian buffers*". Journal of Soil and Water Conservation. 59(5): p.216-223.) mapped hydrologically-based locations for effective stream buffer placement in the Deep Loess Region of Iowa, Missouri, and Nebraska. Results demonstrated that riparian areas in small first order streams exhibited much greater potential to intercept larger fractions of runoff and affect basin-wide water quality more than larger streams. These small stream catchments were dominated by groundwater, creating a very high potential for nitrate and some contaminant removal.

Subsurface pathways can be a transport of contaminants, particularly during runoff and can bypass the riparian zones (Muscutt, A.D.; Harris, G. L.; Bailey, S.W.; Davies, D.B. 1993. "*Buffer zones to improve water quality: a review of their potential use in UK agriculture.*" Agriculture, Ecosystems and Environment 45: 59-77) and has implications for the pathway of oil and gas residue management as subsurface flow paths are influenced by surrounding topography and soil drainage. On public lands where headwaters originate and much free flow drainage occurs, water and pollutants may bypass the riparian zone and go directly into streams. These pollutants then travel downstream and can be deposited where poorly drained soils exist, thereby impacting an entirely different geographic area. Additionally, re-emergence of these traveling pollutants can occur and discharge elsewhere in a stream system. By implementing a sufficient buffer stipulation, the effectiveness of removing potential unintentional contaminants increases proportionately to the extent of the zone acreage itself.

Finally, the persistence of contaminant concentrations can exist within stream sediments and riparian areas for long periods of time. Parker (Parker, J.T.C., K.D. Fossum, and T.L. Ingersoll. 2000. "*Chemical characteristics of urban stormwater sediments and implications for environmental management, Maricopa County, Arizona.*" Environmental

Management. 26(1): p. 99-115.) found significant organic compounds in urban streams in Phoenix, Arizona that had been banned nearly 30 years ago and were now no longer in use. Similar results of long-term contamination concentrations from oil and gas activities were recently documented in EPA's Pavillion, Wyoming water quality contamination study (November 2011). By implementing one-quarter mile buffers on riparian stream habitats an effective barrier is established to intercept any potential spill or subsurface contamination event, and potentially minimizing costly remediation efforts.

The BLM and the Forest Service more and more are trending to increased buffer setbacks, as witnessed with the most recent buffer establishment in the Little Snake BLM Field Office in Colorado (establishing a quarter-mile buffer on all perennial streams, October 2011). Both agencies have adopted the buffer approach for oil and gas activity in their land use plans with the application of consistent setback stipulations for coldwater fisheries. The BLM's Dillon Field Office Resource Management Plan (RMP) (2006) implemented a half-mile No Surface Occupancy (NSO) stipulation from the centerline of streams with pure populations of Westslope cutthroat trout, Arctic grayling and Blue Ribbon fisheries. The BLM's Butte Field Office RMP (2009) stipulates a half-mile NSO from the centerline of streams containing conservation populations (populations of trout with greater than 90% purity) of cutthroat trout, Arctic grayling, bull trout, and Blue Ribbon fisheries. The Butte Field Office went one step further when they also created a half-mile NSO from the centerline of streams with a high potential for restoring native trout populations (RMP 2009).

The Beaverhead-Deerlodge National Forest implemented a drainage protection approach when they applied NSO stipulations to the entire drainage for the protection of cutthroat trout in key watersheds (Beaverhead-Deerlodge Final Forest Management Plan, 2009). Outside of designated key watersheds, there is a drainage-wide controlled surface use (CSU) that requires no net increase in sediment loading. Clearly, these federal land use plans represent the most recent and proactive planning efforts in Montana and Colorado addressing oil and gas drilling on public lands where there is potential to degrade or permanently impact important riparian and trout habitat. West-wide, these plans are some of the most progressive management plans to date.

More recently in Utah, the Dixie National Forest just released the Final Oil and Gas Leasing EIS (August 2011) where they recognized the importance of protecting potential cutthroat trout habitat with wide buffers. Below is an example of the Dixie NF's supportive reasoning for protecting both occupied and suitable cutthroat trout habitat:

The Forest decided to increase the buffer in sensitive fisheries habitat for several reasons. Sensitive trout species are of particular concern to the public and have become isolated in headwater streams on the Dixie National Forest, due to habitat loss from impacts such as sedimentation, nonnative species introductions, and water diversions. Conservation Agreements and Strategies for Colorado cutthroat trout and Bonneville cutthroat trout list objectives to secure, enhance, restore, and reduce threats to populations as well as the larger watershed conditions that support and maintain the viability of riparian-dependent communities that support fisheries streams. As a signatory to these agreements, the

Forest believes it is important to the future viability of these sensitive fish species that the oil and gas leasing decision protect a conservatively wide area surrounding occupied and suitable habitat. (ROD, page 20).

As we have demonstrated through our discussion on buffers, implementing stronger setbacks assists in meeting the conservation objectives of the MOU Agreement, of which the BLM is a signature to. These suggested and agency supported buffer stipulation recommendations will help in the co-existence of native trout protection and restoration, and oil and gas development, potentially lessening the impacts to quality fish habitat.

In summary, increasing stream buffer protections for perennial streams and important fisheries habitat within the LFO will ensure that robust populations of sensitive species persist into the future, and wild trout and recreational fisheries will continue in their popularity with the public. Managing perennial streams for fish habitat and restoring important stream segments is an important long-term step in ensuring the health of coldwater fisheries and entire watersheds.

4.4.6 Fish and Wildlife Resources - Wildlife

As supporters of both fish and wildlife habitat conservation we would like to see crucial wildlife habitat, including big game crucial winter range, parturition areas, and important migration corridors be managed so that robust wildlife populations and the sporting opportunities they afford persist for generations. With this in mind we are generally supportive of Alternative D, with a few additional recommendations.

We would like to see specific management triggers for wildlife monitoring and mitigation included in the plan. Language that requires oil and gas projects to cooperatively develop annual baseline inventory and monitoring plans with the BLM and WGFD should be included in the final RMP. By developing a baseline from which to measure potential impacts, both industry and agencies have better leverage abilities to understand the impacts that may occur and direct actions to reduce or alleviate the impacts. Additionally, we think there should be no net loss of critical big game habitat in contrast to the 10 percent tolerated under alternative D.

4.4.7 Special Status Species - Fish

Aquatic habitat protection strategies need to be focused on watersheds if effective conservation of aquatic species and habitats is to occur. While TU appreciates the attention given to YCT as a special status species, we would like to see greater protections afforded under Alternative D. Incorporating those protection and habitat management strategies from Alternative B would be a first step. The final RMP should include actions that involve the BLM with more on-the-ground restoration projects in cooperation with other agencies and groups.

Summary of Biological Recommendations:

- Apply .25 mile buffer restrictions for all perennial waters including native trout fisheries and a .25 mile buffer for streams suitable for native trout reintroduction.
- Increase the reclamation prescriptions to include clear and measurable objectives, specific to habitats and with goals for habitat function.
- Increase commitments and management objectives for better cutthroat trout habitat management.
- Designate any stream containing current populations of YCT and habitat suitable for population expansion to be a unique fishery and managed for Desired Future Conditions.
- Implement restrictions on surface disturbance during seasonal spawning periods for trout, particularly sensitive species.
- Prohibit barriers in streams that limit fish passage.

4.6 Land Resources

4.6.3 Rights-of-Way Corridors

Generally, TU supports consolidating ROW corridors whenever possible in addition to utilizing existing corridors. Careful planning of corridors is important to ensure that intact habitat is not fragmented unnecessarily and that key habitat areas are avoided. For these reasons we appreciate the effort taken under Alternative D to accomplish these goals.

However, we also believe that ROW corridors are essential for responsible energy development to occur. The BLM should make sure that there are a reasonable number of corridors to meet the needs of energy development in the area. Also these corridors should align with other planning areas to ensure continuous routes. An additional corridor through the Bison Basin should be considered to account for limited access through Crooks Gap

5. Recreation

Because of the projection for increases in outdoor recreation activities, including fishing, camping, OHV use, and other activities identified in the DRMP, TU supports management alternatives that balance recreational opportunities with other uses. Outdoor recreation is an important activity for Wyoming residents and non-residents alike and the Lander resource area provides significant opportunities for such activities. In addition to the recreational opportunities the planning area provides for the public, outdoor recreation provides a significant economic benefit to the region as well. TU would like to see a more in-depth discussion that recognizes the economic value of recreation in the planning area.

4.7. *Special Designations and Other Management Areas*

4.7.3 Wilderness Study Areas

Common to all alternatives is the inclusion of Sweetwater Canyon as a WSA and TU is supportive of this action. The DRMP states on several occasions the unique attributes of the Sweetwater Canyon, including the statement in Chapter 3, 261 where it states “The Sweetwater River is the only water body WDEQ classifies as a Class I water quality stream that flows through BLM administered public lands in the planning area.” Chapter 3 page 349 the RMP states “In general, cold and cool water sport fisheries are in decline and populations of nongame fish range from stable to declining. The Sweetwater Canyon is the highest quality fishery in the planning area. This area provides excellent fishing opportunities and is a popular destination for recreationists. This stream section also has an in stream flow protection for fish and a Wyoming DEQ Class I water designation; such a designation is uncommon outside wilderness areas.” TU can confirm that Sweetwater Canyon is an important fishery within the planning area to our members. Continuing to manage Sweetwater Canyon as a WSA is a prudent approach that will protect the unique values of this important fishery.

4.7.4 Wild and Scenic Rivers

Fishery values of the watershed in the Lander resource area range from extremely high to low based on water conditions, quality, location, and use. While TU appreciates the scenic and recreational values that the river systems support in this area, we feel at this time there are other alternatives than Wild and Scenic River status by which watershed management can be conducted. Our reasoning, of course, is entirely dependent upon the assumption that the BLM will increase its watershed and habitat management objectives and participation in achieving alternative activities to protection these special rivers.

Therefore, TU supports Alternative D, where only the Baldwin Creek and Sweetwater River segments to be NWSRS eligible would be recommended to Congress as suitable. We feel that while many of these waterways do contain outstanding resource values they are better protected through other management directives within the RMP itself. By not recommending waterways for WSR status, the BLM also retains more flexibility to conduct fish conservation and management activities, such as the construction of fish barriers or the prevention of the spread of nonnative species that would adversely impact native species.

4.7.5 Areas of Critical Environmental Concern

BLM manages ACEC's to provide special management for relevant and important values, resources, natural systems, and natural hazards. TU supports all existing ACEC designations offered in the DRMP. TU supports Alternative D because it recognizes watershed values, wildlife habitat, and recreational opportunities in a balanced manner. However, we would reiterate that all watersheds within ACEC's must include the .25 mile buffer as we have advocated for during our entire comment session.

We would also note that it is difficult to evaluate the descriptions under Detailed Analysis of the Alternatives (Chapter 4, p.1066), because they lack information as to why these

areas merit ACEC designation. We recommend including this information so that the public can better understand the value of the designated ACEC's.

TU specifically supports the East Fork ACEC due to the location of conservation populations of YCT. The protection of special status species habitat makes these areas valuable in preventing the potential listing of species. We also support the Lander Slope and Red Canyon ACEC's for their important wild trout fisheries. These areas contain high recreational values and it is a wise investment in our future to protect them.

All of the above mentioned ACEC's contain important high value habitats for fish and wildlife and supporting these designations is an investment in the future of Wyoming's wildlife for generations to come. In addition, these areas support some of the most intact native trout populations within the planning area. The value of these areas as crucial aquatic habitat for conservation populations of YCT is vital to the continued survival of this subspecies of cutthroat trout. As discussed under Fish and Special Status Species, YCT is considered a Wyoming sensitive species by the BLM, the USFS, and is a recognized by WGFD as a special status species. Designating these ACEC's is consistent with these management efforts.

Conclusion

TU appreciates the opportunity to offer our comments on the BLM's Lander DRMP Revision. TU is committed to conserving fish and wildlife population's through the maintenance and restoration of habitat, while promoting the use of responsible multiple use management of our public lands. We are concerned about the future of our healthy landscapes and abundant fish and wildlife resources as they currently exist. We hope that we have offered constructive comments for the Planning Team as a Final document is developed.

If the Planning Team has any questions or would like to discuss these comments with Trout Unlimited, please contact us using the information provided below.

Sincerely,

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