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Inyo National Forest

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

In the Matter of Investigative Order No. R6V-2011-0009	)	PETITION FOR REVIEW Water Code §13320

The United States Department of Agriculture, Forest Service, Inyo National Forest ("Petitioner") files this petition for review of Investigative Order No. R6V-2011-0009 dated February 9, 2011 by the California Regional Water Quality Control Board, Lahontan Region ("Regional Board"). This petition for review is filed pursuant to the Clean Water Act ("CWA"), 33 U.S.C. §§1251-1387; 16 U.S.C. §§ 478 and 551; California Water Code §13320; and 23 California Code of Regulations ("CCR") §§2050 et seq.

I. Name and Address of Petitioner

The Petitioner can be contacted through its counsel of record, as set forth above.

II. The Regional Board Action for Which This Petition For Review is Sought

Petitioner seeks review of the Assistant Executive Officer of the Regional Board's issuance of Investigative Order No. R6V-2011-0009, United States Forest Service, Inyo National Forest, White Mountains Grazing Allotments dated, February 9, 2011 ("Order"). There was no Regional

Board action or public hearing held prior to issuance of the Order. The Petitioner is the named discharger in the Order.

III. The Date of the Regional Board Action

The Assistant Executive Officer of the Regional Board issued the Order dated February 9, 2011. A copy of the Order is attached as Exhibit 1.

IV. Statement of Reasons the Action is Inappropriate and Improper

The Regional Board issued an investigative order requiring the Petitioner to collect water samples for monitoring fecal coliform bacteria within four grazing allotments located on National Forest System (NFS) lands to investigate water quality impacts related to livestock grazing. Petitioner objects to the Regional Board's Order because it exceeds the authority granted to the Regional Board in Water Code §13267, is unreasonable and arbitrary, and the Petitioner is not the discharger.

A. Background

Petitioner is responsible for the administration and management of NFS lands within the Inyo National Forest. Petitioner's "Project" is a management action for the issuance of grazing permits, including its terms and conditions, that would permit the grazing permittee's use of NFS lands for his livestock grazing.[1] For this management action, Petitioner conducted an environmental analysis (EA) under the National Environmental Policy Act (NEPA), 42 U.S.C. §4321 et seq. Exhibit 2 is a copy of the EA, which includes an environmental analysis of potential impacts to water quality. Exhibit 3 is a copy of the Decision Notice/Finding of No Significant Impact (DN/FONSI) for the EA. Exhibit 4 is a copy of the Forest Service specialist's Hydrology and Soils Report for the allotments. The EA identified that there are no significant threats to water quality in the streams within the allotments and that water quality is good. The EA analyzed the environmental impacts of the management action of issuing grazing permits utilizing best management practices as design criteria that would be incorporated as terms and conditions in the grazing permits for four allotments located primarily in wilderness areas[2] in the Inyo National Forest. The EA determined that, if the permittee conducts livestock grazing in accordance with the best management practices in the grazing permit, water quality will be protected and livestock grazing will not result in threats to water quality in the streams within the

[1]Contrary to the terminology and language in the Order, the "Project" is not the Petitioner's conduct of livestock grazing. Petitioner does not own or control any of the livestock and will not be engaged in livestock grazing.

[2]The NFS lands within the allotments are located in California and Nevada. The NFS lands in California within the allotments where monitoring is directed to occur in the Order are in wilderness.

allotments. By analyzing and selecting best management practices as part of the design criteria for inclusion in the terms and conditions of the grazing permits that may be issued, the Forest Service was acting in furtherance and consistent with its management responsibilities under the Management Agency Agreement (MAA).

Streams within three of the four allotments analyzed in the EA are identified in the Order. Petitioner would issue the grazing permits to private parties (grazing permittees), who will use the NFS lands within the allotments for grazing their privately owned livestock, under the terms and conditions, including best management practices, in the grazing permit for this use.[3] Grazing permittees who will be engaged in livestock grazing are responsible for compliance with water quality standards and requirements. Petitioner has not issued any grazing permits to date based on the decision in Exhibit 3. Once a grazing permit is issued, Petitioner administers the grazing permit to assure compliance with the terms and conditions of the grazing permit.

B. Issuance of the Order Exceeds the Authority of the Regional Board

Water Code §13267(b)(1) requires that the burden, including the costs of the reports required in the Order, must bear a reasonable relationship to the need for the report and the benefits to be obtained. The Regional Board has not established the need for an investigative order for sampling. The cost and logistics with collecting water samples is an excessive and unreasonable burden. Given the inherent unreliability of any data collected, the Regional Board has failed to demonstrate the benefits of collecting these samples. The Order exceeds the Regional Board 's authority under Water Code §13267(b)(1) and should be set aside.

C. Issuance of the Order Was Unreasonable and Arbitrary

The Regional Board's Order is unreasonable and arbitrary because it lacks evidentiary support. The Regional Board did not provide any substantial evidence that there are, or will be, significant threats to water quality as a result of Petitioner's management action to issue grazing permits for use of the allotments by private parties for grazing their livestock. The information that the Regional Board included in its Order is misstated, taken out of context, or omits important facts. The Regional Board did not have substantial evidence to issue the Order based upon "significant threats to water quality" in the streams within the allotments. To the contrary, there is substantial evidence the water quality in the streams is good and will improve, even with livestock grazing. The Order's rejection of the application of best management practices in the terms and conditions of a grazing permit as protective of water quality in future uses of the lands for livestock grazing is not supported by substantial evidence. To the contrary, the best management practices that will be included as terms and conditions of grazing permits issued by Petitioner have been

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[3]An "allotment" is a designated area of NFS lands available for livestock grazing. 36 C.F.R. §221.(a)(1). All grazing and livestock use on NFS lands must be authorized by a grazing or livestock use permit. 36 C.F.R. §222.3(a). See, 36 C.F.R. Part 222, Subpart A for the Petitioner's regulatory framework for the permitting and regulation of grazing on NFS lands.

certified by the State Board as protective of water quality for nonpoint source discharges from livestock grazing.

As shown in the EA, current baseline conditions within the NFS lands within the proposed allotments support a finding that there are no threats to water quality and that livestock grazing conducted in accordance with the identified best management practices will not result in threats to water quality. The Regional Board has not listed the streams within the allotments in the Order as impaired under Clean Water Act §303(d), and it has not listed other streams within any other grazing allotments within the Inyo National Forest as impaired. This is consistent with the EA's conclusions that water quality standards and water quality for beneficial uses are being met, and will be met, with the presence of livestock grazing on NFS lands within the allotments.

Contrary to the statements in the Order, the EA disclosed that the good water quality conditions within these allotments will improve as a result of the implementation of the proposed grazing management strategy and the best management practices that will be incorporated in any grazing permits issued for these allotments. The Regional Board has not provided factual evidence to the contrary.

Petitioner has conducted a recent review of literature, attached as Exhibit 5. Exhibit 5 provides supporting information that properly managed grazing, such as what is proposed for the Davis Creek, Indian Creek, and Perry Aiken allotments, is highly effective in protecting water quality. The Regional Board has not provided any research, information, or studies as evidence to the contrary in its Order.

In light of the factual inaccuracies in the Order, and the lack of substantial evidence supporting a finding of significant threats to water quality within the allotments, either currently or as a result of future grazing by a grazing permittee, the Regional Board's Order is unreasonable and arbitrary. The Regional Board's Order should be set aside.

D. The Petitioner Is Erroneously Named as the "Discharger"

The basis for the Order is a management action by Petitioner, consisting of issuing a decision, based upon an environmental analysis, to authorize issuance of grazing permits, including the terms and conditions of use, for the allotments in the Order. As part of the EA, the Petitioner analyzed, identified and selected best management practices (BMPs) to impose as terms and conditions in grazing permits with respect to the use of NFS lands for grazing. Petitioner will issue grazing permits to private entities to graze their livestock within the allotments. Petitioner will not be engaged in livestock grazing in the allotment and does not own or control the livestock. The Order is erroneously directed to Petitioner as a "discharger" when its action was a regulatory management action. Thus, the Order should be set aside.

V. Petitioner is Aggrieved

The Petitioner is aggrieved for the reasons set forth in paragraph IV above. The Petitioner is further aggrieved because the Order requires Petitioner to undertake an excessive monitoring burden that is unjustified based upon current water quality conditions of the streams within the allotments in the Order. The Order requires Petitioner to expend approximately $41,000 and personnel time and resources for water quality sampling that is technically infeasible to collect, because of travel times and distances, to produce a report of dubious credibility and reliability. Petitioner has limited resources, both funds and personnel, to administer the grazing allotments on the Inyo National Forest, as well as recreation, mining, and other special uses. The Order places an undue, excessive and unreasonable burden on Petitioner and its limited resources.

VI. Petitioner's Requested Action by the State Board

The Petitioner respectfully requests that the State Board set aside the Regional Board's Order pursuant to Title 23 CCF §20529a)(2)(B) or direct the Regional Board to set aside the Order pursuant to 23 CCF §2052(a)(2)(C).

VII. Interested Parties

The Order did not identify any interested parties.

Petitioner identifies the following interested parties:

1. Jack L. Rice
Associate Counsel
California Farm Bureau Federation
2300 River Plaza Drive
Sacramento, California 94833

Telephone number: (916) 561-5667
email address: jrice@cfbd.com

2. Justin T. Oldfield
Director of Regulatory Affairs
California Cattlemen's Association
1221 H Street
Sacramento, California 95814

Telephone number: (916) 444-0845
email address: www.calcattlemen.org

3. Arelmont Ranch Co.
Tim Brown
HC 72 Box 18900

Fishlake Valley, NV 89010

VIII. Statement of Copy of Petition Sent to Regional Board

A copy of this petition has been sent to the Regional Board, attention Harold Singer, Executive Officer, California Regional Water Quality Control Board, Lahontan Region, 2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150.

IX. Statement That Issues Were Raised Below

This Order was issued by the Assistant Executive Officer of the Regional Board. The Regional Board did not conduct a hearing prior to issuance of the Order or issue the Order. Petitioner did not have the opportunity to raise the substantive issues and objections raised in this Petition prior to the issuance of the Order.

X. Request for Preparation of the Regional Board Record

Attached as Exhibit 6 is a copy of the letter to the Regional Board requesting preparation of the Regional Board record for the Order.

XI. Request for a Hearing

The Petitioner requests a hearing for the purpose of responding to State Board questions regarding any facts or legal issues raised in this petition.

XII. Statement of Points and Authorities

A. Standard of Review

Pursuant to Water Code §13320(C), the State Board may find that the actions of the Regional Board were inappropriate or improper. Upon finding that the actions of the Regional Board were inappropriate or improper, the State Board may direct that the appropriate action be taken by the Regional Board, refer the matter to any other state agency having jurisdiction, take the appropriate action itself, or take any combination of those actions. Water Code §13320(C).

B. Issuance of the Order Exceeds the Authority of the Regional Board

Water Code §13267(b)(1) requires that the "burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." The burden on Petitioner for producing the reports required by the Order is excessive, substantial, and unreasonable. Given the information and data provided in Exhibits 2, 3, and 4 that Petitioner will implement best management practices and that current water quality conditions are good and would continue to improve if grazing permits for the allotments were issued and livestock grazing took place, the burden of producing the reports does not bear a reasonable relationship to the need for the report. The Order does not articulate any benefits to be obtained from the reports. Moreover, given all other wildlife species, including wild horses and deer, using these same streams and lands are also contributing sources of microbial pollutants and nutrients, the sampling information the Order directs Petitioner to collect is inherently unreliable. Given the inherent unreliability of any data collected, there would be no credible data in the reports, and producing the monitoring reports required in the Order would not result in any benefits. Because the Order does not meet the requirements of Water Code §13267(b)(1), issuance of the Order exceeded the authority of the Regional Board.

The Order places an excessive and substantial burden on the Petitioner in terms of costs and personnel time. The NFS lands in California within the portions of the proposed grazing allotments where monitoring would occur under the Order are located in wilderness areas, where motorized access is prohibited pursuant to the Wilderness Act, 16 U.S.C. 1133(c).[4] The travel distances involved and difficulty of access would require Forest Service employees to camp overnight in the wilderness for the collection of samples at five of the locations. One round of sampling would take 14 full work days, involve 1774 miles of driving, 14+ hours of hiking in extremely steep, rough terrain in the wilderness, and six nights of overnight camping. The closest laboratory that can do the sampling analyses is located at the Mammoth Community Water District in Mammoth Lakes, California, approximately 4 to 6 hours from any of the sampling locations. The total cost estimate for one season of sampling the lands in California within the Davis Creek, Indian Creek, and Perry Aiken allotments identified in the Order and producing the required report is approximately $40,635.42. Enclosed as Exhibit 7 is a cost breakdown for the labor, transportation, time, distances, and other costs involved for one season of sampling required under the Order.

Petitioner receives its funding from Congressional appropriations. The appropriations are then distributed for use as budget line items from the U.S. Department of Agriculture, Forest Service (Forest Service) at the Washington and Regional Office levels. Petitioner's entire budget for grazing permit administration and monitoring for these three allotments for 2011 is $4,500. To put this into context, the cost to conduct the water quality monitoring within these three allotments, as ordered by the Regional Board, nearly exceeds the Congressional appropriations to the Petitioner to administer the 27 existing grazing permits on 35 active grazing allotments within the Inyo National Forest.

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[4]The NFS lands within the allotments identified in the Order are located in California and Nevada.

These costs, both in time and money, bear no reasonable relationship to the need for the reports. The Order is predicated upon future "potential" discharges from livestock grazing that would result in alleged "significant threats" to water quality. As discussed below in Section XII B, there is no substantial evidence to support these statements in the Order. The factual evidence in Exhibits 2, 3, and 4 demonstrate that there are no existing or potential future "significant threats" to water quality. For example, there has been no livestock grazing in the Indian Creek and Perry Aiken allotments for the past ten years. Therefore, any alleged significant threats to water quality potential discharges from past livestock grazing is based upon pure speculation. With respect to the Davis Creek allotment, there is only incidental livestock grazing occurring within NFS lands in California. Almost all the grazing within this allotment occurs in Nevada, downstream of the California portion of the streams within the allotment, which is not within the Regional Board's jurisdiction. There is no evidence of a threat to water quality directly attributable to livestock grazing in these allotments, both currently and potentially for future livestock grazing in these allotments. See, Exhibits 2 to 4. To the contrary, current baseline conditions within the allotments demonstrate there are no threats to water quality from livestock grazing, and, because best management practices will be required for any future grazing by a permittee, there will be no significant threats to water quality in the future. In fact, the EA states that, even with livestock grazing within the allotments, the water quality of the streams will improve.

The Order requires sampling for nonpoint source discharges attributable to livestock grazing. Point source discharges have a discrete point of discharge where there is a nexus from the point of discharge to water quality. However, that is not the case here. Federal lands in California constitute the great majority of habitat for all wildlife species in California. Thus, the major sources of nonpoint source discharges of microbial pollutants and nutrients are innumerable wildlife species, not livestock. For example, wild horses and deer use the same NFS lands and waters within the allotments. In addition, the period of time when livestock grazing would occur is also the recreational season, when the public will be recreating, including hiking and camping, on these NFS lands. There is no definitive way to identify the sources of the sample results for fecal coliform bacteria, if any is found or for the levels, at any time at any location. Sample results may actually reflect a use of the streams by wild horses immediately prior to sample collection. Hence, the sampling required in the Order is not a reliable indicator of the impacts of livestock grazing on water quality, resulting in no clear benefit requiring the reports in the Order.

To attempt to capture only effects of livestock grazing, samples would need to be taken upstream and downstream of the areas at nearly the same time where there is livestock grazing. In the Davis Allotment, there are no areas downstream of normally grazed areas within California. The Regional Board does not have jurisdiction to require Petitioner to conduct water sampling outside of its region. Within the Indian Creek and Perry Aiken allotments, the task of taking samples both upstream and downstream of grazed areas would be nearly impossible because the areas upstream of livestock grazing do not have road or trail access and are too far away by foot to be able to collect samples and return the samples to the laboratory in Mammoth Lakes within the 6-hour collection protocol. Thus, any sample results from these samples would not be a reliable indicator. Similarly, taking samples only downstream of livestock grazing as directed in

the Order is not a reliable method for determining impacts from livestock grazing on water quality. Wildlife, such as wild horses, or human recreationists could have contributed all or portions of the fecal coliform bacteria to the streams. Hence, the sampling required in the Order is not a reliable indicator of impacts of livestock grazing on water quality. Finally, until a grazing permit is issued and livestock grazing takes place in the Indian Creek and Perry Aiken allotments, it is unknown if, or where, livestock may congregate near surface water and whether areas downstream of these areas will be in California.

In addition, protocols for fecal coliform bacteria samples require that samples be turned into the laboratory within 6 hours of collection, which allows 2 hours of sample preparation once the samples are turned in. Given the sampling locations and the time it takes to get to the laboratory in Mammoth Lakes, it is likely that few, if any, of the sampling holding times could be met. Therefore, given the technical infeasibility of obtaining credible or reliable water quality samples pursuant to the Order, there would be no benefits to be obtained from requiring the sampling.

Petitioner has identified and selected the best management practices for range management that will be included as terms and conditions in the grazing permits. The implementation of best management practices, used to control nonpoint source discharges, has been found to be effective for protecting water quality. The best management practices used by Petitioner are outlined in the "Water Quality Management for National Forest System Lands in California." These best management practices have been certified by the State Board as adequate to protect water quality. The Regional Board did not provide any information or data in its Order that shows that implementation of these best management practices by the grazing permittees will not protect water quality and beneficial uses.

Petitioner will be conducting monitoring that focuses on forage utilization, streambank condition, and vegetation and riparian condition. This monitoring is identified in Table 10 of the EA and is consistent with the Range BMPs certified by this Board. In addition, the grazing permittees, who own the livestock, will be conducting monitoring to ensure that the management practices in the terms and conditions of the grazing permits are being met. Based on the monitoring results, Petitioner will make adjustments in management actions and best management practices accordingly, as identified in Table 9 of the EA.

The Forest Service recognizes the concerns with livestock grazing and water quality and has initiated, at a cost of $250,000, a Rangeland Water Quality Study to monitor and sample a cross section of streams on or in proximity to NFS lands where livestock grazing occurs. This study is designed to better understand water quality effects from grazing throughout NFS lands in California and to validate the effectiveness of the best management practices for range management. This study is taking place within five of the national forests in Region 5 of the Forest Service, including one forest in the Lahontan Region. The study sites were selected as a representative sample of grazing allotments on NFS lands in California and will be used to inform the effectiveness of BMPs implemented within grazing allotments on NFS lands, including the White Mountain Group allotments. Given this study, there are few or no benefits

requiring the reports in the Order and further negates the need to conduct water quality monitoring under the Order. Enclosed as Exhibit 8 is a summary of the results of the sampling taken in 2010 on the Stanislaus National Forest. For more information regarding this study, see: http://rangelandwatersheds.ucdavis.edu/.

The Order places an excessive and unreasonable burden on Petitioner, and it is unlikely that having the reports will produce a benefit that could not otherwise be more reliably obtained from the monitoring protocols that are outlined in Tables 9 and 10 of Exhibit 2. The Regional Board did not meet the requirements of Water Code §13267(b)(1). Therefore, issuance of the Order exceeds the Regional Board's authority under Water Code §13267(b)(1) and should be set aside.

C. Issuance of the Order Was Unreasonable and Arbitrary

The Regional Board is required to provide administrative findings that support issuance of the Order, and substantial evidence must support the findings. See, Topanga Assn. For a Scenic Community v. County of Los Angeles, 11 Cal.3d 506. The findings requirement serves "to conduce the administrative body to draw legally relevant sub-conclusions supportive of its ultimate decision." Id. One of the intended effects is to minimize the likelihood that "the agency will randomly leap from evidence to conclusions." Id. The findings and justifications for the Order are not supported by substantial evidence. Accordingly, issuance of the Order was unreasonable and arbitrary and exceeded the Regional Board's authority.

The Regional Board was required to provide substantial evidence to support issuance of its Order. It did not. The only evidence it provided was a critique of the Forest Service's EA (Exhibit 2). See, Exhibit 1, Enclosure 2. That critique contains misstatements and omits other countervailing information set forth in Exhibits 2, 3, 4, 5, and 8. The Regional Board did not provide any evidence that there are actual or suspected discharges of waste directly attributable to livestock grazing that is not meeting water quality standards in the Basin Plan. The Regional Board did not present any data or reference any document or studies to support its conclusion that there is "substantial evidence indicating a significant potential for the Project to violate water quality standards"[5] or result in a significant threat to water quality. In particular, the Regional Board did not provide substantial evidence that livestock grazing within the allotments identified in the Order would result in "significant" increases in bacteria in surface waters within the allotments.

To the contrary, the studies and reference documents regarding livestock grazing and water quality demonstrate that when best management practices are implemented, livestock grazing

[5]Again, the Regional Board misstates the nature of the proposed action in Exhibit 2. Petitioner is not proposing that it will engage in the livestock grazing. Rather, the "project" is a management decision involving issuance of grazing permits, not unlike the action of the Regional Board's decisions under the California Environmental Quality Act for issuance of permits or waivers of waste discharge requirements.

does not pose a significant threat to water quality. Here, Petitioner will require the grazing permittees to implement best management practices. Exhibit 2 and 3.

Under current conditions in the allotments where livestock grazing occurred, the beneficial uses in the streams within the allotments were protected. Exhibit 2 and 4. Available water quality data for the streams within the allotments show that livestock grazing is not leading to bacterial levels in streams above the Regional Board's water quality standards in California or Nevada's water quality standards. The Forest Service maintained in the EA, the Hydrology and Soil Report, and in the EA's response to comments, that the few water quality samples taken in Nevada downstream of the allotments, while not conclusive about water quality, do not indicate that livestock grazing on NFS lands in California has contributed, or will contribute, to water quality degradation.

The Order repeatedly references two water quality results taken in the State of Nevada, one on private lands, that did not meet fecal coliform standards as the only factual evidence of impairment of water quality related to livestock grazing within the allotments on NFS lands. This factual evidence is neither reliable nor substantial. One of these samples does not meet either California or Nevada fecal coliform standards (200 cfu/100 ml.), and the other sample meets Nevada's standards, but not the Regional Board's standards. The Regional Board made erroneous assumptions that livestock grazing on lands within allotments on NFS lands in California led to elevated fecal coliform levels. Both of these samples were taken 11 miles downstream from the California border, and about 7 miles downstream of NFS lands where livestock grazing occurred. The portion of the allotment in California that was located 7 miles upstream from where the samples were taken is the Davis allotment, and there is little to no grazing within this allotment in California, and it is also wildlife habitat. Between the collection points in Nevada and the NFS lands in California, Chiatovich Creek flows through private lands, and there are numerous houses along the creek. Even when Nevada's water quality samples were taken in the early 2000s, there were 15 to 20 houses along the creek. Because this is a rural area, these houses have septic tanks, which are known to leach coliform into waterways. There are also horses in pastures on private lands along the creek. The water samples were taken downstream of these uses. Given the substantial intervening uses that would have affected the water quality between NFS lands upstream and the sampling points seven miles downstream on private lands, the source of the nonpoint discharges is impossible to determine. This is not the "substantial evidence" that is required for issuance of the Order. Rather, this shows that the Regional Board's findings for the order are based upon speculation not evidence.

In a 2010 study (unpublished data presented in 2010), Dr. Kenneth Tate found that even though a water sample in an enclosed holding area for cattle had fecal coliform level of 580 cfu/100 ml, the level was 1 cfu/100 ml a mile downstream on the same day. Exhibit 8. This data indicates that there is likely very little correlation between water quality on NFS lands in California, 11 miles upstream of sample locations taken in 2001 and 2005. Thus, it was a "random leap" for the Regional Board to conclude that there are "significant threats to water quality" in the streams within the allotments. To conclude that the source is livestock grazing is pure speculation and

unsupported by substantial evidence. See, EPA Report: http://oaspub.epa.gov/tmdl/w305b_report_v6.huc=16060010&p_=NV&p_cycle=2006)(water quality in Chiatovich Creek is "good," meaning beneficial uses were being protected).

Moreover, water quality samples from the Perry Aiken Creek, an allotment that was not grazed by livestock in the years of sampling, also had fecal coliform levels over the 20 cfu/100 ml Lahontan Standard (40 cfu/100 ml). This indicates that water quality sampling related to livestock grazing is not necessarily a reliable indicator related to the sources of the discharge, and would provide dubious benefit. Instead, Petitioner's use of best management practices, adaptive management practices, and regular monitoring of the effective implementation of these management practices is a reasonable and effective basis to infer impacts to water quality from livestock grazing.

Further evidence undercutting the Regional Board's basis for the Order is that none of the streams within the allotments is listed on the CWA'§303(d) list for nutrients or bacteria. Pursuant to CWA §303(d), each state is required to develop a list of water bodies, or segments of water bodies, that do not attain water quality objectives for specific pollutants even after point-source dischargers (municipalities and industries) have installed the minimum required levels of pollution control technology. The Regional Board has listed streams on this list based on impacts from livestock grazing, but has not done so for any of the streams within the allotments shown in the Order. Finally, there are no other streams listed for nutrients or bacteria within the Inyo National Forest, and hence, any within any other grazing allotments.

The available information demonstrates that Petitioner's management practices have resulted in the protection of water quality on lands within grazing allotments. From 2008 through 2010, Petitioner completed 7 Best Management Practice Evaluations that were randomly conducted within grazing allotments. Four of the allotments had cattle grazing. Of those evaluations, only one allotment did not fully meet BMPs. These results indicate that the best management practices that Petitioner requires as part of the terms and conditions for a grazing permittee's use of NFS lands have been successful in protecting water quality.

In addition, water quality studies conducted by Forest Service in California show that beneficial uses on and downstream of NFS lands are being protected by the Forest Service's requirements for use of BMPs both in its own projects, as well as in permits issued for special uses by private entities on NFS lands. For example, a recent statewide survey found that streams in forested watersheds were in better condition than streams in watersheds in any other land use (Ode, 2007). Water quality of the Sacramento River and its tributaries, which drain primarily downstream of NFS lands, have generally good quality and support their beneficial uses (Domagalski and others, 2000). Sediment and nutrient loads from forested watersheds in the Sierra Nevada, including large areas within national forests, were found to be substantially lower than loads from downstream agricultural areas and significantly lower than average pollutant loads nationwide (Kratzer and Shelton, 1998). Aheam and others (2005) compared water quality in the upper Consumnes River watershed, which is mostly NFS lands, to the more agricultural

and heavily populated lower watershed, and found that "upland drainages tended to deliver dilute, clear waters to the lowlands, while lower elevation sub-watersheds produced more turbid waters with elevated levels of constituents (p. 242)."[6]

Finally, there is substantial evidence that best management practices, such as changes to seasons of use, stocking rates, and cattle distribution identified in Exhibit 2, will be implemented for future livestock grazing in the allotments and will result in improvements in the protection of water quality. See, Exhibits 2, 3, and 4.

The Regional Board's summary and statements regarding Exhibits 2, 3, and 4, which serve as the only basis for the Order, mischaracterize or misstate the facts within those exhibits and do not accurately reflect the environmental analysis and conclusions in those exhibits. The Regional Board's use of the term "significant watershed degradation" and its statement that "the EA was prepared to evaluate the [Inyo National Forest's] proposal to continue grazing in most or all portions of these allotments where it occurs, and to reintroduce livestock (i.e., cattle) to areas that have been rested, relying on an 'adaptive management' framework to control impacts expected to

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[6]References: Ahearn, D.S., Sheibley, R.W., Dahlgren, R.A., Anderson, Michael, Johnson, Joshua, and Tate, K.W., 2005, Land use and land cover influence on water quality in the last free-flowing river draining the western Sierra Nevada, California: Journal of Hydrology 313: 234-247. Dickev. E. C. and D. H. Vanderholm, 1981, Vegetative filter treatmentof livestock feedlot runoff. J. Environ. Qual. 10:279-284. Domagalski, J.L., Knifong, D.L., Dileanis, P.D., Brown, L.R., May, J.T., Connor, Valerie, and Alpers, C.N., 2000, Water Quality in the Sacramento River Basin, California,1994–98: U.S. Geological Survey Circular 1215, 36 p., on-line at http://pubs.water.usgs.gov/circ1215/. Jellison, R. and D. Dawson, 2003, Restoration of riparian habitat and assessment of riparian corridor fencing and other watershed best management practices on nutrient loading and eutrophication of Crowley Lake, California (SWRCB # 9-175-256-0). Kratzer, C.R., and Shelton, Jennifer, 1998, Water Quality Assessment of the San Joaquin–Tulare Basins, California: Analysis of Available Data on Nutrients and Suspended Sediment in Surface Water,1972–1990: U.S. Geological Survey Professional Paper 1587, 93 pp. http://ca.water.usgs.gov/sanj/pub/usgs/pp1587/pp1587.pdf. Li, X, E.R. Atwill, L.A., Dunbar, T. Jones, J. Hook and K.W. Tate, 2005, Seasonal temperature fluctuations induces rapid inactivation of Cryptosporidium parvum. Environmental Science Technology. 39. 4484-4489. Ode, P.R. 2007, Ecological condition assessment of California's perennial wadeable streams. Report to the State Water Resources Control Board's Non-Point Source Program: California Department of Fish and Game Aquatic Bioassessment Laboratory, Rancho Cordova, California.
http://www.swrcb.ca.gov/water_issues/programs/swamp/docs/reports/cmap_conditionassessment.pdf. Rockwell, G.L., and Honeywell, P.D., 2004, Water-quality data for selected stream sites in Bridgeport Valley, Mono County, California, April 2000 to June 2003: U.S. Geological Survey Data Series 89. Tiedemann, A.R., Higgins, D.A., Quigley, T.M., Sanderson, H.R., and Bohn, C.C., 1988, Bacterial water quality responses to four grazing strategies—comparison with Oregon standards: Journal of Environmental Quality 17(3):492-498.

result from grazing operations" are not found within either the Draft EA (June 2010) or final EA (September 2010). The Regional Board statements do not accurately reflect the analysis and conclusions in Exhibits 2, 3, and 4, the water quality in the streams within the allotments, or the watershed conditions.

Exhibit 2 articulates the purpose and need for the EA and provides accurate background information (Exhibit 2, Pages 4-11) regarding the existing vegetation and watershed conditions. The EA identifies a need for action because some areas on the allotments were not meeting or moving toward desired conditions in an acceptable time frame (Exhibit 2, pages 13-16, Appendix D). The alternatives in Exhibit 2 were designed to maintain or move the lands within the allotments toward desired conditions (including watershed conditions). Based on the environmental analysis, Petitioner selected an alternative for a management strategy and best management practices for the grazing permit's terms and conditions to include in future grazing permits for these allotments that implement an adaptive management strategy, including management practices such as a reduction in utilization levels, rest-rotation, trampling standards, and the application of grazing management techniques to keep livestock distributed as evenly as possible throughout the suitable rangelands to improve current watershed conditions.

The statement from Exhibit 2 in the Order allegedly quotes the following statement from the draft EA: "in response to significant watershed degradation caused by livestock grazing, stocking levels have been reduced from their historic highs, and portions of the Project area have been 'rested' from grazing for much of the past decade." That statement is not to be found in the draft EA. The EA explains that the Indian Creek and Perry Aiken Allotments recently underwent a period of non-use (since 2001) due to a combination of resource protection and voluntary non-use by the permittee. As clarified in the final EA, both the Indian Creek and Perry Aiken Allotments were not used for resource protection management practices in 1996 and 2001, and the permittee continued not to use the allotments through 2008 for personal reasons, not because of any Forest Service direction. Petitioner cancelled this grazing permit for these allotments in 2009 because of unauthorized non-use, and the allotments are currently vacant.

Moreover, when all the quotes from Exhibit 2 in Enclosure 2, p. 1 of the Order are distilled, the basis for the Order is that "cattle go in wet areas and defecate in streams."[7] The Order does not include any substantial evidence linking this obvious general fact to the current water quality conditions in the streams within the allotments or to substantial evidence that would negate the EA's conclusions that water quality would continue to improve in streams within the allotments, even with livestock grazing. Nor does the Order take into account the application of best management practices and the design criteria that will be implemented if livestock grazing occurs under a grazing permit.

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[7]This is a basic concept that is generally applicable to all wildlife. Very few, if any, hikers in the Sierra Nevada Mountains, Rocky Mountains, or any mountains, would risk drinking unfiltered water directly from a stream, even if they weren't hiking through a grazing allotment.

Contrary to the Order's unsupported conclusion of "significant effects," studies, including publications by the Regional Board, show that open range grazing at the intensities and grazing systems typically used on NFS lands do not have major or widespread or "significant" effects to water quality.[8] These studies, support the conclusions of the environmental analysis in Exhibit 2 that with the application of best management practices and design criteria the direct, indirect, and cumulative effects to water quality if grazing were permitted to occur was that water quality should continue to be good, with only minor, local increases in nutrients, sediment, bacteria, and other pathogens. One of the reasons for this conclusion is that the dispersed nature of grazing and the past evidence of good water quality led to the conclusion that water quality will continue to have only minor, local degradation and will continue to meet beneficial uses. See, Exhibit 2, pgs. 52 to 56. Water quality effects from current cattle grazing were found not to be substantial. With reduction of utilization in some areas, implementation of a rest-rotation system between allotments, and monitoring of BMP implementation, it is expected that the good water quality in the allotments on NFS lands will improve. See, Exhibit 2, App. E, Response to Comment 19. The Order does not provide any facts or substantial evidence to the contrary.

Another example of a misstatement in the Order follows. The Order states: "The draft EA conclusions regarding potential impacts to surface waters were based on the INF's draft Hydrology and Soils Report (Lutrick 2009), which also did not list California's water quality objectives and stated the same conclusions regarding the potential for surface waters in the project area to contain 'increased nutrients, bacteria and other pathogens' from livestock manure." That statement does not accurately reflect the final environmental analysis and conclusions in the Final EA. The EA provides that any increases in nutrients, bacteria and other pathogens in the streams that can be traceable to cattle grazing are local, minor and not persistent and that water quality will be good overall and meet beneficial uses. Final EA. pgs. 43, 52, 53, and 56. For example, "Water quality should continue to be good, with only minor, local increases in nutrients, sediment and bacteria and pathogens." Final EA pg. 53. Finally, if grazing occurred there would be no cumulative watershed effects. Final EA pgs. 52-53.

The Regional Board provided comments to Petitioner's draft EA. Contrary to the Regional Board's statements in the Order, Petitioner did adequately respond to the comments. In response to the Regional Board's comments some changes were made in the EA, including the addition of Appendix C (comparison between existing and proposed utilization levels and grazing management) and Appendix D (summary of vegetation and watershed condition data), and

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[8]According to recent studies and literature, including research presented in Lahontan Regional Board publications (Jellison and Dawson, 2003), open range grazing at the intensities and grazing systems typically used on NFS lands do not have major or widespread or "significant" effects to water quality. In areas such as feed lots, fertilized pastures, and enclosed pastures, cattle are often concentrated in great enough numbers to cause fecal coliform levels to exceed standards (Tiedemann et al. 1988, Dickey and Vanderholm, 1981). However, in open range, many studies show that even the restrictive Lahontan standards are met for fecal coliform outside of areas where cattle concentrate (Tate, 2010, unpublished; Tiedemann et al. 1988).

specialists' reports and other documents were revised and updated in response to public comments. Exhibit 2, Appendix E contains public comments and responses.

The Regional Board has not provided any factual information, data or reference documents that provide substantial evidence to support the Order's conclusion that there are or will likely be "significant threats to water quality"in any of the streams within the allotments. Nor has the Regional Board provided references or examples of open range grazing leading to bacterial water quality degradation. The data and information in Exhibits 2, 3, 4, 5, and 8 provide substantial evidence that there are no, and will be no, significant threats to water quality as a result of livestock grazing within the allotments. This conclusion is based, in part, on Petitioner's inclusion of best management practices and procedures for controlling nonpoint sources for pollution in the terms and conditions in grazing permits. Implementation of these best management practices are an effective and established means to ensure protection of water quality.

The design criteria (referred to by the Regional Board in its Order as MMs) are already incorporated into the alternative selected in the EA and have been determined sufficient to meet the State water quality standards. Many of these design criteria were incorporated into the proposed action to improve watershed conditions (EA, Appendix E, Response to Comment 20, 21). Petitioner has developed a monitoring plan (EA pages 28-30) to determine if the design criteria are being implemented as planned (implementation monitoring) and, in the longer term, if management is meeting or moving toward the established desired condition objectives (effectiveness monitoring). The monitoring plan includes measuring vegetation and watershed conditions through established protocols. The data collected from these established protocols was used to describe the existing condition, and was the basis for developing the design criteria and adaptive options by comparing the difference between the desired condition and the existing condition. The monitoring plan developed by Petitioner is adequate to demonstrate that water quality standards are being met in the streams within the allotments.

The Regional Board did not provide substantial evidence for its findings. Rather, substantial evidence demonstrates that there are no, and will be no, significant threats to water quality if livestock grazing occurs in the allotments identified in the Order. The Regional Board's issuance of the Order was unreasonable, arbitrary and improper. Therefore, the Order should be set aside.

D. The Petitioner Is Erroneously Named as the "Discharger"

The basis for the Order is a management action by Petitioner, consisting of issuing a decision, based upon an environmental analysis, to authorize issuance of grazing permits, including the terms and conditions of use, for the allotments identified in the Order. As part of the EA, the Petitioner analyzed, identified and selected best management practices to impose as terms and conditions of the use by private parties of NFS lands for grazing. Petitioner will not be engaged in livestock grazing within the allotments.

Petitioner's issuance of grazing permits to private parties is a management action. The grazing permittees own, manage and control their livestock. The grazing permittess will be grazing their livestock within the allotments on NFS lands and are responsible for waste discharges resulting from their livestock grazing and using NFS lands, as well as compliance with water quality requirements. Pursuant to Water Code §13260(a)(1), the grazing permittee is required to file a report of waste discharge with the Regional Board. Because the Regional Board regulates waste discharges from the grazing permittee's livestock, any monitoring requirements in the Order should be directed to the grazing permittee. The Regional Board's Order is erroneously directed to Petitioner as a "discharger" when its action was a regulatory management action in conformance with the MAA.

E. Conclusion

For the reasons set forth above, the Regional Board's issuance of the Order was inappropriate and improper. The State Board should set aside the Order or remand the Order to the Regional Board to set aside the Order.

DATED: March 10, 2011

Respectfully submitted,

Rose Miksovsky
Attorney for Petitioner
USDA, Forest Service
Inyo National Forest

CERTIFICATE OF SERVICE

The undersigned hereby certifies that she is an employee of the Office of the General Counsel, that her business address is 33 New Montgomery Street, 17th Floor, San Francisco, California 94105, and is a person of such age and discretion as to be competent to serve papers. The undersigned further certifies

That on March 10, 2011, she served a copy of the attached:

Petition for Review

for In the Matter of Investigative Order No. R6V-2011-0009

addressed to the persons hereinafter listed and sent by mail at San Francisco, California.

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Governor

February 9, 2011

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INVESTIGATIVE ORDER NO. R6V-2011-0009, UNITED STATES FOREST SERVICE, INYO NATIONAL FOREST, WHITE MOUNTAINS GRAZING ALLOTMENTS

Pursuant to Water Code section 13267, subdivision (b), this Investigative Order requires the United States Department of Agriculture, Forest Service, Inyo National Forest (INF), the Discharger, to provide technical reports to investigate water quality impacts related to livestock grazing authorized by the INF's Decision Notice and Finding of No Significant Impact (DN-FONSI) for the White Mountain Group Grazing Allotment Analysis Environmental Assessment (EA). Nothing in this Order relieves the Dischargers of their responsibility to comply with previous orders issued by the Lahontan Regional Water Quality Control Board (Water Board) or to comply with laws and regulations that are applicable to activities necessary to produce the above-referenced reports.

The DN-FONSI authorizes livestock (i.e., cattle) grazing in the Davis Creek, Indian Creek, Perry Aiken, and Trail Canyon allotments of the INF, covering approximately 84,000 acres of National Forest System lands in the White Mountains of California and Nevada (referred to here as the Project). All of these allotments have some portion of land within the Water Board's boundaries. Surface waters in the California portions of the allotments are interstate water bodies that flow from California into Nevada. The Trail Canyon Allotment is almost entirely in the state of Nevada and is not subject to this Order.

CHRONOLOGY AND BACKGROUND

In June of 2010, the INF circulated the draft EA for a 30-day public review (INF 2010a). The draft EA explained that livestock grazing was once common in the White Mountains, but in response to significant watershed degradation caused by livestock grazing, stocking levels have been reduced from their historic highs, and portions of the Project area have been "rested" from grazing for much of the past decade. Under

Exhibit 1

current management, watershed recovery is proceeding slowly, but much of the identified watershed degradation persists.

The draft EA was prepared to evaluate the INF's proposal to continue grazing in most or all portions of these allotments where it currently occurs, and to reintroduce livestock (i.e., cattle) to areas that have been rested, relying on an "adaptive management" framework to control impacts expected to result from grazing operations. The draft EA observed that cattle in the arid White Mountains tend to congregate near surface waters, and acknowledged that concentrations of cattle near surface waters are likely to increase bacteria loads in waters of the State. But the draft EA did not list or state California's water quality objectives for bacteria, it did not disclose or estimate the bacteria concentrations expected to occur in surface waters under the proposed grazing operations, and no bacteria monitoring program was proposed. The draft EA conclusions regarding potential impacts to surface waters were based on the INF's draft Hydrology and Soils Report (Lutrick 2009), which also did not list California's water quality objectives and stated the same conclusions regarding the potential for surface waters in the Project area to contain *"increased nutrients, bacteria and other pathogens"* from livestock manure.

On July 23, 2010, the Water Board staff submitted detailed comments on the EA to the responsible official at the INF. A copy of the Water Board's July 23, 2010 comment letter is included as Enclosure 1. Water Board staff's comments identified significant threats to water quality posed by the Project, and concluded that the Project, as proposed, lacked adequate management measures (MMs) to control nonpoint source pollution or to ensure compliance with State water quality standards. Given the significant threat to water quality and beneficial uses of water posed by the Project, Water Board staff recommended that the INF prepare a more detailed environmental impact statement, including consideration of additional alternatives (such as continued "rest" for degraded areas, use of more quantitative vs. qualitative watershed assessment methods, etc.), and that the INF supplement its proposal to include: 1) MMs sufficient to attain compliance with all relevant State water quality standards; 2) a more detailed and mandatory monitoring program to track attainment of water quality standards, including but not limited to a monitoring program for bacteria; and 3) measureable milestones for recovery of degraded watershed areas, with specific actions to be triggered and timely implemented when/if monitoring indicates that the watershed recovery milestones are not achieved.

Water Board staff further concluded that the INF's "flexible" adaptive management proposal is inadequate because it provides insufficient protection to ensure the Project does not violate State standards for bacteria and/or exacerbate documented watershed degradation caused by livestock grazing.

In September of 2010, the INF issued a final Hydrology Report (Lutrick 2010) and a final EA (INF 2010b). The analysis of water quality issues in the final documents remained brief and was little-changed from the drafts. In its "Response to Comments" (final EA, Appendix E), the INF did not respond to Water Board staff concerns (e.g., request for a bacteria monitoring program), and the INF abbreviated and dismissed other Water

Board staff comments (e.g., concern that the Project as proposed is likely to violate state standards for bacteria, request that the Project be supplemented to incorporate measureable milestones for recovery of degraded watersheds, etc.) based on superficial analyses. At or about the same time that it released the final EA and accompanying "Response to Comments," the INF on September 21, 2010 issued its DN-FONSI approving the Project without conducting the additional environmental analyses recommended by Water Board staff, and without incorporating the MMs, performance milestones, or any of the monitoring elements discussed in Water Board staff's comments on the Project.

JUSTIFICATION

Water Code section 13267, subdivision (b) states in part, that "...the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires... In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports."

The discharge of manure and sediment from rangeland grazing operations into surface waters or to land where it could be carried to surface waters within the Lahontan Region is a discharge of waste that could affect the quality of waters of the State of California. On March 31, 1995, the Water Board adopted a *Water Quality Control Plan for the Lahontan Region* (Basin Plan) that establishes beneficial uses, water quality objectives, waste discharge prohibitions, and implementation policies that apply to waters of the State and discharges to waters of the State within the Lahontan Region. Conformance with this water quality objective is necessary to protect beneficial uses of surface waters within the Project area, which include, but are not limited to, Municipal and Domestic Supply (MUN), Recreation (REC-1 and REC-2), and Cold Freshwater Habitat (COLD). Contact and non-contact recreational uses are also known to exist in the Project area, and recreational uses of the increasingly popular White Mountains are expected to continue to increase over time (Hall 1991, INF 1988).

As detailed in Enclosure 2, "Additional Information to Support Order," there is substantial evidence indicating a significant potential for the Project to violate water quality standards, particularly the water quality objective for fecal coliform bacteria . The evidence includes: 1) information presented in the INF's own EA , specifically acknowledgment that due to specific regional and local environmental factors, livestock in the Project area will tend to congregate near streams and other wet areas and that there are few/no fences or other controls present to keep livestock away from water; 2) acknowledgements in INF technical reports that grazing in the Project area is likely to increase the load of bacteria and other pathogens in surface waters; 3) data documenting that indicator bacteria concentrations in streams draining these allotments are at levels that exceed the Basin Plan's numeric objectives; and 4) Water Board experience, which includes extensive surface water monitoring for similar projects,

indicates that this Project poses a significant risk of violating the Basin Plan's numeric objectives for bacteria. Because there is evidence that the proposed Project will likely result in a discharge of waste that could affect the quality of the waters within the Lahontan, the monitoring program required by this Order is necessary to document whether, and to what extent, the Project violates or threatens to violate water quality standards, particularly water quality objectives for fecal coliform bacteria, and to identify any additional MMs that would be necessary to maintain compliance with water quality standards. Implementing the requested monitoring program will incur staff office and field time, as well as analytical lab fees. However, these costs are needed to evaluate water quality to determine whether the water's beneficial uses are being protected. Extensive Water Board experience related to fecal coliform monitoring suggests the monitoring program be more robust than proposed to achieve timely, effective, and statistically meaningful monitoring results.

Despite the fact that I am issuing this Order, I would like to emphasize that the Water Board continues to support the Management Agency approach to protecting water quality and beneficial uses of water within National Forest System lands, and we sincerely desire and value a positive and collaborative working relationship with the United States Forest Service (USFS). The Pacific Southwest Region of the USFS and the State Water Resources Control Board are both signatory parties to the Management Agency Agreement. The Management Agency approach requires that the USFS address Water Board concerns and apply MMs for all USFS projects as needed to ensure attainment of all relevant water quality standards. In the EA (INF 2010b), the INF neglected to acknowledge or respond to certain Water Board staff comments and significantly abbreviated other comments such that many points were lost. Because of this, I do not believe that in this circumstance the INF upheld its responsibilities under the Management Agency approach.

ORDER FOR TECHINCAL REPORTS

Pursuant to Water Code section 13267, subdivision (b), I am ordering the Discharger to submit the following technical reports by the specified due dates.

Report	Due Date
Surface Water Investigation Work Plan	**April 30, 2011**
Surface Water Investigation Report	**November 30, 2011**

1. A **Surface Water Investigation Work Plan** (Work Plan) for monitoring fecal coliform bacteria in surface waters of the Davis Creek, Indian Creek, and Perry Aiken grazing allotments must be submitted to the Water Board by the due date specified above. The Work Plan must be prepared as if grazing will occur in the allotments listed above. If certain allotments are rested, inactive, or vacant,

monitoring does not need to occur in those allotments until such time as grazing occurs. Each allotment shall be monitored during the first season that grazing will occur. If the results of monitoring show fecal coliform bacteria concentrations above the criteria in the Basin Plan, additional monitoring in successive seasons will likely be required. The Work Plan must, at a minimum, include the following information:

a. A summary of grazing permitted to occur (and levels of grazing that actually occurred in 2010) on each allotment including on and off dates, number of livestock, grazing rotation or pattern, and any MMs proposed to be implemented in the 2011 season and over the next five years.

b. Maps with sufficient detail to show proposed sample locations in relation to creeks and "Key" grazing areas (Key areas as defined in the EA). Surface water samples should be collected in the California portion of the allotments in locations downstream of where the cattle congregate near surface waters, such as downstream of Key areas that are adjacent to surface waters or near other heavily grazed areas. The following creeks and sample locations shall be monitored:

    1) Davis Creek Allotment: North Fork Chiatovich Creek, South Fork Chiatovich Creek, and Davis Creek. Sample locations shall be near the Stateline.

    2) Indian Creek Allotment: Indian Creek (near the Stateline) and Cabin Creek (downstream of Key Area IC-3).

    3) Perry Aiken Allotment: Leidy Creek (near Stateline), Busher Creek (downstream of Key Area PA-4), and Perry Aiken Creek (below the confluence of north and south forks).

    Given the difficulty in accessing these remote allotments and the INF's on-the-ground knowledge of the terrain and grazing patterns, the INF may propose alternate locations or reduced monitoring with adequate justification for such changes. Any justification for reduced monitoring must address how the changes will adequately assess the potential contamination from the Project.

c. Latitude and longitude coordinates (including datum and coordinate system) and photographs of sample locations.

d. "Pre-grazing" (i.e., baseline) samples, collected at least twice at each sample location in the 30-day period prior to initiation of livestock grazing for the season.

e. After the onset of grazing, samples collected at least twice each month through completion of the grazing season, including at least two samples for each site during each calendar month when livestock are present upstream of the sample location.

f. A sampling and analysis plan, including a Quality Assurance Project Plan, that includes and describes the field methods, laboratory methods, and quality assurance and quality control (QA/QC) procedures necessary to ensure valid and representative data are obtained and reported. The sampling and analysis plan must also include a list of procedures/methods for each constituent of concern and the associated reporting limit for that procedure/method.

g. Given that fecal coliform bacteria samples have a short "holding time" prior to analysis, the Work Plan or sampling and analysis plan must address how samples will be handled, transported, and analyzed so as to meet fecal coliform holding times.

h. A schedule for implementing the Work Plan that results in submittal of the Surface Water Investigation Report by November 30, 2011. The schedule must include cattle on/off dates and proposed dates for sample collection.

i. The USFS is encouraged, but not required by this Order, to analyze all samples for *E. coli* in addition to fecal coliform bacteria. For a nominal additional cost, this would significantly improve the utility of the results in assessing the effects of livestock grazing operations on surface waters, and better inform management actions. The State Water Board, this year, will likely be considering setting new water quality standards for the State of California replacing fecal coliform bacteria standards with *E. coli* standards.

Upon receipt, Water Board staff will review the Work Plan and will respond in writing within 30 days either accepting the Work Plan or identifying deficiencies. Please have your staff contact Water Board staff for any needed technical assistance in developing the bacteria monitoring program, including assistance with methodology selection, study design, or quality control.

2. The **Surface Water Investigation Report** must, at a minimum, include the following information:

   a. A summary of grazing activities that occurred, including numbers and type of livestock, and dates that livestock were present upstream of each sample location and any MMs implemented.

b. Latitude and longitude coordinates (including datum and coordinate system) and photographs of sample locations.

c. Dates and times of sampling at each location. Note approximate number of cattle present, or had recently been present, near the sample location.

d. The results of surface water sampling, including tabulated presentation of analytical data, copies of laboratory reports, chain of custody forms and quality assurance/quality control documentation.

e. Sampling and reporting is required as detailed above for those sites identified in the Work Plan where livestock grazing occurs during 2011. Thereafter, sampling and reporting is required for each sample location in the first year that grazing occurs above the sample location, with an Investigative Report to be due on November 15 of each year grazing is initiated as part of this Project.

This Order is being issued pursuant to Water Code section 13267. Enclosure 3 included with this Order is a Fact Sheet, which contains information regarding the submittal of technical reports pursuant to Water Code section 13267. If the Discharger does not comply with this Order, the Discharger will be considered in violation of this Order and subject to additional enforcement action pursuant to Water Code section 13308.

Any person aggrieved by this action of the Lahontan Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must *receive* the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions will be provided upon request or may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality

Please contact Laurie Scribe, Environmental Scientist, at (530) 542-5465 or Doug Cushman, Senior Engineer, at (530) 542-5417 if you have any questions regarding this Order.

Lauri Kemper, P.E.
Assistant Executive Officer

Enclosure: 1. July 23, 2010 Water Board Comment Letter
2. Additional Information to Support Order Justification
3. Water Code section 13267 Fact Sheet

CC: Gaylon Lee, Senior Engineering Geologist, SWRCB
Jim Upchurch, Forest Supervisor, Inyo National Forest
Barry Hill, Regional Hydrologist, USDA-Forest Service, Pacific Southwest Region

References:

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California Regional Water Quality Control Board
Lahontan Region

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Arnold Schwarzenegger
Governor

July 23, 2010

Jennifer Ebert
District Resource Officer
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COMMENTS ON ENVIRONMENTAL ASSESSMENT FOR WHITE MOUNTAIN GROUP ALLOTMENT ANALYSIS—INYO NATIONAL FOREST, MONO COUNTY

Staff of the California Regional Water Quality Control Board, Lahontan Region (Regional Water Board), has reviewed your ***Environmental Assessment for White Mountain Group Allotment Analysis—Inyo National Forest*** (EA).

State law assigns responsibility for protection of water quality within the Lahontan Region watershed basin to the Regional Water Board. The Lahontan Region includes all portions of the White Mountains that lie within the State of California. The Regional Water Board implements and enforces the federal Clean Water Act, the Porter-Cologne Water Quality Control Act (California Water Code Section 13000 *et seq.*) and the *Water Quality Control Plan for the Lahontan Region* ("Basin Plan"). Activities that may be regulated as discharges by the Regional Water Board are not limited to the pumping or pouring of effluent through a pipe, ditch, or other point source. Deposits of fill material and activities contributing to erosion, surface runoff, and nonpoint sources of pollution are also covered.

Our initial review of this project is pursuant to the Management Agency Agreement (MAA) executed between the California State Water Resources Control Board and the U.S. Forest Service. That MAA requires that all Regional Water Board comments and concerns be addressed by the Forest Service early in the planning process. Please note that the Regional Water Board reserves the authority to formally regulate this project, including requiring the submittal of formal reports of waste discharge and filing fees, if water quality issues are not adequately addressed via the MAA process.

The EA proposes to authorize livestock (cattle) grazing in four allotments (i.e., Davis Creek, Indian Creek, Perry Aiken, and Trail Canyon) covering approximately 84,000 acres of National Forest System lands within the Inyo National Forest. Approximately half of the area is within the Lahontan Region of California; the other half is in the State of Nevada. Grazing within the Lahontan Region would occur primarily in the Indian

Creek and Perry Aiken allotments. Within the Indian Creek Allotment, grazing would occur along Indian Creek, Cabin Creek, and at Chiatovich Flats. Within the Perry Aiken Allotment, grazing would occur along Leidy Creek, the forks of Perry Aiken Creek, and at Perry Aiken Flats.

The California portions of these allotments are at very high elevations, with grazing proposed to occur in some locations above 12,000 feet. The location of the allotments on the eastern side of the White Mountains, together with the high elevation, creates an extreme environment with cold temperatures, relatively low precipitation, and a short growing season. The EA states that the project area is generally comprised of "typical desert mountain range vegetation communities," that "a significant portion of the allotment acreage is not capable of supporting livestock grazing," and that grazing therefore occurs primarily along the stream bottoms and creek drainages.

Our comments on the EA are as follows:

1. The EA does not adequately analyze whether the proposed action will comply with standards contained in the Basin Plan. In fact, the EA does not anywhere mention the Basin Plan, list its designated beneficial uses or applicable water quality objectives, or analyze whether or how the proposed action would or would not meet California's water quality standards. The EA should be supplemented to acknowledge the water quality standards contained in the Basin Plan, to evaluate the potential for the proposed action to violate those standards, and to specify management measures for controlling nonpoint source pollution that are adequate to ensure compliance with the Basin Plan.

2. The EA documents degraded watershed conditions and degraded water quality within the project area. For example, "poor" meadow/riparian condition and poor hydrologic function were found at several sites (EA at pp. 12, 40, and elsewhere), and bacteria were detected at levels exceeding 200 cfu/100 ml (EA at p. 39). Given these findings, a more concrete plan to restore hydrologic function and water quality is warranted.

3. Many of the areas proposed for grazing within the Lahontan Region have been "rested" from grazing for the past several years. Yet the poor meadow conditions and poor hydrologic function persists. The EA acknowledges that resuming grazing in these fragile, high-elevation desert environments would significantly delay the desired watershed recovery, probably by many decades. The Forest Service should carefully consider additional alternatives and management measures that would result in timely watershed recovery, including continued rest for degraded areas until recovery is evident.

4. Cabin Creek provides habitat for a genetically pure population of the threatened Paiute cutthroat trout (PCT). The ***Revised Recovery Plan for the Paiute Cutthroat Trout*** (U.S. Fish and Wildlife Service, 2004) evaluated the PCT's habitat within Cabin Creek and found that *"degradation of the riparian zone and stream is*

occurring from overutilization. Sloughing banks and trampling of tributary spring channels are causing increased sediment input." The Recovery Plan concluded that no further degradation of PCT habitat should be allowed, and that optimal habitat for PCT should be timely restored and maintained "in all occupied streams," including Cabin Creek. The EA (at p. 12) rates the Cabin Creek watershed as being only in "fair" condition due to head cuts, bare ground, and hummocks, but proposes to resume/continue grazing in the watershed, including in PCT habitat. The EA (at p. 21, and elsewhere) proposes several ambiguous controls on grazing in PCT habitat, such as requiring rest from grazing "if riparian conditions decline" further, or if desired conditions "will not be achieved within ten years and livestock grazing is shown to be a significant causal factor." Such non-specific approaches are of concern for several reasons. First and foremost, we could not find in the EA specific concrete actions to timely achieve and verify attainment of desired watershed conditions. The EA does not specify who will be responsible for making the finding whether desired conditions will be achieved within ten years, when this finding will be made, or what criteria would be used for making that pivotal determination. We suggest that the EA be supplemented to specify: 1) objective, measurable milestones for the recovery of riparian zones and other watershed conditions, especially within occupied PCT habitats; and 2) specific actions to be triggered, with mandatory timelines, if performance milestones are not met.

5. The grazing strategies and options described in the EA do not constitute true "adaptive management" as claimed by EA. Adaptive management requires key steps such as designing and implementing management measures and monitoring in accordance with the principles of scientific experimentation. See, for example, USFS (1998), and Univ. of California (2006). Instead, the EA provides what are essentially "laundry lists" of practices that may be tried (alone or in unspecified combinations) at the discretion of local managers and permittees if occasional monitoring reveals obvious overgrazing or adverse environmental responses. Monitoring of progress toward "desired conditions" would be performed at unspecified 3-10 year intervals, and the corrective responses are similarly vague and not mandatory. Such a strategy, without the articulation of specific monitoring questions or specification of an experimental monitoring design, is not adaptive management at all; it is *ad hoc* management that provides no assurance that management measures will be applied to timely correct water quality problems. This underscores the need (as discussed above) for measurable milestones for recovery of degraded areas, and specific actions to be triggered when milestones are not achieved.

6. The EA mischaracterizes and over-relies on "proper functioning condition" (PFC). It states (at p. 38) that PFC *"is a tool for measuring the health of riparian and aquatic systems."* This simply is not true. PFC is a subjective, qualitative assessment that at most provides "clues" about the status of one aspect of riparian ecosystems: physical function (National Riparian Service Team, 1997). PFC was not designed and cannot be used as a sole methodology for assessing the health of aquatic or terrestrial ecosystems (*ibid*). PFC was never intended to replace quantitative

assessments, and it is not designed to address desired condition (USFS 1997). Further, PFC has no demonstrated link to state water quality standards, and therefore cannot properly be used as a surrogate for water quality standards. The types of monitoring measures that actually do address compliance with water quality standards or desired watershed condition (i.e., water sampling, rooting depth, seral stage, etc.) are either lacking in the EA or mentioned in passing, with little or no specificity.

7. The EA states that grazing in these allotments occurs primarily along the stream bottoms and creek drainages, and that there are few or no fences to restrict cattle from direct contact with surface waters. This indicates that cattle will spend most of their time near or in creeks, wetlands, and riparian areas, which significantly increases the likelihood of surface water contamination with pathogens from livestock manure. The EA confirms that during past monitoring in the project area, livestock *"were seen in wet areas and in the stream channel. These observations suggest that cattle spend sufficient time in or directly adjacent to stream channels to defecate directly in water. Streams in the key areas likely contain bacteria and other pathogens."* The EA also documents bacteria exceeding 200 cfu/100ml at one location where livestock were present (EA at p. 39). That level is ten times the Lahontan Basin Plan's objective for bacteria. In most cases where bacteria levels were found to be low, livestock apparently were not present at the time of sampling. Given these facts, there is a significant likelihood that the Basin Plan's objectives for bacteria will be violated by the proposed action. Your EA therefore should be supplemented to more carefully evaluate the potential for bacteria to exceed objectives contained in the Basin Plan, and to propose a monitoring program for bacteria. Please contact us if you would like assistance in developing a monitoring plan for bacteria. The EA should specify corrective actions to be taken when violations of bacteria standards are found.

8. Given the extremely fragile nature of such high-elevation desert watersheds, the presence of special status species such as threatened PCT, the findings that many portions of these allotments remain significantly degraded due to past livestock grazing activities, and the EA's findings that the proposed action to resume/continue grazing in degraded areas and in habitat for the threatened PCT will result in impacts that will likely delay the recovery of degraded areas by many decades, we recommend you prepare a more detailed environmental impact statement (EIS). In the EIS, carefully evaluate alternatives and environmental consequences, and specify a true adaptive management and monitoring program that will ensure the timely recovery of degraded areas and compliance with state water quality standards.

Thank you for considering and incorporating the above comments into your project. Please provide for our review copies of your allotment management plans and associated NEPA documents, including decision document(s) for this project. Please call me at (530) 542-5417 if you have any questions regarding this letter.

for Doug Cushman
Senior Water Resources Control Engineer

References:

National Riparian Service Team. 1997. PFC (Proper Functioning Condition): What it is – What it isn't. Cooperative Riparian Restoration, Training Handout #2. July 17, 1997.

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U.S. Forest Service. 1997. Using Proper Functioning Condition Riparian Assessment Protocols in Forest Plan Implementation. Memorandum from Regional Forester to Forest Supervisors, USFS Pacific Southwest Region, San Francisco, CA. October 16, 1997.

U.S. Forest Service. 1998. Sierra Nevada Science Review. Report of the Science Review Team charged to synthesize new information of rangewide urgency to the national forests of the Sierra Nevada. USDA Forest Service, Pacific Southwest Research Station.

University of California. 2006. Learning how to apply adaptive management in the Sierra Nevada Forest Plan Amendment, U.C. Research Team, February 28, 2006.

cc: Gaylon Lee, SWRCB
Barry Hill/USFS Regional Office, Vallejo

DC/clhT: Inyo AMP comments 7-20-10.doc

ENCLOSURE 2

ADDITIONAL INFORMATION TO SUPPORT ORDER

The reports required by this Order are needed for the following reasons:

1) ***The grazing of cattle in the proposed allotments will result in discharges of waste into waters of the State***

The California portions of these allotments are at very high elevations, with livestock grazing to occur up to and above 12,000 feet. The environment is extreme—characterized by cold temperatures, relatively low precipitation, and a short growing season. The White Mountain Group Grazing Allotment Analysis Environmental Assessment (EA) (INF 2010b) states that the Project area is generally comprised of typical desert mountain range vegetation communities, and that a significant portion of the allotment acreage is not capable of supporting livestock grazing. Because of these extreme regional and local environmental factors, the EA acknowledges that livestock in the Project area tend to congregate primarily along the stream bottoms, within creek drainages, and in wet meadows where livestock spend much or even most of their time in close proximity to surface waters, including wetlands. There are few or no fences or other controls to prevent livestock from contacting surface waters, including wetlands.

The EA (at p. 46) observes that during past inspections of the Project area, livestock *"were seen in wet areas and in the stream channel. These observations suggest that cattle spend sufficient time in or directly adjacent to stream channels to defecate directly in water. Streams in the key areas likely contain bacteria and other pathogens."*

The EA (at p. 49) also observes that: *"When present, cattle will be in wet areas enough to deposit manure in or near surface water, and that manure can be carried into streams."*

The INF's "Soils and Hydrology" report for this Project (Lutrick 2010) contains similar acknowledgements. For example, that report (at p. 7) states: *"It is well established in the literature that fecal coliform, giardia, and other bacteria or pathogens can be introduced into water by cattle,"* and (at p. 10) that: *"In the allotments that are currently stocked, cattle were observed crossing waterways and standing in water or in saturated soils, particularly within meadows. There is currently potential for increased nutrient, bacteria, and other pathogens from direct deposition of manure into the water, or from manure washing from the adjacent wet land into the water."*

Given that: 1) the regional and local environmental conditions combine to make it likely that cattle will spend much of their time in or near surface waters; 2) few/no fences or other controls are present to prevent cows from contacting surface waters; and 3) cow manure is a waste under the Porter-Cologne Water Quality Act and it is well established that grazing under such conditions often results in increased bacteria and pathogen loads in receiving waters, we conclude that the cattle grazing as proposed threatens to

discharge waste into waters of the state, posing a threat to water quality and beneficial uses of water.

2) *The discharges and proposed discharges threaten to violate State water quality standards for bacteria*

The INF "Soils and Hydrology" report (Lutrick 2010) cites the Basin Plan and lists the designated beneficial uses for streams in the Project area; however, it uses an incorrect standard in assessing whether the Project would violate State water quality standards. Without acknowledging the Basin Plan's numeric water quality objectives for bacteria, the report states:

> "The threshold for determining if beneficial uses are maintained is whether or not receptors are adversely affected." (Lutrick 2010, at page 7)

This is not the water quality standard set out in the Basin Plan. The applicable water quality objectives for this Project are: 1) Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes; 2) fecal coliform bacteria concentration during any 30-day period shall not exceed a log mean of 20/100ml; and 3) ten percent of all fecal coliform bacteria samples collected during any 30-day period shall not exceed 40/100ml. Water quality objectives are the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area. (Water Code § 13050(h).) Therefore, water in the Lahontan Region must meet these objectives in order to protect the beneficial uses of the receiving water.

The Soils and Hydrology report (Lutrick 2010) provides data from fecal coliform bacteria samples collected in several creeks draining the allotments. Those data document levels of fecal coliform bacteria that exceed the Basin Plan's fecal coliform bacteria objective. Specifically, four of the ten results presented were at or above the Basin Plan's numeric water quality objective for fecal coliform bacteria (20cfu/100ml), and one of those samples exceeded the level established by the U.S. Environmental Protection Agency (USEPA) and commonly used throughout the United States as a threshold for protecting human health (200cfu/100ml).

The INF attempts to dismiss the significance of these monitoring results with three arguments. First, it states that most of the ten samples had low levels of bacteria. Although this statement is technically correct, at least some, and perhaps most, of the low-level samples were collected at locations and/or times when livestock were not present. Those low-level results are therefore not indicative of bacteria concentrations during grazing operations.

Second, the INF opines that because the samples were collected in Nevada, the results are not indicative of water quality in the California portions of the Project, and that California's standards are not relevant in the analysis of the results. We disagree.

While the ten samples were collected within the State of Nevada, all of the streams originate in the California portions of the allotments (Lutrick 2010, at p. 10). Because the waters flow downstream from California into Nevada, it is reasonable to expect that water quality at the sample locations in Nevada is affected at least in part by grazing operations and other environmental factors within the California portions of these allotments. Further, the environmental conditions, types of livestock grazing operations, and applied management measures (MMs) within the Nevada portions of the allotments are similar or identical to those within the California portions of the allotments. Therefore, while the INF is correct in pointing out that California's water quality objectives do not apply in Nevada, because of the proximity and similarity of grazing operations, it is entirely reasonable to compare these sampling results to California's objectives when assessing the potential impacts of the current and proposed discharges on surface waters within the California portions of these allotments.

Third, the INF states that the single sample which exceeded 200 cfu/100ml was collected several miles downstream of the key grazing areas, and it is therefore "unknown whether the fecal coliform was related to cattle." This statement is literally correct, but there is no valid basis for the INF's implication that high levels of indicator bacteria can be dismissed simply because the specific source is unproven. Further, there are apparently few or no other developments or activities between the grazing operations and the sample location, so any conclusion that livestock did not contribute to the high bacteria concentration in that sample would be speculative. Although the source(s) of bacteria in that sample remain unknown, the facts are that: 1) bacteria was detected below the grazing operations at a concentration of 230 cfu/100ml; 2) that level is significant because it exceeds water quality criteria adopted by both states, and also exceeds the level of 200 cfu/100ml established by the USEPA for protection of human health; and 3) livestock operations upstream of the sample location may have been a contributing, primary, or sole source. It is therefore inappropriate for the INF to dismiss this issue without additional monitoring and assessment.

In addition, the Water Board has had many years of direct experience monitoring livestock grazing operations in mountain environments, and has found that operations of the type proposed here often have the potential to violate bacteria standards, significantly affecting water quality for its beneficial uses. The cursory analysis and dismissal of this issue by the INF runs counter to the substantial experience of the Water Board, and is therefore unpersuasive. The EA's conclusions that water quality standards will be met, that all beneficial uses will be fully protected, and that water quality will not be significantly affected by this Project are not supported by the facts nor our experience in similar situations.

We conclude that the Project poses a significant threat of violating the Basin Plan's numeric objectives for fecal coliform bacteria (20 cfu/100ml), as well as the numeric thresholds established by the USEPA for protecting human health (200 cfu/100ml). We reach this conclusion, in sum, because: 1) monitoring results for creeks within and downstream of these allotments (which are subject to similar or identical grazing operations as those proposed in the DN-FONSI) have shown bacteria concentrations

that exceed the water quality objectives contained in the Basin Plan; 2) bacteria was detected in one creek downstream of the Project area at a concentration of 230 cfu/100ml, which exceeds the threshold commonly used for protecting human health; and 3) the Water Board's experience in similar situations indicates that the type of discharges occurring and proposed here often violate water quality objectives for bacteria. The Project therefore threatens to violate the Basin Plan's water quality standards for bacteria, adversely affecting the water for its designated beneficial uses, including recreation and human health.

3) ***The Discharger's proposed "adaptive management" proposal is incapable of ensuring compliance with State water quality standards, detecting violations of State standards, or ensuring timely remedial actions in response to those violations***

The INF responded to the Water Board's comments in part by stating that the USFS intends to utilize a "flexible" adaptive management process to ensure compliance with water quality standards. This response misses the point because it fails to acknowledge that without the necessary monitoring, adaptive management is useless. The INF states (INF 2010b, at p. E-9) that its "adaptive management" process is based largely on the framework advocated by Quimby (2001). Without discussing the merits or shortcomings of the framework advocated by Quimby, we note that Quimby defines "adaptive management" as *"the process of making use of monitoring information to determine if management changes are needed, and if so, what changes, and to what degree."* In the present case, there is no way for the INF to make needed management changes based on monitoring if it has no monitoring program for bacteria.

In order for the INF to detect violations of State standards for bacteria, to characterize any such violations, and to design and implement responsive management changes, it must first identify baseline bacteria conditions for the surface waters that will potentially be affected by the proposed grazing operations, and conduct a monitoring program for bacteria as the Project is implemented. The proposed "adaptive management" strategy contains no provision(s) or requirement(s) for bacteria monitoring, even though the need for this information was timely raised by Water Board staff in its comments on the Project, and the INF's own EA and Hydrology Report acknowledge that bacteria is likely to be discharged to surface waters by this Project.

Specifically, the INF's adaptive management proposal includes no milestones for judging timely recovery of degraded watersheds, no concrete triggers for remedial action if recovery milestones are not met, no mandatory timelines for implementing remedial action when such measures are deemed necessary, and no monitoring for pollutants known to be discharged by livestock grazing operations under such conditions (e.g., bacteria/pathogens).

The INF's "adaptive management" strategy does not constitute reasonable implementation of MMs to ensure compliance with State water quality standards, because it fails to incorporate any element(s) for bacteria monitoring, when the

evidence in this case shows that bacteria is a significant issue. Without any bacteria monitoring program, the INF's "adaptive management" strategy is incapable of tracking or characterizing bacteria concentrations, and therefore incapable of determining if management changes are needed in response to this concern.

California Environmental Protection Agency – Ca. Regional Water Quality Control Board, Lahontan Region

Fact Sheet – Requirements for Submitting Technical Reports Under Section 13267 of the California Water Code

October 8, 2008

What does it mean when the regional water board requires a technical report?

Section 13267[1] of the California Water Code provides that "...the regional board may require that any person who has discharged, discharges, or who is suspected of having discharged...waste that could affect the quality of waters...shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires".

This requirement for a technical report seems to mean that I am guilty of something, or at least responsible for cleaning something up. What if that is not so?

Providing the required information in a technical report is not an admission of guilt or responsibility. However, the information provided can be used by the regional water board to clarify whether a given party has responsibility.

Are there limits to what the regional water board can ask for?

Yes. The information required must relate to an actual or suspected discharge of waste, and the burden of compliance must bear a reasonable relationship to the need for the report and the benefits obtained. The regional water board is required to explain the reasons for its request.

What if I can provide the information, but not by the date specified?

A time extension can be given for good cause. Your request should be submitted in writing, giving reasons. A request for a time extension should be made as soon as it is apparent that additional time will be needed and preferably before the due date for the information.

Are there penalties if I don't comply?

Depending on the situation, the regional water board can impose a fine of up to $1,000 per day, and a court can impose fines of up to $25,000 per day as well as criminal penalties. A person who submits false information is guilty of a misdemeanor and may be fined as well.

What if I disagree with the 13267 requirement and the regional water board staff will not change the requirement and/or date to comply?

Any person aggrieved by this action of the Regional Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must *receive* the petition by 5:00 p.m., 30 days after the date of the Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

Claim of Copyright or other Protection

Any and all reports and other documents submitted to the Regional Board pursuant to this request will need to be copied for some or all of the following reasons: 1) normal internal use of the document, including staff copies, record copies, copies for Board members and agenda packets, 2) any further proceedings of the Regional Board and the State Water Resources Control Board, 3) any court proceeding that may involve the document, and 4) any copies requested by members of the public pursuant to the Public Records Act or other legal proceeding.

If the discharger or its contractor claims any copyright or other protection, the submittal must include a notice, and the notice will accompany all documents copied for the reasons stated above. If copyright protection for a submitted document is claimed, failure to expressly grant permission for the copying stated above will render the document unusable for the Regional Board's purposes, and will result in the document being returned to the discharger as if the task had not been completed.

If I have more questions, who do I ask?

Requirements for technical reports normally indicate the name, telephone number, and email address of the regional water board staff person involved at the end of the letter.

[1] All code sections referenced herein can be found by going to www.leginfo.ca.gov . Copies of the regulations cited are available from the Regional Board upon request.

USDA

United States
Department of
Agriculture

**Forest
Service**

Pacific
Southwest
Region

September 2010

Environmental Assessment for White Mountain Group Allotment Analysis

Inyo National Forest

EXHIBIT 2

Table of Contents

Chapter 1: Purpose of and Need for Action

1.1 Background

The White Mountain grazing allotments are located on the eastern slope of the White Mountains in Esmeralda County, Nevada and Mono County, California. The White Mountain allotments stretch from Highway 6 southeast to Deep Springs Valley and from the crest of the White Mountains to Fish Lake Valley. Elevation ranges from approximately 5,600 to over 12,000 feet above sea level. Precipitation ranges from 7 to 18 inches a year.

Historically, there has been sheep and cattle grazing in the entire project area since the late 1800s. Most of the rangelands in this proposal have been grazed under permit with the Forest Service since the creation of the Inyo National Forest in 1907. There are records of previous transient use of the range by large bands of sheep numbering 40,000 and it was at one time part of the historic Great Circle where these and other bands circle the Sierra Nevada from Bakersfield to Sonora Pass.

Today, there are nine grazing allotments in the White Mountains varying in size from 12,240 acres to over 45,000 acres; however significantly fewer acres are capable of supporting livestock grazing. The four allotments subject to this environmental analysis include Davis Creek, Indian Creek, Perry Aiken and Trail Canyon allotments (Table 1). Grazing in the allotments is authorized by term grazing permits that specify the terms and conditions for grazing on the allotment, including the type and timing of livestock as well as any management actions necessary to meet desired rangeland conditions.

Recent assessments of the allotments have identified certain soil, water, and other resource conditions that are or are not meeting or moving toward desired objectives. As described in the Purpose and Need section below, gaps between existing resource conditions and desired conditions indicate a need to change management direction for the allotments.

1.2 Description of Allotments

The four grazing allotments analyzed in this Environmental Assessment include: Trail Canyon, Davis Creek, Indian Creek and Perry Aiken allotments. These four grazing allotments are collectively referred to as the White Mountain Group grazing allotments. The allotments are located southeast of Highway 6, to west of the town of Dyer, Nevada; and from the crest of the White Mountains to Fish Lake Valley. The legal location is as follows: T.1N., R.32E.; T.1N., R.33E.; T.1S., R.32E.; T.1S., R.33E.; T.2S., R.33E.; T.2S., R.34E.; T.3S., R.33E., T.3S., R.34E.; T.4S., R.33E. MDB&M. A location map of the four allotments is displayed below, and more detailed maps by allotment can be found in Appendix A. The Boundary Peak Wilderness, White Mountains Wilderness, and White Mountain Wild Horse Management Area are located within the four allotment areas. Background information on the White Mountain Wild Horse Management Area can be found in the project file. A brief description of the history and current

status of the allotments follows, and can be found in the Rangeland Management Report (Robson and Goehring 2010).

Topography is steep rocky hills with narrow canyons that broaden into glacial valleys near the top of the watersheds. Several high alpine flats are located above 10,000 feet. A significant portion of the allotment acreage is not capable of supporting livestock grazing.

The project area is generally comprised of typical desert mountain range vegetation communities including desert shrub, pinyon-juniper woodland, dwarf alpine scrub, and montane meadow (Soil Survey 1994). Other plant communities in these allotments are mountain mahogany, limber pine, aspen, willow dominated springs, and where soil moisture is sufficient, meadows dominated by graminoid species with patches of willow and wild rose.

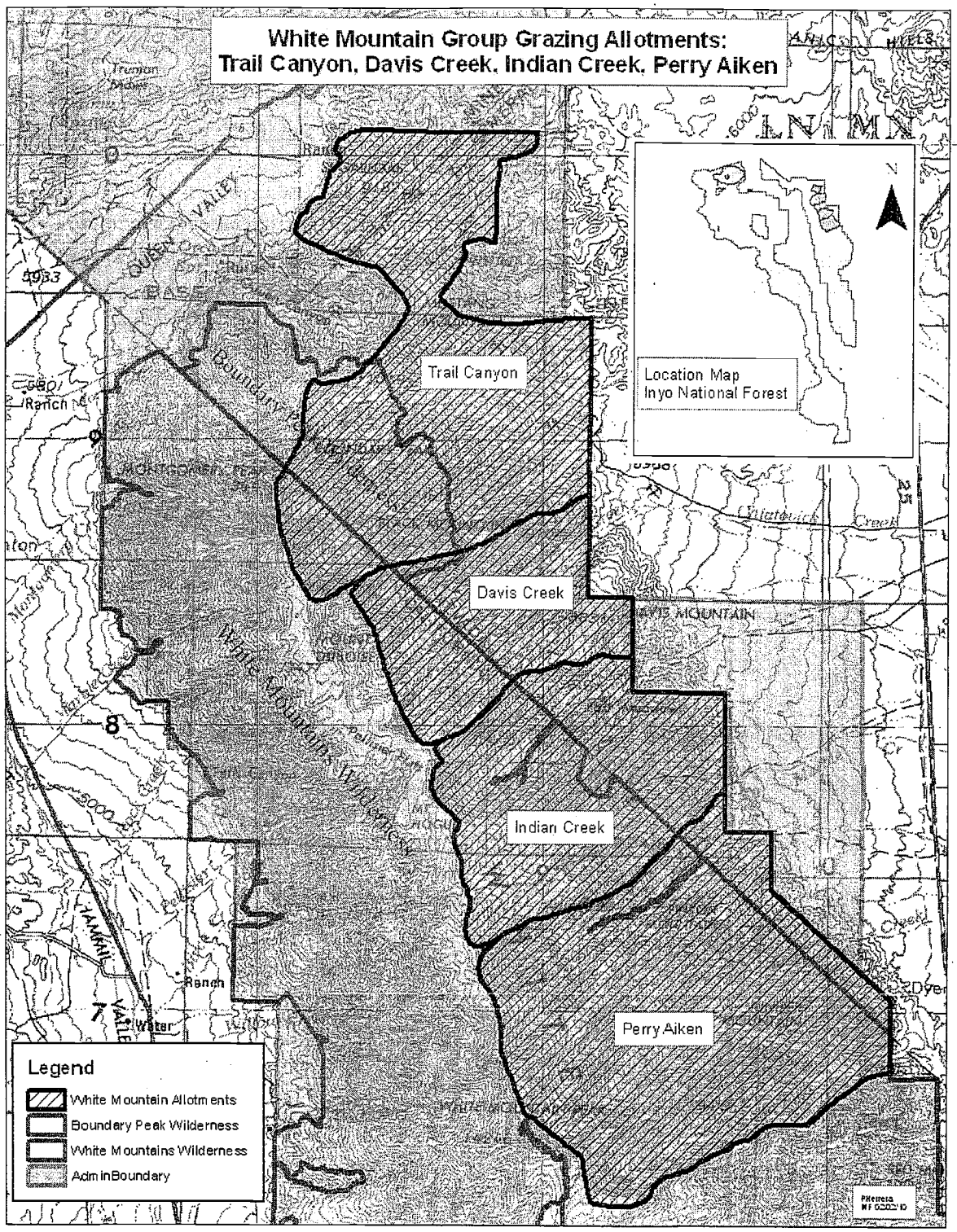

Figure 1. White Mountain group grazing allotments

Table 1. Description of the White Mountain group grazing allotments – Current Management

Allotment	Acreage[a]/Capable	Type	Permitted Use	AUMs	Grazing System[b]
Davis Creek	12,200/5,000	Cattle	154	515	Deferred Rotation
Indian Creek	16,000/4,500	Cattle	120	401	Continuous Season Long Rotation
Perry Aiken	28,500/5,300	Cattle	125	417	Continuous Season Long Rotation
Trail Canyon	27,300/15,400	Cattle	60	201	Deferred Rotation

a - Acreage is rounded to nearest one hundredth
b - A deferred rotation grazing system provides deferred grazing in two or more units or pastures on a systematic basis

1.2.1 Davis Creek Allotment

The Davis Creek cattle and horse allotment is approximately 12,240 acres of National Forest System lands (approximately 5,000 capable acres; see maps in Appendix B) located 7 miles west of state highway 264 in Fish Lake Valley, Nevada. The two streams that drain the allotment; Chiatovich and Davis Creeks drain to the east into the Fish Lake Valley and are eventually diverted for irrigation. Approximately 4,300 acres along the western portion of the allotment overlaps with the White Mountains Wilderness and approximately 200 acres along the northwestern corner of the allotment overlaps with Boundary Peak Wilderness.

Elevation along the stream bottoms ranges from 7,080 to 11,200 feet and is the suitable area for grazing. The primary cattle use areas include Chiatovich Creek (north fork and south fork) and Davis Creek (see maps in Appendix B). Vegetation consists primarily of bitterbrush and bunchgrass in the uplands (upper terraces along the streams) and riparian areas of rushes and sedges.

The Davis Creek allotment has a long history of use that precedes the formation of the National Forest. Historically, from the early 1920s, cattle have grazed the allotment with the exception of 2,000-3,000 sheep that ran from 1927 to 1930. Numbers of cattle have ranged from 150-275, and seasons of use have varied from 3 ½ to 4 ½ months (2210 files). Beginning in 1948, 150 cattle were permitted until 1970 when it was rested until 1975. In 1976 the permit was reduced to 120 cattle [401 Animal Unit Months (AUM)] for a season of 7/1-9/15. The 1981 Range Management Plan for the Davis Creek allotment indicates a 2-pasture deferred rotation grazing system that supported 300 head months (HM) on National Forest System lands (120 cow/calf (c/c) pairs from 7/1-9/15). In 1996 the permit was reissued for 154 c/c pairs for the same time period after the Forest Service acquired the old Chiatovich Ranch lands at the Forest boundary. These lands were previously irrigated meadows that allowed the extra numbers.

Current permitted use is for 154 c/c pair from 7/01 to 9/15, (77 days) allowing for 515 AUMs. The 2007 Term Grazing Permit indicates a deferred grazing system. In the last decade, the current permittee periodically rested the allotment (in 2003, 2006, and 2010).

1.2.2 Indian Creek Allotment

The Indian Creek cattle and horse allotment is approximately 16,000 acres of National Forest System lands (approximately 4,500 capable acres; see maps in Appendix B), of which approximately 10,500 acres overlaps with the White Mountains Wilderness. Indian Creek, the main drainage within the allotment, flows east into Fish Lake Valley and is diverted for irrigation purposes after it leaves the Forest. Cabin Creek drains south into Leidy Creek which is in the adjacent allotment. Elevations range from 6,200 feet at the fence across the mouth of the canyon on Indian Creek to 11,200 feet at Chiatovich Flats. Approximately 2,700 acres of the allotment are suitable of supporting livestock use (see maps in Appendix B). The remaining 13,300 acres are mostly unsuitable due to topography and lack of water. The primary forage is along the two forks of Indian Creek and includes stringer meadows and the associated upland benches. Chiatovich Flats is also good range, but is only available later in the season because of its high elevation. Chiatovich Flats is accessed by a steep trail leading from the head of Indian Creek up for about two miles gaining nearly 2,000 feet in elevation. Upper Cabin Creek is accessible from Chiatovich Flats, but the lower portions of this creek are inaccessible. Maps in Appendix B display the primary cattle use areas along Indian Creek and Chiatovich Flats. Five hundred to 2,000 sheep periodically used the allotment up until 1945. During this period there were also 180 cattle permitted (it is not clear from the records if cattle and sheep were ran simultaneously) with a season of use from 6/1 to 11/15, depending on the class of livestock using the allotment. In 1976, the term grazing permit was reduced from 180 head of cattle to 120 head of cattle for a season of 7/1 to 9/15. In 1975 and 1976 several meadows were burned within the Indian Creek allotment to reduce the woody brush species encroaching on the meadows and increase forage for livestock and wild horses.

The most recent permit, which was cancelled in 2009 was for 120 cow calf pairs from 7/1 to 9/15 (401 AUMs) utilizing a continuous-season-long grazing system. The Indian Creek allotment was rested for resource protection in 1996 and 2001. The permittee continued to take non-use of the allotment through 2008 although no Forest Service decision had been made to continue to rest the allotment and the non-use was not authorized. Ultimately, the permit for the allotment was cancelled in 2009 due to unauthorized non-use and is presently vacant.

1.2.3 Perry Aiken Allotment

The Perry Aiken cattle and horse allotment is approximately 28,480 acres (approximately 5,300 capable acres; see maps in Appendix B) located west of Fish Lake Valley and east of White Mountain Peak. The western portion of the allotment overlaps with approximately 26,500 acres of the White Mountains Wilderness. Elevations range from 5,600 at the Forest boundary on Perry Aiken Creek to 12,000 feet on Perry Aiken Flats. It is bordered on the east by Bureau of Land Management (BLM) land, on the north by the Indian Creek allotment and on the south by the vacant Tres Plumas allotment. Leidy Creek and the North and South Forks of Perry Aiken Creek drain within the allotment to the east into Fish Lake Valley. Approximately 2,000 acres are suitable for livestock grazing (Appendix B), with roughly 400 of these acres in the Perry Aiken Flats at over 11,000 feet in elevation. The rest of the suitable range is located

along the creek drainages. Maps in Appendix B display the primary cattle use areas along Leidy Creek, Perry Aiken Creek, and Perry Aiken Flat. The only road on the allotment is on Leidy Creek and the trail access to Perry Aiken Flats is very steep and rough, so access to the suitable areas is very difficult.

The allotment was grazed by sheep prior to the development of the National Forest. Records back to 1941 indicate cattle were permitted with varied numbers from 200 head in 1941 with a season of 6/15 to 10/15 (800 Head Months) to 150 head in 1948 with a season of 7/1 to 9/15 (380 Head Months). The permit was reduced to 125 cattle in 1980. The most recent permit, which was cancelled in 2009 was for 125 cow/calf pairs of cattle from 7/1 to 9/15 (316 AUMs) which graze continuously, season-long, due primarily to the topography of the allotment. Most of the cattle were turned out into the Leidy Creek and Perry Aiken Flat area with about 15 to 20 head distributed along Perry Aiken Creek. The Perry Aiken allotment was rested for resource protection in 1996 and 2001. The permittee continued to take non-use of the allotment through 2008 although no Forest Service decision had been made to continue to rest the allotment and the non-use was not authorized. Ultimately, the permit for the allotment was cancelled in 2009 due to unauthorized non-use and is presently vacant.

1.2.4 Trail Canyon Allotment

The Trail Canyon cattle and horse allotment is approximately 27,309 acres (approximately 15,400 capable acres; see Appendix B), and is located east of Boundary Peak, Nevada, south of Queen Valley, and west of Fish Lake Valley; the Davis Creek allotment is to the south. Elevations range from 6,500 feet at the Forest boundary in Pinchot Canyon to 10,000 feet at the head of Trail Canyon. There are two main streams that drain the allotment to the east, Trail Canyon and Middle Creeks. Dry and Pinchot Creeks are intermittent streams where little use occurs because of lack of consistent water. At one time Queen Canyon was part of the allotment; in 1993 the permittee waived this portion back to the Forest Service (possibly because of the distance from the ranch headquarters). The allotment includes approximately 6,200 acres along the eastern portion of the Boundary Peak Wilderness, and approximately 2,200 acres within the White Mountains Wilderness. The two primary grazing areas inside the wilderness are the upper mile and half of Trail Canyon and Middle Creeks. There is good access to the primary range along the stream bottoms. Maps in Appendix B display the primary cattle use areas along Trail Canyon and Middle Creek.

From 1924 to 1945 between 500 and 3,000 sheep used this allotment. The season varied from yearlong to spring and summer use. In 1934 cattle were permitted on the allotment. Sheep and cattle grazed in common until 1945. Cattle use varied from a low of 10 head in 1937 to a high of 80 head in 1947-49. Seasons varied from 6/15-9/30 to 6/15-9/15. In 1976 the season changed to 7/1-9/15 for 75 head and then further reduced to 60 head in 1977. In 1993, the Queen Canyon portion of the allotment was waived back to the government. The last Allotment Management Plan (AMP) (1981) included Queen Canyon in the rotation at 50 AUMs.

The current permit is for 60 cow/calf pairs from 7/1 to 9/15, or 152 AUMs on National Forest lands. The allotment is supposed to operate in a deferred rotation but the herd is generally placed in Trail Canyon for the beginning of the grazing season and then moved to Middle

Creek for the later portion of the grazing season. The permittee rested the allotment in 2003, 2005, and 2006.

1.3 Purpose and Need

1.3.1 Purpose

The site-specific purpose for the proposed action is twofold. First is to continue to permit livestock grazing within the allotments. Second and inter-related is to design and implement an adaptive management system that will move resource conditions from the existing conditions toward the desired conditions for the resource ecosystems in a manner that is timely and consistent with LRMP objectives, standards and guidelines as they relate specifically to livestock grazing and associated activities, and addresses how the proposed action will respond to this direction.

Authorization of livestock grazing and management in an adaptive manner is appropriate on the project area because:

- Where consistent with other multiple use goals and objectives there is Congressional intent to allow grazing on suitable lands. (Multiple Use Sustained Yield Act of 1960, Wilderness Act of 1964, Forest and Rangeland Renewable Resources Planning Act of 1974, Federal Land Policy and Management Act of 1976, National Forest Management Act of 1976).
- The allotments contain lands identified as suitable for domestic livestock grazing in the Inyo National Forests Land and Resource Management Plan (LRMP or "Forest Plan") and continued domestic livestock grazing is consistent with the goals, objectives, and standards and guidelines of the Forest Plan (LRMP pages III-45, IV-67, IV-84-86, IV-134-135, and IV-210-212).
- It is Forest Service policy to make forage available to qualified livestock operators from lands suitable for grazing consistent with land management plans (FSM 2203.1; 36 CFR 222.2 (c)).
- It is Forest Service policy to continue contributions to the economic and social well being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on range resources for their livelihood (FSM 2202.1).
- The Inyo Forest Plan, which directs the management of lands contained within this project area, has as one of its standards and guidelines to "Provide grazing tenure to lend stability to the local livestock-raising community and established ranching operations".

1.3.2 Need

The site-specific need for the proposed action is based on knowing that a change in management needs to occur. This need for a change in management is identified by comparing what currently exists on the

landscape in the White Mountains to specific descriptions of what should exist in those different community types across the project area.

- There is a need for change from current management, as some specific areas on allotments within the project area may not be meeting or moving toward desired conditions in an acceptable timeframe.
- The need for action is created by the disparity between what is present (existing condition) and what is wanted (desired condition). The specific action needs for those areas which are not meeting or moving toward desired conditions in an acceptable timeframe are summarized in Table 3.

1.4 Desired Condition

Desired conditions are the on-the-ground resource conditions that management is working toward within a defined timeframe. These are the expected results if management goals are fully achieved. They bring broad scale desired conditions from the Forest Plan down to project level.

Table 2. Desired future conditions for ecosystem communities within the project area

Community Type	Desired Future Condition
Alpine Dwarf Shrub	At least 40 hits tallied on herbaceous species per 100 point transect with at least 38 of these hits tallied being desirable species including bluegrasses, June grass, squirrel tail grass and low sage. Properly functioning water, soil and vegetation cycles. Achieve or maintain satisfactory range condition on all rangeland in this community type
Alpine Meadow	At least 40 hits tallied on herbaceous species per 100 point transect with at least 38 of these hits tallied being desirable species including sedges, bluegrasses, hairgrass and oatgrass. Properly functioning water, soil and vegetation cycles. Achieve or maintain satisfactory range condition on all rangeland in this community type.
Wet Meadow	At least 68 hits tallied on herbaceous species per 100 point transect with at least 68 of these hits tallied being desirable species including primarily sedges. Properly functioning water, soil and vegetation cycles. Mixed native grass and forb communities provide a mosaic of plants with species diversity, a variety of vegetative structures and sufficient amounts of litter. Graminoid communities show vigor. Bare ground less than 5%. Achieve or maintain satisfactory range condition on all rangeland in this community type.
Moist Meadow	At least 55 hits tallied on herbaceous species per 100 point transect with at least 51 of these hits tallied being desirable species including sedges and bluegrasses. Properly functioning water, soil and vegetation cycles. Diverse mix of riparian graminoids and forbs present with significant proportions of riparian species relative to moisture availability. Bare ground less than 5%. Graminoid communities show vigor. Achieve or maintain satisfactory range condition on all rangeland in this community type.
Aspen	Aspen communities with diverse age structure of 2 or more age classes including seedlings, young plants, mature plants, decadent plants and sprouts or suckers in addition to adequate regeneration.
Shrublands (excluding willow)	At least 38 hits tallied on herbaceous species per 100 point transect with at least 29 of these hits tallied being desirable species including needlegrass, ricegrass and squirrel tail grass. Vigorous growth and regeneration of mid-late seral shrub species interspersed with a variety of native grasses and forbs. Properly functioning water, soil and vegetation cycles. Achieve or maintain satisfactory range condition on all rangeland in this community type.
Streams & Riparian areas	Properly functioning water, soil and vegetation cycles; reproducing riparian plant communities, at least 80% of the potential vegetative cover along streams; stable, defined channels with appropriate width/depth ratios for stream type; less than 20% of streambank actively eroding (10% in Paiute cutthroat trout occupied or essential habitat); balanced erosion/deposition levels. Maintain at least 80% of potential ground cover within 100' from the edges of all perennial streams, or to the outer margin of the riparian ecosystem, where wider than 100 feet. Plant species may include sedges, rushes, tufted hairgrass, willow, birch, aspen and cottonwood of mixed age class. In woody systems, riparian shrubs cover of at least 35% to include a variety of species. Achieve or maintain satisfactory range condition on all rangeland in this community type.

Table 3. Allotment-specific need for action based on specific areas not meeting or moving toward desired conditions in an acceptable timeframe

Allotment	Key Area	Desired Conditions (DC) (see Table 2)	Existing Conditions[1]	Need for Action
Davis Creek	DC-1 Upper Chiatovich	Manage for Wet Meadow desired conditions. By 2020 achieve at least 95% of possible total herbaceous species numbers and 90% of possible desirable species composition dominated by native grass, sedges and forb species. Manage for Streams and Riparian areas desired conditions. By 2015 achieve upward trends that show an improvement in riparian vegetation cover including streambank protection. Headcuts will be stable and no longer expanding and hummocks will not have expanded.	Upper Chiatovich riparian/meadow vegetation has slight departure from Desired Conditions (DC) (too few desirable species) but in good vegetation condition. This area is currently grazed season long by about 30 pair. Upper Chiatovich riparian and watershed conditions are non-functioning as a result of excessive hummocks, and headcuts. Proper Functioning Condition assessment on Upper Chiatovich meadow is Functional-at-Risk (FAR) with a non-apparent trend.	Maintain or Improve vegetation conditions in Upper Chiatovich Creek meadow by maintaining or increasing desirable species numbers. [LRMP pg. 85-86, LRMP Amendment 6]. Improve watershed conditions on Upper Chiatovich Creek by allowing headcuts to heal and reducing the expansion of hummocks. [LRMP pg. 89-91/ LRMP Amendment 6].
	DC-2 Lower Chiatovich	Manage for Wet Meadow and Streams and Riparian areas desired conditions.	Lower Chiatovich near Forest Boundary has a R5 rooted frequency plot that was established in 2002. Vegetation condition is high but overall site condition was low. This area receives very heavy utilization.	Establish a new key area in the wet meadow on lower Chiatovich Creek meadows near Forest Boundary and set allowable use standards at 45% until proper assessments are made.
	DC-3 Chiatovich Upland	Manage for Shrublands desired conditions.	Upland vegetation and watershed condition is unknown within uplands, specifically in sage grouse habitat.	Establish a new key area in the uplands surrounding key area DC-1 and set allowable use standards at 50% until proper assessments are made.

Allotment	Key Area	Desired Conditions (DC) (see Table 2)	Existing Conditions[1]	Need for Action
Indian Creek	IC-1 Chiatovich Flats Upland	Manage for Alpine Dwarf Shrub desired conditions. Maintain watershed conditions at DC and maintain a static or upward trend.	Chiatovich Flats Upland is slightly below DC due to low number of desirable species but still in good condition. Watershed conditions are Fully-Functional. This area has not been grazed since 2000.	Maintain or improve vegetation conditions at Chiatovich Flats Upland by maintaining or increasing desirable species numbers. [LRMP pg. 85-86, LRMP Amendment 6].
	IC-2 Chiatovich Flats Meadow	Manage for Alpine Meadow desired conditions and Streams and Riparian areas desired conditions. By 2015 achieve upward trends that show an improvement in riparian vegetation cover, including streambank protection and decrease in unnatural bare ground. Hummocks will not have expanded.	Chiatovich Flats Meadow is at DC for vegetation condition. Riparian/watershed condition is Degraded and is Functional-at-Risk (FAR) because of excessive exposed banks, bare ground and hummocks, however there is an upward trend. This area has not been grazed since 2000.	Improve watershed and soil conditions in Chiatovich Flats and Cabin Creek Riparian areas by increasing ground cover, riparian vegetation, allowing headcuts to heal and reducing the expansion of hummocks. [LRMP pg. 89-91/ LRMP Amendment 6].
	IC-3 Cabin Creek	Manage for Moist Meadow desired conditions and Streams and Riparian areas desired conditions. By 2015 achieve upward trends that show an improvement in riparian conditions that includes headcuts that are stable and no longer expanding and decreased unnatural bare ground. Hummocks will not have expanded.	Cabin Creek moist meadow is at DC for vegetation condition. Cabin Creek watershed is At-Risk condition primarily due to head-cutting, bare ground and hummocks, but the stream is at Proper Functioning Condition (PFC) with an upward trend. This area has not been grazed since 2000.	
	IC-4 Chiatovich Flat	Manage for Shrublands desired conditions.	Upland vegetation and watershed condition is unknown	Establish a new key area in the uplands within the

Allotment	Key Area	Desired Conditions (DC) (see Table 2)	Existing Conditions[1]	Need for Action
	Sagebrush		within uplands, specifically in sage grouse habitat.	Chiatovich Flat area and set allowable use standards at 50% until proper assessments are made.
Perry Aiken	PA-1 Perry Aiken Flat	Manage for Alpine Meadow desired conditions. Maintain vegetation conditions at DC and maintain a static or upward trend.	Perry Aiken Flat alpine meadows are at DC for vegetation conditions. Perry Aiken Flat meadows are in At-Risk watershed condition with slight departure from DC due mostly to inadequate vegetation cover. This area has not been grazed since 2000.	Improve watershed and soil conditions in Perry Aiken Flat alpine meadows by increasing vegetation cover on meadows and ephemeral channels. [LRMP pg. 89-91/ LRMP Amendment 6].
	PA-2 Perry Aiken Flat Uplands	Manage for Alpine Dwarf Shrub desired conditions. By 2020 achieve at least 80% of potential total herbaceous species numbers and 82% of potential desirable species composition (or 1 condition class in the amendment 6 matrices) dominated by native grass, sedges and forb species with an upward trend.	Perry Aiken Flat upland is in Fair condition because of too few desirable plant species. Watershed conditions are Fully-Functional. This area has not been grazed since 2000.	Improve vegetation conditions at Perry Aiken Flat uplands by increasing the number of desirable species. [LRMP pg. 85-86, LRMP Amendment 6].
	PA-4 Busher Canyon Springs	Manage for Alpine Meadow desired conditions. Maintain vegetation conditions at DC and maintain a static or upward trend. Manage for Streams and Riparian areas desired conditions. By 2015 achieve upward trends that show an improvement in riparian conditions that includes headcuts that are stable and no longer expanding and decreased in unnatural bare ground. Hummocks will not have expanded.	Busher Canyon Springs alpine meadows are at DC for vegetation conditions. Busher Canyon Springs is Functional-at-Risk (FAR), with an upward trend and Degraded watershed condition due primarily to hummocks. This area has not been grazed since 2000.	Reduce the expansion of hummocking in Busher Canyon Springs [LRMP pg. 89-91/ LRMP Amendment 6].

Allotment	Key Area	Desired Conditions (DC) (see Table 2)	Existing Conditions[1]	Need for Action
Trail Canyon	TC-1 Trail Creek Meadows, above roads end	Manage for Moist Meadow desired conditions. Maintain vegetation conditions at DC and maintain a static or upward trend. Manage for Streams and Riparian areas desired conditions. By 2015 achieve upward trends that show an improvement in riparian conditions especially soil disturbance and compaction. Hummocks will not have expanded.	Trail Creek Meadows above roads end, is at DC for vegetation condition. Watershed conditions for Trail Creek Meadows above roads end is in At-Risk condition with a slight departure from DC due to soil disturbance and compaction. The stream is at Proper Functioning Condition (PFC).	Improve watershed and soil conditions in Trail Creek above roads end and section 8 springs area by reducing soil disturbance/compaction and hummocking. [LRMP pg. 89-91/ LRMP Amendment 6].
	TC-2 Section 8 Springs		Section 8 Springs is at DC for vegetation condition. Section 8 Springs is in At-Risk watershed condition due primarily to hummocks and some soil compaction but is at Proper Functioning Condition (PFC).	
	TC-3 Lower Trail Creek, below roads end		Lower Trail Creek below roads end is at DC for vegetation condition. Lower Trail Creek below roads end is in Fully-Functional watershed condition and at Proper Functioning Condition (PFC).	
	TC-4 Middle Creek	Manage for Wet Meadow and Stream and Riparian areas desired conditions. Maintain vegetation and watershed conditions at DC and maintain a static or upward trend.	Middle Creek is at DC for vegetation condition. Middle Creek is in Fully-Functional watershed condition.	

[1] Existing conditions as determined by (LRMP Amendment No.6, 1995) and Proper Functioning Condition (USDI-USDA, TR 1737-16 2003), data collected in 2007-08 and available in project record. A summary of the vegetation and watershed condition data can be found in Appendix D.

1.5 Forest Plan Direction

The desired future conditions for the White Mountain Grazing allotments are described in the Inyo National Forest LRMP (USDA Forest Service, 1988), as amended by LRMP Amendment 6, Forest-wide Range Utilization Standards (USDA Forest Service, 1995).

1.5.1 Inyo National Forest Land and Resource Management Plan (1988)

The Inyo National Forest LRMP established Forest Management Direction (LRMP IV), including forest goals, forest objectives, standards and guidelines, management prescriptions, and management area direction. The standards and guidelines set the minimal resource conditions for vegetative diversity and range resources. The standard and guidelines that pertain to the proposed action and analysis area are described in detail in the Range Management Report (Robson and Goehring 2010). When more than one standard and guideline address the same resource or concern, generally the more stringent standard is applied.

1.5.2 Inyo National Forest LRMP Amendment 6 – Forest-wide Range Utilization Standards (1995)

This document sets utilization standards for the grazing of domestic livestock that would accelerate the restoration and improvement of degraded range sites, and maintain those sites currently in good condition. A vegetation condition classification determined by toe-point transects compares the total number of desired species within a given area to the total number of herbaceous plants counted. This vegetation composition is applied to the utilization matrices—along with the watershed evaluation criteria—to determine proper use levels for a key area (LRMP Amendment No.6, 1995). These utilization levels are set as a percentage of weight of a forage species that is allowed to be utilized by livestock. Standards are determined based on vegetation types within the project area including: wet meadow, moist meadow, alpine meadow, desert shrub, and alpine dwarf shrub. These are presented in tables in the LRMP Amendment 6 that have a different allowable use standard for early season use such as before seed head formation and late season use after seed maturity).

1.5.3 Sierra Nevada Forest Plan Amendment Range Standards and Guidelines (that relate to livestock grazing within project area)

The Sierra Nevada Forest Plan Amendment (2004) amends the Land and Resource Management Plans of the National Forests in the Sierra Nevada to address various changed circumstances and information that was not sufficiently addressed in the original plans. One of these circumstances was to establish grazing utilization standards to better reflect the wide array of site-specific conditions and the management opportunities they may provide. Standards include use of noxious weed-free hay, streambank disturbances (specifics for TES and essential habitats), proper functioning condition (PFC) assessments, protection of bogs and fens from livestock trampling, placement of livestock handling facilities, utilization/bare ground, and trend for meadow areas and riparian browse use. The specific standards for grazing use are

addressed in the Rangeland Management Report (Robson and Goehring 2010) and can be found in the Sierra Nevada Forest Plan Amendment Record of Decision (USDA Forest Service 2004).

1.6 Public Involvement

The proposal has been listed in the Inyo National Forest Schedule of Proposed Actions (SOPA) since April 2008. The scoping notice was sent to 13 interested parties in a letter dated February 2, 2009, including representatives of tribal organizations. A display advertisement announcing project scoping was published in the Forest's paper of record, the *Inyo Register*, on February 7, 2009. The proposed action was posted on the Inyo National Forest website on February 6, 2009. Four letters were received in response to scoping, two of which provided specific comments on the proposed action. Western Watersheds Project provided comments related to NEPA procedures (i.e. level of NEPA analysis and range of alternatives) and identified specific resource issues that should be addressed. The Nevada Department of Wildlife provided comments specifically related to Greater Sage Grouse and grazing management considerations. A summary of the comments received during public scoping is provided in the project file.

A preliminary EA (June 2010) was mailed to interested parties and a legal notice requesting comment on the preliminary EA was published in the Inyo Register on June 24, 2010. Comments were received from three organizations/agencies, including Western Watersheds Projects, Lahontan Regional Water Quality Control Board, and Nevada Division of Wildlife. Each of these comments was received prior to the end of the 30-day comment period. Responses to these comments can be found in Appendix E, and within the project file.

1.6.1 Issues

An issue is a point of debate, dispute, or disagreement regarding anticipated effects of the proposed action. Issues may be "significant" or "non-significant." Significant issues are defined as those directly or indirectly caused by implementing the proposed action. Significant issues are used to develop reasonable alternatives to the proposed action that respond to the argument or controversy presented in the issue and substantially accomplish the purpose and need. Non-significant issues are identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) not clearly relevant to the decision to be made; or 4) conjectural and not supported by good scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)."

To develop issues for the proposed project, the ID Team analyzed comments from the public and separated the issues into two groups: significant and non-significant issues. After analysis of the

comments, it was determined that there were no significant issues that resulted in the development of additional alternatives to be analyzed in detail. The Western Watersheds Project recommended four additional alternatives, including the No action alternative, Sage Grouse Conservation Alternative, Resource Conservation Alternative, and Current Management Alternative. The No action alternative is included in the EA as an alternative considered in detail, however there were no specific actions identified for the Sage Grouse Conservation Alternative and Resource Conservation Alternative, as described under Alternatives Considered, But Eliminated From Detailed Study (section 2.3). The Current Management Alternative is also discussed under Alternatives Considered, But Eliminated From Detailed Study (section 2.3).

Chapter 2: Alternatives

2.1 Introduction

This section describes the proposed action and alternatives to the proposed action, including a no action alternative, sage grouse conservation alternative, resource conservation alternative, and current management alternative. Management practices or resource protection measures designed to minimize or eliminate environmental effects have been incorporated into the proposed action. Maps for each allotment can be found in Appendix A, which display the boundaries of the allotments and the key areas. Appendix B contains maps which display the capable areas and primary cattle use areas (suitable areas).

2.2 Alternative Development Process

This chapter describes in detail two alternative ways to manage livestock grazing practices on lands and resources, Alternative 1 (no grazing) and Alternative 2 (proposed action). The proposed action was developed following direction from the District Ranger in consultation with the Forest range and resource staff. The Forest's LRMP Amendment 6 provides a framework for developing utilization standards for domestic livestock that considers watershed condition and vegetative condition by specific habitat types.

The Inyo National Forest Land and Resource Management Plan (USDA Forest Service, 1988), Forest Plan Amendment 6: Forest-wide Range Utilization Standards (USDA Forest Service, 1995), and the Sierra Nevada Forest Plan Amendment (SNFPA) (USDA Forest Service, 2004) provide direction and the desired conditions for vegetation, riparian, aquatic, hydrology, water quality, soil, plant, wildlife, and heritage resources. Resource condition assessments in 2007 and 2008, along with grazing history and monitoring data, provided the means to assess the difference between existing conditions and desired conditions. With this comparison, management actions were identified and a proposed action was developed. The implementation of LRMP Amendment 6 for each allotment formed the basis of the proposed action. Appendix D summarizes the existing vegetation and watershed condition and need for action for each of the allotments.

Two alternatives were analyzed in detail, and they include: Alternative 1 (no grazing) and Alternative 2 (proposed action). Three alternatives were considered based on comments received during public scoping, but were eliminated from detailed study, and they include: Sage Grouse Conservation Alternative, Resource Conservation Alternative, and Current Management Alternative.

2.3 Alternatives Considered But Eliminated From Detailed Study

2.3.1 Sage Grouse Conservation Alternative

The Sage Grouse Conservation Alternative would restrict livestock to areas outside of sage grouse use areas and would ensure that residual vegetation heights are maximized to reduce nest predation to protect sage grouse breeding, nesting and brood rearing areas. This alternative was not analyzed in detail because the proposed action alternative incorporates measures that conserve sage grouse and their habitat. The proposed action alternative includes measures to reduce potential disturbance to sage grouse during the breeding and nesting seasons and measures to maintain suitable habitat. For example, the proposed action delays the start of grazing within suitable sage grouse nesting habitat until after July 1 to reduce disturbance during the breeding season. The proposed action establishes two key areas within upland vegetation types, specifically within sage grouse habitats. The proposed action also includes allowable use standards within key areas based on existing vegetation conditions and by vegetation community type (i.e. wet meadows, upland, and riparian), and applies grazing management techniques (i.e. rotating use) to keep livestock distributed as evenly as possible throughout suitable rangelands within pasture or herd areas, as part of maintaining suitable sage grouse habitat.

2.3.2 Resource Conservation Alternative

The Resource Conservation Alternative would protect all sensitive wildlife and plant habitat on the allotments to conserve the many sensitive species, wild horses, wildlife, cultural, and scenic resources, and end grazing within the boundaries of designated Wilderness and Wilderness Study Areas. This alternative was not analyzed in detail because no specific actions were provided in the comments received during public scoping that made this alternative different than the proposed action alternative. The proposed action alternative incorporates measures that conserve sensitive resources, and is consistent with the Congressional Grazing Guidelines (FSM 2323.22 Exhibit 01) in regards to grazing within National Forest Wilderness Areas. The proposed action alternative incorporates specific actions designed to meet or move toward desired conditions based on watershed and vegetation conditions, following direction outlined in the LRMP Amendment 6: Forest-wide Range Utilization Standards (USDA Forest Service 1995). Resource condition assessments in 2007 and 2008, along with grazing history and monitoring data, provided the means to assess the difference between existing and desired conditions. The proposed action was developed based on the comparison between existing condition and desired conditions for watershed, vegetation, aquatic and terrestrial wildlife, and cultural resources. Eliminating grazing within the wilderness would not be consistent with the Congressional Grazing Guidelines (FSM 2323.22 Exhibit 01) that state: "There shall be no curtailments of grazing in wilderness areas simply because an area is, or has been designated as wilderness, nor should wilderness designations be used as an excuse by administrators to slowly "phase out" grazing. Any adjustments in the numbers of livestock permitted to graze in wilderness areas should be made as a result of revisions in the normal grazing and land management planning and policy setting process, giving consideration to legal mandates, range condition, and the protection of the range resource from deterioration."

2.3.3 Current Management Alternative

Under this alternative, livestock management and use would continue as currently being implemented on the four allotments. The current management alternative was not analyzed in detail because it does not fully meet the purpose and need for the project. There is a need for change from current management, as some specific areas on the allotments are not meeting or moving toward desired conditions in an acceptable timeframe (section 1.3 and 1.4). The proposed action alternative incorporates specific actions designed to maintain or move toward the desired condition as related to the disparity between the existing condition and the desired condition.

2.4 Alternatives Considered in Detail

2.4.1 Alternative 1 – No Grazing

Purpose and Design

Alternative 1 represents the "no grazing" alternative. Under this alternative, all term grazing permits would be cancelled. No permits would be issued for the four affected allotments until and unless a subsequent NEPA decision to re-authorize grazing on any or all of the allotments is made. The purpose of the no action alternative is to describe the effects of cancellation of grazing permits.

In all allotments, permittees would be given two years written advance notice of the cancellation of their permits as provided under 36 CFR 222.4(a)(1).

All range developments currently in existence on the allotments (such as fences and water developments) would be left in place but not maintained. If removal or maintenance of any developments for other resource needs is desired, a subsequent decision would need to be made regarding those developments. Permittees would be reimbursed for their depreciated share of cooperative range improvements where they participated in the development (FSH 1109.13 Chapter 70).

Allotment exterior boundary fences would be assigned to any adjacent permittees for continued maintenance. Private land boundary fences would remain intact with maintenance remaining the responsibility of the private landowner.

No Forest Plan amendments would be required to implement this alternative. Selection of this alternative would be consistent with the Forest Plan, as amended (36 CFR 219.10(c).

2.4.2 Alternative 2 – Proposed Action

The White Mountain Ranger District of the Inyo National Forest proposes to continue to permit livestock grazing by incorporating adaptive management strategies on the four grazing allotments (Davis Creek, Indian Creek, Perry Aiken, and Trail Canyon allotments) within the White Mountain group allotments while meeting INF LRMP direction. The proposed action is designed to maintain trends in vegetation and

watershed conditions where current conditions are satisfactory and functioning, or improve trends where conditions are degraded or non-functional relative to livestock grazing. Collectively, these four allotments cover approximately 84,000 acres of National Forest System lands and private lands within the allotments. Private lands comprise approximately 660 acres within the project area. There are no waived private lands in the project area to be included under Federal management.

The proposed action would:

- Authorize the continued grazing of livestock on the White Mountain allotment group within the analysis area through issuance of a permit for each allotment.
- Implement an adaptive management system to achieve defined desired conditions through design criteria[1], monitoring, and constrained flexibility.
- Implement the following design criteria and specific actions.

Design Criteria Common to All Allotments:

- Livestock will graze in portions of the allotments between the earliest on-date of June 15 and the latest off-date of September 30. On-dates will be based on plant phenology, soil moisture level, annual climate variation, or other site-specific constraints for each key area. Off-date is dependent on level of forage utilization.
- Graze cow/calf pairs (calves less than six months) or cows, calves older than six months (yearlings) or bulls. Number of livestock will be allocated in annual operating instructions based on forage availability.
- Keep livestock distributed as evenly as possible throughout suitable rangelands within pasture or herd areas.
- Keep livestock in the proper pasture during the specified time periods.
- Allowable use levels within and adjacent to key areas will follow Amendment 6 protocols and are displayed by allotment in Tables 5, 6, 7, and 8 under Allotment Specific Actions below. Areas outside of key areas will utilize the use levels in the design criteria in Table 4 established from the Sierra Nevada Forest Plan Amendment (SNFPA) and LRMP Amendment 6 protocol.

[1] Design criteria provide the sideboards to management and define the "constrained flexibility" that adaptive management provides. Design criteria state what constraints will be applied to management.

Table 4. Description of design criteria by vegetation community type

Vegetation Community Type	Design Criteria
	Grazing management standards prescribed to maintain or move toward desired condition
Wet Meadow	• Maximum allowable utilization level 45% or less • Bare ground will not exceed 10% to protect soil
Upland	Grazing management standards prescribed to maintain or move toward desired condition • Maximum allowable utilization level 50% or less • Residual dry matter average of 300 pounds per acre or more to protect soil
Riparian	Grazing management standards prescribed to maintain or move toward desired condition • Maximum allowable utilization level 45% or less • Allowable browse utilization level 20% of annual leader growth of hardwood seedlings and advanced regeneration. • Streambanks will not exceed 20% disturbance per reach.

- Use the Forest Plan Amendment 6 forage utilization matrices to adjust allowable use levels based on vegetation composition as measured through methods such as toe- point inventories at five year intervals.
- Use the Forest Plan Amendment 6 forage utilization matrices to adjust allowable use levels based on watershed conditions as measured through methods such as watershed analysis inventories at five year intervals.
- Vegetation composition, structure and watershed condition would be monitored for progress toward desired condition objectives as described in the monitoring plan (section 2.5).
    - Long-term trend monitoring would be conducted in representative designated monitoring areas (DMA)[2] within key community types on a 5-10 year cycle.
    - Streambeds, banks, aquatic habitat, riparian vegetation composition, and structure would be monitored for progress toward desired condition objectives.
    - Evaluate new noxious weed infestations as they are discovered and apply possible treatments as recommended in the Weed Eradication and Control on the Inyo National Forest EA, 2007.
- Ground-disturbing activities such as installation of fences or exclosures would require a heritage resource survey by a Forest Service archaeologist to determine clearance.
- Mitigate for impacts to heritage resources caused by grazing according to the 1996 MOU.
- Maintain post-grazing season forage within each allotment to support wild horse capacity as described in the Wild Horse Management Plan (1976).

[2] DMA's are R5 Long Term Range Monitoring Sites and Key Areas that include rooted frequency, greenline methods, PFC and watershed assessments.

Allotment-Specific Actions

Davis Creek Allotment

Table 5. Utilization levels of the key areas within the Davis Creek allotment based on existing vegetation conditions from the Amendment 6 protocol

Key Area	Key Area Name	Vegetation Type	Allowable Use [b]
DC-1	Upper Chiatovich	Wet Meadow	5%, incidental use[c]
DC-2[a]	Lower Chiatovich	Wet Meadow	45%
DC-3[a]	Chiatovich Upland	Upland	50%

a - DC-2 and DC-3 are new key areas to be established
b - E=early season use, L=late season use
c – DC-1 will be rested until the area moves out of the overall non-functional watershed condition category, as defined in LRMP, Amendment 6.

- Rest the Upper Chiatovich area until the area moves out of the overall non-functional watershed condition, as defined in LRMP Amendment 6.
- Establish a new key area in the wet meadow on lower Chiatovich Creek meadows near the Forest Boundary and set allowable use standards at 45% until proper assessments are made.
- Establish a new key area in the upland (sagebrush) on Chiatovich Creek (within sage grouse habitat) and set allowable use standards at 50% until proper assessments are made.
- Trampling along streambanks will not exceed 20 percent.
- Livestock will not enter portions of the North Fork and South Fork of Chiatovich Creek which has been identified as sage grouse nesting habitat until after the breeding season (July 1).
- If allowable use standards cannot be achieved in the key areas, or livestock distribution is less then desired, or if vegetation and watershed conditions are not being maintained or demonstrating an upward trend, then implement adaptive management options outlined in Table 9.

Indian Creek Allotment

Table 6. Utilization levels of the key areas within the Indian Creek Allotment based on existing vegetation conditions from the Amendment 6 protocol

Key Area	Key Area Name	Vegetation Type	Allowable Use
IC-1	Chiatovich Flats Upland	Alpine Dwarf Shrub	20% BG (Bunchgrasses)
IC-2	Chiatovich Flats Meadow	Alpine Meadow	15% Carex
IC-3[a]	Cabin Creek	Moist Meadow	30%[a] Carex
IC-4 [b]	Chiatovich Flat Sagebrush	Upland	50%

a – Utilization level modified from Amendment 6 standards to meet USFWS requirements for Paiute cutthroat trout
b – New key area to be established

- Rest the Cabin Creek unit every other year.

- Trampling along streambanks within the Cabin Creek unit will not exceed 10 percent. Streambank trampling standards in the rest of the allotment (outside of the Cabin Creek unit), will not exceed 20 percent.
- Within the Cabin Creek unit, utilization on shrubs will not exceed 15 percent annual growth, use on herbaceous plants will not exceed 30 percent.
- Establish a new key area in the upland (sagebrush) on Chiatovich Flat (within sage grouse habitat) and set allowable use standards at 50% until proper assessments are made.
- Livestock will not enter Paiute cutthroat trout habitat (Cabin Creek) until after August 15 to reduce the potential for direct trampling to small larval fish.
- Livestock will not enter the Chiatovich Flats area which has been identified as sage grouse nesting habitat until after the breeding season (July 1).
- If allowable use standards cannot be achieved in the key areas, or livestock distribution is less then desired, or if vegetation and watershed conditions are not being maintained or demonstrating an upward trend, then implement adaptive management options outlined in Table 9.

Perry Aiken Allotment

Table 7. Utilization levels of the key areas within the Perry Aiken Allotment based on existing vegetation conditions from the Amendment 6 protocol

Key Area	Key Area Name	Vegetation Type	Allowable Use
PA-1	Perry Aiken Flat	Alpine Meadow	20% Carex
PA-2	Perry Aiken Flat Uplands	Alpine Dwarf Shrub	15% BG (Bunchgrasses)
PA-4	Busher Canyon Springs	Alpine Meadow	15% Carex

- Trampling along streambanks will not exceed 20 percent.
- Livestock will not enter the Perry Aiken Flat area which has been identified as sage grouse nesting habitat until after the breeding season (July 1).
- If allowable use standards cannot be achieved in the key areas, or livestock distribution is less then desired, or if vegetation and watershed conditions are not being maintained or demonstrating an upward trend toward desired conditions, then implement adaptive management options outlined in Table 8.

Trail Canyon Allotment

Table 8. Utilization levels of the key areas within the Trail Canyon Allotment based on existing vegetation conditions from the Amendment 6 protocol

Key Area	Key Area Name	Vegetation Type	Allowable Use [a]
TC-1	Trail Creek Meadows, above roads end	Moist Meadow	45%E, 35%L Carex
TC-2	Section 8 Springs	Moist Meadow	45%E, 35%L Carex
TC-3	Lower Trail Creek, below roads end	Moist Meadow	45%E, 35%L Carex
TC-4	Middle Creek	Wet Meadow	50%E, 40%L Carex

a - E=early season use, L=late season use

- Minimize period of time spent in Upper Trail Canyon. The season of use should not exceed 4 to 6 weeks or when use standards are met.
- Trampling along streambanks will not exceed 20 percent.
- Livestock will not enter the Sage Hen Flat and Kennedy Flat areas which have been identified as sage grouse nesting habitat until after the breeding season (July 1).
- If allowable use standards cannot be achieved in the key areas, livestock distribution is less then desired, or if vegetation and watershed conditions are not being maintained or demonstrating an upward trend, then implement adaptive management options outlined in Table 9.

Table 9. Possible grazing management actions employed in adaptive grazing management and applied through annual operating instructions

Grazing Management Actions[a]
Adjust stocking rate to light, moderate or heavy grazing intensity (light refers to fewer number of animals grazing for a longer period of time; heavy refers to larger number of animals grazing for a shorter period of time)
Implement alternative riparian grazing dates based upon specific conditions (topography, range rider, upland water sources, livestock use patterns)
Use of salt or supplement to draw livestock toward or away from specific areas
Incorporate a range rider to move livestock from riparian areas (herding)
Incorporate use of herding dogs to move livestock from riparian areas
Change season of use – do not exceed permitted animal unit months (stocking rate)
Change animal numbers – do not exceed permitted animal unit months (stocking rate)
Change animal class – do not exceed permitted animal unit months (stocking rate)
Change number of days of livestock utilization
Adjust utilization levels based on the current vegetation and watershed condition, per Amendment 6 protocol.
Defer livestock turn-on date
Rest from livestock grazing for one or more seasons
Do not allow livestock grazing
Construct temporary electric fence to control livestock distribution patterns or exclude livestock from specific areas
Construct permanent fence to control livestock distribution patterns or to exclude livestock from specific areas
Implement two-unit deferred grazing system
Implement three-unit deferred grazing system
Implement four or greater-unit deferred grazing system
Implement a high-intensity/short duration grazing system (by riding, herding, temp. fence, etc.)
Implement a low-intensity/short duration grazing system
Implement rest-rotation grazing system
Implement multiple unit rotation with forage reserves

a - Possible management practices are designed to be used alone or in combinations in order to achieve management objectives.

2.5 Monitoring

In addition to range readiness inspections, at least 20 percent of the key areas will have implementation monitoring occur annually and include methods such as: forage utilization, ground cover percentage estimates, streambank trampling monitoring, and snapshots at designated photo-points. Key areas that do not meet standards will automatically be monitored the following year. This monitoring (implementation monitoring) determines if activities are implemented as designed. These standards are listed under the proposed action and are part of the allotment management plan (AMP) and annual operating instructions

(AOI). Adaptive management tools help achieve these standards in the short term by providing various management options.

Designated Monitoring Areas (DMAs) are key areas and R5 long-term range monitoring plots where vegetation and watershed conditions are assessed to establish trend data. This is typically done at 3-10 year intervals. This "effectiveness monitoring" determines if activities are effective in meeting objectives (moving toward desired conditions). As established through the LRMP and amendments, grazing standards have been determined to attain or move vegetation communities and watersheds towards desired conditions.

Forage utilization levels are specified clearly in AMPs and AOIs, and permittees are aware of the importance of meeting these vegetation use standards. These standards serve as triggers for changes in management if monitoring shows they have been ineffective in moving toward desired condition.

Permittees are responsible for monitoring forage utilization in the allotments throughout the grazing season and the INF completes a formal utilization inspection near the end of grazing season (as the 20 percent of the key areas annual monitoring). In addition, mid-season spot checks may also be completed to monitor forage utilization. If a pasture or unit consistently cannot meet the allowable utilization standards, adjustments in management through the adaptive management process may be necessary. If allowable use standards are being met and effectiveness monitoring indicates static or downward trend in vegetation or watershed conditions, adjustments in utilization standards may be necessary.

Table 10. Monitoring plan

Monitoring Item	Method	Frequency	Threshold: Action to be Taken
Implementation Monitoring (Permit Administration)			
Upland utilization	Height/weight curves, Ocular, Key Species	At least one of the two upland key areas annually. More frequently if expected that utilization limits may be exceeded.	Allowable utilization levels are exceeded: *Implement adaptive management options (Table 9).*
Riparian utilization	Key Species, Stubble height, Height/Weight Curves, Photo Points	More frequently if expected that utilization limits may be exceeded. The Cabin Creek Unit would be monitored annually (post-grazing). During the first year, baseline monitoring data for the Cabin Creek Unit would be collected prior to grazing.	Allowable utilization levels are exceeded: *Implement adaptive management options (Table 9).*
Streambank Stability/Disturbance	Multiple Indicator Monitoring (MIM), Alteration by livestock, Stability and Cover, Point Method, Photo Points	20% of key areas annually. More frequently if streambank disturbance limits may be exceeded. The Cabin Creek Unit would be monitored annually.	Streambank disturbance limit is exceeded (note 10% trampling standard for Cabin Creek): *Implement adaptive management options (Table 9).*
Browse utilization	Woody Species Regen., Woody species use, Extensive Browse	20% of key areas annually. More frequently if expected that utilization limits may be exceeded.	Allowable utilization levels are exceeded: *Implement adaptive management options (Table 9).*
Effectiveness Monitoring			
Riparian Ecologic Condition and Trend	Rooted Frequency, Greenline MIM, PFC, Photo Points, BMP, Amendment #6	Each key area every 3-5 years	Downward trend: *Implement adaptive management options (Table 9).*
Upland Ecological Condition and Trend	Line Intercept, Toe Point, Shrub age and form Class, Amendment #6	Each key area every 3-5 years	Downward trend: *Implement adaptive management options (Table 9).*
Heritage Resources At Risk or Potentially At Risk	Systematic Field Visits Photo Point Monitoring	Five sites within the High Use Areas identified as potentially at risk monitored annually.	Potential adverse effects to heritage resources would initiate implementation of standard resource protection measures or formal NRHP evaluation to avoid adverse effects.

Chapter 3: Environmental Consequences

3.1 Introduction

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It describes the environmental impacts of the proposal in relation to whether there may be significant environmental effects as described at 40 CFR 1508.27. Further analysis and conclusions about the potential effects are available in resource specialist reports and other supporting documentation located in the project record. These reports contain more detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the resource specialist relied upon to reach the conclusions in this EA. The following documents are incorporated by reference and available upon request:

- Biological Assessment for the Paiute Cutthroat Trout within the Indian Creek Grazing Allotment. Lisa Sims, Forest Fish and Aquatic Biologist, October 21, 2009.
- Biological Evaluation for Aquatic Species for the White Mountain Range Allotments. Lisa Sims, Forest Fish and Aquatic Biologist. August 6, 2009.
- Biological Evaluation for Aquatic Species for the White Mountain Range Allotments- Addendum. Lisa Sims, Forest Fish and Aquatic Biologist. September 1, 2010.
- Biological Evaluation for Sensitive Plant Species for the White Mountains Grazing Allotments . Sue Weis, Inyo National Forest Botanist. September 9, 2010.
- Biological Evaluation/Assessment for Terrestrial Wildlife for the White Mountain Grazing Allotments. Leeann Murphy, Wildlife Biologist, Inyo National Forest. September 21, 2010.
- Heritage Resource Report for White Mountain Range Allotments EA (R2007050401275). Michael L. Elliott, Archaeologist, USDA Forest Service Mountain Heritage Associates Enterprise Unit. January 15, 2010.
- Hydrology and Soils Input for the White Mountains Allotment EA. Erin Lutrick, Forest Hydrologist. Updated September 15, 2010.
- Inyo National Forest Land and Resource Management Plan. 1988.
- Inyo National Forest Land and Resource Management Plan Amendment 6, Forest-wide Grazing Utilization Standards. 1995.
- Inyo National Forest Land and Resource Management Plan Amendment, Sierra Nevada Forest Plan Amendment. 2004.

- Management Indicator Species Analysis for the White Mountain Grazing Allotment Project . Leeann Murphy, Wildlife Biologist, Inyo National Forest and Lisa Sims, Inyo National Forest Fisheries Biologist. September 17, 2010.
- Noxious Weed Risk Assessment for the White Mountains Grazing Allotments (revised). Sue Weis, Botanist, Inyo National Forest. April 28, 2010.
- Rangeland Management Report for the White Mountain Group (Amendment). Analysis completed by Joseph Robson (former Forest Range Management Specialist, INF) and amended by Brianna Goehring, Rangeland Management Specialist, White Mountain and Mount Whitney Ranger Districts. September 17, 2010.
- Social and Economic Effects Analysis. Joseph Robson, Forest Rangeland Management Specialist. June 23, 2009.
- White Mountain Grazing Project Screening Tool. Project screening tool to integrate climate change considerations into project planning. Interdisciplinary input led by Leeann Murphy, Wildlife Biologist, Inyo National Forest. June 10, 2010.
- Wildlife Specialist Report for the White Mountain Grazing Allotment Project. Leeann Murphy, Wildlife Biologist, Inyo National Forest. September 17, 2010.

3.2 Effects Relative to Significant Issues

No significant issues were raised during scoping as discussed in section 1.6.

3.3 Effects Relative to Pertinent Resources

3.4 Range Conditions

The Rangeland Management Report (Robson and Goehring 2010) provides a detailed analysis of range vegetation condition by allotment. Site specific data for each allotment were analyzed and summarized within the report to show existing resource conditions and trends in comparison with desired conditions outlined in the Inyo National Forest LRMP Amendment 6 (USDA Forest Service 1995) and the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004). An overall summary of the analysis for the White Mountain Group allotments is provided below.

The existing condition and current knowledge related to climate change for the White Mountains is also summarized below under section 3.4.2.

3.4.1 Existing Condition of the White Mountain Allotments

The existing vegetation conditions are described by allotment below. The vegetation and grazing system matrices in the Inyo National Forest LRMP Amendment 6 provides the basis for determining vegetation conditions ranging from desired condition (excellent vegetation condition) to non-functioning (very poor vegetation condition). Field surveys established vegetation condition classifications of the key areas (data sheets available in project record) to determine if desired conditions are being met. Departures from desired condition, described below as "a slight departure" (good to fair vegetation condition) or "a moderate departure" (poor vegetation condition), is describing the next lower vegetation condition class from the LRMP Amendment 6 matrices, with desired condition being at the top.

Proposed utilization standards, as described in the proposed action (Tables 5, 6, 7, and 8) are designed to accelerate the restoration and improvement of degraded range sites and to maintain those sites currently in good condition. A vegetation classification determined by toe-point transects compares the total number of desired species within a given area to the total number of herbaceous plants counted. This vegetation composition is applied to the utilization matrices along with the watershed evaluation criteria to determine proper use levels for a key area (LRMP Amendment 6; USDA Forest Service 1995). These utilization levels are set as a percentage of weight of a forage species that is allowed to be utilized by livestock. In many cases, there is a different allowable use standard for early season use (before seed head is formed) and late season use (after seed maturity).

One hundred twenty aspen stands (totaling 903 acres) have been identified from existing vegetation layers (ev_mid_83 and PNV) in the project area. Eleven of these aspen stands were visited and evaluated in 2009 and 2010. None of the stands were determined to be at risk from cattle grazing effects since only minor browsing was observed.

Davis Creek Allotment

Vegetation Conditions

Vegetation on the upper meadow of Chiatovich Creek (DC-1)--wet meadow, is in good condition (Table 11). Four aspen stands have been assessed for overall aspen stand condition within this allotment. Three of these stands rated as low risk and one was in moderate risk condition. Moderate risk was determined for this stand due to overall canopy loss caused by disease. No livestock grazing impacts were noted for these stands. There are no fens within the allotment.

Table 11. Davis Creek allotment existing vegetation conditions and use standards

Key Area	Range Type	Veg. Comp. (desirable/total)[a]	Watershed Condition[b]
#1	Wet Meadow	57/63 G	NF/FAR, no apparent trend
#2	Moist Meadow	31/31 G	-

a – P=Poor, F=Fair, G=Good, E=Excellent
b – NF = Non-Functional (LMRP Amendment 6, watershed protocol); FAR=Functional at Risk (Proper Functioning Condition Protocol).

Indian Creek Allotment

Vegetation Conditions

Chiatovich Flats Uplands (IC-1) is an alpine dwarf shrub community in good condition (Table 12). The Chiatovich Flats Meadow (IC-2) is an alpine meadow in excellent condition and at desired condition for vegetation. Cabin Creek (IC-3), a moist meadow, is at desired condition as well. The Chiatovich Flats area seemed to be drier than expected during the 2008 field review for the vegetation type present. There are no key areas established along Indian Creek or the South Fork of Indian Creek. Meadows in this area are small (less than a one-tenth acre or overgrown with willows and rose). No fens are located in the allotment.

Aspen stand conditions were determined within four stands in the Indian Creek allotment. These stands rated as low, two in moderate, and one in high. Conditions in the moderate stands showed a lack of regeneration due to the dry nature of the site. The high condition stand was experiencing disease and had a decadent aspen overstory. No livestock impacts were noted for these stands.

Table 12. Indian Creek allotment existing vegetation conditions and use standards

Key Area	Range Type	Veg. Comp. (desirable/total)[a]	Watershed Condition[b]
IC-1	Alpine Dwarf Shrub	32/35 G	Fully-Functional
IC-2	Alpine Meadow	47/52 E	Degraded/FAR, upward trend
IC-3	Moist Meadow	72/73 E	At-Risk/PFC

a –P=Poor, F=Fair, G=Good, E=Excellent
b – Poor, Fair, Good (LRMP Amendment 6 watershed protocol); FAR=Functioning at Risk, PFC=Proper Functioning Condition (Proper Functioning Condition Protocol)

Perry Aiken Allotment

Vegetation Conditions

Perry Aiken Flat (PA-1) is an Alpine Meadow that is in excellent condition for cover and desirable vegetation species density (Table 11). Perry Aiken Flat uplands (PA-2), in an Alpine Dwarf Shrub community, is in fair condition because of too few desirable plant species. Busher Canyon Springs (PA-4) is an Alpine Meadow community in excellent condition. There are potential fens located in the Perry

Aiken Flat area. At this time, aspen stand conditions have not been assessed within the Perry Aiken allotment..

Table 13. Perry Aiken allotment existing vegetation conditions and use standards

Key Area	Range Type	Veg. Comp. (desirable/total)[a]	Watershed Condition[b]
PA-1	Alpine Meadow	54/60 E	At-Risk
PA-2	Alpine Dwarf Shrub	28/28 F	Fully-Functional
PA-4	Alpine Meadow	65/69 E	Degraded/FAR, upward trend

a – P=Poor, F=Fair, G=Good, E=Excellent
b – Poor, Fair, Good (LRMP Amendment 6 watershed protocol; FAR=Functioning at Risk (Proper Functioning Condition protocol)

Trail Canyon Allotment

Vegetation Conditions

Trail Creek Meadows (TC-1) above road's end, the Section 8 Springs (TC-2), and Trail Creek below road's end (TC-3) are moist meadows at desired condition (Table 13). Middle Creek (TC-4) is a wet meadow at desired condition. There is a possible fen above road's ends.

Aspen condition assessments have occurred within two stands in the Trail Canyon allotment. These rated as low and moderate. Conifer overstory was listed as the loss risk issue for the moderate stand. No livestock grazing impacts were noted for these stands.

Table 14. Trail Canyon allotment existing vegetation conditions and use standards

Key Area	Range Type	Veg. Comp. (desirable/total)[a]	Watershed Condition[b]
TC-1	Moist Meadow	63/71 E	At-Risk/PFC
TC-2	Moist Meadow	93/93 E	At-Risk/PFC
TC-3	Moist Meadow	73/74 E	Fully-Functional/PFC
TC-4	Wet Meadow	71/72 E	Fully-Functional

a – P=Poor, F=Fair, G=Good, E=Excellent
b - Poor, Fair, Good (LRMP Amendment 6 watershed protocol; PFC=Proper Functioning Condition (Proper Functioning Condition protocol)

3.4.2 Existing Condition Related to Climate Change for the White Mountain Allotments

Climate change impacts in the Sierra Nevada have been observed in several ways; receding glaciers, less snowpack, warmer winter temperatures, and increased water temperatures in Lake Tahoe (Morelli 2009). Climate change impacts in the White Mountains may be similar to those changes occurring in the Sierra. Precipitation generally comes from snowpack, as within the Sierra, however, the White Mountains are generally a drier range, and melt-off occurs at a more rapid rate than within the Sierra.

Maureen McGlinchy in collaboration with Ron Nielson of the Forest Service-Pacific Northwest Research Station analyzed three different climate scenarios for a large portion of the Inyo National Forest (summarized in Appendix I of Morelli 2009). Due to scientific limitations for gathering microsite data at a project scale, all assumptions about climate change for the project area are done at a larger, geographic scale for the entire forest. The most current predictions for the Inyo National Forest are summarized by McGlinchy and Nielson (2009). For this analysis the climate scenario used to describe potential climate change effects within the project area is the HADLEY CM3 model which shows the most extreme changes in climate change as compared to the MICROC 3.2 medres and CSIRO Mk3.0 models. The scenario used for this analysis is the A2 scenario (see Glossary for definition). This scenario is also the most extreme as compared to the A1B and B1 scenarios. This extreme model and scenario was chosen as it represents the highest amount of change which can occur; the "worst-case" scenario.

Based on this model type and scenario the change in: 1) maximum monthly temperature over a thirty-year period (2070-2100) would increase by 7.5-10 degrees Celsius and up to more than 10 degrees Celsius; 2) minimum monthly temperatures over a thirty-year period (2070-2100) would increase 2 to 4 decrease Celsius; and the 3) relative change in annual precipitation over a thirty-year period (2070-2100) would range from a 20% decrease to a 20% increase based on elevation (McGlinchy and Nielson 2009 in Appendix I of Morelli 2009).

A project screening tool was developed by the Pacific Southwest Research Station to help analyze the impacts of climate change on proposed projects. This worksheet determined that impacts from livestock grazing would not cumulatively impact other resources in the project area, as climate change effects are projected over the long-term (2070-2100) and livestock grazing operations would be occurring over a ten to fifteen year period, which is outside the scope of the predicted effects. Furthermore, livestock grazing management actions would allow for the continuance and in some areas improvement of meadow systems and streambanks (White Mountain Grazing Project Screen Tool 2010).

Based on current vegetation conditions and available water, climate change effects would not impact livestock grazing operations (White Mountain Grazing Project Screening Tool 2010). The predicted changes based on McGlinchy and Nielson (2009) would not begin to occur, at the levels presented, until 2070, which is well beyond the scope of time for this project. Furthermore, the scale at which these effects are predicted are not site-specific. Global Climate Change models are not yet able to resolve the specific impacts of greenhouse gases on local climate patterns. Any specific analyses of the impacts of this project on climate change, or vice versa, would be speculative and are therefore not included. Long term effects cannot be known, however short term or near future effects can be addressed through grazing permit administration (e.g. annual operating plans and/or permit modifications) and adaptive management. The annual authorized use addresses year to year fluctuations in available forage and range readiness dates based on the timing, duration and magnitude of precipitation.

3.4.3 Direct and Indirect Effects of No Grazing (Alternative 1)

There would be no direct effects to the soils or vegetation from livestock grazing and trailing that currently occurs on an annual basis. There would be no direct impact from livestock on riparian areas that are accessible to livestock. The removal of livestock grazing would allow riparian areas that are not in desired condition to improve in ecological condition. Riparian species would likely increase in cover and frequency. Streambanks would stabilize as riparian graminoids and shrubs become established on previously unvegetated or unstable sites. This trend would probably continue through mid to late-seral stage. However, due to the dynamic nature of stream systems and natural hydrologic processes, this trend may not remain stable through time.

No livestock grazing on upland grasses, predominately bunchgrasses would increase litter accumulation and decrease bare ground. This matting and accumulation of dead plant material would insulate the ground and provide some water-holding capacity and a decrease in surface soil movement and erosion. Annual seed production of grasses would increase cover potential depending on the site and environmental conditions.

3.4.4 Cumulative Effects of No Grazing (Alternative 1)

Removal of livestock grazing would be expected to result in changes over time to the herbaceous plant communities in those areas currently grazed to a moderate or greater extent. The areas most likely to be affected are areas considered as suitable or primary range where the majority of livestock use occurs. Changes may show up as increases in cover or composition for those species most preferred for grazing by livestock, depending on the class of livestock.

Grazing-induced seral states associated with past levels of heavy grazing would still exist in some areas. These are evident in the dominance of such species as rabbit brush and Kentucky bluegrass. Return to pristine conditions on these isolated occurrences is unlikely (Miller 1994, Laycock 1989). Litter would likely increase over time. In most of the upland areas this would be beneficial due to the current scarcity of ground cover.

The no action alternative would not contribute toward adverse cumulative effects for range conditions. Within 10-20 years, this alternative would meet most of the standards and guidelines in the Inyo National Forest LRMP (USDA Forest Service 1988), as amended by LRMP Amendment 6 (USDA Forest Service 1995) and the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004).

3.4.5 Direct and Indirect Effects of the Proposed Action (Alternative 2)

The proposed action is designed to minimize the effects of grazing and move the landscape towards the desired conditions outlined in the LRMP Amendment 6, Forest-wide Range Utilization Standards (USDA Forest Service 1995), and the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004). The allotment specific actions were based on the existing conditions and utilization standards under LRMP Amendment 6. LRMP Amendment 6 standards for livestock grazing, as established through the

vegetation and grazing system matrices, determine the proper utilization standards for the condition of the key areas. These standards, if properly applied, will improve the degraded sites and maintain the satisfactory sites.

As LRMP Amendment 6 utilization standards are applied to riparian and upland rangeland vegetation, the proposed action is expected to improve rangeland resource conditions by:

- Increasing desirable vegetation composition and percent cover.
- Increasing residual vegetation in areas where it is less than desirable.
- Reducing amounts of bare ground in areas where it is currently too prevalent.
- Reducing utilization of grass species, which will ensure more seed production in the fall.
- Reducing utilization of shrub species, which will increase biomass and seed production.
- Promoting adequate litter (not excessive), which will insulate plant crowns and over- wintering buds, protect and cover soil, hold moisture in the ground, extend growing season and increase root growth.
- Increasing plant cover, which will reduce soil erosion potential.

The direct effect of livestock grazing is the removal of plant cover; this is usually a temporary impact. Other direct effects include soil disturbance in the form of trailing, trampling (compaction), streambank alteration, and areas of disturbance from bedding, salting and watering locations. These disturbances reduce vegetation cover, often requiring years to recover to a near natural state. Indirect effects of livestock grazing on plant community composition are alteration of the microenvironment and fire return intervals, and influence on ecosystem processes such as nutrient cycling, energy flow and the water cycle. Community alteration can occur if selective grazing pressure occurs on a species mix. The individual plant effect of grazing or tolerance to grazing is dependent on the following factors:

- Intensity (amount of plant removed) and frequency (number of times a plant is grazed)
- Season of use
- Time of grazing
- Competition
- Site characteristic

The majority of rangeland cover types are at mid to late ecological status. These sites will continue to advance along their respective successional pathways; however, this alternative will most likely result in a slower rate of recovery for degraded sites than alternative 1 (no grazing). With the implementation of riparian and upland utilization standards as described in alternative 2 (proposed action), improved

conditions are expected as a result of generally reduced utilization levels. Light to moderate livestock grazing (as prescribed in the proposed action) on these cover types increases plant diversity and ground cover; and supports the re-establishment of desirable native grasses, forbs and shrubs. With these standards and guidelines, riparian and upland habitats in the allotments are expected to improve habitats relative to their current conditions. There would be a beneficial change to ground cover and trend indicators.

Disturbance-induced seral states associated with past levels of heavy grazing exist on some areas within the analysis area. These are evident in the dominance of such species as rabbitbrush and Kentucky bluegrass. Return to original conditions on these isolated occurrences will be very slow or non-existent (Winward 1991). Within other areas that are in early seral state (primarily drier sites or sites that have been sprayed with herbicides, and/or seeded), movement towards a mid-seral ecological status will proceed at a slower rate depending on the severity of disturbance and soil loss (Winward 1998).

Table 15 provides a summary of effects to rangeland vegetation by allotment. More detailed analysis is contained in the Rangeland Management Report (Robson and Goehring 2010).

Table 15. Summary of direct and indirect effects to rangeland vegetation by allotment

Key Area		Range Type	Riparian Vegetation	Rangeland Vegetation
No.	Name			
Davis Creek Allotment				
1	Upper Chiatovich	Wet Meadow	Increase in desirable species, % cover and vigor.	No change – no areas of significant rangeland health concerns.
2	Lower Chiatovich	Wet Meadow	Increase in desirable species, % cover and vigor.	No change – no areas of significant rangeland health concerns.
Indian Creek Allotment				
1	Chiatovich Flats Upland	Alpine Dwarf Shrub	NA	Increase in forage production, decrease in soil disturbance and decrease in bare soil within 5-10 years.
2	Chiatovich Flats Meadow	Alpine Meadow	Increase in desirable species, % cover and vigor.	No change – no areas of significant rangeland health concerns.
3	Cabin Creek	Moist Meadow	Increase in desirable species, % cover and vigor.	No change – no areas of significant rangeland health concerns.
Perry Aiken Allotment				
1	Perry Aiken Flat	Alpine Meadow	Slight increase in desirable species, % cover and vigor.	No change – no areas of significant rangeland health concerns.
2	Perry Aiken Flat Upland	Alpine Dwarf Shrub Bunchgrasses	NA	Increase in forage production, (bunchgrasses) decrease in soil disturbance and decrease in bare soil within 5-10 years.
3	Busher Canyon Headwaters Spring	Alpine Meadow	Slight increase in desirable species, % cover and vigor.	No Change – no areas of significant rangeland health concerns.

Key Area		Range Type	Riparian Vegetation	Rangeland Vegetation
No.	Name			
Trail Canyon Allotment				
1	Trail Creek Meadow above Roads End	Moist Meadow	Increase/ Maintain desirable species, % cover and vigor.	No change – no areas of significant rangeland health concerns.
2	Section 8 Springs	Moist Meadow	Increase/ Maintain desirable species, % cover and vigor.	No change – no areas of significant rangeland health concerns.
3	Trail Creek Meadow below Roads End	Moist Meadow	Increase/ Maintain desirable species, % cover and vigor.	No change – no areas of significant rangeland health concerns.
4	Middle Creek	Wet Meadow	Increase/ Maintain desirable species, % cover and vigor.	No change – no areas of significant rangeland health concerns.

The effect of improved livestock grazing management through implementation of the proposed action on these allotments would be to increase residual vegetation where needed, reduce litter accumulations in some of the areas, lessen amounts of bare ground where it currently exceeds the desired conditions, and increase the overall vigor of plants through better distribution of livestock across the allotments. Increasing beneficial vegetation and improving its vigor ensures that plenty of material is available for trapping sediment in runoff and overflow events. Additionally, adequate litter (not excessive) insulates plant crowns and over wintering buds, protects and covers soils, and holds moisture in the ground.

The majority of rangeland cover types are in a mid to late seral state. The grazing-induced seral state would continue to be somewhat slower on certain sites due to the persistence of competitive species. A trend may occur in other types where native species, adapted to a grazing regime, may stagnate. Given this scenario, those species physiologically that are more competitive would dominate sites and decrease natural diversity. Over the long-term, ground cover and trend are not expected to increase.

3.4.6 Cumulative Effects of the Proposed Action (Alternative 2)

Rangeland vegetation cover types are also influenced by the following disturbances:

- Fire, insects and disease, and noxious weed infestations
- Physical disturbances, such as dispersed recreation (i.e. camping, motor vehicle use, etc.) and wild horse use
- Soil productivity
- Climatic cycles

These stresses all influenced plant growth, composition, structure and function. Evolving with settlement grazing (heavy use) and fluctuating climatic stresses have probably influenced rangeland ecosystems the

most. Past fire suppression activities have been effective in limiting the spread of fire across this landscape. As a result, the nature of these types would remain or continue towards even-age structure and outside the range of natural variability. Fire intolerant species and those species more tolerant but outside their specific habitats will continue to encroach into other cover types. Patterns of different age classes and distinct cover types would be more homogenous, and the diversity of species would be lower. Additionally, these types would remain or become more decadent and susceptible to insects and disease.

Grazing-induced seral states associated with past levels of heavy grazing exist in some areas (Range Field Reviews 2007-08). These are evident in the dominance of such species as rabbitbrush. Return to pristine conditions on these isolated occurrences is unlikely (Miller 1994, Laycock 1989).

Wild horses do occur within each of the allotments, and evidence of wild horse use is consistently observed primarily in Trail Canyon, as documented during watershed and vegetation condition surveys that occurred in 2007 and personal communications with various Forest Service personnel (Murphy 2010c). Although wild horse use likely occurs within the other allotments, evidence of wild horse use was not documented on these other allotments. Wild horses have similar impacts as livestock grazing, including utilization of vegetation and trampling. Proposed grazing standards are based on existing watershed and vegetation conditions, regardless of whether the conditions were the result of wild horse use, livestock grazing, or other uses, and livestock grazing will be managed based on the existing on-the-ground conditions. Therefore, livestock grazing, when combined with wild horse use is not expected to contribute towards significant cumulative effects to vegetation conditions.

Monitoring key areas provides insurance to other areas of the pasture since key areas have been chosen to show the effects of livestock grazing and its management. If a permittee follows the prescribed pasture management, the effect is a more even distribution of livestock and grazing use across a pasture. Promoting more even use means that previously ungrazed plants would have more chance of being grazed (stimulating growth) and that individually, frequently grazed plants would be grazed fewer times. Better distribution is the key to maximizing grazing duration in pastures and allotments.

There would be no adverse cumulative effects of the proposed action when combined with past, present and reasonably foreseeable future actions within the project area. This alternative would meet the standards and guidelines in the Inyo National Forest LRMP (USDA Forest Service 1988) as amended by LRMP Amendment 6, Forest-wide Grazing Utilization Guidelines (USDA Forest Service 1995) and the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004).

3.5 Hydrologic Resources

The following section is summarized from the Hydrology and Soils Input for the White Mountain Group allotments, which is hereby incorporated by reference (Lutrick 2010).

All of the four allotments are within watersheds that drain the east side of the White Mountains along the California-Nevada border, except the northwestern 3,000 acres of the Trail Canyon allotment, which drain on the west side of the White Mountains. All allotments contain streams that are perennial in some reaches and ephemeral in others. None of the streams have surface connectivity to a major water body, as they infiltrate into alluvial fans once they reach Fish Lake Valley, or in the case of the northwestern corner of the Trail Canyon allotment, Benton Valley. Both valleys are internally draining and contain only ephemeral lakes and streams.

The streams that have some perennial segment in the Trail Canyon allotment are Trail Creek and Middle Creek to the East, and Brownie Creek draining to the west side of the White Mountains. In the Davis Creek allotment, they are Chiatovich Creek and Davis Creek. In the Indian Creek allotment they are Indian Creek and Cabin Creek, and in the Perry Aiken allotment they are Leidy Creek and Perry Aiken Creek.

3.5.1 Existing Watershed Condition of the White Mountain Watershed Allotments

Key area hydrologic function and soil function analysis and proper functioning condition (PFC) were used to assess watershed conditions within the White Mountain group allotments. A summary of the assessment method is provided below, followed by a summary of existing watershed conditions by allotment.

Key Area Hydrologic Function

Inyo National Forest LRMP Amendment 6 establishes a protocol for assessing watershed condition in meadow and upland areas and is referred to as key area hydrologic function analysis. The LRMP Amendment 6 protocol ratings for watershed condition are fully-functional, at-risk, degraded, and non-functional. The following characteristics (indicators) were used to evaluate key area hydrologic function. A summary of the assessment method is provided below, followed by a summary of existing watershed conditions by allotment.

Riparian Vegetation Types – sod or surface organic layer, compaction, hummocks, rills and gullies, headcuts and nickpoints, bare ground due to disturbance.

Upland Vegetation Types – A-horizon, mass soil movement; surface litter and/or rock, flow patterns, bare ground due to disturbance, pedestalling, compaction, rills and gullies, headcuts and nickpoints.

Proper Functioning Condition

Proper functioning condition (PFC) is a tool for measuring the health of riparian and aquatic systems. To determine the functioning condition of riparian systems, an interdisciplinary team evaluates the vegetative, geomorphic, and hydrologic development and structural integrity of an area or reach of stream. A "functioning" system can adequately dissipate the high stream energy associated with peak discharges without unacceptable channel or riparian degradation. A "functioning at risk" system has some features that make it more susceptible to degradation during a high flow event, while a "non functional"

system is degraded to the point that the energy associated with high flows is not adequately dissipated. A "functioning at risk" stream is further rated as either an upward, downward, or not apparent trend. A reach that is "functional at risk" or "non functional" likely is negatively affecting beneficial uses.

Davis Creek Allotment

The Davis Creek allotment has two major meadows; Upper Chiatovich (key area #1) and Lower Chiatovich (proposed key area #2). The one existing key area is Upper Chiatovich Meadow (DC-1), which is along the North Fork of Chiatovich Creek. This key area was rated non-functional for meadow hydrology and soil condition (Amendment 6), and stream condition was rated functional at-risk (FAR) with a non-apparent trend. The proposed key area #2, Lower Chiatovich Meadow, will be analyzed for meadow hydrology and soil condition (Amendment 6) and PFC condition within several years after implementation.

Table 16. Key area hydrologic function – Davis Creek allotment

Key Area		Vegetation Type	Amendment 6 results (meadow hydrology and soils)	PFC results	Comments
#1	Upper Chiatovich	Wet Meadow	Non-functional	FAR trend not apparent	Major hummocking, reduced soil organic layer thickness, and active headcuts.
#2	Lower Chiatovich	Wet Meadow	-	-	Utilization measured in 2008 showed up to 80% utilization. No hydrologic condition surveys completed.

Water Quality

The Davis Creek allotment has been grazed in recent years, and during field data collection in July 2007, cattle were occupying key area #1 (upper Chiatovich). It is likely that the creek contains bacteria and other pathogens, as well as increased nutrients. However, no evidence of excessive nutrients, such as increased aquatic vegetative growth was observed. Three water quality samples were taken for fecal coliform in Chiatovich Creek, from 2001, 2004 and 2005. One, from September 2001, did not meet the 200 cfu/100 mL standard for Nevada (Appendix A). This sample was taken near the highway, which is about 11 miles downstream from the California border, so is likely not indicative of water quality in California. The other two samples had levels far below the Nevada standards, and in 2006, a report from the US EPA showed that water quality in Chiatovich Creek was "good", meaning beneficial uses were being protected (http://oaspub.epa.gov/tmdl/ w305b_report_v6.huc?p_ huc=16060010&p_state=NV&p_ cycle=2006). This data suggests that there may be short-term increases in fecal coliform in Chiatovich Creek, but the extent and duration of that input is unknown and likely not constant.

There is likely a minor, local increase in sediment in Chiatovich Creek and tributaries within key area #1, due to stream bank trampling and some bare soil on the streambank. However, the streambank is mainly stable, with rock, willows and other vegetation stabilizing most of the streambank outside of a few small areas.

Outside of this one key area, the increase in sediment deposition to water is likely also local and minor. This allotment only has two substantial sized meadows where cattle congregate. It is assumed that streambanks in areas outside of these two meadows are not impacted as much as within these two meadows, because other areas are not used as heavily. Because there is only minor and local increased sediment in the heavily used areas, it is assumed that the generally good willow cover in riparian areas throughout the remainder of the allotments, as well as rocky channels, prevents major increases in fine sedimentation in the Davis Creek allotment.

Indian Creek Allotment

There are three key areas in the Indian Creek allotment, all of which were analyzed for soil and hydrologic condition in 2007 and 2001. They are all in the Chiatovich Flats area, at elevations over 10,000 feet. The Chiatovich Flat Upland (key area 1) was in fully functioning soil and hydrology condition in 2001 and 2007. Key area #2, an alpine meadow in Chiatovich Flats, was rated as degraded using the Amendment 6 protocol, and the stream in the meadow was rated functional at-risk with an upward trend. Key area #3 is along Cabin Creek, adjacent to Chiatovich Flat. In 2007, the soil and hydrology rating was at-risk in this key area.

Table 17. Key area hydrologic function – Indian Creek allotment

Key Area		Vegetation Type	Amendment 6 results (meadow hydrology and soils)	PFC results	Comments
#1	Chiatovich Flats Upland	Alpine Dwarf Shrub	Fully functional	N/A	Little sign of use
#2	Chiatovich Flats Meadow	Alpine Meadow	Degraded	FAR upward trend	Hummocks, bare ground and reduced soil organic layer thickness.
#3	Cabin Creek Riparian	Moist Meadow	At-risk	PFC	Headcutting, potential for movement.

Water Quality

The Indian Creek allotment likely has fine sedimentation slightly increased over natural levels in the Cabin Creek area, but this is likely small enough not to be measurable. In 2007, there was no evidence of

increased sediment in Cabin Creek or other stream channels, and any increase is likely too small to be measured on a watershed-wide or even stream reach scale.

The levels of nutrients, bacteria and other pathogens are likely near natural levels. The area has not been grazed since 2001, and according to literature, most bacteria and other pathogens are lost within 100 days of manure deposition.

In 2004 and 2005, fecal coliform samples were taken in Indian and Leidy Creeks, the two main creeks draining the Indian Creek allotment. Three of these samples resulted in a no detect for fecal coliform, and one contained 10 cfu/mL. These data suggest that fecal coliform is not a pollutant of concern.

Perry Aiken Allotment

The Perry Aiken allotment meadows are almost all located in alpine areas above 10,000 feet, and are associated with springs, seeps or depressions. There are four key areas in the Perry Aiken allotment, all within the Perry Aiken Flat area. Key areas PA-3 and PA-4 were combined for analysis. Key area PA-1 encompasses numerous small alpine meadows in Perry Aiken Flat. Meadow hydrology and soil condition were "at-risk" using the Amendment 6 protocol. Key area PA-2 is in an upland area, with no stream or other water source. It was analyzed for soil condition and found to be in fully functional condition, with all Amendment 6 characteristics within desired condition for an upland, high elevation site. Key areas PA-3 and PA-4 were rated as having degraded hydrologic and soil function, mainly due to the hummocking and loss of surface organic layer. The stream was rated functional at-risk with an upward trend.

Table 18. Key area hydrologic function – Perry Aiken allotment

Key Area		Vegetation Type	Amendment 6 results (meadow hydrology and soils)	PFC results	Comments
#1	Perry Aiken Flat	Alpine Meadow	At-risk	N/A	All characteristics are in fair condition. None degraded. Ephemeral channel only, no PFC.
#2	Perry Aiken Flat Uplands	Alpine Dwarf Shrub	Fully functional	N/A	
#4	Busher Canyon springs	Alpine Meadow	Degraded	FAR upward trend	Thinned sod, hummocks and soil compaction

Water Quality

Water quality in the Perry Aiken allotment is likely very similar to the Indian Creek allotment because it has not been grazed since 2000. Therefore, water quality is likely good, with slight increases in sedimentation at a very local scale, and no increased nutrient, bacteria or other pathogen levels from livestock. Perry Aiken Creek was sampled for fecal coliform in 2004and 2005. In one sample, no fecal

coliform were detected, and in the other, the measure of 40 cfu/100mL met the standard of less than or equal to 200 cfu/100mL. This indicates that in recent years, fecal coliform are not a pollutant of concern in Perry Aiken Creek. Further, this sample was taken when there was had been no livestock grazing on the allotment for five years, indicating that the fecal coliform was not related to cattle.

There are only a few known local segments of stream erosion that are likely contributing very minor amounts of fine sediment into streams. In 2007, there was no evidence of increased sediment in the spring channels within the key areas, and it is likely that outside of key areas, the sedimentation is the same or less.

Trail Canyon Allotment

All four of the key areas in the Trail Canyon allotment were rated fully functional or at-risk for meadow hydrologic and soil function. All streams were in proper functioning condition.

Key area TC-1 is located in a moist meadow, just beyond the trailhead parking lot. The meadow was rated as at-risk for soil and hydrologic characteristics. The stream was rated at PFC. Key area TC-2 was also rated at-risk for hydrologic and soil condition. Key area TC-3 is a moist meadow that was found to have fully functional hydrologic and soil condition. Key area TC-4 on Middle Canyon was found to be in fully functional soil and hydrologic condition.

Table 19. Key area hydrologic function – Trail Canyon allotment

Key Area		Vegetation Type	Amendment 6 results (meadow hydrology and soils)	PFC results	Comments
TC-1	Trail Creek Meadows above roads end	Moist Meadow	At-risk	PFC	All but two characteristics are in fair condition. None degraded.
TC-2	Section 8 Springs	Moist Meadow	At-risk	PFC	Hummocks
TC-3	Lower Trail Creek, below road's end	Moist Meadow	Fully functional	PFC	
TC-4	Middle Creek	Wet Meadow	Fully functional	N/A	No stream in meadow

Water Quality

The Trail Canyon allotment has been grazed in recent years, and during field data collection in July 2007, cattle were occupying key areas #1, 2 and 3, and were seen in wet areas and in the stream channel. These observations suggest that cattle spend sufficient time in or directly adjacent to stream channels to defecate directly in water. Streams in the key areas likely contain bacteria and other pathogens, as well as increased nutrients. However, no evidence of excessive nutrients, such as increased aquatic vegetative growth, was observed. One fecal coliform and two ammonia samples were taken in Trail Creek from 2003 to 2005. None of the samples detected any of these pollutants suggesting that there is not a concern with

overall water quality in Trail Creek, one of the two most heavily grazed canyons in this allotment. There is no quantitative water quality data for Middle Creek.

There is likely a very minor increase in sediment in Trail Creek and tributaries within key areas #1, 2 and 3, due to local and minor observed stream bank trampling and some bare soil on the streambank. However, the streambanks are mainly stable, with rock, willows and other vegetation stabilizing most of the streambank outside of a few small areas. Therefore, the increase in sediment is likely local and very minor.

3.5.2 Direct and Indirect Effects of No Grazing (Alternative 1)

Davis Creek Allotment

Under the no grazing alternatives, there would be no grazing in the Davis Creek allotment. Within meadows, the hydrologic and soil condition would improve in the short and long-term, and stream channel condition would likely also improve. Water quality would slightly improve because it is likely only mildly degraded in local areas with current grazing.

In key area #1 (Upper Chiatovich), the no grazing alternative should result in increased hydrologic and soil function in the meadow, as well as improved stream functional condition. There should be little change in water quality, because it currently likely has only minor and local degradation, but that degradation should improve within a year. Although the meadow was rated non-functional for hydrologic and soil conditions, it is not severely incised and does retain potential for major recovery. Hydrologic and soil condition of the meadow should improve because litter would remain in the meadow and soil compaction would no longer occur, allowing for eventual build-up of more organic soil within the meadow. There should also be stabilization of the headcuts in Chiatovich Creek and its tributaries in less than five years as trampling ceases and vegetation grows back on streambanks. This would allow a more stable stream channel that would better resist erosion during high flows.

The hummocks, which are currently causing altered surface flow patterns and ability to absorb and store water, may not recover for decades or longer. There is little to no literature about recovery of hummocks and whether the land surface eventually levels out over time. In the nearby allotments that are not grazed, hummocks remained the same size after seven years without grazing. It is likely that the hummocks in wet portions of key area #1 would eventually disappear without grazing, but the time frame is unknown and assumed to be on the multi-decade or centuries scale. Because this key area is wet over much of its area, recovery will likely be quicker than in a drier area, because soils form more rapidly in wet areas.

Indian Creek Allotment

The no grazing alternative would result in no grazing in any of the allotments. The Indian Creek allotment would have some minor improvement in some small areas. However, because current impacts are localized, the overall condition should remain similar to the current condition.

The hydrologic and soil functioning condition should improve most in the Chiatovich Flats area, in the high altitude meadow areas, although recovery is likely to be slow. Key area #2, Chiatovich Flat Meadow, was rated in poor functional condition in 2007, seven years after the last cattle grazing. This high elevation, relatively dry area has a slow recovery time due to short growing seasons and slow soil development. Therefore, bare soil and reduced organic layer thickness remains, and may take many years to revegetate. Hummocking, as discussed for the Davis Creek allotment, is unlikely to disappear for decades. Therefore, hummocks would remain under alternative #1.

Key area #1, an upland site, shows that there are few to no impacts to uplands in this allotment, suggesting that uplands should remain in the same as their current good condition.

Key area #3, along Cabin Creek, should continue to show recovery, with a reduction in compaction and bare soil. This area improved from poor to fair hydrologic and soil condition from 2000 to 2007 without grazing, and improvement should continue under alternative #1.

Good soil and hydrologic condition would likely be reached within 5-10 years. Streambanks would continue to revegetate and the stream continues to stabilize, continuing the upward stream condition.

Water quality would likely not change under alternative #1, remaining good throughout the allotment. There would be no input of cattle manure, and the current local, minor sediment input would decrease over time.

Perry Aiken Allotment

Under the no grazing alternative, there would likely be some long-term, minor improvement in locally degraded watershed condition in the Perry Aiken allotment, but on a watershed scale, there would be very little change.

There should continue to be slow recovery of soil and hydrologic conditions at Perry Aiken Flat, where key areas #1-4 are located. Key area #1, Perry Aiken Flat alpine meadow, has a condition similar to many other small alpine meadows in the flat. With seven years rest from grazing, the soil and hydrologic condition improved from non-functional to fair (although it is possible that the analysis was not completed in the same small alpine meadow). Even if the analysis was completed in a different location, there was evidence of past alteration of stream function, such as headcuts that are vegetated and no longer active, that indicates that there has been recovery from a previously more degraded condition. This suggests that, while recovery may be slow in this relatively dry, high altitude area, soil and hydrologic recovery of areas with compaction, headcuts, bare soil, and potential for erosion will gradually improve over time under alternative #1.

Upland areas, such as key area #2, should remain in good condition under the no grazing alternative. Under current conditions, with the last cattle grazing occurring in 2000, they are in good soil and hydrologic condition, and with no grazing, they should remain in that same good condition.

Key areas #3 and 4, the steep meadows at the headwaters of Busher Creek, will likely never recover to their desired soil and hydrologic condition, although they should show gradual improvement over decades. These meadows are severely hummocked over most of their extent, and it is unknown whether these tall hummocks will disappear within decades or longer. However, they will continue to vegetate, and erosion will continue to be minor in these meadows due to good vegetative and litter cover. Soils will continue to de-compact, allowing for increased water holding capacity and infiltration.

Water quality will continue to be good in this allotment. While there are few water quality data available for this area, there are some records from 2004 and 2005 in Perry Aiken Creek that show that all water quality parameters measured meet water quality standards. Although these data are limited, in combination with field observations of clear water with no excess instream algal growth, they suggest that water quality is good and would continue to be so in the absence of cattle under alternative #1.

Trail Canyon Allotment

Under the no grazing alternative, there would be no grazing. This could lead to local and minor improvements in soil and hydrologic condition, but because most of the area is in fully functional or at-risk condition currently, the change from current condition should be minor.

Key areas #1 and 2 should have reduced soil compaction, increased vegetative cover, and increased organic layer thickness with no grazing. These characteristics all have minor departures from desired condition, and will likely recover relatively rapidly.

Key areas #3 and 4 were found to be in fully functional condition currently, and therefore removal of grazing should allow the areas to remain in good condition.

Other areas throughout Trail Canyon, including other meadows in Middle Creek and Trail Canyon, should also have increased vegetative cover, increased organic layer thickness and reduced compaction. Overall, there should be minor, localized improvements in soil and hydrologic conditions.

Cumulative Effects of the No Grazing (Alternative 1)

Cumulative watershed effects (CWE) are most appropriately analyzed for this assessment at a level smaller than HUC6, because the HUC6 watersheds usually incorporate more than one stream, and those streams usually have no surface hydrologic connectivity downstream. Therefore, smaller watersheds were delineated for this assessment, incorporating one perennial stream system in each watershed. These are comparable to 7th level HUCs.

Davis Creek

The no grazing alternative will not have cumulative watershed effects in the Davis Creek allotment, because there will be no grazing and therefore only gradual recovery of site specific conditions that will not show effects at the watershed scale.

Cumulative watershed effects (CWE) are most appropriately analyzed for this assessment at a level smaller than HUC6, because the HUC6 watersheds usually incorporate more than one stream, and those streams usually have no surface hydrologic connectivity downstream. Therefore, smaller watersheds were delineated for this assessment, incorporating one perennial stream system in each watershed. These are comparable to 7th level HUCs, which are not delineated for the Inyo National Forest. The two 7th level watersheds in this allotment are Chiatovich Creek (North and South Fork) and Davis Creek. The magnitude of effects from each watershed will be analyzed in context with other past, present and reasonably foreseeable management actions.

Ground disturbance from grazing that could affect watershed hydrologic function occupies a very small portion of all of the 7th level HUC watersheds in this assessment. It occurs almost entirely at areas of cattle concentrations, which in the Davis Creek allotment are two large meadows containing perennial streams, Upper and Lower Chiatovich (key area #1 and future key area #2). Cattle forage in other areas, but the ground disturbance is generally dispersed and not hydrologically connected to streams. Cattle rarely concentrate along streambanks outside of meadows because of higher stream and slope gradients, lack of forage, and particularly in this area, dense willow vegetation that makes access to the stream channel difficult.

In the Chiatovich Creek watershed, meadows occupy about 4 percent of the perennial stream length and a much smaller percent of the total (perennial, intermittent and ephemeral) stream length. In the Davis Creek watershed, meadows occupy about 3 percent of the stream length. Because this stream length of disturbance is so small, ground disturbance from cattle grazing in meadows is a site rather than a watershed scale issue. Under the no grazing alternative, the direct and indirect effects would be slight: local improvement in soil and hydrologic condition in the two major meadows, and a very slight reduction in stream bank trampling. Streams are currently in relatively good condition, so although the area would receive no trampling under this alternative, there would only be a very local, minor improvement in stream condition. Under current management, sedimentation and other water quality impacts are minor and local, and there is little or no downstream cumulative effect. Further, no cumulative watershed effects, such as major headcutting on the main stem or poor water quality, were observed in the field.

Even though disturbance by cattle occurs over too small of an extent of the watershed to cause cumulative watershed effects, other activities in the watershed were reviewed to understand the context of grazing. Past and ongoing activities include sheep and cattle grazing, mining, recreation, and, in the lower portion of the Chiatovich Creek watershed, downstream of Forest Service land, housing development. There is no evidence that recreation activities are widespread enough in the Chiatovich and Davis Creek watersheds to affect water quality or other hydrologic or soil attributes, as it is limited mainly to vehicle use along one road in each watershed. Mining has occurred generally away from water sources, and there are no known water quality or other watershed-related effects from past mining in this watershed. The housing development occurs along about 2 miles of lower Chiatovich Creek and does have the potential to affect

stream flow, stream morphology, and water quality downstream from National Forest System land. However, because direct and indirect effects of the no grazing alternative are so local and minor, and would improve conditions, this action would not add to cumulative effects to the Chiatovich Creek watershed.

Indian Creek

The no grazing alternative will not have cumulative watershed effects in the Indian Creek allotment, because there will be no grazing and therefore only gradual recovery of site specific conditions that will not have direct or indirect effects at the watershed scale.

Ground disturbance from grazing that could affect watershed hydrologic function occupied a very small portion of all of the 7th level HUC watersheds in this assessment before 2001. Grazing occurs almost entirely at areas of cattle concentrations, which in the Indian Creek allotment were Chiatovich Flat, Cabin Creek, and small meadows along Indian Creek. Cattle foraged in other areas, but the ground disturbance is generally dispersed and not hydrologically connected to streams. Cattle rarely concentrate along streambanks outside of meadows because of higher stream and slope gradients, lack of forage, and dense willow vegetation that makes access to the stream channel difficult.

In the Indian Creek watershed, meadows occupy about 4.5 percent of the perennial stream length and a much smaller percent of the total (perennial, intermittent and ephemeral) stream length. In the Leidy Creek watershed, meadows occupy about 7 percent of the stream length. Because this stream length of disturbance is so small, ground disturbance from past cattle grazing in meadows is a site rather than a watershed scale issue. Under the no grazing alternative, the direct and indirect effects would be slight: local improvement in soil and hydrologic condition in Chiatovich Flat and along Cabin Creek meadows and a very slight reduction in stream bank trampling. Streams are currently in relatively good condition, so although they would receive no trampling under this alternative, there would only be a very local, minor improvement in stream condition. Under current management, sedimentation and other water quality impacts are minor and local, and there is little or no downstream cumulative effect. Further, no cumulative watershed effects, such as major headcutting on the main stem, or poor water quality, were observed in the field.

Even though disturbance by cattle occurs over too small an extent of the watershed to cause cumulative watershed effects, other activities in the watershed were reviewed to understand the context of grazing. Past and ongoing activities include sheep and cattle grazing, mining, and recreation. There is no evidence that recreation activities are widespread enough in the Indian and Leidy Creek watersheds to affect water quality or other hydrologic or soil attributes, as it is limited mainly to vehicle use along one road in each watershed. Mining has occurred generally away from water sources, and there are no known water quality or other watershed-related effects from past mining in this watershed. Therefore, there are no known cumulative watershed effects from other actions.

Perry Aiken and Trail Canyon Allotments

Because there are no direct or indirect effects of the no grazing alternative, there will be no cumulative effects from this alternative.

3.5.3 Direct and Indirect Effects of Proposed Action (Alternative 2)

Davis Creek Allotment

Under the proposed action alternative, grazing would continue in the Davis Creek allotment with rest until non-functioning condition has improved in key area #1 (Upper Chiatovich Meadow). The proposed action should allow for some minor improvement in meadow hydrologic and soil conditions relative to current condition in the short and long-term, and stream channel condition would likely also slightly improve. Water quality would likely remain the same. It is likely only mildly degraded in local areas with current grazing, and it is expected to continue to prevent detrimental effects to beneficial uses. Analysis for the proposed action assumes that best management practices (BMPs) are followed.

The hydrologic and soil improvement should mostly be in key area #1 because it is the only area known to have non-functional or degraded hydrology and soil condition, and it is the location that will have a major change in management under the proposed action. Key area #1 will be discussed in more detail in the next paragraph. Future key area #2 (Lower Chiatovich Meadow) has an unknown current soil and hydrologic condition, but with utilization reduced to 45 percent maximum (with current grazing usually greater than that), there should be some minor improvement in soil compaction. The rest of the allotment is mainly upland and although it was not extensively surveyed, it is assumed to have little to no hydrologic alteration. These conditions should persist in the upland grazing area in the future because the proposed action should not alter existing grazing patterns.

Key area #1 is the only location in the allotment known to have non-functional hydrologic and soil condition. With rest until it has improved from its current non-functional condition, this key area should have some reduced compaction and slightly increased litter cover and organic layer thickness. Even with altered management, this process will likely be very slow. Because this area is a location with good forage where cattle concentrate, it is likely that cattle will continue to cause trampling in wet areas. The hummocks, which are currently causing altered surface flow patterns and impacting the ability to absorb and store water, may not recover under the proposed action. There is little to no literature about recovery of hummocks, and whether the land surface eventually levels out over time. In the nearby allotments that are not grazed, hummocks remain after at least seven years without grazing, and judging from photos in 2000 versus those in 2007, their size has not changed. It is likely that the hummocks in wet portions of key area #1 would continue in their current state, even with grazing removed. Therefore, with limited grazing, the hummocks will likely show little change over time, similar to the no grazing alternative.

There are a few wet areas within key area #1 that have extensive trampling, while most wet areas have hummocking. One of these is at one of the tributary headwaters. This area is a relatively steep seep area,

with some current trampling and hummocking. Even with reduced use, this area is vulnerable to trampling and alteration of hydrologic function. If the proposed action prevents concentrations of cattle in this area, then the seep will likely revegetate and be more resistant to erosion in the future. If not, trampling and erosion would continue. However, if the area was fenced using the adaptive management framework, it would allow for a more rapid increased vegetative cover and resiliency to erosion.

Indian Creek Allotment

Implementation of alternative #2 would allow for continued grazing on the Indian Creek allotment, with only light grazing (up to 15% utilization) on the high elevation Chiatovich Flat. This action would likely allow for an upward trend in soil and hydrologic condition of key areas in the allotment, although the improvement would likely be slower and less complete than under alternative #1.

Upland areas would see no change because with current use, there is no measurable hydrologic or soil alteration. With grazing up to 20% utilization, upland areas should continue to have only minor reduction in litter and therefore slightly more bare soil.

Key area #2, Chiatovich Flat Meadow, will likely show some gradual, long-term decrease in headcuts and increase in soil organic layer thickness, although more slowly than under alternative #1. Grazing would be at low levels in this high elevation area. This should prevent any measurable increase in bare soil, and should allow for a gradual increase in vegetative cover in wet areas, stabilizing headcuts and allowing for some litter to remain on the meadow surface. However, this key area has a short growing season and very slow soil development, so any improvement in condition will be in the long-term, on the scale of decades.

Key area #3, Cabin Creek riparian areas, will likely also show some minor improvement in soil, hydrologic and stream channel condition under alternative 2 relative to the current condition. This area is relatively wet, and although it is vulnerable to trampling, with grazing of 30% and implementation of best management practices and BMPs, vegetation should be allowed to continue increasing, stabilizing the few headcuts and reducing the area of bare ground. Again, this process would be slow, because there would be streambank and meadow trampling every other year, and at this high elevation, vegetative growth is relatively slow.

Water quality should continue to be good, with only minor, local increases in nutrients, sediment and bacteria and other pathogens. When present, cattle will be in wet areas enough to deposit manure in or near surface water, and that manure can be carried into streams. However, the scattered nature of grazing areas and the past evidence of good water quality, it is assumed that water quality will continue to have only minor, local degradation that continues to meet beneficial uses.

Perry Aiken Allotment

The proposed action would allow grazing within the Perry Aiken allotment, with 15-20% utilization in the high elevation Perry Aiken Flat area. This should allow for some minor recovery from the locally altered

current conditions over a long-term period. The effects should be similar to alternative #1, but with a slower recovery of areas that are currently in at-risk or degraded hydrologic and soil condition.

Key area #1, the alpine meadow in Perry Aiken Flat, should have minor improvement from the current fair condition, with minor increases in vegetative cover, minor reduction in compaction, and increased vegetative stabilization of headcuts and nick points. With low utilization levels, there should be some vegetative growth in the ungrazed years, allowing for litter build up and some decompaction of soil. However, because this area is high altitude and relatively dry, any recovery will be slow.

Uplands, such as key area #2, should remain in their current fully functional hydrologic and soil conditions. While 20% utilization will result in slightly increased bare soil, nearby allotments that are currently stocked have upland areas in fully functional condition, indicating that the levels of grazing that would occur under alternative #2 would not degrade soil and hydrologic conditions.

Key areas #3 and 4 could show some minor degradation of soil and hydrologic condition under alternative #2, although the effects would likely be very minor and local. Even with grazing occurring at low levels, this area is vulnerable to increased bare soil and compaction due to its steepness and wet soil conditions. While the hummocks should not get larger or more prevalent under this alternative, any use of this area by cattle will likely cause sheared hummock edges, reducing soil cover and increasing the chance for erosion. However, with the 15% utilization and implementation of BMPs, vegetation should have a chance to partially grow back every year, reducing the potential for erosion or rilling.

Trail Canyon Allotment

Under the proposed action, grazing would continue at the same utilization levels that have been prescribed in the past. Therefore, the direct and indirect effects to soil and hydrologic conditions should be the same as under the current condition for the Trail Canyon allotment.

3.5.4 Cumulative Effects of Proposed Action (Alternative 2)

Cumulative watershed effects (CWE) are most appropriately analyzed for this assessment at a level smaller than HUC6, because the HUC6 watersheds usually incorporate more than one stream, and those streams usually have no surface hydrologic connectivity downstream. Therefore, smaller watersheds were delineated for this assessment, incorporating one perennial stream system in each watershed. These are comparable to 7th level HUCs.

Davis Creek Allotment

Under the proposed action, cumulative effects would be almost the same as under alternative #1. This is because, as stated above in the no grazing alternative analysis, the hydrology, soil and stream impacts from alternative 2 would mainly be local, at one to two meadows. These local impacts, while they may remain moderately detrimental, are not widespread enough to translate to watershed-wide cumulative effects. Further, stream bank disturbance should continue to be minor and local under the proposed action alternative, allowing streams to remain resilient to high flows without degrading. Currently, there are no

watershed-wide cumulative effects evident in the Chiatovich and Davis Creek watersheds, and under the proposed action, which reduces utilization and prescribes rest-rotation for the one meadow in non-functional condition, there should continue to be no cumulative watershed effects.

Indian Creek Allotment

Under the proposed action, cumulative effects would be almost the same as under alternative #1. This is because, as stated above in the no grazing alternative analysis, the hydrology, soil and stream impacts from alternative 2 would mainly be local, at a few small meadows. These local impacts, while they may remain moderately detrimental, are not widespread enough to translate to watershed-wide cumulative effects. Further, stream bank disturbance should continue to be minor and local under the proposed action alternative, allowing streams to remain resilient to high flows without degrading. Currently, there are no watershed-wide cumulative effects evident in the Indian Creek or Cabin/Leidy Creek watersheds, and under the proposed action, which prescribes rest-rotation for the entire allotment, there should continue to be no cumulative watershed effects.

Perry Aiken Allotment

Under the proposed action, cumulative effects would be almost the same as under alternative #1. This is because, as stated above in the no grazing alternative analysis, the hydrology, soil and stream impacts from alternative 2 would mainly be local, at a few small high altitude meadows. These local impacts, while they may remain with only minor improved conditions, are not widespread enough to translate to watershed-wide cumulative effects. Further, stream bank disturbance should continue to be minor and local under the proposed action alternative, allowing streams to remain resilient to high flows without degrading. Currently, there are no watershed-wide cumulative effects evident in the Leidy, Busher or Perry Aiken Creek watersheds, and under the proposed action, which prescribes rest-rotation for the entire allotment, there should continue to be no cumulative watershed effects.

Past actions include sheep and cattle grazing, mining, and recreation, and current and future actions include some possible continued mining and recreation. The effects of past grazing are discussed in the current conditions section, and have likely helped lead to current local degraded soil and hydrologic conditions in some areas. There is no evidence in this area that past mining or recreation have caused more than local soil compaction and bare soil with construction of roads and mines. Therefore, there would be no cumulative effects when combined with the minor, local effects of the proposed action.

Trail Canyon Allotment

The proposed action should not have cumulative watershed effects in the Trail Canyon allotment, because the current conditions are not contributing to cumulative watershed effects, and the proposed action is the same as recent grazing management.

Ground disturbance from grazing that could affect watershed hydrologic function occupies a very small portion of all of the 7th level HUC watersheds in this assessment area. Grazing occurs almost entirely at

areas of cattle concentrations, which in the Trail Canyon allotment are small meadows along Trail and Middle Creeks. Cattle foraged in other areas, but the ground disturbance is generally dispersed and not hydrologically connected to streams. Cattle rarely concentrate along streambanks outside of these meadows because of higher stream and slope gradients, lack of forage, and dense willow vegetation that makes access to the stream channel difficult.

In the Trail Creek watershed, meadows occupy about 6.5 percent of the perennial stream length and a much smaller percent of the total (perennial, intermittent and ephemeral) stream length. In the Middle Creek watershed, meadows occupy about 4 percent of the stream length. Because this stream length of disturbance is small, ground disturbance from past cattle grazing in meadows is a site rather than a watershed scale issue. Under the proposed action, the direct and indirect effects would be slight, local, minor detrimental effects to soil and hydrologic condition in meadows along Trail and Middle Creeks. Streams are currently in relatively good condition, so although they would receive minor trampling under this alternative, there would only be a very local, minor degradation in stream condition. Under current management, sedimentation and other water quality impacts are minor and local, there is little or no downstream cumulative effect. Further, no cumulative watershed effects, such as major headcutting on the main stem or poor water quality, were observed in the field.

Even though disturbance by cattle occurs over too small an extent of the watershed to cause cumulative watershed effects, other activities in the watershed were reviewed to understand the context of grazing. Past and ongoing activities include sheep and cattle grazing, wild horse grazing and travel, mining, and recreation. There is no evidence that recreation activities are widespread enough in the Trail and Middle Creek watersheds to affect water quality or other hydrologic or soil attributes, as it is limited mainly to vehicle use along one road in each watershed. Mining has occurred generally away from water sources, and there are no known water quality or other watershed-related effects from past mining in this watershed. Therefore, there are no known cumulative watershed effects from other actions. Wild horses are present along Trail Creek, and they have many of the same effects as cattle grazing. The horses graze, removing vegetation, and trail during travel, and also trample stream banks and springs. Alternative 2 should not add to any cumulative effects from wild horses, because management in this action is based on on-the-ground conditions, not just cattle grazing effects. For example, the streambank trampling standard applies to all activities combined, including wild horses, wildlife, and cattle. Because cattle use is the one activity subject to management, whenever trampling or other effects near their threshold, no matter what the cause, the cattle will be removed or otherwise managed. Therefore, the effects will be no different with wild horses and cattle combined.

There is a housing development that is currently being built along about 1.5 miles of lower Middle Creek, downstream from the Forest boundary and the Trail Canyon allotment. This development does have the potential to affect stream flow, stream morphology and water quality downstream from Forest Service land. However, because direct and indirect effects of the proposed action would be local and minor, this action would not add to these possible development-related effects in the Middle Creek watershed.

3.6 Wildlife (Terrestrial and Aquatic)

This section was summarized from the Biological Assessments, Biological Evaluations, Management Indicator Species Analysis, and Wildlife Specialist Report for wildlife and aquatic species, which are hereby incorporated by reference (Murphy 2010, Murphy 2010b, Murphy and Sims 2010, Sims 2009, Sims 2009b, and Sims 2010).

3.6.1 Direct, Indirect, and Cumulative Effects of No Grazing (Alternative 1)

Federally Listed Threatened and Endangered Species

Under the no action alternative, it was determined that there would be no adverse direct, indirect, or cumulative effects to federally listed threatened and endangered species.

Forest Service Sensitive Species

Under the no action alternative, it was determined that there would be no adverse direct, indirect, or cumulative effects to Forest Service sensitive species.

Management Indicator Species

Under the no action alternative, it was determined that there would be no adverse direct, indirect, or cumulative effects to MIS habitat.

3.6.2 Direct, Indirect, and Cumulative Effects of the Proposed Action (Alternative 2)

Federally Listed Threatened and Endangered Species

A Biological Assessment was completed for federally listed species (Murphy 2010, Sims 2009) that could potentially be affected by the proposed grazing activities. The Biological Assessments identified the Paiute Cutthroat trout as the only federally listed species known to occur and have suitable habitat in the project area. There would be no affect to any other federally listed species that potentially occur on the Inyo National Forest.

Paiute cutthroat trout

A refuge population of the threatened Paiute cutthroat trout occurs in Cabin Creek, within the Indian Creek allotment. This refuge population was established in 1968 with 60 individuals, and populations have increased to 186 fish observed in 2000 during surveys conducted by California Department of Fish and Game (CDF&G). During a field visit in 2009, CDF&G was unable to get an accurate count, however, all classes of fish were observed, indicating that suitable habitat is present for fish to spawn within the creek. This refuge population is important to maintain for future re-stocking of Paiute cutthroat trout into their native habitat in Silver King Creek after currently planned restoration efforts have been completed. No critical habitat has been designated within the analysis area, however Cabin

Creek is identified within the Revised Paiute Cutthroat Trout Recovery Plan (USDI 2004) as habitat for this species.

Through the development of grazing management prescriptions for the Indian Creek allotment, specific design criteria were incorporated to ensure the continued protection of the occupied Paiute cutthroat trout habitat that allows for cattle grazing while meeting recovery objectives in the 2004 Revised Recovery Plan for the Paiute Cutthroat Trout. The grazing management prescriptions include the following specific design criteria: modified utilization levels (30% utilization on herbaceous cover along lower Cabin Creek; 15% utilization within the upper Chiatovich Flats Meadow area; and 15% utilization on woody plants); a rest-rotation system (the unit will be rested every other year); maintains the maximum 10% streambank trampling standard along Cabin Creek; emphasizes late-season grazing (after August 15) in the Chiatovich Flats area to reduce the potential for direct trampling of small larval fish; and annual implementation monitoring.

Based on the analysis of direct, indirect, and cumulative effects outlined in the Biological Assessment it was determined that the implementation of continued grazing on the Indian Creek allotment **may affect and is likely to adversely affect individuals** of Paiute cutthroat trout by potential direct trampling of gravels that may contain alevin (small larval fish) and the potential for higher than baseline sediment input that may settle between gravel, reducing spawning habitat. The potential for direct trampling is low for the late-season use proposed, however if cattle enter the area in an earlier month, the potential is greater that some alevin-occupied gravel would be trampled. Because of heavily armored streambanks from willow and rocky substrate in the steeper portions of the stream, a majority of the stream cannot be accessed by cattle, which limits the potential trampling of gravels to a few crossing areas. It was also determined that the proposed action **may affect, but is not likely to adversely affect** Paiute cutthroat trout **populations** in Cabin Creek. This is based on previous population data that show an increase in fish numbers even during historic heavy grazing use within the Cabin Creek watershed and along the stream. The proposed utilization standards, trampling standards, and rest every other year from grazing will reduce the overall effects of intensive, season-long grazing within this watershed and throughout the allotment. It is anticipated that vegetation, watershed, and fish habitat resources will continue to move in an upward trend with the implementation of the proposed action.

In consultation with the U.S. Fish and Wildlife Service (USFWS), a Biological Opinion (BO) was issued that concurred with the determination in the Biological Assessment (File No. 84320-2010-F-0088; USDI Fish and Wildlife Service 2010). The USFWS concluded that "After reviewing the current status of PCT, the environmental baseline for the action area, the anticipated direct and indirect effects of the proposed action, and the cumulative effects, it is the Service's BO that the renewal of the 10-year grazing permit for the Indian Creek Allotment and specifically the utilization and streambank disturbance thresholds set for the Cabin Creek Unit, as proposed, is not likely to jeopardize the continued existence of the threatened PCT. No critical habitat has been designated for PCT; therefore, none will be adversely modified or destroyed." (Ibid.)

Forest Service Sensitive Species

Biological evaluations were completed for Forest Service sensitive species potentially occurring on the Inyo National Forest (Murphy 2010; Sims 2009b; Sims 2010).

Terrestrial Wildlife

The Biological Evaluation/Assessment for Terrestrial Wildlife Species (Murphy 2010) identified three Forest Service sensitive wildlife species known to occur and have suitable habitat within the project area, including northern goshawk, greater sage grouse, pallid bat, Townsend's big-eared bat, and Panamint alligator lizard. There would be no affect to any other Forest Service sensitive terrestrial wildlife species that potentially occur on the Inyo National Forest (Ibid.).

Northern Goshawk

Direct and Indirect Effects

Livestock grazing impacts to northern goshawk are limited. Management of northern goshawk habitat typically focuses on those management actions which would remove or alter goshawk habitat, specifically nesting habitat. Livestock grazing activities may have impacts to goshawks, as their presence can cause disturbances which may lead to dispersal of goshawks from the immediate area. However, livestock have been present in these areas since the mid-1850s and after disturbances goshawks have the potential to return to these areas.

Goshawks within the project area nest in aspen stands adjacent to perennial streams. These areas tend to receive higher use from livestock as they offer water, shade, and foraging opportunities dependent on understory composition. Under the proposed action, livestock may not enter the allotments until June 15th or as late as July 1st. Goshawks have completed breeding and establishing their nests before livestock enter the allotments. Chicks begin to hatch in June with juveniles dispersing from nest sites in late August and early September. Therefore the presence of livestock in June will not lead to disruptions during egg-laying or cause goshawks to abandon nest sites. The overall impact to livestock grazing to goshawks is low and may only impact individual birds.

The proposed action, will allow for changes in livestock management (rotation systems and lower allowable use standards) based on monitoring and this would allow for the continuation of suitable goshawk nesting habitat.

Cumulative Effects

Cumulative effects to goshawk habitat within the project area include recreational use. Due to the habitats in which goshawk occur (aspen stands) recreational activities may lead to additional disturbances to nesting goshawks. Dispersed camping may lead to goshawks dispersing or avoiding suitable nesting habitats. Recreational activities within this area are generally limited to dispersed camping, fishing, and OHV use, with dispersed camping having the highest probability of impacting goshawk habitat. However,

within potential goshawk habitat, there are fewer than five camping areas which are utilized by visitors. The majority of potential goshawk habitat occurs in areas not accessible to the public.

Determination

Considering the above discussion of effects, it was determined that the re-issuance of the White Mountain Grazing allotment permits **may impact individual goshawks, but would not result in a trend towards federal listing or loss of viability**. This determination is based on the following factors:

1) Livestock will not be authorized to graze until after June 15th (and in some areas July 1st) which is after the nesting season for goshawk. This reduces direct impacts to nesting goshawks from livestock grazing.
2) Indirect impacts from grazing on goshawk habitat are limited to the potential for reduction of aspen regeneration. However, the current condition of aspen within the project area shows livestock grazing is not having a negative impact on aspen stands and under the proposed action aspen stands would continue to provide suitable nesting and foraging habitat for goshawk.

Sage Grouse

Direct and Indirect Effects

The White Mountains are within the Southern Mono "population management unit" (PMU) for the greater sage grouse (Sage Grouse Conservation Plan 2004). The majority of sage grouse use within the White Mountains occurs in the Crooked Creek and Barcroft Station areas, located south of the project area. Based on existing vegetation data, there are approximately 5,165 acres of potential sage grouse habitat within the four allotments. Sage grouse use and occurrence within the project area is largely unknown. This is due to the inaccessibility of sage grouse habitats, specifically in the spring during breeding season when population data is generally determined (Donham 2010, Morrison 2010). For this analysis it was assumed that potential sage grouse habitat is occupied during the breeding and nesting season and that sage grouse use within the allotments includes roosting and foraging from the early spring, summer, and fall months.

In January 2002 a petition was filed with FWS requesting that the greater sage grouse occurring in the Mono Basin area of Mono County, California, and Lyon County, Nevada, be emergency listed as an endangered distinct population segment (DPS) under the Act. On December 26, 2002, FWS published a 90-day finding regarding this petition and concluded that listing was not warranted. On April 29, 2008 the FWS published a 90-day finding on the petition to list the sage grouse as threatened or endangered (USDI Fish and Wildlife Service 2008). It was determined that the petition for listing presented substantial scientific or commercial information indicating that listing may be warranted. The FWS has initiated a status review to determine listing status. On March 23, 2010, the U.S. Fish and Wildlife Service published a 12-month finding for the petition to list sage grouse as a T&E species (USDI Fish and Wildlife Service 2010b). The finding found that the western-wide population of sage grouse was warranted but precluded

from listing. The Mono Basin population (or Bi-State population as referred to in the finding) is listed as a Distinct Population Segment (DPS), and is also warranted but precluded from listing (Ibid.). Sage grouse is now considered a candidate species under the Endangered Species Act and will continue to be a Forest Service Pacific Southwest Region sensitive species.

Livestock grazing can have negative or positive impacts on sage grouse habitat depending on the timing and intensity of grazing (Crawford et al. 2004). For example, early season light to moderate grazing can promote forb abundance/availability in both upland and riparian habitats (Crawford et al. 2004). Heavier levels of utilization decrease herbaceous cover, and may promote invasion by undesirable species (Crawford et al. 2004).

Direct impacts from livestock grazing can include disturbance during the breeding, nesting, early- and late-brood rearing seasons. Disturbances may lead to dispersal from the area or abandoning nest sites. Direct impacts also include inadvertent trampling of sage grouse and sage grouse nest sites by livestock. Although nest destruction by livestock trampling is rare, the presence of livestock can cause sage grouse to abandon their nests (Crawford, Olson et al. 2004; Call and Maser 1985). Direct impacts also include those related to vegetation structure. Grazing can remove grass or forb cover that helps conceal sage grouse nests from predators (Hockett 2002; Beck and Mitchell 2000). Overall, livestock grazing appears to mostly affect productivity of sage grouse populations (Beck and Mitchell 2000). Productivity is decreased when nests are unsuccessful (e.g. predated, abandoned, trampled) or habitat quality is too poor to provide insects and forbs during the brood rearing period.

Indirect impacts to sage grouse habitat can include changes in composition, density, and structure of vegetation and removal of brood forage and cover in meadows (Call and Maser 1985; Crawford et al. 2004). Trampling of vegetation by livestock can kill sagebrush, particularly the smaller plants (Beck and Mitchell 2000).

Grazing can also move sagebrush-grass communities into lower successional stable states dominated by sagebrush with little herbaceous understory (Beck and Mitchell 2000). The reduction in herbaceous understory can reduce the understory cover and decrease the suitability of these areas for nesting.

The reduction in forbs during the spring and summer may also limit their availability for sage grouse broods (Hockett 2002). Localized and concentrated use by livestock can reduce understory grass cover, which may impact the quality of nesting habitat the following year and may affect nesting if grazed during the late spring (Beck and Mitchell 2002).

Mating Habitat

Under the proposed action, direct disturbance to mating sage grouse within the project area would not impact sage grouse. This is due to the time of year when sage grouse mate (March/April) and that

livestock are not present within these areas at this time of year. The proposed action delays the start of the grazing season until after July 1 each year within suitable sage grouse habitat. Livestock grazing within lek sites would not occur until after the mating season. Grazing may reduce some understory cover; however, proposed allowable use standards would allow for the continuation of understory cover in areas surrounding lek sites.

Nesting Habitat

Direct impacts to sage grouse during the nesting season would be reduced under the proposed action, as livestock would not be authorized within sage grouse habitat until July 1, after nesting has completed. Grazing after July 1st would reduce the likelihood of trampling of nests and other disturbances which would lead to sage grouse flushing or abandonment of nest locations.

Some level of habitat alteration is occurring under current grazing systems and would be expected to continue, to a lesser degree, through implementation of the proposed action. The proposed action would allow for livestock grazing management changes to allow for desired conditions to be met for each allotment and key area. These management changes include, but are not limited to, changing livestock distribution, changing allowable use standards within key areas, establishing allowable use standards within upland vegetation (sagebrush), implementing adaptive management actions.

By evenly distributing livestock, sagebrush would have a reduced impact by trampling. Under the proposed action livestock distribution would be managed to evenly distribute livestock throughout the suitable rangelands. Evenly distributed livestock would reduce the overall trampling of sagebrush, in site-specific areas, where higher concentrated use would reduce sagebrush productivity.

The establishment of these key areas would allow current conditions to be assessed and allowable use standards to be implemented following Amendment 6. Heavier levels of utilization decrease herbaceous cover, and may promote invasion by undesirable species (Crawford et al. 2004). Currently allowable use standards have not been established within upland areas to address current conditions. This may be leading toward understory herbaceous cover being reduced. Under the proposed action two key areas would be established within upland vegetation. Until these key areas are established the allowable use for uplands would be grazed at a standard of 50% on herbaceous and browse, until current conditions are assessed and allowable use standards are determined under Amendment 6. An allowable use standard of 50% is considered moderate, which is generally compatible with the maintenance of perennial grasses and forbs in sagebrush habitat (Crawford et al. 2004).

Within the White Mountain allotments the most productive sites, and therefore the sites used more frequently by livestock, are meadows. Livestock graze within sagebrush habitats, but this use is not as frequent as within meadows. Those upland areas which do receive livestock use are rated as moderate and moderate/low use; which are areas where livestock is more dispersed. Allowable use standards within meadows are generally reached before allowable use standards in the sagebrush uplands, and once allowable use is reached at any area in the allotments the livestock must be removed from those sites.

The proposed season of use for all allotments, particularly in sage grouse habitat, would be July 1st to September 30th. Livestock grazing in the Cabin Creek area of the Indian Creek allotment would not be authorized to graze until mid-August to reduce impacts to Paiute cutthroat trout. Sage grouse habitat is found within this area, as Cabin Creek is located in Chiatovich Flats. This late season of use, on all allotments, and the allowable use standards would allow for the continuation of sage grouse habitat for both the current season of use and the following season, as grass cover would remain in optimum levels for sage grouse nesting. By grazing forbs and grasses when they are dormant (late season use), range conditions can be maintained in good condition and also allow for improvement (Hockett 2002). Furthermore, monitoring of upland key areas would provide information regarding current vegetation and watershed conditions and if the established allowable use is maintaining sage grouse habitat.

Proposed livestock grazing will not impact sagebrush cover, as livestock use within these areas is authorized for cattle, which generally do not forage on brush species (Crawford et al 2004), as it is not palatable. For browse species livestock may forage on an allowable use standard of 50% would be implemented for upland areas. This would insure that other shrub species which may be used for cover are maintained as suitable for sage grouse use. Due to the higher productivity of meadows within the White Mountain allotments, allowable use would be reached in these areas before use in the uplands.

Brood-rearing habitat

Under the proposed action livestock may enter sage grouse habitat after July 1. General sage grouse life stages have brood-rearing season ending typically in early July; however, some variation may occur based on specific life stages for separate sage grouse populations. Therefore there is potential for sage grouse to utilize meadows while livestock are present within the allotments. Some disturbance is anticipated, but this disturbance would be short in duration, only happening for those times livestock are present at the same time as sage grouse. Based on field observations of other sage grouse areas (such as Long Valley) sage grouse do not seem to be displaced or avoid these areas while livestock grazing is occurring (Perloff pers comm. 2009). Livestock would be entering sage grouse habitat near the end of brood-rearing season, further reducing the changes of sage grouse/livestock interactions in these meadow systems.

Under the proposed action there would be changes to allowable use standards based on key area conditions. The reduction in forbs during the spring and summer may also limit their availability for sage grouse broods (Hockett 2002). Competition for forage may be occurring within some vegetation communities within the allotments, such as meadow systems. Sage grouse may utilize the meadow systems during the same time as livestock. The desired species sage grouse forage on include forbs; livestock within meadow systems may also feed on forbs, but mainly target grass or grass-like species. Although forage competition may be occurring, allowable use standards established for meadow systems under the proposed action would allow for the continuation of suitable foraging species.

The proposed allowable use standards are considered light (<40%) and moderate (40%-60%) and would still allow for suitable sage grouse as it is generally compatible with maintaining perennial grasses and forbs in sagebrush habitat (Crawford et al. 2004). Brood-rearing habitat may be enhanced by grazing practices that favor upland forb production (e.g. fall grazing) and prescribed light (<40%) to moderate (40-60%) spring grazing can remove standing herbage and make forbs more accessible (Crawford et al 2004). Those meadows proposed for 5%-20% allowable use, which is considered "light" (Beck and Mitchell 2000) would not negatively affect forb production or insect availability. This would still provide for suitable sage grouse brood-rearing habitat. As noted in the Rangeland Management Report, with the implementation of the riparian and upland utilization standards as described in the proposed action, improved conditions are expected (Robson and Goehring 2010).

Past livestock management has lead to key area DC-1 in the Davis Creek allotment to rate as Non-functioning. To address this key area the proposed action would rest this key area until recovery is documented. Recovery may include an improvement in surface mineral or organic thickness and headcuts and nick points from Degraded to At-risk condition. Although this meadow is rated as Non-functional, this is in relation to watershed conditions and not vegetation condition. The vegetation condition was listed as good with a slight departure from desired condition. A slight departure means that desired plant species are present, but at a lower ratio compared to the total herbaceous vegetation found at this site. The presence of desirable species allows for suitable sage grouse brood-rearing habitat, as desirable species can be foraged upon by sage grouse chicks or this vegetation provides habitat for insect species, also needed by chicks. By resting this meadow, conditions would improve over time and still provide for sage grouse brood-rearing habitat.

Under the proposed action allowable use standards within meadow systems in the Indian Creek allotment would be lowered from current use standards. This reduction in allowable use would allow for these meadows to begin recovery and allow for the continuation of suitable sage grouse habitat.

The PA-1 key area would receive a higher allowable use standard than current management. This is due to how current vegetation and watershed conditions were rated under the Amendment 6 protocol. Although this use is established at a higher rating it still is considered light (<40%) and would allow for

suitable sage grouse habitat.

Under the proposed action it is still reasonable that allowable use standards would be met within meadow habitats before upland sites, as these areas are more productive. The changes to allowable use to a lower amount may reduce the time livestock are present within meadow systems.

If continued monitoring of these key areas shows no change to vegetation or watershed conditions then adaptive management actions would be implemented to address these conditions. Adaptive management actions (Table 9) can include, but are not limited to, changes in allowable use or changes to grazing management such as implementing a different grazing system.

Winter Habitat

The majority of wintering habitat occurs outside of the project area and may be considered the limiting factor for this population of sage grouse.

Cumulative Effects

Other management activities which may impact sage grouse within the White Mountains include rangeland structures such as fences and water developments, wild horse use, recreational use, development leading to loss of habitat, and habitat fragmentation caused by expansion of pinyon pine. These activities are cumulatively lowering sage grouse habitat suitability over time, promoting the spread of invasive weeds; increasing the risk of mortality due to the presence of fences around lek areas, and resulting in an increase in human disturbance events that may cause the species to potentially avoid habitats and experience disruptions of important life activities such as nesting, foraging, and escape from predators.

Rangeland improvements, such as fences and water developments, do occur within the cumulative effects area. There is approximately a total of 2.5 miles of fences within the Cottonwood Creek and Tres Plumas Creek areas. These fences are located within suitable sage grouse nesting habitat. There are no documented occurrences of sage grouse mortality due to the presence of these fences; however, knowledge of sage grouse use and impacts to this population is limited, therefore fences within these areas may be having an impact on sage grouse. Fencelines do not impact sage grouse habitats, but are more correlated with direct impacts such as mortality. There are no new proposals to create new fences within the project area or cumulative effects area within sage grouse habitat.

Wild horses occur within the project area and the cumulative effects analysis area. Wild horse use can lead to impacts around spring sources and meadows, which are limited within the White Mountains. Wild horse use may lead to trampling of suitable forage species; specifically forbs utilized by sage grouse chicks. Meadow systems which offer suitable habitat for brood-rearing can be particularly impacted by wild horses due to the limited amount of water within the horse territory. However, impacts from wild horses have been reduced due to the reduction in the wild horses in this area. Although current numbers

are a little above the targeted population level, they are not at such as level where impacts would lead to overall degradation or loss of meadow habitats within sage grouse habitat.

Recreational use which impacts sage grouse habitat includes OHV-type activities. Effects of OHV use on sage grouse populations may be limited in this area. Impacts from OHV activities do not occur during the breeding season and the early nesting season. This is due to weather conditions which restrict access to these areas. Impacts most likely occur during the brood-rearing season, but chicks are more mobile and may be capable of avoiding the areas being disturbed. The presence of roads and OHV use does have the potential to increase the spread of noxious or invasive weeds such as cheatgrass. Cheatgrass has been observed within the project area and the presence of cheatgrass may lead to a reduction in understory forage species such as native forbs.

Development is occurring in the lower elevations of the White Mountains, just east of the project area. This lower elevation country may be providing suitable wintering habitat for sage grouse; however, wintering sage grouse have not been documented using this area and information on occupied winter habitat is limited for this population (Sage Grouse Conservation Plan 2004).

Pinyon pine has expanded throughout sage grouse range in the West and in the White Mountains. This expansion has lead to fragmentation and loss of some potential sage grouse habitat. It is not possible to quantify the amount of pinyon expansion occurring within the CEA, but aerial photos show that this expansion is happening within potential wintering sage grouse habitat. This expansion may lead to a further reduction in the areas suitable for sage grouse use; particularly winter range.

Within the White Mountains, salt cedar, pepperweed, and white sweetclover are found within several canyons on the east and west side of the White Mountains. Populations of salt cedar are currently being treated, as well as a small population of pepperweed. Cheatgrass is the most prevalent occurring throughout the lower elevations of the White Mountains. Noxious weeds present within the project area include whitetop. Whitetop is found in the lower elevations of Indian Creek just inside the Indian Creek allotment boundary. Invasive weeds present within the project area include: red brome, cheatgrass, Halogeton, white sweetclover, Russian thistle, salt cedar, and dandelions. Under the proposed action all new populations of noxious weeds, when discovered, will be treated following treatment recommendations in the Weed Eradication and Control on the Inyo NF EA (2007). Livestock grazing may lead to the spread of invasive species within the project area; however there are other vectors which may lead to this spread also, these include recreational activities, wildlife, and climate change.

Determination

Considering the above discussion of effects, it was determined that re-issuance of the White Mountain Grazing allotment permits **may impact individual sage grouse, but would not result in a trend towards federal listing or loss of viability**. This determination is based on the following factors:

1) Portions of allotments suitable for sage grouse nesting will not be authorized to graze until after July 1st, when sage grouse have completed the breeding and nesting season for this area.
2) All meadow systems will have an established allowable use standard based on current conditions or conditions after adaptive management monitoring.
3) Utilization standards will continue to allow for suitable cover needed during the nesting and wintering seasons.

Pallid and Townsend's big-eared bat

Direct and Indirect Impacts

Livestock grazing impacts to pallid bat and Townsend's big-eared bat may include some disturbance if livestock move through areas near hibernating or roosting habitat. Livestock movements into historic mining areas are limited due to terrain and lack of forage near adits and shafts. Any movement of livestock in these areas is incidental and short in duration. Livestock would not impact bats during hibernation as livestock grazing does not occur within these allotments during that time of year.

Indirect livestock grazing impacts may include the loss of potential habitat for prey species by way of trampling or foraging. This can especially be true within riparian areas where these bats may forage. However, due to the amount of potential foraging bat habitat within the project area and the areas in which bats roost, livestock grazing would not impact this habitat in such as way as to reduce the availability of suitable foraging habitat. Utilization levels would be established which would allow for the continuation of canopy cover for potential prey species.

Cumulative Effects

Cumulative effects to bats include any activity which would disturb suitable roosting or hibernating habitat. Mining, mining reclamation, and cave explorations have the highest potential for impacts to bats species in the project area. Any new mining or mining reclamation projects would be analyzed for impacts to pallid and Townsend's big-eared bat. Recreational activities near mines and into adits, shafts, or caves may occur. Many of the mines are located in areas accessible to the public and as the public explores these areas disturbances from this activity may impact bat species.

Determination

Considering the above discussion of direct, indirect, and cumulative impacts, it was determined that the re-issuance of the White Mountain Grazing Allotment permits **may impact individual Pallid and Townsend's big-eared bats, but would not result in a trend towards federal listing or a loss of viability**. This determination is based on the following factors:

1. Habitats in which pallid bats and Townsend's big-eared bats occur (historic mining areas) receive limited use from livestock, reducing the direct impacts of disturbance in these areas.

2. Livestock grazing impacts on suitable bat foraging habitat are minimal based on proposed utilization standards and season of use by livestock.

Panamint alligator lizard

Direct and Indirect Impacts

The project area contains potential habitat for Panamint alligator lizard. Direct impacts from livestock grazing to Panamint alligator lizards are limited to the potential for mortality caused by trampling. However, alligator lizards tend to occur within talus or boulder slopes adjacent to riparian areas. Livestock, particularly cattle, tend to avoid talus or boulder slopes. Trampling has a higher potential to occur while alligator lizards are within the riparian corridor, where interactions with livestock are more likely to occur. However, although there is potential for direct impacts from livestock, this impact is limited.

Indirect impacts from livestock grazing can include those which alter or remove suitable vegetation for alligator lizards. These indirect impacts are more likely to occur within the riparian corridor where livestock grazing occurs. Impacts to alligator lizard habitat would include the loss of cover due to trampling or removal of vegetation by foraging. Within the project area allowable use standards will be lowered within riparian/wet meadow areas.

Cumulative Effects

Cumulative effects to Panamint alligator lizard habitat within its range in the White Mountains include mineral exploration, OHV/recreational use, and the introduction of non-native invasive plant species. Proposed mining operations may lead to an increase in construction or improvements of access roads in concert with increased vehicular traffic through or adjacent to riparian habitat utilized by alligator lizards, increasing potential for mortality from vehicles.

OHV and recreational uses of this area may include travel across steep canyon walls and washes increasing the risk of mortality and impacts to suitable habitat. Within occupied Panamint alligator lizard habitat, recreational use is more restricted due to the terrain in which lizards occur.

Determination

Considering the above discussion of effects, it was determined that the re-issuance of the White Mountain Grazing allotment permits **may impact individual Panamint alligator lizards, but would not result in a trend towards federal listing or a loss of viability**. This determination is based on the following factors:

1) Habitats in which Panamint alligator lizards are found (talus, boulder slopes) receive limited use from livestock, reducing direct impacts from trampling.

2) Livestock grazing impacts on cover within riparian areas may be reduced by trampling or foraging; however, the proposed action allowable use standards will allow for the continuance of suitable cover due to the lowering of allowable use standards and monitoring which will occur in these areas following Amendment 6 protocol.

Aquatic Species

The Biological Evaluation for Aquatic Species (Sims 2010) identified one Forest Service sensitive aquatic species that has the potential to occur within the project area, which is the Wong's springsnail. It was determined through surveys that there is no potential habitat or occurrences of this species within the four allotments. There will be no affect to any Forest Service sensitive aquatic species occurring on the Inyo National Forest (Sims 2009b; Sims 2010).

Management Indicator Species

A Management Indicator Species (MIS) Report, which analyzed the project-level effects on MIS habitat was completed (Murphy and Sims 2010) and is briefly summarized here. The MIS whose habitat would potentially be either directly or indirectly affected by the proposed action and were selected for project-level MIS analysis include: macro-invertebrates (riverine and lacustrine), Pacific tree frog (wet meadow), greater sage grouse (sagebrush), and yellow warbler (riparian). It was determined that the project-level impacts would not alter the existing trend in the habitat, nor will it lead to a change in the distribution of macro-invertebrates, Pacific tree frog, greater sage grouse, and yellow warbler. The implementation of the LRMP Amendment 6 grazing standards was designed to specifically improve, maintain and promote the recovery of watershed conditions throughout the allotments. In addition, allowable use standards would be adjusted based on the condition of key areas within the allotments. This would maintain or improve suitable habitat conditions for each of these species.

Other Wildlife Species of Interest

A Wildlife Specialist Report was completed for nine wildlife species of interest, including mule deer, desert bighorn sheep, pronghorn, pika, western white-tailed jackrabbit, spotted bat, silver-haired bat, western small-footed myotis, and long-legged myotis (Murphy 2010b). The analysis for mule deer and desert bighorn sheep is provided below.

Mule Deer

Mule deer found within the project area are part of the Inyo-White Mountain deer herd. The project area is located within the summer and winter range of the White Mountain portion of this herd, which ranges from Highway 168 north to Highway 6. Mule deer within this herd generally summer at higher elevations (8,000 to 10,500 feet) and winter in the lower elevations (6,000 to 8,500 feet) of the eastern side of the White Mountains. California Department of Fish and Game (CDFG) conducts yearly population counts for this deer herd; however, due to the rough terrain and dense pinyon, they have been unable to determine population numbers. An estimated population is around 500 animals (Ellsworth pers. comm. 2008).

Direct and Indirect Effects

There is potential for forage competition between mule deer and authorized livestock within the project area. This is especially true for areas where livestock concentrate, such as stream corridors and other areas with succulent vegetation (i.e. meadows). The forage species (grasses and forbs) within these areas have been shown to be preferred by deer, as well as livestock. The importance of competition from livestock can be expected to be the greatest during spring, when nutritional needs of deer, particularly young fawns, are highest. Under the proposed action livestock would not be permitted within the project area until June 15th, after fawning has occurred. This would reduce forage competition between young fawns and cattle.

Furthermore, allowable use in riparian areas would be established at 45% or less on herbaceous vegetation and 20% allowable use on browse species. These standards would allow for 55 to 80% of suitable forage to remain for wildlife, including mule deer. If these standards cannot be achieved then other management actions would occur to allow these standards to be reached. These actions include rotating areas livestock use or resting the allotment. Livestock would be removed from the allotment when the permitted season is over (September 30) or when allowable use standards have been reached. These management actions would allow for the continuation of suitable mule deer forage.

Livestock use within these meadow and riparian areas also increases the disturbance to these areas during fawning. The limited available fawning habitat within the project area and the increased pressure from predators has changed deer fawning behavior in this area. Deer are utilizing steep slopes near the tree line and then move to riparian and meadow areas to forage (Ellsworth pers. comm. 2008). As stated above, the earliest on-date for these allotments would be June 15th after fawning has occurred; this further reduces direct impacts to fawning.

Cumulative Effects

Wild horse use within the project area has impacted mule deer habitat in the past (USDA 1976). However, a recent gather has lead to an overall decrease in the amount of wild horses within the project area to 79. This number is just above the recommended management level of 70. Wild horse utilization of mule deer foraging habitat has decreased due to this reduction in numbers therefore the project area is still providing suitable foraging habitat for mule deer.

The lower elevational winter range areas on the east side of the White Mountains are currently being fragmented due to housing developments. These developments may be reducing suitable winter habitat. The expansion of pinyon pine within these areas also may be impacting areas mule deer utilize during the winter and the suitability of foraging habitat.

Desert Bighorn Sheep

There is a population of Nelson's bighorn sheep within the White Mountains and project area. This population is estimated at 200 to 300 animals (Ellsworth pers. comm. 2008). The current range of bighorn sheep includes the entire west slope and crest from White Mountain Peak to Montgomery Peak

(Wehausen 1983). Bighorn use is restricted to areas which are visually open and close to rocky escape terrain. Based on bighorn sheep data provided by CDFG, bighorn have been observed in all the allotments of the project area, with the highest use on the steep rocky slopes in the very southwest corner of the Perry Aiken allotment. Under management direction in the Inyo LRMP portions of the Perry Aiken allotment would be excluded from cattle grazing to protect bighorn sheep. The area excluded from cattle grazing includes the headwaters of the South Fork of Perry Aiken Creek. This area is not suitable for livestock grazing, particularly cattle, as it includes steep, rocky, escape terrain only suitable for bighorn sheep. Under the proposed action this area would still remain excluded from cattle grazing.

Direct and Indirect Effects

Impacts from livestock grazing on bighorn sheep are limited due to the different habitats used by these species. Forage competition does have the potential to occur, particularly in the early season when grasses and forbs are available in the sub-alpine areas bighorn and cattle may use. The earliest on-date for livestock in this area is June 30th and this is when forage competition may occur between cattle and bighorn sheep, as bighorn are utilizing north-facing slopes where green-up occurs later in the year. As the season progresses, however, bighorn sheep move into areas which are not utilized by livestock due to terrain. Overall, within the project area, forage competition between livestock, particularly cattle, and bighorn sheep is limited, as these species are utilizing different habitats and foraging areas. Wehausen (1983) noted that there is no indication that cattle in the White Mountains are involved in exploitation competition for forage with bighorn sheep. While cattle ranges overlap the fringes of bighorn range in some areas, and both species show a preference for graminoid species, forage is not in short supply in these minimal overlap zones.

Livestock are not present within the project area during critical rutting or lambing seasons, which reduces the impacts to bighorn during these periods.

Cumulative Effects

Wild horse use overlaps bighorn habitat from north of Mount Dubois to the area of the headwaters of Rock Creek, and to an unknown extent in eastern canyons in that region, where bighorn rams occasionally wander (Wehausen 1983). This overlap is minimal in that horses prefer the flats on top of the range while bighorn prefer the slopes immediately below where escape terrain is closer at hand. Range overlap between these species mostly involves rams (Ibid). Exploitation competition is unlikely to be occurring; however, the number of wild horses within this area is unknown and if these populations expand beyond the 70 Animal Management Level, then competition may occur.

3.7 Plants and Noxious Weeds

The discussion below is summarized from the Biological Evaluation for Sensitive Plant Species and the Noxious Weed Risk Assessment for the White Mountain Grazing Allotments, which are hereby incorporated by reference (Weis 2010; Weis 2010b).

Species considered in this analysis were identified from 1) a list of threatened, endangered, and proposed species potentially occurring on the Inyo National Forest, provided by the US Fish and Wildlife Service (USFWS 2009); 2) a list of endangered, threatened and sensitive species in the Forest Service Pacific Southwest Region (FSM 2672.11); and 3) the October 2006 Inyo National Forest Sensitive Plant List (FSM 2672.24).

In addition, six species on the Inyo National Forest Watch list were identified as occurring within the four allotments and effects on them are also considered in the EA.

3.7.1 Direct, Indirect, and Cumulative Effects of No Action (Alternative 1)

Under the no action alternative, it was determined that there would be no direct, indirect, or cumulative effects to PTES plant species.

3.7.2 Direct and Indirect Effects of the Proposed Action (Alternative 2)

The plant species biological evaluation for the White Mountain Grazing allotments (Weis 2010) identified seven sensitive plant species known to occur in the project area (Pinzl's rock cress, common moonwort, White Mountains horkelia, Mono phacelia, Mason's sky pilot, Mono ragwort and Masonic Mountain jewel-flower) and eight sensitive species for which potential habitat exists within the project area (Coville's dwarf abronia, Bodie Hills rock cress, Shockley's rock cress, upswept moonwort, scalloped moonwort, White Mountains draba, Morefield's cinquefoil and Dedeckers clover). Based on their rocky high elevation habitat, it was determined that continued grazing in the four White Mountain allotments under consideration will have no effect on Mason's sky pilot or Mono ragwort.

Based on effectively using Amendment 6 adaptive management of the grazing in the four White Mountain allotments, monitoring of Pinzl's rock cress habitat in Trail Canyon, and the expected reduction in overall trampling and habitat impacts compared to historical levels, it was determined that the proposed activity may impact individuals but will not lead to a trend to federal listing or loss of viability for Pinzl's rock cress, White Mountains horkelia, Mono phacelia, Masonic Mountain jewel-flower, Coville's dwarf abronia, Shockley's rock cress, White Mountains draba, Morefield's cinquefoil, Dedecker's clover, Bodie Hills rock cress, upswept moonwort, scalloped moonwort, or common moonwort.

No federally listed proposed, threatened, or endangered plant species have potential habitat or occur within or adjacent to the project area.

Watch list species occurring in the project area include California draba, Sierra draba, Barneby penstemon, Marsh's blue grass, Mojave fish-hook cactus, and cushion townsendia. Based on their rocky high elevation habitat, there will be no effect to Sierra draba, Marsh's blue grass, or cushion townsendia.

The only known location of California draba in the allotments is on very steep slopes, mapped as barren of vegetation, above Trail Canyon, where cattle are not likely to stray (low-medium use mapped). This plant species has a wide range of known habitat so there is potential habitat in meadows and along streams that could be visited by cattle. Enforcing the proposed grazing levels should protect these habitats, although some individuals could be trampled or eaten by cattle. Similarly, Barneby's penstemon is a plant of moist soils along streams and could be negatively affected by cattle use. Again, the proposed grazing levels are designed to protect riparian habitat and any damage will be limited to a few individuals.

The Mojave fish-hook cactus is found in dry sagebrush habitat that would be lightly used by cattle and it would not be a usual food item, so any impacts to this species would be local and minor trampling. Cattle use in the known location of the cactus is unknown.

Barneby's penstemon is only known in California from lower elevation part of Busher Canyon on the Perry Aiken allotment, although it is very common in Nevada. Previous cattle use at the key area at the head of the canyon was limited to 5% incidental use. Cattle did not use the lower part of the canyon to access the upper canyon, but instead used either Perry Aiken or Leidy Creeks (Goering 2010). The habitat for this species is moist calcareous gravel along streams, so some trampling could occur, but would be unlikely since the habitat is not in an area of normal use.

The Noxious Weed Risk Assessment (Weis 2010b) identified six invasive weed species known to occur within the project area, including cheatgrass, red brome, hoary whitetop, halogeton, Russian thistle, and salt cedar. There are some risks that weed species, annual brome species in particular, may continue to spread in the analysis area as a result of livestock use, and new species could potentially be introduced when livestock enter the area at the beginning of the season. The measures taken to reduce spread and control existing infestations will lessen this risk compared to the current situation.

The overall risk of habitat alteration from this project contributing to weed vulnerability is moderate. Measures taken to reduce spread and control of existing infestations (directed pasture rotations to use known weedy areas last and some direct control efforts) would lessen this risk compared to the current situation.

3.7.3 Cumulative Effects

The proposed action authorizes continued grazing, and sensitive plant occurrences would continue to be affected to some degree by trampling and grazing. Wild horse grazing has effects most similar to cattle grazing and is additive, but because utilization and watershed conditions are based on existing condition, wild horse use is not expected to cause negative effects outside those expected at allowable grazing

levels. Based on the fact that some historical occurrences have been relocated and have therefore persisted through past heavier grazing, and it is possible that future searches would locate more of these. Therefore, it does not seem likely that the proposed action would cause a significant cumulative impact for sensitive plant species. Monitoring included with the proposed action would help to verify that no additional occurrences would be extirpated due to implementation of the proposed action.

3.8 Cultural Resources

Summarized from the Heritage Resource Report for the White Mountain Allotment Analysis, which is hereby incorporated by reference (Elliott 2010; HRR #2007-05-04-01275).

The protection of cultural resources has been incorporated into the Proposed Action, and would follow the stipulations in the Programmatic Agreement (PA) among the USDA, Forest Service, and the Advisory Council on Historic Preservation, Regarding Rangeland Management Activities on National Forest System Lands (June 26, 1995) and the Memorandum of Understanding among the USDA Forest Service, Pacific Southwest Region, California State Historic Preservation Officer, and the Nevada State Historic Preservation Officer regarding Rangeland Management Activities, 1996 (MOU) and the Rangeland Heritage Resources Management Activities, Inyo National Forest, California and Nevada, 1997 (INF Supplemental).

The inventory strategy for this analysis focused on all High Use and Key Areas. Moderate Use and Low Use areas will receive a "selective" survey, per the MOU. High Use areas and Key Areas are defined in the MOU as "Areas which receive concentrated use from livestock grazing activities, where use is intense enough to cause possible degradation of the environment and or heritage resources through erosion, compaction, or trampling." These areas include but are not limited to seeps, springs, creek banks, meadows, shade areas, watering troughs, stock drives and bedding areas. All High Use and Key Areas within the four allotments have been surveyed for cultural resources.

3.8.1 Direct, Indirect, and Cumulative Effects of No Action (Alternative 1)

If grazing is not permitted in these four allotments, no direct or indirect effects are anticipated. However, since no monitoring would be conducted, any effects from grazing that already exist could worsen through erosion.

3.8.2 Direct and Indirect Effects of the Proposed Action (Alternative 2)

Twelve cultural resources have been identified within High Use areas. None of these have been evaluated for the National Register of Historic Places (NRHP) and are therefore treated as eligible until determined otherwise. These sites were visited by a Cultural Resource Specialist and analyzed for direct and indirect effects caused by livestock grazing. Five cultural resources were found to be experiencing some disturbance; however, these effects were ambiguous, and it is not possible at this time to determine whether grazing is causing an adverse effect to the NRHP characteristics of the site. One of these sites

has incurred damages from livestock grazing; however, it is unlikely that the grazing disturbance will spread into the undisturbed portion of the site. Annual photo monitoring is prescribed as treatment for the five sites identified with indefinite effects in order to track whether site condition changes as a result of continued grazing. If adverse effects are found, then Standard Resource Protection Measures (according to the MOU 1996) will be implemented in order to protect the site from further damage. Standard Resource Protection Measures for this project may include, but are not limited to, maintaining or reconstructing existing range improvements, constructing new range improvements to reduce or eliminate impacts to cultural resources and removing, or re-locating the High Use area to another location devoid of cultural resources. At this time no heritage resources require standard protection measures to avoid adverse effects from continued grazing. In addition, the other seven cultural resources do not require any standard resource protection measures and are not at risk from continued grazing.

It was determined that the Proposed Action to continue livestock grazing would not likely have an adverse effect to the 12 cultural resources identified within High Use of Key Areas. Continued grazing does present the potential for adverse effects; however, none were observed during this analysis, and it is anticipated that through monitoring and additional survey that these would be identified and treated with Standard Resource Protection Measures.

3.8.3 Cumulative Effects of the Proposed Action (Alternative 2)

Cultural resources are non-renewable resources that have continually been impacted by previous actions. Within the Area of Potential Effect (APE) previous actions that have affected cultural resources with similar intensity as the proposed project include: dispersed camping, looting, livestock grazing, the development of livestock related structures, wild horse use, construction and maintenance of roads, flooding and fluvial transport of cultural materials. These disturbances have for the most part been documented in the cultural site records, however the effects of these disturbances on the historic integrity of the resource has been largely undocumented and therefore cannot be accurately quantified for analysis. For the purposes of this analysis, it can be assumed that these previous actions potentially have affected cultural sites in similar ways to the direct and indirect effects of the present project.

Grazing, wild horses, recreation, and road construction are the four primary past actions that have affected cultural resources within the project area. Livestock grazing has occurred in the area for nearly 100 years. This use has generally occurred in areas near water where cultural sites are likely. Wild horses congregate near water sources as well and it was difficult to differentiate between these two animal disturbances during the analysis. Any damage to cultural sites from cattle grazing and wild horses has already occurred in a majority of these areas. The current analysis found that continued grazing is unlikely to cause any more damage to cultural sites.

Road construction, maintenance of roads, and use of roads by the public have also had an impact to cultural resources by first being constructed through many cultural resources, and second, by allowing the public to easily access sites and cause damage through camping, collecting and looting. Mining has also

had impacts to cultural sites within the area. Road construction to mines, borrow pits, and mining infrastructure have un-doubtingly caused irreversible impacts to cultural sites. Natural processes such as erosion, flooding, fluvial transport and neglect have also had effects to cultural features and artifacts.

It was determined that the undertaking would have a *No Adverse Effect* 36 CFR §800.5(b) determination, if through monitoring, no changes in site condition because of continued grazing are observed. With monitoring in place, the proposed action should have no cumulative effects on the contributing elements of the cultural resources within the grazing allotments.

3.9 Wilderness

The four allotments occur within a portion of the Boundary Peak and White Mountains Wilderness, with approximately 49,900 acres of designated wilderness within the 84,000 acre project area. See Map in Figure 1 and Appendix A.

Table 20. Allotment acreage within designated wilderness

Allotment	Allotment Acreage	Acreage within Boundary Peak Wilderness (10,700 acres)	Acreage within White Mountains Wilderness (252,600 acres)
Davis Creek	12,200	200	4,300
Indian Creek	16,000	0	10,500
Perry Aiken	28,500	0	26,500
Trail Canyon	27,300	6,200	2,200

The Boundary Peak Wilderness was included in the National Wilderness Preservation System by the Nevada Wilderness Protection Act of 1989, and the White Mountains Wilderness was designated through the Omnibus Public Land Management Act of 2009, both of which authorize grazing to continue, if established before the date of enactment of the Act, in accordance with section 4(d)(4) of the Wilderness Act. Grazing was established in the project area prior to passage of the Nevada Wilderness Protection Act of 1989 and the Omnibus Public Land Management Act of 2009. Grazing does occur within these wilderness areas and has been occurring since the mid-1850s, prior to the establishment of the Inyo National Forest. Congressional Guidelines in Forest Service Manual 2323.22 are to be applied in National Forest wilderness areas. The Guidelines state: "There shall be no curtailments of grazing in wilderness areas simply because an area is, or has been designated as wilderness, nor should wilderness be used as an excuse by administrators to slowly "phase out" grazing. Any adjustments to numbers of livestock permitted to graze in wilderness areas should be made as a result of revisions in the normal grazing and land management planning and policy setting process, giving consideration to legal mandates, range condition, and the protection of the range resource from deterioration."

The Boundary Peak Wilderness and the portion of the White Mountains Wilderness within the project area are located in a remote location on the east side of the White Mountains. Due to the remote location

and distance from population centers, the Boundary Peak Wilderness and White Mountains Wilderness receive minimal recreation use. Most of the recreation use (primarily day use and minimal overnight use) is focused on hiking to Boundary Peak (highest peak in Nevada) from a primitive trailhead at the end of the road in Trail Canyon. This primitive trailhead (small parking area, trailhead sign, and register) and trail (approximately 2 miles of trail) are the only recreation facilities in the project area. There are also roads in Middle Creek, Leidy Creek, and Indian Creek that end near the wilderness boundaries. Unmaintained trails (livestock trails) extend into the wilderness from the end of these roads and provide some hiking access; however, recreation use within the wilderness is very minimal even at these locations. Outside of hiking to Boundary Peak, hunting and general exploration are the primary recreation activities that occur within the wilderness in the project area.

This analysis will evaluate the effects of the no action and proposed action alternative on wilderness character using the four wilderness character qualities, which follows the guidance outlined in the General Technical Report "Applying the Concept of Wilderness Character to National Forest Planning, Monitoring, and Management" (Landres et. al. 2008). The four qualities of wilderness character are defined as follows:

Untrammeled: Wilderness is essentially unhindered and free from modern human control or manipulation.

Natural Conditions: Wilderness ecological systems are substantially free from the effects of modern civilization.

Undeveloped: Wilderness retains its primeval character and influence, and is essentially without permanent improvement or modern human occupation.

Solitude or Primitive and Unconfined Recreation: Wilderness provides outstanding opportunities for solitude or primitive and unconfined recreation.

3.9.1 Direct, Indirect, and Cumulative Effects of No Action (Alternative 1)

Commercial livestock grazing would be eliminated from the four allotments. All range developments currently in existence within the wilderness (fencing and water developments in Leidy Creek and Chiatovich Flats, both within the White Mountains Wilderness) would be left in place and not maintained. These developments are isolated, occupy a small footprint, and are located in remote locations; and the effect to the undeveloped quality would be negligible. There would be no effect to the other three wilderness character qualities from the no action alternative. Because there would be no effect or negligible effect to the four wilderness character qualities, the no action alternative is not likely to contribute toward significant cumulative effects to wilderness character.

3.9.2 Direct and Indirect Effects of the Proposed Action (Alternative 2)

Under the proposed action alternative, grazing would occur within the Boundary Peak and White Mountains Wilderness. Key areas, high use areas, moderate use areas, moderate/low use areas, and low use areas have been identified for these grazing allotments. Key areas are grazing areas that are monitored for vegetation and watershed conditions, and are selected to represent similar ecological conditions within the allotment. Livestock use levels, referred to as use areas, were identified for the purpose of focusing cultural resource survey efforts in areas where grazing use occurs, and relates the livestock use levels to the potential for ground disturbing impacts (refer to section 3.9). For example, high use areas are areas which receive concentrated use from livestock grazing activities, where use is intense enough to cause possible resource degradation through erosion, compaction, or trampling. In contrast, moderate and moderate/low use areas are areas where livestock are more dispersed, such as upland locations where impacts are likely to be more peripheral and less ground disturbing. Low use areas are generally located where very little to no livestock impact is expected to occur. For the purpose of this analysis, key areas, high use areas, moderate use areas, and moderate/low use areas are used to describe where the primary grazing activity is occurring within wilderness and where some ground disturbing effects may be evident. A description of grazing use areas within designated wilderness by allotment is provided below.

Boundary Peak Wilderness

Trail Canyon Allotment: Within the Boundary Peak Wilderness, a high use area (approximately 80 acres) and one low-moderate use area (approximately 500 acres) was identified within Trail Canyon. One key area is located within the Boundary Peak Wilderness.

White Mountains Wilderness

Davis Creek Allotment: Moderate/low use areas were identified along the North Fork Chiatovich Creek, South Fork Chiatovich Creek, and Davis Creek within the White Mountains Wilderness (approximately 900 acres). There are no key areas within the wilderness.

Indian Creek Allotment: Within the White Mountains Wilderness, a high use area (approximately 30 acres) and moderate use area (approximately 300 acres) was identified along Indian Creek. In addition, approximately 2,200 acres along Cabin Creek and Chiatovich Flats were identified as a moderate use area. All three key areas are located within the White Mountains Wilderness.

Perry Aiken Allotment: Within the White Mountains Wilderness, a moderate use area was identified along Leidy Creek (approximately 400 acres). All three key areas are located in Perry Aiken Flat within the White Mountains Wilderness.

The potential effects of the proposed action on the four qualities of wilderness character are described below:

Untrammeled: Wilderness is essentially unhindered and free from modern human control or manipulation. There are no actions associated with this alternative in these areas that impose intentional controls or manipulations of ecological processes that affect ecosystems at the wilderness scale.

Natural Conditions: Wilderness ecological systems are substantially free from the effects of modern civilization. The Wilderness Act makes it very clear that wilderness areas serve as a contrast to modern civilization. They are places where "man and his own work do not dominate the landscape." The Forest Service manages for natural processes to dominate the landscape, recognizing that conditions vary, cycle and evolve over time. Under this alternative, the natural conditions of wilderness would continue to be a contrast to modern civilization. The proposed action would have minor, localized effects to natural conditions of wilderness; however, disturbance by commercial livestock to natural processes would be limited to very site-specific locations where grazing may contribute to localized trampling of vegetation, soil compaction, and erosion. Grazing of commercial livestock would occur in meadows, riparian areas, and upland areas determined to be suitable for grazing, and grazing would be administered with allowable use standards, streambank trampling standards, and adaptive management actions applied through annual operating instructions. The proposed action incorporates specific grazing management actions designed to maintain or move toward desired conditions based on existing watershed and vegetation conditions (described in section 1.4), following direction outlined in the LRMP Amendment 6: Forest-wide Range Utilization Standards (USDA Forest Service 1995).

No significant effects to any species or ecological process would occur as a result of livestock grazing; a rich diversity of flora and fauna would remain. This is because allowable use levels, season of use, and other site specific design criteria are within an acceptable level that protects species and processes. This is not to say that there would be no disturbance or effects to natural conditions, but that the disturbance would occur at few locations, for a limited duration, and would remain within acceptable levels. The proposed action is expected to have minor to moderate effects at a few site specific locations to the natural conditions quality. However, it is expected that wilderness character would be maintained overall.

Undeveloped: Wilderness is essentially without permanent improvements or modern human occupation. The level of development that would occur with this alternative is not expected to change from current conditions; however, there is a possibility that through adaptive management actions fencing may be constructed to control livestock distribution patterns or protect sensitive resources. If there is a need for this type of development, it would occur at very site specific locations and would be constructed in such a way as to minimize impacts to wilderness character. Trails used by livestock, as well as visitors to the wilderness, fencing, and two water developments are the only features considered to have any developed characteristics. The level of development is isolated and occupies a small footprint within wilderness, and it functions to protect resource conditions. The proposed action is expected to have a negligible effect on the undeveloped character of wilderness.

Outstanding opportunities for Solitude or a Primitive and Unconfined type of recreation: Wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation including the values of inspiration and physical and mental challenge. The proposed action alternative would have little to no effect on the unconfined recreation of wilderness visitors. Visitors are free to hike and camp where they wish and to enjoy a wilderness experience in any location in the wilderness. Opportunities for solitude or for a primitive experience would continue to be available throughout both wilderness areas, and there would be no effect to this wilderness quality.

In conclusion, livestock use in the area, when examined in relationship to the four primary qualities of wilderness character, indicates that some factors are affected more than others, but all factors collectively and individually meet the requirement of the Wilderness Act to preserve wilderness character.

3.9.3 Cumulative Effects of the Proposed Action (Alternative 2)

Cumulative effects of the proposed action were evaluated based on the effects of past, present, and reasonably foreseeable future actions on the four qualities of wilderness character. The cumulative effects analysis area encompasses the Boundary Peak Wilderness and White Mountains Wilderness. Activities that have potentially affected wilderness character within the Boundary Peak and White Mountains Wilderness include livestock grazing and wild horse use, mining, road construction, recreation use, and watershed improvement activities.

Untrammeled: Wilderness is essentially unhindered and free from modern human control or manipulation. Because there was no affect to the untrammeled quality, the proposed action would not contribute towards cumulative effects to this quality of wilderness character.

Natural Conditions: Wilderness ecological systems are substantially free from the effects of modern civilization. Livestock grazing and mining operations, and associated roads and improvements are the primary past actions that have affected natural conditions within wilderness. These activities occurred for 150+ years prior to wilderness designation, and natural conditions have improved over time. Currently, livestock grazing is occurring in other parts of the White Mountains Wilderness. The Tres Plumas allotment (4,500 acres within White Mountains Wilderness), Cottonwood allotment (22,000 acres within White Mountains Wilderness), Crooked Creek allotment (16,000 acres within White Mountains Wilderness), and the Queen Valley allotment (150 acres within Boundary Peak Wilderness) occur within designated wilderness. The current status of these allotments varies, but the Crooked Creek allotment is the only allotment that is currently active. The Tres Plumas allotment and Cottonwood allotment are being rested to "protect integrity of riparian habitats" for the Paiute cutthroat trout (Decision Notice dated May 18, 2000; USDA Forest Service 2000), and the Queen Valley allotment is currently vacant. The potential effects of livestock grazing in these areas to the natural condition quality of wilderness is similar as described under direct and indirect effects above (i.e. localized effects). Within the allotments that are currently rested or vacant, natural conditions should continue to improve. There are currently no mining operations, and none are proposed in the foreseeable future. Wild horses do occur within the wilderness

areas, and evidence of wild horse use was observed primarily in Trail Canyon (Boundary Peak Wilderness). Proposed grazing standards are based on existing watershed and vegetation conditions, regardless of whether the conditions were the result of wild horse use, livestock grazing, or other uses, and livestock grazing will be managed based on the existing on-the-ground conditions. Therefore, livestock grazing, when combined with wild horse use is not expected to contribute towards significant cumulative effects to the natural conditions quality. Watershed improvement projects, primarily focused in the Cottonwood Creek drainage to improve habitat for the federally threatened Paiute cutthroat trout have occurred in the past prior to wilderness designation, and includes such activities as road obliteration, riparian meadow restoration, and gravel augmentation. Management of Paiute cutthroat trout and its habitat will continue consistent with the Revised Paiute Cutthroat Recovery Plan (2004).

As described under direct and indirect effects above, the proposed action alternative may have minor to moderate effects to the natural condition of wilderness. These potential effects however, are limited to a few specific locations, and it is expected that wilderness character would be maintained overall. The implementation of the proposed action alternative is not expected to contribute toward significant cumulative effects when combined with past, present, and reasonably foreseeable future actions.

Undeveloped: Wilderness is essentially without permanent improvements or modern human occupation. The level of development that would occur from implementation of the proposed action alternative is expected to have a negligible to minor affect to the undeveloped quality of wilderness character. Most of the existing development (fencing, livestock trails, watershed improvement structures, and signage) pre-date wilderness designation. As part of the implementation of the new wilderness designation, these improvements will be assessed to determine the functionality and status of these developments (i.e. need for resource protection, grazing administration, etc.). There will likely be opportunities to remove selected developments from wilderness, and this will likely occur in some areas in the foreseeable future. Because the proposed action alternative is expected to have a negligible effect to the undeveloped quality of wilderness character, it is not expected that the proposed action alternative will contribute toward significant cumulative effects when combined with past, present, and future foreseeable actions.

Outstanding opportunities for Solitude or a Primitive and Unconfined type of recreation: Wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation including the values of inspiration and physical and mental challenge. Because there would be little to no effect to this wilderness quality, the proposed action would not contribute towards significant cumulative effects to this quality when combined with past, present, and reasonably foreseeable future actions.

In conclusion, livestock use on the four allotments, when examined in combination with past, present, and reasonably foreseeable future actions across the Boundary Peak and White Mountains Wilderness in relationship to the four primary qualities of wilderness character, will not contribute toward significant cumulative effects, individually or collectively, to the four qualities of wilderness character.

3.10 Socio-Economic Effects

Summarized from the Socio-Economic report for the White Mountain Grazing analysis which is hereby incorporated by reference (Robson and Goehring 2010b).

The allotments for this planning area are located in Mono County, California and Esmeralda County, Nevada. Since communities most likely to be impacted include Dyer and Fish Lake Valley in Esmeralda County, the demographic information that was used was for Esmeralda County only. Some residents of these communities depend upon a variety of forest resource-related activities and access to resources for their economic livelihood. These activities include ranching, fishing, mining and tourism-related activities. A summary of the demographic information and statistics can be found in the project file.

The social and economic implications of forest resource management are of interest to local residents surrounding the forest, forest users, and other people throughout the area. Residents in Esmeralda County will be most likely to experience the direct social and economic impacts of the White Mountain Allotment Environmental Assessment. There are two permittees within the project area that have base ranches in Esmeralda county, one of these permittee's lives outside the local area of influence. Private land consists of 8 percent of the total land in Esmeralda County.

3.10.1 Direct, Indirect, and Cumulative Effects of No Grazing (Alternative 1)

The elimination of all grazing within the White Mountain Group Grazing allotment analysis area would result in the loss of some of the permittees' primary or sole income source with some additional part-time or seasonal jobs also being eliminated. The local county livestock industry would lose 1,534 AUMs of forage at a minimum value of $1,447.20 @ $1.35 x 1,072 HM. There would be a reduction in grazing fees returned to the National Forest for range betterment funding.

It is unlikely that any of the ranching operations would go out of business. The elimination of all grazing on the White Mountain Group allotments would likely cause a minimal negative impact to local communities if operations cease and income-producing people move away. Alternative 1 (the no action alternative) does little to support local communities trying to maintain a rural lifestyle with an agricultural influence. There would be limited social effects by the loss of ranchers and their employees and economic effects would likely be minimal because of the small number of total ranches involved. Without use of the Forest Service grazing allotments, several of the permittees may have to reduce herd size to a point that it is not economically viable to continue in the business. This could result in the loss of their other federal grazing permits and private land leases. Some ranches may be sold or converted to smaller acreage home sites or developments.

3.10.2 Direct, Indirect, and Cumulative Effects of the Proposed Action (Alternative 2)

Alternative 2 requires resource mitigation measures and some compromises between users and resources, so the potential benefits of this action alternative are greater than the current situation because this

alternative proactively addresses resource concerns. This alternative would have a benefit and value to a larger diversity of interest groups.

Alternative 2 requires allotments to be managed more actively than existing conditions. Due to the changes in monitoring, starting and ending dates for grazing, and other design criteria in alternative 2, it is difficult to predict the impact to ranching operations and AUM levels. However, more active management, such as mandatory 2-3 days riding a week (herding) may require the permittees to hire additional help.

In alternative 2 the total annual AUMs could vary from 716 to 1,534 depending on the condition of the range and the water year.

Table 21. Comparison of AUM and grazing receipts to the Government

Alternative	AUMs Provided for Livestock Industry	Head Months	Net loss of AUMs	Minimal Grazing Fees Value @ $1.35 per HM
Existing	1,534	1,072	0	$1,447.20
1-No Grazing	0	0	1,534	0
2-Proposed Action	716-1,534 (estimate)	542-1,072	0-818 (estimate)	$731.70-$1,447.20

Some operators may be effective in monitoring and using forage from National Forest System lands, while others may be unable to adapt to the new conditions. Outside forces play a large role in the ability of ranchers to maintain an operation's profitability.

Some ranches may not be able to adapt to the new management practices, and/or profit margins could become too small to remain in business. Some ranching operations could possibly fail. Other ranching operations may actually benefit from the new management practices as a result of increased land performance and vegetation health. Enhanced ecosystem conditions may mean increased nutritive value of forage which could result in higher weight gains on livestock, especially calves, which would likely increase rancher profit margins depending on market activity.

Socially, it is likely that alternative 2 would have greater benefit and value to the local community than existing conditions. Alternative 1 would have the greatest negative social impact to local rural communities as the elimination of all grazing on all allotments would likely cause dependent ranching operations to go out of business or drastically lower their current levels of operation. If individuals and families move from the area, communities may lose their leaders, volunteers, participants, or other types of community energy and capacity in terms of residents. In addition to loss of human resources, selling of ranches often results in the splitting and subdivision of value-rich lands.

3.11 Effects Relative to Finding of No Significance (FONSI) Elements

In 1978, the Council on Environmental Quality published regulations for implementing the National Environmental Policy Act (NEPA). These regulations (40 CFR Parts 1500-1508) include a definition of "significant" as used in NEPA. The ten elements of this definition are critical to reducing paperwork through use of a finding of no significant impact (FONSI) when an action would not have a significant effect on the human environment, and is therefore exempt from requirements to prepare an environmental impact statement (EIS). Significance as used in NEPA requires consideration of the following ten intensity factors in the appropriate context for that factor.

1. Beneficial and adverse impacts.

Design criteria and management requirements designed to reduce the potential for adverse impacts were incorporated into the proposed action (ie. standards and guidelines outlined in the Inyo National Forest LRMP (USDA Forest Service 1988), as amended by Forest Plan Amendment 6, Forest-wide Range Utilization Standards (USDA Forest Service 1995) and the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004). These mitigations and management requirements would minimize or eliminate the potential for adverse impacts caused by livestock grazing activities.

A discussion of potential effects was summarized above from supporting analysis (Elliott 2010, Lutrick 2010, Murphy 2010 Murphy 2010b, Murphy and Sims 2010, Sims 2009, Sims 2009b, Sims 2010, Weis 2010, Weis 2010b, Robson and Goehring 2010, Robson2009b). All analyses prepared in support of this document considered both beneficial and adverse effects of the proposed action; however, beneficial effects were not used to offset or compensate for adverse effects in the analyses. None of the potential effects of the proposed action or no action alternative would be significant, even when considered separately from the beneficial effects that occur in conjunction with those effects.

2. The degree to which the proposed action affects public health or safety.

None of the alternatives considered would have an effect upon public health and safety. Livestock grazing has occurred in this area since at least the 1850s. There are no known reports of unacceptable effects to public health and safety as a result of livestock grazing within these allotments.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, parklands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

There are no parklands, prime farmlands, wild and scenic rivers, or ecologically critical areas within the project area.

The four allotments occur within the Boundary Peak Wilderness (Nevada Wilderness Protection Act of 1989) and White Mountains Wilderness (Omnibus Public Lands Management Act of 2009). The potential effects from livestock grazing were evaluated based on the four qualities of wilderness character (EA section 3.9). It was determined that livestock use in the area when examined in relationship to the four

primary qualities of wilderness character, indicates that some factors are affected more than others, but all factors collectively and individually meet the requirement of the Wilderness Act to preserve wilderness character.

The allotments contain meadows, springs, and riparian features that would classify as wetlands. Based on the environmental analysis completed for hydrology, range, wildlife, and botany, the proposed action would not have a significant adverse effect to riparian values. The design criteria applied in the proposed action alternative, including reduced forage utilization levels and limitations on the amount of bank disturbance, would ensure a lack of significant effects to wetlands.

The protection of cultural resources has been incorporated into the proposed action, and would follow the stipulations in the Programmatic Agreement (PA) among the USDA, Forest Service, and the Advisory Council on Historic Preservation, Regarding Rangeland Management Activities on National Forest System Lands (June 26, 1995); the Memorandum of Understanding among the USDA Forest Service, Pacific Southwest Region, California State Historic Preservation Officer, and the Nevada State Historic Preservation Officer regarding Rangeland Management Activities, 1996 (MOU); and the Rangeland Heritage Resources Management Activities, Inyo National Forest, California and Nevada, 1997 (INF Supplemental). Details regarding the field surveys and management recommendations for heritage resources sites and features are contained in the Heritage Resource Report (Elliott 2010; HRR# R2007-05-04-01275). By following the recommendations outlined in this report, including the use of the standard protection measures outlined in the PA and MOU, it was determined that there would be no adverse effects to cultural resources from implementing this project (Ibid).

4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.

The proposed project follows the management direction in the Inyo National Forest Land and Resource Management Plan (USDA Forest Service 1988), as amended by Forest Plan Amendment 6, Forest-wide Range Utilization Standards (USDA Forest Service 1995) and the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004). The proposed action was developed by comparing existing conditions with desired conditions. Potential adverse effects have been minimized or eliminated to the point where there are few effects to draw controversy. Public involvement efforts did not reveal any significant issues or any other significant controversies regarding environmental effects of this proposal. Based on comments from the public and the analysis of effects from the ID Team, there are not significant effects expected to the quality of the human environment from implementing any of the alternatives, including the proposed action.

5. Degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The proposed project follows the management direction in the Inyo National Forest Land and Resource Management Plan (USDA Forest Service 1988), as amended by Forest Plan Amendment 6, Forest-wide

Range Utilization Standards (USDA Forest Service 1995) and the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004). It implements management requirements designed to reduce the potential for adverse effects and has incorporated utilization standards for the grazing of domestic livestock that would accelerate the restoration and improvement of degraded range sites and maintain those sites currently in good condition.

Local expertise in implementation of grazing activities minimizes the chance of highly uncertain effects or effects which involve unique or unknown risks. Livestock grazing has occurred in the White Mountains for more than a century and on the allotments within the White Mountain Grazing allotments analysis area for nearly as long. Many of the grazing practices used decades ago are no longer used due to a better understanding of range conditions, the needs of livestock, and effects of grazing on resource values. Rangeland health on the Inyo National Forest has continued to improve over time. Proposed activities are routine in nature, employing standard practices and protection measures; and their effects are generally well known.

6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The White Mountain allotment analysis represents a site-specific project that does not set precedence for future decisions with significant effects or present a decision in principle about future considerations. Any future decisions would require a site-specific analysis to consider all relevant scientific and site-specific information available at that time. These activities are in accordance with the best available science to manage grazing activities at this time.

7. Whether this action is related to other actions with individually insignificant but cumulatively significant impacts.

A cumulative effect is the consequence on the environment that results from the incremental effect of the action when added to the effects of other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the other actions and regardless of land ownership on which the actions occur. A cumulative effects analysis was completed separately for each resource area. None of the resource specialists found the potential for significant adverse cumulative effects (Elliott 2010, Lutrick 2010, Murphy 2010, Murphy 2010b, Murphy and Sims 2010, Sims 2009, Sims 2009b, Sims 2010, Weis 2010, Weis 2010b, Robson and Goehring 2010, Robson2009b).

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

It was determined that there would be no adverse effect to cultural resources from implementing this project (Elliott 2010; HRR #R2007-05-04-01275), and the proposed action does not adversely affect

districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. Protection of heritage resources in the area was incorporated into the proposed action through such measures as maintaining or reconstructing existing range improvements, constructing new range improvements, and moving existing range improvements. Based on analysis documented in the Heritage Resource Report, the proposed action would not cause loss or destruction of significant, scientific, cultural, or historical resources.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

There is one federally listed threatened or endangered aquatic wildlife species known to occur within the project area; the Paiute cutthroat trout (threatened). A refuge population of the threatened Paiute cutthroat trout occurs in Cabin Creek, within the Indian Creek allotment. There is no critical habitat identified within the analysis area; however, Cabin Creek is identified within the Revised Paiute Cutthroat Trout Recovery Plan (2004) as habitat for this species. Based on analysis documented in the biological assessment, it was determined that the implementation of continued grazing on the Indian Creek allotment **may affect and is likely to adversely affect individuals** of Paiute cutthroat trout by potential direct trampling of gravels that may contain alevin (small larval fish) and the potential for higher than baseline sediment input that may settle between gravel, reducing spawning habitat. The potential for direct trampling is low for the late-season use proposed; however, if cattle enter the area in an earlier month, the potential is greater that some alevin-occupied gravel would be trampled. However, because of heavily armored streambanks from willow and rocky substrate in the steeper portions of the stream, a majority of the stream cannot be accessed by cattle, which limits the potential trampling of gravels to a few crossing areas. It was also determined that the proposed action **may affect, but is not likely to adversely affect** Paiute cutthroat trout **populations** in Cabin Creek, which is based on previous population data that show an increase in fish numbers even during historic heavy grazing use within the Cabin Creek watershed and along the stream. Through the development of grazing management prescriptions for the Indian Creek allotment, specific design criteria were incorporated to ensure the continued protection of the occupied Paiute cutthroat trout habitat that allows for cattle grazing while meeting recovery objectives in the 2004 Revised Recovery Plan for the Paiute Cutthroat Trout. The proposed utilization standards, trampling standards, and rest every other year from grazing will reduce the overall effects of intensive, season-long grazing within this watershed and throughout the allotment. It is anticipated that vegetation, watershed, and fish habitat resources will continue to move in an upward trend with the implementation of the proposed action.

In consultation with the U.S. Fish and Wildlife Service (USFWS), a Biological Opinion (BO) was issued that concurred with the determination in the Biological Assessment (File No. 84320-2010-F-0088; USDI Fish and Wildlife Service 2010).

No federally listed threatened or endangered plant species have potential habitat (including critical habitat) or occur within or adjacent to the project area (Weis 2010).

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The proposed action would not threaten a violation of Federal, State, or local law, or requirements imposed for the protection of the environment. The proposed action is consistent with the National Environmental Policy Act (NEPA), National Forest Management Act (NFMA), Endangered Species Act (ESA), Clean Water Act, National Historic Preservation Act (NHPA), the Wilderness Act of 1964, Nevada Wilderness Protection Act of 1989, and Omnibus Public Land Management Act of 2009. The proposed action is fully consistent with the Inyo National Forest Land and Resource Management Plan (USDA Forest Service 1988), as amended by LRMP Amendment 6, Forest-wide Range Utilization Standards (USDA Forest Service 1995), and the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004).

Chapter 4: Lists

4.1 Glossary of Terms

Adaptive Management[3] - The process of making use of monitoring information to determine if management changes are needed, and if so, what changes, and to what degree.

Annimal class[4] – Age and/or sex of a kind of livestock.

Animal unit (AU)[4] – Considered to be one mature (1,000 pound) cow or the equivalent based upon average daily forage consumption of 26 pounds dry matter per day.

Animal unit month (AUM)[4] – The amount of feed or forage required by an animal unit for one month.

Annual Operating Instructions (AOI)[5] - The AOIs specify those annual actions that are needed to implement the management direction set forth in the project-level NEPA-based decision.

Capability (rangeland)[6] – The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends on current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silvilculture or protection from fire, insects, and disease. (CFR 219.3)

Continuous season-long grazing[7] – This system permits continuous grazing throughout the entire plant growing season.

Deferred rotation[7] – This is a grazing system in which units are utilized for only a portion of the growing season. The use standards are set individually according to the timing of use; i.e. "first half" or "second half" of the plant growing season.

High intensity/short duration grazing system – Stocking a pasture with high numbers of livestock for a short period of time.

Key Area[8] - A relatively small portion of a management unit selected because of its location, use, or grazing value as a monitoring point for grazing use. It is assumed key areas will reflect the overall acceptability of current grazing management over the whole unit.

[3] A Practical Approach to Adaptive Management. Rocky Mountain Region. 2001.
[4] Rangeland Analysis and Planning Guide. 1997. R5-EM-TP-004
[5] FSH 2209. Grazing Permit Administration Handbook. 2004.
[6] Sierra Nevada Forest Plan Amendment. 2004.
[7] Inyo NF LRMP Amendment 6.
[8] Glossary of Range Management Terms no.6.105. Colorado State University Coop. Extension. 2000.

Low intensity/short duration grazing system – Stocking a pasture with high numbers of livestock for a short period of time.

Rest[8] - Leaving an area ungrazed for a specified time.

Rest rotation[7,8] – A grazing-management scheme in which rest periods, usually for a full growing season, for individual grazing units are incorporated into a grazing rotation. Per LRMP Amendment 6, this includes only the two-pasture rest rotation system in which ther would be total rest on one pasture and season-long continuous use for the grazed pasture. Rest rotation systems with 3 or more pastures are treated as "deferred rotation", because only one pasture is grazed early and another is grazed late as in a deferred rotation system, while the third is rested.

Stocking rate[8] – The number of specific kinds and classes of animals grazing a unit of land for a specified time period.

Suitability[6] - The appropriateness of applying certain resource management practices to a particular area of land as determined by an analysis of the economic and environmental consequences and alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices. (CFR 219.3)

4.2 Agencies and Persons Consulted

USDI Fish and Wildlife Service, Reno Field Office, Reno, NV

USDI Bureau of Land Management, Tonopah Field Office, Tonopah, NV

Arlemont Ranch, Davis Creek and Trail Canyon Allotment permittee

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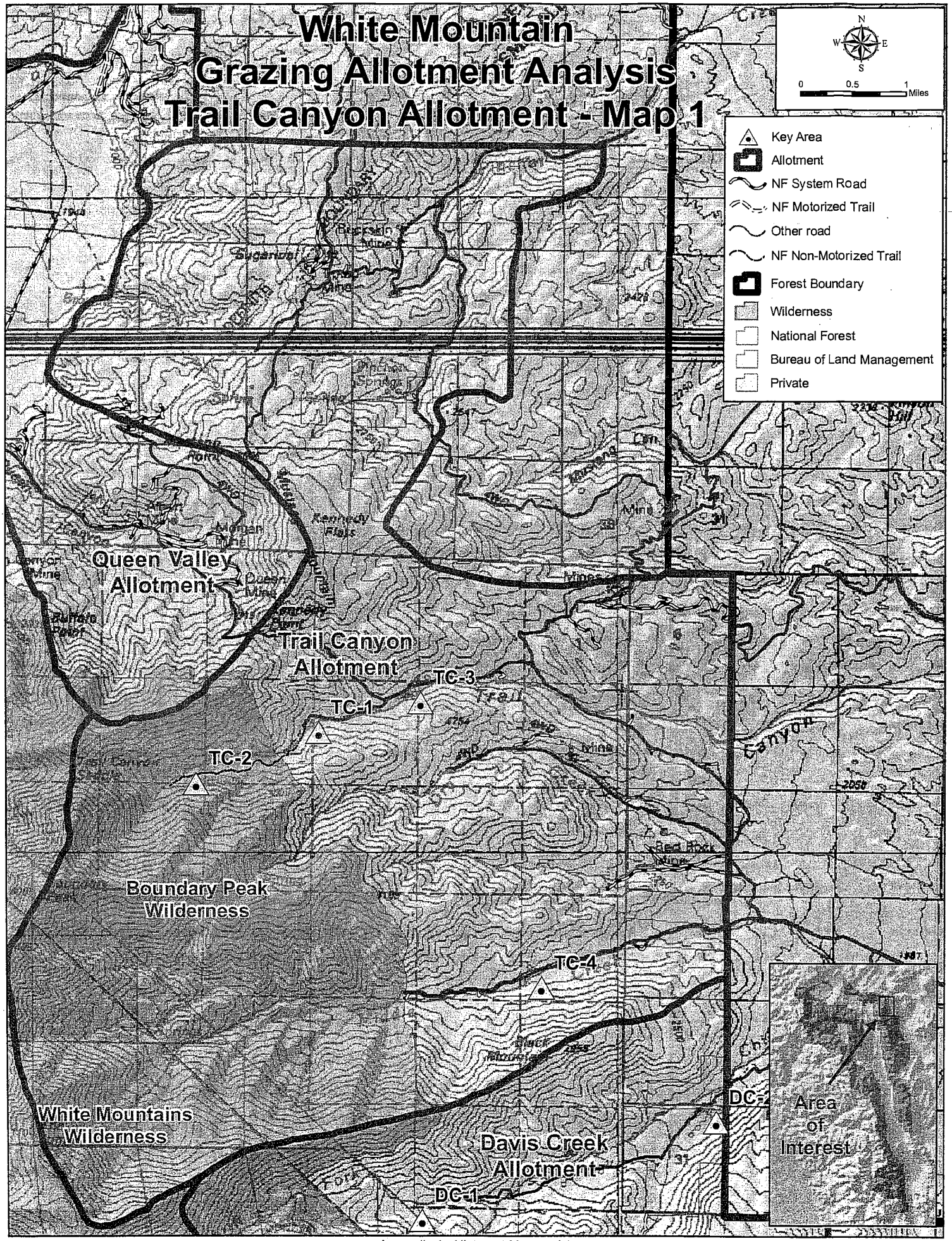
Appendix A – Allotment Maps

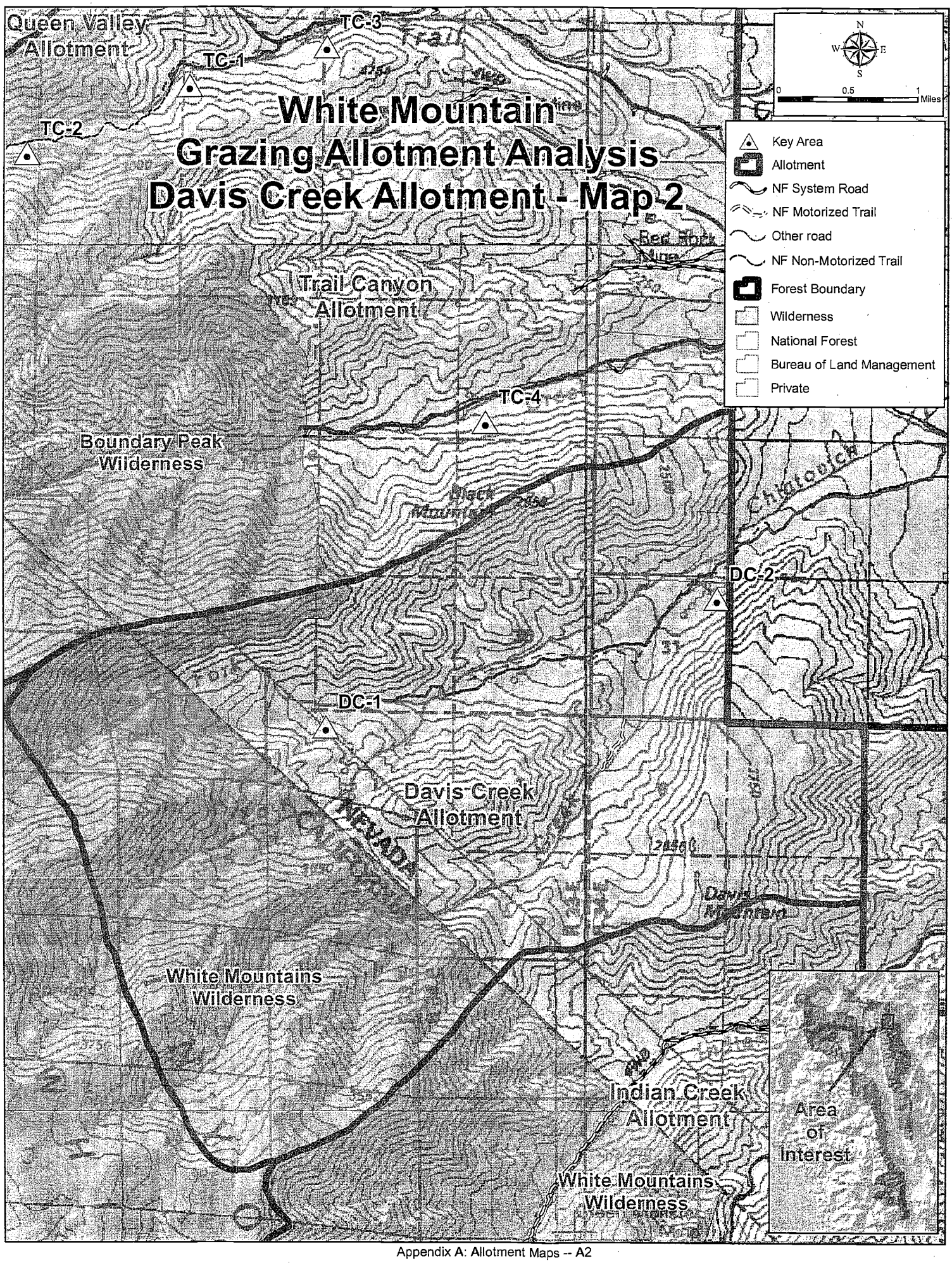
Map 1: Trail Canyon allotment

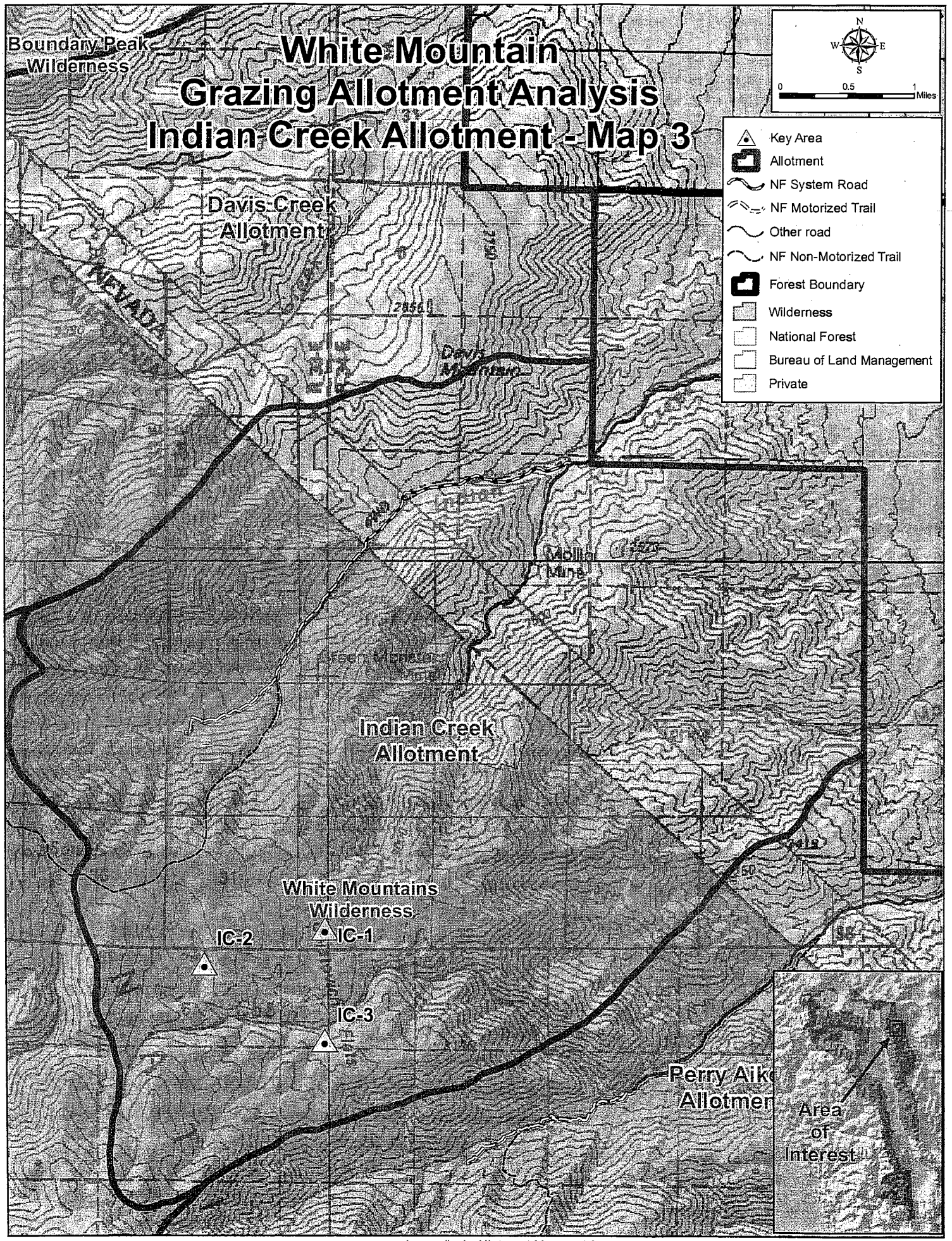
Map 2: Davis Creek allotment

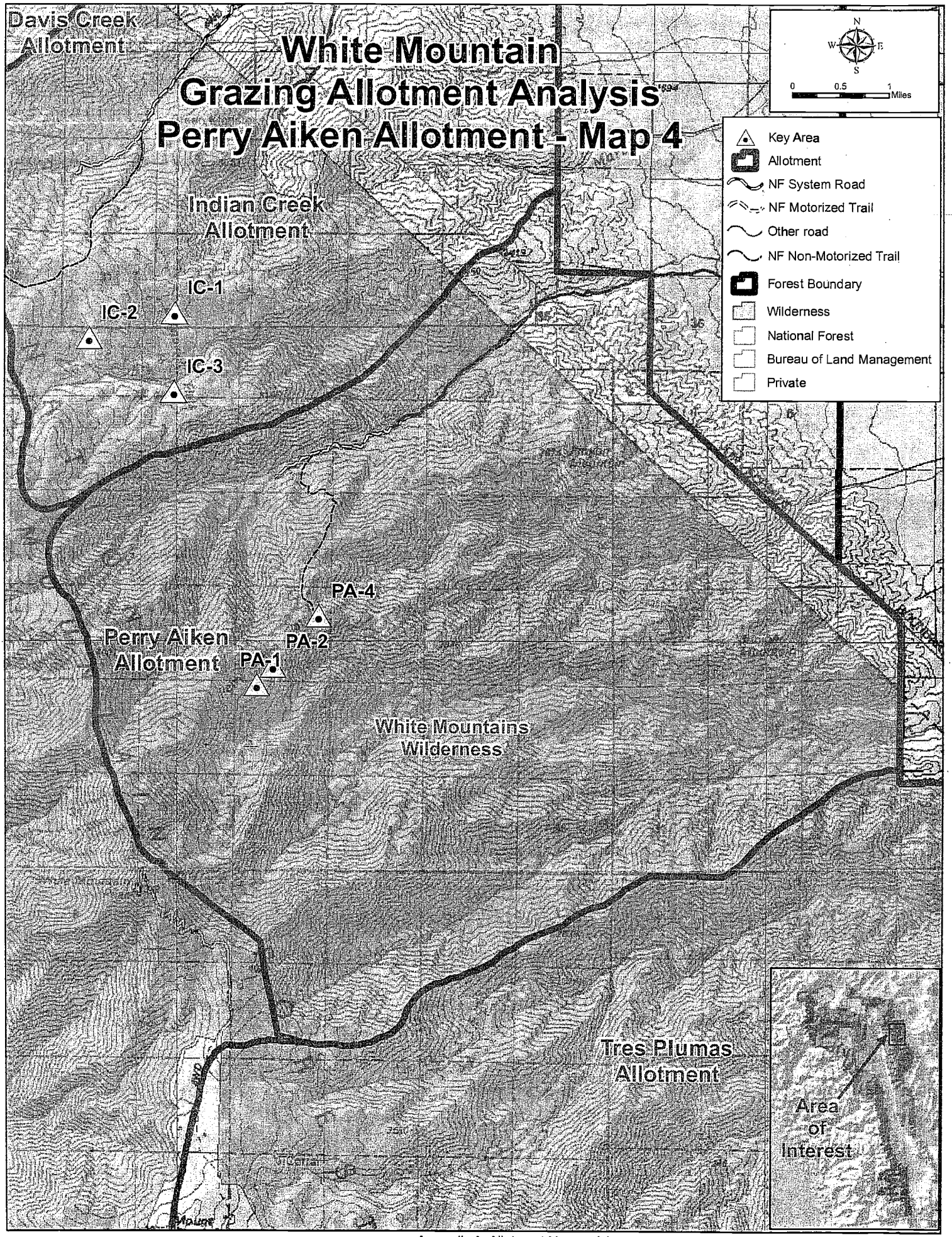
Map 3: Indian Creek allotment

Map 4: Perry Aiken allotment


White Mountain
Grazing Allotment Analysis
Trail Canyon Allotment - Map 1
N
W
E
S
0
0.5
1
Miles
Key Area
Allotment
NF System Road
NF Motorized Trail
Other road
NF Non-Motorized Trail
Forest Boundary
Wilderness
National Forest
Bureau of Land Management
Private
Queen Valley Allotment
Trail Canyon Allotment
TC-1
TC-2
TC-3
TC-4
Boundary Peak Wilderness
White Mountains Wilderness
Davis Creek Allotment
DC-1
DC-2
Area of Interest


White Mountain
Grazing Allotment Analysis
Davis Creek Allotment - Map 2
Queen Valley Allotment
TC-1
TC-2
TC-3
TC-4
Trail Canyon Allotment
Boundary Peak Wilderness
DC-1
DC-2
Davis Creek Allotment
White Mountains Wilderness
Indian Creek Allotment
White Mountains Wilderness
Area of Interest
Key Area
Allotment
NF System Road
NF Motorized Trail
Other road
NF Non-Motorized Trail
Forest Boundary
Wilderness
National Forest
Bureau of Land Management
Private
N
W
E
S
0
0.5
1
Miles


White Mountain
Grazing Allotment Analysis
Indian Creek Allotment - Map 3
Boundary Peak
Wilderness
Davis Creek
Allotment
NEVADA
Davis Mountain
Indian Creek
Allotment
White Mountains
Wilderness
IC-1
IC-2
IC-3
Perry Aik
Allotmer
Area
of
Interest
N
W
E
S
0
0.5
1
Miles
Key Area
Allotment
NF System Road
NF Motorized Trail
Other road
NF Non-Motorized Trail
Forest Boundary
Wilderness
National Forest
Bureau of Land Management
Private


White Mountain
Grazing Allotment Analysis
Perry Aiken Allotment - Map 4
Davis Creek Allotment
Indian Creek Allotment
IC-1
IC-2
IC-3
PA-4
PA-2
PA-1
Perry Aiken Allotment
White Mountains Wilderness
Tres Plumas Allotment
Area of Interest
N
W
E
S
0
0.5
1
Miles
Key Area
Allotment
NF System Road
NF Motorized Trail
Other road
NF Non-Motorized Trail
Forest Boundary
Wilderness
National Forest
Bureau of Land Management
Private