

Chapter 3 – Environmental Consequences

I. Comparative Environmental Consequences by Alternatives

This section will address potential direct, indirect and cumulative effects of the proposed action on selected resource elements by allotment and by alternative. Resource elements were chosen based on comments received through scoping. When discussing cumulative effects for all allotments there are some assumptions that will be used throughout the comparative analysis and are considered as the “background environment”.

First, most of the analysis area consists of Forest Service lands, which are within the coastal zone that limits the potential for other private or non-federal actions to occur. Therefore, other than for ongoing maintenance of roads (the level of which is not predictable and is considered as background in this assessment), there are no known state or local projects which have occurred in the past, are currently occurring, or proposed to occur in the near future which are likely to contribute any measurable cumulative effects to the proposed action. Neither the minor amounts of fuel break maintenance in the uppermost portions of the watersheds, nor the small localized amounts of recreation use in the area are known or anticipated to produce any measurable cumulative effects.

Secondly, it is assumed that protection of headwaters and tributaries to larger watersheds, along with implementation of effective non-point source conservation measures (BMPs), will provide protection of the entire watershed (Hydro. Working Paper 2005). If sedimentation is controlled through implementation of these BMPs, potential sedimentation to the immediate channel and channels downstream should be minimal. The proposed actions incorporate all applicable BMPs (Appendix D) and therefore should result in no measurable added sedimentation. The exceptions to this could occur during extreme storm events with abnormally high intensity, magnitude and duration; and from removal of all vegetative matter and ground cover resulting from a wildfire (Hydro. Working Paper 2005). The effects of past activities including road maintenance and wildfires appear to have only short-term effects on the watersheds as all stream systems were found to be at the proper functioning condition level when assessed for this project and as documented in the Hydrological Coastal Rangeland Allotment Analysis (Andresen 2003) and summarized in the Hydrology Working Paper (2005), which are incorporated by reference as part of this assessment and are a part of the project file.

Third, the allotments typically are confined to sub-watersheds (Table 3), which do not overlap and therefore do not tend to contribute cumulative watershed effects between allotments.

A. Soils

Gorda Allotment – Mill Creek Unit

No Action (No Grazing)

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the

productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil.

Cumulative Effects – When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Proposed Action

Direct and Indirect Effects - No measurable negative effects are expected. The major soils have low susceptibility to compaction because of their coarse sandy loam textures. This alternative divides the herd into two sub-herds, which would even out range utilization, reduce concentration and potential impacts so wet weather grazing should not cause significant soil porosity loss. The large excess in forage production and soil cover it produces is expected to protect the soil from erosion. The major soils have a Moderate erosion hazard if soil cover remains above 51-70%.

Cumulative Effects - No measurable effects are expected because the soils have a low susceptible to porosity loss from trampling during wet conditions. The expected forage production on these soils will exceed what is utilized and soil cover will be sufficient to minimize erosion. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Continuation of Current Permit

Direct and Indirect Effects - No measurable negative effects are expected. The major soils all have sandy loam textures with varying amounts of rock fragments. They have a low susceptibility to compaction. Plaskett soil has a gravelly to shaly loam texture and a moderate susceptibility to compaction. The current grazing period begins in spring and continues through most of the summer. Soil moisture would be decreasing through most of this period and therefore the risk of soil porosity loss (compaction) would be low. However, as water availability decreases with the drying up of seasonally flowing channels, cattle would become more concentrated around water developments and any perennial channels. This could result in heavy disturbance to small areas.

The excess vegetative growth and cover is expected to be adequate to protect the soil from erosion. Grazing would begin while spring growth is increasing soil cover. Most of the major soils have a Moderate erosion hazard if 51 to 70% soil cover is present.

Cumulative Effects - No measurable effects are expected because the soils have a low susceptible to porosity loss from trampling during wet conditions. The expected forage production on these soils will exceed what is utilized and soil cover will be sufficient to minimize erosion. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Gorda Allotment – Prewitt Unit

No Action

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the

productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Proposed Action

Direct and Indirect Effects - No measurable negative effects are expected. Millsholm soils are predominant and have a moderate susceptibility to compaction. Gazos, which makes up 20% of the map unit, has a high susceptibility (Roath 2003). Currently the unit is not partitioned and utilization is concentrated on Prewitt ridge with little utilization on Alms Ridge. This alternative would provide better dispersal of cattle and therefore should cause less trampling damage (soil porosity loss) in any one area. Although the number of livestock increases the better dispersal of use should result in better soil conditions overall. There should be an excess of forage production and soil cover to protect the soil from erosion.

Cumulative Effects - Gazos soil has a high susceptibility to compaction and the shift from summer grazing to Feb 1 to August 15 increases the risk of soil porosity loss. This alternative does propose to divide the allotment into two areas, which should even out range utilization, reduce concentration and potential impacts. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Continuation of Current Permit

Direct and Indirect Effects - No measurable negative effects are expected. The grazing period begins in spring and continues until Fall. Soil moisture would be decreasing through most of this period and therefore the risk of soil porosity loss (compaction) would be low. However, as water availability for cattle decreases with the drying up of seasonally flowing channels cattle would become more concentrated around water developments and any perennial channels. This could result in heavy disturbance to small areas. The major soils are Millsholm and Gazos, which have a moderate and high susceptibility to compaction, respectively. The excess forage production and soil cover it produces is expected to protect the soil from erosion.

Cumulative Effects - No measurable effects are expected because grazing would occur when the soil is dry and not as susceptible to soil porosity loss. The potential forage production highly exceeds the expected utilization. Some local areas may be more disturbed by cattle concentration for water and green forage but the impacts are not expected to result in a cumulative impact. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Gorda Allotment - Plaskett Unit

No Action

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the

productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Proposed Action

Direct and Indirect Effects - No measurable negative effects are expected. The erosion hazard for Millsholm soil which makes up the major part of the soil map unit is Moderate on 30% slopes even if soil cover is only 31 to 50% (Roath 2003). Gazos soils make up about 20% of the Mm soil map unit. They have a Moderate erosion hazard on 30% slopes if soil cover is at least 71-90%. Grazing would begin during the wet season and continue until mid-summer. The predominate Millsholm soils have a moderate susceptibility to compaction and Gazos which makes up 20% of the map unit, has a high susceptibility. Gazos however, has a high organic matter content in the surface that will reduce the potential for compaction somewhat and also increases the recovery rate if compaction does occur. The increased number of cow/calf pairs should not increase the level of trampling or soil porosity loss significantly.

Cumulative Effects - Gazos soil has a high susceptibility to compaction and the shift from summer grazing to Feb 1 to July 30 increases the risk of soil porosity loss. The excess forage produced by the unit is expected to provide sufficient soil cover to prevent erosion. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Continuation of Current Permit

Indirect and Direct Effects - No measurable negative effects are expected. The grazing period begins in spring and continues until Fall. Soil moisture would be decreasing through most of this period and therefore the risk of soil porosity loss (compaction) would be low. However, as water availability for cattle decreases with the drying up of seasonally flowing channels cattle would become more concentrated around water developments and any perennial channels. This could result in heavy disturbance to small areas.

The major soils are Millsholm and Gazos, which have a moderate and high susceptibility to compaction, respectfully. The excess forage production and soil cover is expected to protect the soil from erosion. Soil cover was found to be 82% on a transect taken in September 2002 (Roath 2003).

Cumulative Effects - Grazing would occur when the soil is mostly dry and not as susceptible to soil porosity loss. The potential forage production highly exceeds the expected utilization. Some local areas may be more disturbed by cattle concentration for water and green forage but the impacts are not expected to result in a cumulative impact.

Gorda Allotment - Pacific Valley Unit

No Action

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any

mass instability that may occur. Vegetation would reach maximum levels for the productivity of the soil and soil cover would be 90-100%.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Proposed Action

Indirect and Indirect Effects - No measurable negative effects are expected. The three-pasture deferred rotation system would promote even forage utilization resulting in less cattle concentration and impact overall.

Cumulative Effects - No cumulative effects are expected because the grazing period would be when the soil is mostly dry in the surface and not susceptible to porosity loss from trampling. The expected forage production on these soils will exceed what is utilized and soil cover will be sufficient to minimize erosion. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Continuation of Current Permit

Indirect and Direct Effects - No measurable negative effects are expected. The major soil in all three pastures is Lockwood shaly loam. This soil has a moderate susceptibility to compaction or soil porosity loss. It has a high percentage of organic matter in the surface which reduces its susceptibility to compaction and also increases the rate of recovery if compaction would occur.

The excess forage production and soil cover it produces will provide adequate soil cover for erosion protection. A transect in September 2002 indicated soil cover was 100% (Roath 2003). The erosion hazard is Low even if soil cover decreases to 51-70%.

Cumulative Effects - No cumulative effects are expected because the grazing period would be when the soil is mostly dry in the surface and not susceptible to porosity loss from trampling. The expected forage production on these soils will exceed what is utilized and soil cover will be sufficient to minimize erosion. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Alder Creek Allotment

No Action

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil. The erosion rate would be at background geologic rates.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Proposed Action

Direct and Indirect Effects - No measurable negative effects are expected. There would be additional trampling and soil compaction from the increase in numbers of animals grazed but it is not expected to result in measurable effects due to the gravelly or shaly texture of the soil. The large excess of available AUMs or production of vegetation is expected to provide adequate soil cover for erosion protection. The erosion hazard should not exceed a Moderate level.

Cumulative Effects - No cumulative effects are expected because the soils are not highly susceptible to soil porosity loss from trampling during wet conditions. The expected high forage production on these soils will exceed what is utilized and soil cover should be sufficient to minimize erosion. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Continuation of Current Permit

Direct and Indirect Effects - No measurable negative effects are expected. Most grazing occurs in areas that have Lockwood and Gilroy soils. These soils have gravelly or shaly loam textures which give them a low to moderate susceptibility to compaction. Both of these soils have a high level of organic matter in the topsoil which will decrease their susceptibility to compaction as well as increase the rate of recovery of soil porosity if compaction occurs.

Cumulative Effects - No cumulative effects are expected because the soils are not highly susceptible to soil porosity loss from trampling during wet conditions. The expected high forage production on these soils will exceed what is utilized and soil cover should be sufficient to minimize erosion. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Salmon Creek Allotment

No Action

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Proposed Action

Direct and Indirect Effects - No measurable negative effects are expected. This allotment is composed mostly of rock outcrop and Xerorthent which are shallow, rocky, coarse textured soils. The soils have a low susceptibility to compaction because of their rocky nature. The erosion hazard is Moderate on 30% slopes if soil cover is at least 31-50%.

Cumulative Effects - No cumulative effects are expected because the soil has a low susceptibility to porosity loss and the amount of excess forage production is expected to provide sufficient soil cover for erosion protection. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Kozy Kove Allotment

No Action

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil. A transect completed in September 2002 found the existing soil cover level was 87% in a designated key area (Roath 2003). The erosion hazard risk would be low at this level of soil cover on slopes less than 30 percent.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Proposed Action

Direct and Indirect Effects - No measurable negative effects are expected. Grazing would begin in January when winter rains would be occurring and the soil is wet. The major soils on this allotment are McCoy and Gilroy gravelly loams. These soils have a moderate susceptibility to compaction because they are gravelly and have high organic matter content in the surface horizon. The McCoy soil, which occurs in a designated key area, has a Moderate erosion hazard even if soil cover is between 31 to 50% and it has a Low erosion hazard if soil cover is above 71%. The primary and secondary range produces about 172 AUMs. The excess vegetative growth and soil cover produced is expected to be adequate for soil protection.

Cumulative Effects - No cumulative effects are expected because the soils are not highly susceptible to soil porosity loss from trampling during wet conditions. The expected high forage production on these soils will exceed what is utilized and soil cover will be sufficient to minimize erosion. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

San Carporo Allotment with Sea Vista and Sur Sur Ranches

No Action

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Proposed Action

Direct and Indirect Effects - No measurable negative effects are expected. The combined forage production of San Carpoforo, Sur Sur, and Sea Vista units is 2,851 AUMs. The proposed level of grazing (AUMs) is less than one-fourth of the potential available AUMs. The excess forage production will provide adequate soil cover to prevent erosion. Most soils in this allotment have Moderate erosion hazard on 30% slopes with only 31-50% soil cover and they have Moderate erosion hazard on 60% slopes with at least 71-90% soil cover.

Cumulative Effects - The soils in this allotment have high clay contents and are highly susceptible to porosity loss when wet. The annual drying and cracking that occurs would mitigate somewhat the porosity loss that may occur from wet weather grazing. Monitoring will be performed to determine if fencing is needed around the wettest areas. Erosion is not a concern because of the high forage production from these soils and the soil cover it produces. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Continuation of Current Permit

Direct and Indirect Effects - No measurable negative effects are expected. The major soils on San Carpoforo Unit are Climara, Montara, Los Gatos, and Gilroy. Climara and Montara have a high susceptibility to soil porosity loss because of their clay or clay loam texture. They do have a high organic matter content in the surface soil, however, which reduces somewhat the potential for compaction and increases the rate of recovery if compaction occurs. Los Gatos and Gilroy have a moderate susceptibility. There would therefore be a high risk of soil porosity loss if cattle are concentrated in small areas for long periods. This risk may be mitigated somewhat by the fact that both water and green forage will be more available throughout the allotment given the grazing period under this alternative and therefore cattle should also be dispersed better. This helps reduce concentration and excessive trampling in one area.

The suitable range produces about 1,778 AUMs. The excess forage production and the soil cover it produces should provide adequate erosion protection. Most of the soils in this allotment have a Moderate erosion hazard if at least 71-90% soil cover is present. In September 2002 transects were completed in two areas and the soil cover was 71% and 77% (Roath 2003).

The San Carpoforo subunit of the San Carpoforo allotment contains several seeps which are unfenced. A concern was raised regarding the effects of cattle grazing on soils in the seep areas. Several seeps were field reviewed and it was found that about 25% of the sample points immediately around the seeps had evidence of trample marks or depressions in the soil surface. These seeps occur on Climara and Montara soils which are Vertisols and contain shrink-swell clays. These kinds of soil shrink as they dry out and expand as they are wetted due to their clay mineral structure. During the field examination wide cracks were found to occur where the soil had dried out completely (Roath 2003). This annual occurrence of cracking during the dry summer months would help ameliorate soil porosity loss (compaction) from livestock trampling.

For most areas the very high levels of soil cover found will lower the potential for increased runoff due to the trampling and compaction by cattle. Most soils in this

allotment have Moderate erosion hazard on 30% slopes with only 31-50% soil cover and they have Moderate erosion hazard on 60% slopes with at least 71-90% soil cover.

Cumulative Effects - The soils in this allotment have high clay contents and are highly susceptible to porosity loss when wet. The annual drying and cracking that occurs would mitigate somewhat the porosity loss that may occur from wet weather grazing. Monitoring should be performed to determine if fencing is needed around the wettest areas, however. Erosion is not a concern because of the high forage production from these soils and the soil cover it produces. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Buckeye Allotment

No Action (Proposed Action)

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Keep Allotment Vacant

Direct, Indirect and Cumulative Effects – Environmental effects are similar to the proposed action and not action alternatives.

Twitchell Allotment

No Action (Proposed Action)

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Continuation of Current Permit

Direct and Indirect Effects - No measurable negative effects are expected. The major soil is Pfeifer which has a low susceptibility to compaction. The excess forage production is expected to provide adequate soil cover for erosion prevention.

Cumulative Effects - No cumulative effects are expected because the soils have a low susceptibility to porosity loss and the excess forage produced should provide adequate soil cover for erosion prevention. When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Torre Allotment

No Action (Proposed Action)

Direct and Indirect Effects - Soil disturbance would be limited to wildlife such as deer movement, ground squirrel digging or events such as erosion following wildfires and any mass instability that may occur. Vegetation would reach maximum levels for the productivity of the soil and soil cover would generally exceed 80-90%, except for where there is rock outcrop or shallow soil.

Cumulative Effects - When combined with road densities, recreation trails and campsites, there are no measurable cumulative effects beyond background levels.

Keep Allotment Vacant

Direct, Indirect and Cumulative Effects – Environmental effects are similar to the proposed action.

B. Plant Diversity

The following direct, indirect and cumulative effects are common to all allotments and ranches. As discussed at the beginning of this chapter there are no past, ongoing or anticipated projects which are expected to contribute any measurable cumulative effects beyond that of the “background situation”

No Action (No Grazing)

Direct and Indirect Effects – The only grazing would be by deer and smaller animals. Utilization would not be an issue because grazing by native animals is not continual as it is by livestock. Range vegetation would initially respond very well to no grazing. The direct effect on range plants is a decrease in utilization of grasses, sedges and forbs. Excluding grazing animals from ecosystems that evolved with grazing may decrease biodiversity through competitive exclusion of certain plant species (Hart 2001; Milchunas, Lauenroth, and Burke 1998; Sanderson et al. 2001).

On rangelands where the annual grass component is high, the non-grazed annual grasses will eventually shade out the small forbs, lowering diversity in the open grasslands. Non-grazed forage will eventually lead to a thatch build up shading out the small forbs and lowering diversity in the open grasslands (Hayes and Holl 2003). Because annual grasses are better adapted to growing through thatch than native perennial grasses, exotic annual grasses will continue to flourish. As litter and current years grass cures, fuel loads for potential wildfires will correspondingly increase.

On rangelands where the native perennial bunchgrass (*Nassella spp.* is the most common) component is high, utilization of non-native annual grasses on primary range would essentially be eliminated, allowing the annual grass inflorescence to produce and cast seed in direct competition with and suppressing the native perennial bunchgrasses. Biswell (1956) cites unpublished data which showed that a stand with 65% needlegrass cover decreased to about 10% after several years of grazing protection. Dyer and Rice (1999) found that annual vegetation decreased light availability for *Nassella pulchra*

while simultaneously affecting belowground soil water availability. Barrett (1992) found that a small enclosure around *Nassella pulchra* led to its replacement by annual grasses *Avena* and *Bromus diandrus* in a heavily grazed part of the Hearst Ranch in San Luis Obispo County. The ability of *Nassella* to escape from belowground competition depended on a reduction in above ground competition. Without any reduction in annual grass production and some form of mulch-residue control and recycling, native bunchgrass communities will remain stagnant and possibly decrease in size and abundance.

Cumulative Effects – There will be a reduction in the replacement of soil organic matter and surface residues (Anderson, 1993). Annual fluctuations in weather will be the primary influence on vegetation productivity and diversity.

Proposed Action

Direct and Indirect Effects - Season of use will correspond with available water promoting livestock distribution and utilization across the unit as uniformly as natural features allow. Through grazing, by opening up of the herbaceous canopy and admitting light, allows shorter plants to grow in the same field with taller species - helping to maintain diversity

Grazing at the moderate level will leave a patchwork of grasses and forbs in the open grasslands. As a general rule, if utilization is correct (meaning adequate RDM), then condition and overall trend of the annual grassland may be considered correct (R5 Range Environmental Analysis Handbook, 1969). Properly managed grazing practices have been endorsed as a tool for promoting biodiversity (Menke 1982, Edwards 1995, 1996, Reeves 2001).

Grazing will benefit perennial grasses by corresponding with the flush of annual grasses (which is preferred over perennial grasses at that time by livestock), thus helping reduce competition for light and soil moisture, allowing for improved plant vigor of perennial grasses.

Cumulative Effects - No change from the existing condition. Herbivory, weather and the periodic fire (all natural and necessary processes in maintaining plant diversity within the coastal rangelands) will continue to have the major influence on plant diversity.

Continuation of Current Permit

Environmental effects are similar to the proposed action.

Direct, indirect and cumulative effects are similar for the following three Units.

Gorda Allotment - Mill Creek Unit

(improper distribution of livestock)

Gorda Allotment - Plaskett Unit

(improper distribution of livestock)

Gorda Allotment - Prewitt Unit

(concentrated use on lower Prewitt Ridge)

No Action (No Grazing)

Direct and Indirect Effects - The only grazing would be by deer and smaller animals. Distribution would not be an issue because grazing by native animals is not continual as it is by livestock. Areas where livestock have been concentrating will receive an immediate reduction of use. Short-term general improvements to rangeland health are anticipated to be more rapid with the no-grazing alternative than the proposed action. Eventually, productivity would level off then it would taper off.

Cumulative Effects - The long-term effects of no grazing in combination of annual fluctuations in weather may be insignificant when comparing site productivity and plant species diversity to grazing at proper use and distribution.

Proposed Action

Direct Effects and Indirect Effects - Season of use and pasture rotation (Prewitt unit) will correspond with maximum available water promoting livestock distribution and utilization across the Unit as uniformly as natural features allow. Key forage species will recover vigor, produce seed and establish new reproduction. Under this alternative, the timing and distribution of grazing were developed to enhance native plant diversity.

Cumulative Effects – In combination, herbivory, weather and the periodic fire will dictate plant species diversity and productivity. It is expected that site productivity at sites where concentrated livestock use is occurring will improve.

Continuation of Current Permit

Direct and Indirect Effects - Improper distribution of livestock and utilization of range forage will continue. Selective and concentrated grazing will continue to occur during the latter part the grazing seasons at the remaining water sources and on Lower Prewitt Ridge. Long term concentrated grazing could lead to over-utilizing the primary forage species, depleting their food reserves (carbohydrates stored). The effect will be fewer seeds produced and dispersed, fewer seedlings and variety of age classes, and eventually native forage species dying out and replaced by less desirable plants. Another consequence to excess removal of native forage is the loss of ground cover by plants themselves and their litter resulting in a reduction in the replacement of soil organic matter and surface residues.

Cumulative Effects – Annual weather fluctuations in combination with selective and concentrated grazing over the long term could lead to deterioration of site productivity.

Gorda Allotment - Mill Creek Unit

(Mill Creek watershed has areas of moderate (5-23% cover) infestation of French broom)

No Action

Direct and Indirect Effects - Under this alternative, one contributing vector (livestock grazing) to the on-going invasion of noxious weeds would be eliminated from the Mill Creek watershed. Weed infestations are expected to continue to increase due to other causes, including recreational use, road networks, wildlife, and natural disturbance. The change in amounts of French broom as a result of this alternative is anticipated to be negligible.

Because grazing has been present for so long, careful consideration must be given before livestock are removed from coastal grasslands. Stromberg et al. (2002) observed that on Santa Cruz Island, grasslands formerly grazed by cattle and sheep now support near monocultures of *Foeniculum vulgare*, an exotic plant formerly held in check by grazing. Edwards (1995) discovered many species of pest plants accumulate after exclusion of livestock. *Foeniculum* is a good example. It is common in Central California to find it almost entirely in excluded areas.

Cumulative Effects – In 1999 the Monterey Ranger District completed an invasive weed control environmental assessment (USDA Forest Service). Weed control efforts, as prescribed in that environmental assessment, were carried out in 2000 and 2001 on the Diggs Unit. As a result, infestations of French broom were reduced approximately 60%. Treatments are scheduled to resume in 2005/6. It is expected that cumulatively the infestations of French broom will be reduced to light (1-5% cover).

Under this alternative natural propagation and the combined effects of other activities and vectors, i.e. recreational use, road networks, wildlife, and natural disturbance will continue to operate within the watershed. This alternative will remove one contributing vector (grazing) in spreading French broom and other non-native invasive plants within the Mill Creek Unit.

Proposed Action

Direct and Indirect Effects –The adjusted grazing season will correspond with the maximum available water and green forage improving distribution and utilization throughout the unit. Potential for bare ground spots will decrease as foliage density is maintained. Raising the minimum RDM standard to 1200 lbs. and the adjusted grazing season will further protect the soil from erosion, increases water infiltration and soil water holding capacity. These measures will help defend the grasslands from expansion of existing infestations of French broom on the Mill Creek Unit.

Cumulative Effects – In 1999 the Monterey Ranger District completed an invasive weed control environmental assessment (USDA Forest Service). Weed control efforts, as prescribed in that environmental assessment, were carried out in 2000 and 2001 on the Mill Creek Unit. As a result, infestations of French broom were reduced approximately 60%. Treatments are scheduled to resume in 2005/6. It is expected that the combined efforts of treatment and higher foliage density will reduce the cover of infestation to light (1-5% cover).

In addition to bare ground, there are other vectors which are responsible for the movement of noxious weeds within the watershed: recreational use, road networks, wildlife, and natural disturbance. Cumulatively, these vectors will continue to operate within the watershed. This alternative will reduce the effects of one contributing vector (grazing) in spreading French broom and other non-native invasive plants within the Mill Creek Unit.

Continuation of Current Permit

Direct and Indirect Effects - During years with less than average rainfall or only early-season rains, most water sources will dry up prior to the end of the grazing season. Towards the latter part of the grazing season, cattle will congregate at or near the few

remaining season-long water sources. Lack of proper distribution will result in low RDM at the end of the grazing season, lowering foliage density and increasing the likelihood of bare ground spots near the remaining water sources. As a result, there will be a moderate risk that the existing infestations of French broom will expand into the grasslands within the Mill Creek Unit.

Cumulative Effects – In 1999 the Monterey Ranger District completed an invasive weed control environmental assessment (USDA Forest Service). Weed control efforts, as prescribed in that environmental assessment, were carried out in 2000 and 2001 on the Diggs Unit. As a result, infestations of French broom were reduced approximately 60%. Treatments are scheduled to resume in 2005/6. Without proper distribution and utilization, and probable bare ground, treatments are unlikely to be effective in cumulatively preventing French broom from invading the grasslands. It is expected that cumulatively the infestations of French broom will continue at the moderate level (5-25% cover).

French broom will likely take advantage of bare ground or low foliage density to spread. Combined with other vectors for spread within the watershed: recreational use, road networks, wildlife, and natural disturbance, this alternative will contribute to the spread of French broom and other non-native invasive plants within the Mill Creek Unit.

Gorda Allotment - Pacific Valley Unit

(spread of Italian thistle and other non-native invasive weeds)

No Action

Direct and Indirect Effects – The existing non-native invasive species: harding grass, reed fescue and kikuyu grass will respond very well to no grazing; so well that they will likely out-compete the Italian thistle for space and biologically suppress it along with most other plant species.

In 2002 and 2005 this unit was not grazed. As a result the introduced perennial grasses and kikuyu grass are dominating the middle pasture and expanding throughout the entire unit. Grazing has been absent on the Sand Dollar Pasture the last three years allowing the kikuyu grass to flourish. No grazing presents a high risk of losing the low-growing native species (Hayes and Holl, 2003). Abandoned pastures once seeded with harding grass on the University of California Rancho Marino Reserve in Cambria, California, have become monocultures of harding grass, supporting little diversity (Kwasny, personal communication, 2004). D'Antonio et al. (2002) refers to an observational study performed in coastal grassland (Sea Ranch, Mendocino County) that suggests that certain perennial exotic species may achieve dominance on sites protected from grazing.

Stromberg et al. (2002), observed that on Santa Cruz Island, grasslands formerly grazed by cattle and sheep now support near monocultures of *Foeniculum vulgare*, an exotic plant formerly held in check by grazing. Edwards (1995) discovered many species of pest plants accumulate after exclusion of livestock. Without grazing to control their invasive nature, noxious weeds and introduced perennial grasses will spread throughout the Unit eventually creating a heavy thatch shading out small forbs, native constituent species, and cumulatively lowering diversity in the open grasslands (as evidenced when this Unit was

not grazed in 2002/5). As litter and current years grass cures, fuel loads for potential wildfires will correspondingly increase.

Cumulative Effects - Located adjacent to Highway 1, a major weed transport corridor, creates a high risk of introducing non-native invasive plants into the Unit. The ongoing MRD Weed Management program will continue to eliminate existing infestations of Italian thistle, reducing the amount to acceptable levels. Because kikuyu grass is highly palatable to cattle, removing grazing eliminates one method of control. Cumulatively there will be a high risk of kikuyu grass infestations increasing throughout the Pacific Valley Unit.

Proposed Action

Direct and Indirect Effects - The adjusted grazing season will correspond to a high palatability period for Italian thistle enticing livestock to consume them, reversing the current trend of selective avoidance. Kikuyu grass is generally palatable yearlong. The existing non-native invasives will now be faced with the same type of competition the desirable plants have had to deal with for the last 40 years (i.e., continued selective grazing).

In theory, because plant species differ in phenology, the timing of grazing should differentially suppress or promote species by mitigating competitive interactions and/or reducing fecundity (Augunstine and McNaughton 1998). The long-term effect would be a reduction in propagation of Italian thistle. Kikuyu grass is highly palatable to cattle during this period and will be suppressed. The deferred rotation system will allow desirable plants and key forage species to recover vigor, produce seed and establish new reproduction before being regrazed, enabling them to compete with the noxious weeds and non-native perennial grasses. Maintaining competitive desirable plants will reduce the risk of further introduction and spread of noxious weeds on the Unit.

In addition to timing, raising the minimum RDM standard to 1200 lbs. and the shorter grazing season will greatly reduce the likelihood of occasional bare ground and expansion of existing infestations of Italian thistle. Elliott and Wehausen (1974) showed that of three pastures on the Pt. Reyes Peninsula in Marin County, the moderately grazed one was richest in native grasses, sedges, and rushes, and that all three, including the heavily grazed one, contributed uniquely to native-plant diversity.

Cumulative effects – The Monterey Ranger District Weed Management Program has been suppressing Italian thistle for the last five years by mowing the plant prior to seed maturation. It is expected that continued mowing combined with this alternative will reduce the amount of thistle to an acceptable level. Located adjacent to Highway 1, a major weed transporting corridor, will continue to create a high risk of introducing noxious weeds into this Unit.

Continuation of Current Permit

Direct and Indirect Effects - The grazing season will continue to correspond with the bolting period for the desirable species enticing livestock to consume them, while selectively avoiding the noxious weeds creating a competitive advantage. Season-long grazing throughout the Unit, reducing the time period desirable plants have to recover vigor, produce seed and establish new reproduction, will compound this.

Frequency of bare ground is not expected to change. There will be a moderate risk that the existing infestations of Italian thistle will increase in size. Non-native invasives and introduced perennials will continue to take advantage of the reduced competition from desirable plants and continue to reproduce and spread. Potential for bare ground, thus creating sites for invasive weeds, will vary depending on variations in forage production influenced by precipitation and temperature.

Cumulative Effects –The Monterey Ranger District Weed Management Program will continue to treat Italian thistle throughout the Unit, but their efforts will be somewhat offset by the continued selective grazing of desirable plants. Highway 1 will continue as a major weed transport corridor, creates a high risk of introducing invasive weeds into this Unit.

C. Watershed

Direct and Indirect Effects Common to All Allotments

Direct Effects: For the most part, direct effects involve mechanical disturbance and trampling of streambanks. The potential for trampling is limited in most locations due to the typically steep channel banks, steep inner gorges, and dense vegetation along anadromous stream reaches restricting livestock access. The two exceptions to the typically steep stream channels found in all of these allotments are the lower reaches of Plaskett and Prewitt Creeks. However, enclosure fences restrict access to these two creeks by cattle. The fence excluding cattle from Plaskett Cr. will be completed before cattle are permitted on the adjacent grazing area. Direct effects may occur in those places where cattle access the stream. There is little to no livestock access to the anadromous (steelhead accessible) reaches of Mill, Prewitt, Plaskett, Willow, Alder, or Salmon Creeks downstream of fish passage barriers. This results in an extremely small to no probability for direct effects from livestock walking within those anadromous reaches. (Appendix G)

There are four main activities related to range allotment management, in addition to the grazing of vegetation by livestock, these include:

1. Water developments: Livestock normally meet their daily water needs in one of two ways: a) directly from a stream, spring or seep, and/or b) from developed water sources such as impoundments, tanks, or troughs. Through the use of water developments, mainly troughs on these allotments, livestock are generally evenly distributed in small numbers throughout the allotments and do not ordinarily gather or congregate in or near the stream courses (see Allotment Maps). A layer of moist marine air and rainfall of 40 to 60 inches a year over the allotments keeps forage moist and intermittent streams flowing from approximately mid November until late in June. Abundant availability of water allows cattle to move freely about the allotments and not concentrate for extended periods near perennial water sources. All grazing seasons fall between November 1 and June 15 except the Plaskett, Prewitt, and Pacific Valley units of the Gorda Allotments which allow cattle from 2/1 to 8/1, 2/1 to 8/15, and 3/1 to 9/15, respectively. Five out of the six to seven months of grazing on the Plaskett, Prewitt, and Pacific Valley Units occur during the wet season. During the one to two months that cattle graze these units during the drier season, well

dispersed water troughs, and inaccessibility to perennial water (from fencing or natural barriers) prevents cattle from concentrating along perennial water courses.

2. **Salting:** Salting is common practice on most range allotments and is utilized as a tool to help maintain even distribution of livestock within the allotment or unit/pasture. No salting is permitted within ¼ mile of water developments, streams or other riparian areas. In some cases, due to topography or other factors, permittees are authorized to place salt closer than ¼ of a mile from water, but very rarely. Salting is used as a livestock distribution tool on these allotments which serves to keep livestock out of riparian areas.
3. **Transportation:** Livestock are generally moved onto allotments by one or a combination of three methods: a) trucking from base property by the use of livestock trucks and/or pickups and small stock trailers, b) herded from one pasture/unit to another, c) trucked part way and herded part way. Roads used by permittees in managing their allotments include everything from Hwy 1 to Forest System roads that are scheduled for regular or as needed maintenance. No roads except for a short dirt segment on the Kozy Kove Allotment is directly associated with these allotments and will not have an effect on steelhead trout.
4. **Structural range improvements:** Term grazing permittees are required to keep structural improvements maintained. Annual Operating Instructions are used to communicate with the permittees regarding structural range improvement commitments each year. These improvements assist in the distribution of livestock throughout the allotment and are expected to help alleviate effects on steelhead trout.

Indirect Effects - Indirect effects are typically associated with over use of riparian habitats by livestock. Increased siltation/sedimentation, changes in stream morphology and/or increases in water temperatures are all potential effects. The impacts of cattle grazing on riparian and aquatic systems of the western United States have been extensively researched and documented (Meehan, 1991). These potential effects include: changes to riparian vegetation composition, diversity and vigor, increased compaction, reduced channel stability, and in extreme cases, lowered water tables and channel elevations and impacts to water quality (increase in sediment production and temperature). Sediment production may be increased through the reduced channel stability, and from upland sources where grazing reduces ground cover to the point where erosion is increased. Grazing may impact water quality via fecal droppings. In total these changes may result in loss of food, habitat for concealment, reproduction, and shade (temperature modification). Some of these effects in turn can adversely affect invertebrate production. As displayed on the Grazing Allotment Maps (Appendix H), the primary and secondary range available to livestock is generally on the ridgelines or in the mid-slope areas within the allotments.

There is a low to moderate risk of sedimentation to streams in those areas where livestock have the potential to reach the riparian areas and stream channels in the headwaters of Mill, Prewitt, Plaskett, Willow, and San Carpoforo Creeks because of the relatively low numbers of livestock that graze for relatively short periods of the year. Due to the wide distribution of the livestock on the allotments and the vast number of small headwater ephemeral drainages, there is little concentrated use or impact from grazing activities.

The light to moderate utilization by livestock allows the on-site vegetation to help capture and slow down any overland water or sediment flow. Moderate utilization leaves an average of 1,000 lbs/acre or residual dry matter in key areas and more throughout the allotment. In addition, livestock tend to graze on the ridge tops more so than in the steep drainages.

Cumulative Watershed Effects by Allotment and Alternative

Gorda Allotment – Mill Creek Unit

No Action (No Grazing)

Cumulative Effects - This alternative has the least potential of a cumulative watershed effect occurring as a result of grazing. No measurable cumulative watershed effects are expected to occur with this alternative. Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Any effects to the watershed from past grazing would improve over time. Any existing water sources used for domestic purposes should be developed to meet state and county health standards. Periodic high flows of sediment due to wildfire, large storms and natural landscape instability will move down drainage channels.

Proposed Action

This alternative has less potential of a cumulative watershed effect to occur than the current permit due to a change in season of use, but more than no grazing. The cattle would be divided into two herds, placing about half below Nacimiento-Ferguson Road on the 'Diggs' pasture and half above the Nacimiento-Ferguson Road.

This alternative will not result in any measurable effects to the water resources.

This alternative would increase the number of AUMs to 230 but suitable range on this allotment produces about 816 AUMs (Roath 2003). There is a shift in the period of grazing from the current April 1-August 15 to February 1 - June 30. This will result in increased grazing during the winter and cutting short the grazing in the summer months. The proposed grazing season will result in better distribution of cattle over the Unit. Better distribution of cattle results in better distribution of waste and less concentration of activity in the spring and damp areas. The large excess in forage production is expected to provide more than enough soil cover to protect the soil from erosion.

Only a slight increase in contamination from livestock waste may occur due to overland flow from rangelands during very high rainfall events and when animal waste has been deposited in or near intermittent and ephemeral channels. Contamination would not be measurable or detectable above background levels. No change in current activity within the allotment is expected in this area, except for the increase in grazing activities. Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality are not expected to occur with the implementation of Best Management Practices, Management, (BMPs), and Mitigations measures and other site specific constraints. No measurable cumulative watershed effects are expected occur if this alternative is implemented with all proposed management practices, standards and guidelines and management and mitigation measures in place.

Continuation of Current Permit

The potential for a cumulative watershed effect is greater than no grazing or the proposed action. Based on analysis and field reviews, grazing of cattle in this watershed is only a minor producer of sediment and nutrients to the stream system when compared to the effects of the roads and recent fires (Andresen 2003). The steep nature of Mill Creek permits the stream to quickly remove a high proportion of the fines delivered to it. This can be shown by the small debris flow caused by recent fires which flowed into the main channel (Andresen 2003). There is some evidence of fines and debris in the riparian area and channel but it is small compared to what was delivered to it. The Oceanfront Watershed Analysis (U.S. Forest Service 1999) identified some problems with fine sediments but these fines are not likely to be from grazing activity. Even though the cattle have a tendency to seek shade and wet and damp areas in the summer, there hasn't been any measurable long-term adverse effects. The Central Coast Regional Water Quality Control Board lists Mill Creek as unimpaired. Mill Creek meets the needs of steelhead that occupy the creek (Peckham et al 2001). Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality are not expected to occur with the implementation of Best Management Practices, Management and Mitigations measures and other site specific constraints. No measurable cumulative watershed effects are expected occur if this alternative is implemented with all proposed management practices, standards and guidelines and management and mitigation measures in place.

Gorda Allotment – Prewitt Unit

No Action

No grazing would have the least impact on watershed condition and water quality. No measurable cumulative watershed effects are expected to occur with this alternative. Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Any existing water sources used for domestic purposes should be developed to meet county health standards. Periodic high flows of sediment will move down drainage channels due to wildfire, large storms and natural landscape instability.

Water Quality Control Board lists Prewitt and Wild Cattle Creeks as unimpaired.

Proposed Action

This alternative increases AUMs over the current permit. This alternative has a greater potential for a cumulative watershed effect occurring than no grazing but less than the current permit. This alternative would shift the grazing away from the old April 1- Oct 15 period. A ¼ mile barbed wire drift fence would be constructed above Wild Cattle canyon to partition Alms Ridge from Prewitt Ridge, allowing a 2-pasture deferred rotation grazing system recommended in the Oceanfront Watershed Analysis report, (U.S. Forest Service 1999).

Most of the primary range is located on Alms and Prewitt ridges on open ridge tops. The closest accessible range to Wild Cattle Creek is 1,000 feet above and 1500 feet away from the creek. The closest accessible range to Prewitt Creek is 1000 feet away from and 400 feet above the Creek (more than the 300 foot requirement). This would provide more than adequate buffers to the main streams.

The suitable range is expected to produce about 2,819 AUMs, (Roath 2003). The vegetative growth and residual dry matter would be more than enough to provide the needed soil cover. Under this alternative grazing would begin in winter and go through spring and end in August. Through much of this time desirable green feed and water will be wide spread and as result the cattle would be widely distributed over the Unit. A slight increase in contamination may occur, probably not detectable above background levels, due to overland flow from rangeland during high rainfall events and when animal waste has been deposited in or near intermittent and ephemeral channels. The benefits of this alternative are to reduce the impacts to seeps and wet areas. The proposed fence will help control distribution and duration of grazing by moving cattle and rotating pasture usage. Currently the unit is not partitioned and summer utilization is concentrated on Prewitt ridge with little utilization on Alms Ridge.

This alternative would increase the number of AUMs. But it would significantly change the timing and how the pasture is used. This alternative will result in a wider use of the upland areas when green feed is available and the use of the fence will help to distribute cattle impacts evenly over a wider area, reducing the potential for contamination. Currently the Central Coast Regional Water Quality Control Board lists Prewitt and Wild Cattle Creeks as unimpaired. With no known significant changes on private land, the LPNF expect that this alternative the Central Coast Regional Water Quality Control Board will continue to list Prewitt and Wild Cattle Creeks as unimpaired. Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality from grazing are not expected to occur with the implementation of Best Management Practices, (BMPs), Management, and Mitigations measures and other site specific constraints.

Continuation of Current Permit

This Alternative has the greatest potential risk of a cumulative watershed effect occurring.

The closest suitable range to Wild Cattle Creek is 1,000 feet above and 1500 feet away from the creek. The closest suitable range to Prewitt Creek is 1200 feet away and 400 feet above the creek. The distance from the main channels provides a significant buffer (more than the 300 foot requirement). The Central Coast Regional Water Quality Control Board lists Prewitt and Wild Cattle Creeks as unimpaired.

The grazing period begins in spring and continues until fall. The period of grazing is outside of the main rainfall period and it is expected that most animal wastes that are deposited on the range would not reach the channel system. The waste would dry out and oxidize during the summer and not reach the channel system until the next rainy season. Cattle grazing in the summer will tend to concentrate in the damper areas where there will be green feed later into the dry season. These damp areas are the areas that have the developed livestock water sources. Overall the range away from the wet areas and developed livestock water sources will only be lightly used. The waste deposited in the

more heavily used watering areas has a potential of washing into the channel system with the return of fall rains.

The suitable range produces about 2,819 AUMs (Roath 2003). This is in excess of what is used by the cattle. This would leave more than enough cover to protect the soils from erosion. With man made water sources located on the upland grassy areas it is unlikely that cattle will go into the deeper drainages with perennial creeks.

No measurable cumulative watershed effects are expected due to the over all excess production of organic matter in relation to what is used by cattle. The Wild Fire burned over large portions of this pasture in the late 1990's. The sediment generated by the fire and residual sediment still moving down slope would far exceed the sediment generated by most other activities. The road system in the upper drainages is also a source of sediments. At the current time no measurable impacts caused by grazing could be determined. The Central Coast Regional Water Quality Control Board lists Prewitt Creek as unimpaired. Continuing current grazing patterns should not generate any measurable increase in erosion if all site specific BMPs, mitigation and management constraints, and standards and guidelines are implemented. At current levels of grazing, no measurable cumulative effects are expected.

Gorda Allotment - Plaskett Unit

No Grazing

Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Existing water sources used for domestic purposes would remain the same and should be developed to meet state and county health standards. Periodic high flows of sediment will continue to move down drainage channel due to wildfire, large storms and natural landscape instability. Any grazing effects to streambanks, riparian and uplands would improve over time. This alternative has the least potential for a cumulative watershed to occur from grazing. No measurable cumulative watershed effects are expected to occur with this alternative. However sediment production will continue to be a problem until sediment movement from the Plaskett Creek wildfire stabilizes.

Proposed Action

This alternative would permit a slight increase in grazing from current permit. This does not represent a significant problem because of the large excess of produced (about 2020 AUMs- Roath 2003). The grazing period would be shifted from April 1 to October 15 to February 1 to August 1. Grazing would begin during the wet season. Much of this time there would be good vegetation growth over the whole Unit. This would result in wider dispersal of livestock and less dependence on the damp areas for forage and water. The lower edge of the primary range is about 2500 feet and 800 feet in elevation above Plaskett Creek and 2600 feet and 1,300 feet above Willow Creek (more than the 300 foot requirement). There would be some pollution risk from overland flow and waste deposited in or near ephemeral channels during the late winter but with this alternative the impact would be less than what would occur if cattle were using the damp areas during summer grazing. The vegetative growth and residual dry matter would be more than enough to provide the needed soil cover.

The primary range on this allotment is on the south side of Plaskett Creek while the Pacific Valley School and its well are on the north side of Plaskett Creek. No direct drainage from the Unit will be near the school, a properly constructed well would be safe from contamination.

This alternative would increase the total AUMs allowed but it would significantly change how the Unit is used. There would be excess in total grasses and forbs produced on the unit. With water sources and green feed widely dispersed in late winter and spring there is little need for cattle to utilize the summer damp areas. This alternative would further reduce any potential conflicts of cattle and water contamination. No major changes in activities on private or public lands, other than this grazing proposal, are expected within these watersheds. The Los Padres National Forest expects the waters from this allotment to be listed as unimpaired by the Central Coast Regional Water Quality Control Board.

Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality from grazing are not expected to occur with the implementation of Best Management Practices, Management, (BMPs), and Mitigations measures and other site specific constraints. No measurable cumulative watershed effects from this alternative are expected occur if the alternative is implemented with all proposed management practices, standards and guidelines and management and mitigation measures in place.

Continuation of Current Permit

The potential for a cumulative watershed effect is highest under this alternative.

No measurable long-term effects are expected. This Unit is drained by small ephemeral drainages. The small drainages eventually connect with drainages that drain into either Willow Creek or Plaskett Creek. The lower edge of the primary pasture is about 2200 feet above Plaskett Creek and 2680 feet above Willow Creek. The key livestock-use-area above Willow Creek is located at an elevation of 1,300 ft. or greater above and over 2700 feet north of Willow Creek. These distances meet the 300-foot riparian buffer standards. Contamination is possible with summer grazing. The livestock that are grazing in the summer tend to concentrate in damper areas where there will be green feed later into the season. These damp areas are also the areas that have the developed water sources. The period of grazing is outside of the main rainfall period and it is expected that most animal wastes would dry out and not reach the channel system until the next rainy season. Overall the range away from the wet areas will only be lightly used. The waste deposited in the more heavily used damp areas have a potential of washing into the channel system in the early fall rains.

The suitable range on this Unit are on the south side of Plaskett Creek and well up the slope while the Pacific Valley School and its well are on the north side of Plaskett Creek. No direct drainage from the Unit is likely. No potable water contamination is likely with a properly constructed well that meets state and county codes.

The suitable range produces about 2020 AUMs, (Roath 2003). This is in excess of what is used by the cattle. This would leave excess cover to protect the soils from erosion. With man made water sources located on the upland grassy it is unlikely that cattle will go into the deeper drainages with perennial creeks.

The Plaskett 2 wildfire of August 2000 burned over most of the Unit. The residual sediment generated by the fire is still moving down slope. This sediment far exceeds the sediment generated by most other activities. The road system in the upper drainages is also a noteworthy contributor of sediments. Implementation of this alternative will not have a measurable cumulative watershed effect resulting from grazing. However sediment production will continue to be a problem until sediment movement from the Plaskett Creek wildfire stabilizes.

Gorda Allotment - Pacific Valley Unit

No Action

Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Existing water sources used for domestic purposes would remain the same and should be developed to meet state and county health standards. Periodic high flows of sediment will continue to move down drainage channel due to wildfire, large storms and natural landscape instability. Any grazing effects to streambanks, riparian and uplands would improve over time. This alternative has the least potential for a CWE occurring. No measurable cumulative watershed effects are expected to occur with this alternative.

Proposed Action

This alternative has less potential of a CWE occurring than the current permit but a greater potential than no grazing. The Proposed Action is to graze from March 1 to September 15 annually for total use not to exceed 343 AUMs a reduction in total AUMs. This allotment would be managed as a 3-pasture deferred rotation system. For fisheries protection a riparian exclosure along the upper banks of Prewitt Creek has been installed. These fences will exclude cattle from the stream during critical times of the year (January 1 through April 30). At other times the cattle will have access to the stream for brief periods when they are transferred from one pasture to another. This will only occur after a FS employee has checked for steelhead. Another fence is planned as part of this alternative to help control access to Plaskett Creek. Forest Service personnel will monitor for access and fence condition.

This alternative would reduce the number AUMs when compared to current permit. These reductions will result in even greater dry matter left on the pastures. The three-pasture deferred rotation system would promote more even forage utilization resulting in less cattle concentration and impact overall. The present access to Prewitt Creek is now controlled. New fencing on the banks of Plaskett Creek will control access to the creek.

The recently constructed and proposed fences will reduce or eliminate any measurable livestock impacts to the streams. Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality from grazing are not expected to occur with the implementation of Best Management Practices, (BMPs), Management, and Mitigations measures and other site specific constraints.

Continuation of Current Permit

The existing permit allows for a total use of approximately 429 AUMs. With the suitable range expecting to produce 789 AUMs, leaving a suitable ground cover. This alternative has the highest potential for a CWE occurring

There are three main pastures the North, Middle and South with Prewitt creek separating the north and middle pastures. Within the last five years fences have been extended on the upper terraces on both sides of Prewitt Creek to keep cattle out of the creek. Livestock will not have access to the creek between January 1 and April 30th. Outside of this period the livestock will be driven through the creek 3 to 4 times a year to move them from pasture to pasture. The cattle will only be in or near the creek for only a few minutes. Cattle still have access to Plaskett Creek riparian area.

Minor long-term bank damage is expected on the lower Plaskett Creek. The land surface in all three pastures has very low slopes. Due to the low slopes most water infiltrates into the soil. Some water will accumulate on the surface but the majority of this water drains directly to the ocean. Several areas in these pastures drain toward the riparian areas along lower Prewitt and Plaskett Creeks. The fenced riparian area along Prewitt Creek provides a buffer along the creek. The cattle will have brief and controlled access to Prewitt Creek when they are herded from one pasture to another. The stream channel along Plaskett Creek is brush filled and the lower portion near the mouth is steep. The cattle have access to the creek to drink. Some bank damage is occurring along the creek which is producing long term minor damage.

The current grazing program leaves an adequate volume of dry matter on the soil to protect it from erosion. Under the current grazing program, activity along Prewitt Creek is now being controlled. Cattle have access to Plaskett Creek and some damage to the riparian resources may occur. Even with mitigation and management constraints and BMPs there is a likelihood of a cumulative watershed effect occurring.

Alder Creek Allotment

No Action

Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Existing water sources used for domestic purposes would remain the same and should be developed to meet state and county health standards. Periodic high flows of sediment will continue to move down drainage channel due to wildfire, large storms and natural landscape instability. Any grazing effects to streambanks, riparian and uplands would improve over time. No measurable cumulative watershed effects are expected to occur with this alternative.

Proposed Action

No measurable negative effects to water quality or watershed health are expected. The large calculated excess vegetative production (312.6 AUMs) will leave ample cover for soil protection. The main pastures are approximately 1400 feet away from the village of Gorda. This distance provides more than adequate protection to any percolating water moving down slope that may be intercepted by any properly developed domestic water source that meets state standards. No change to water quality is expected by increasing

the number of livestock on the primary range of this allotment. The primary range drains toward the ocean.

Throughout the allotment there is ample forage for the proposed levels for livestock use. Due to the excess forage available for livestock there should be no pressure on the livestock to utilize the riparian area below the secondary range. A slight increase in contamination may occur, due to overland flow from secondary range during very heavy winter rains. Any contamination is not expected to be detectable or measurable above background levels

This alternative will provide good soil protection by providing ample Residual Dry Matter and vegetative growth above what is utilized by the livestock. The only other development in the Alder Creek watershed is Alder Creek campground at the end of a spur road off of Los Burros Road (FDR 23S01) in the upper watershed. Presently no measurable negative effects have been found with current use. No change in current activity within the Alder Creek watershed is expected, except for the slight increase in grazing activities. Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality are not expected to occur with the implementation of Best Management Practices, Management and Mitigations measures and other site specific constraints. No measurable cumulative watershed effects are expected occur if this alternative is implemented.

Continuation of Current Grazing

Grazing would remain the same. No significant negative effects to water are expected. The suitable range produces about 312.6 AUMs of forage which is well in excess of the 72 AUMs needed for 5 horses yearlong (Roath 2003). The excess vegetative growth will turn into residual dry matter which will provide the needed soil protection and minimize soil erosion. The primary range is approximately ¼ mile away from the village of Gorda. This distance provides more than adequate protection to any percolating water that is moving down slope to any properly developed domestic water source that meets state water well standards. The primary range also drains toward the ocean.

Only the secondary range is above Alder Creek, a perennial stream. The closest the secondary range gets to Alder Creek is 400 to 900 feet in elevation above and 538 feet or greater north of the creek (more than the 300 foot requirement). The distance from Alder Creek meets all buffering needs to protect water quality. Alder Creek flows within a narrow boulder filled gorge and is choked with willows and alders. Livestock are not expected to enter into the riparian area and the experience of the range manager is that they rarely if ever get into the riparian area. A slight increase in contamination may occur, not detectable or measurable above background levels, due to overland flow during very heavy winter rains.

This alternative will provide good soil protection by providing ample Residual Dry Matter through vegetative growth above what is utilized by the livestock. The only other development in the Alder Creek watershed is Alder Creek campground at the end of a spur road off of Los Burros Road (FDR 23S01) in the upper watershed. Presently no measurable negative effects have been found with current use. No changes or increase in current activities (grazing and/or otherwise) is expected for this area. Implementation of

Best Management Practices and Management and Mitigations measures will ensure that no measurable cumulative watershed effects will occur if this alternative is implemented.

Salmon Creek Allotment

No Action

Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Existing water sources used for domestic purposes would remain the same and should be developed to meet state and county health standards. Periodic high flows of sediment will continue to move down drainage channel due to wildfire, large storms and natural landscape instability. Any grazing effects to streambanks, riparian and uplands would improve over time.

No measurable cumulative watershed effects are expected to occur with this alternative.

Proposed Action (Continue Current Permit)

The existing permit allows the grazing of livestock, both on and off National Forest lands yearlong. The AUMs are not to exceed 65. Most of the primary range is drained by ephemeral channels which flow directly to the ocean. Only a portion of the allotment is on National Forest lands. A small amount of secondary range is located on the ridgeline above Highway 1 and well above Salmon Creek. Waste that is deposited on the primary range and on the small amount of secondary range will not likely reach the riparian area along Salmon Creek due to the brush fields below. The buffer exceeds 600 feet (more than the 300 foot requirement). Only waste deposited in or near an ephemeral channel entrained by overland flow during the heaviest rainfall events could possibly reach Salmon Creek.

Any effects on water quality are temporary and would occur during the highest flow events. None of the local waters near the allotment area is listed as impaired by the Central Coast Regional Water Quality Control Board. Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality from grazing are not expected to occur with the implementation of Best Management Practices, (BMPs), Management, and Mitigations measures and other site specific constraints.

Kozy Kove Ranch

No Action

Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Existing water sources used for domestic purposes would remain the same and should be developed to meet state and county health standards. Periodic high flows of sediment will continue to move down drainage channel due to wildfire, large storms and natural landscape instability. Any grazing effects to streambanks, riparian and uplands would improve over time. No measurable cumulative watershed effects are expected to occur as a result of implementing this alternative.

Proposed Action

The only surface water in this allotment is in small intermittent and ephemeral drainages that face directly toward and drain into the ocean. Grazing would begin in December when winter rains have already started new growth on native forage. The fresh forage should cause wide dispersal of the animals. Wide dispersal of the livestock will reduce the chance of animal waste being deposited in a channel. Only a slight increase in contamination from livestock waste may occur due to overland flow from rangelands during very high rainfall events and when animal waste has been deposited in or near intermittent and ephemeral channels. Contamination would not be measurable or detectable above background levels. No change in current activity within the allotment is expected except for the resumption in grazing activities.

Private property is located on the ocean side of Highway 1 with a residence more than 350 feet away from the ranch. A properly developed domestic water well meeting state water well requirements would be very unlikely to be contaminated by cattle grazing on the slopes above Highway 1.

Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality are not expected to occur with the implementation of Best Management Practices, Management and Mitigations measures and other site specific constraints. No measurable cumulative watershed effects are expected occur if this alternative is implemented with all proposed management practices, standards and guidelines and management and mitigation measures in place.

San Carpoforo Allotment- with Sea Vista and Sur Sur Ranches

No Action

Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Existing water sources used for domestic purposes would remain the same and should be developed to meet state and county health standards. Periodic high flows of sediment will continue to move down drainage channel due to wildfire, large storms and natural landscape instability. Any grazing effects to streambanks, riparian and uplands would improve over time. No measurable cumulative watershed effects are expected to occur with this alternative.

Proposed Action

This alternative would allow grazing of cattle from November 1 to May 15 annually, utilizing a herding system and incorporating the former Sur Sur and Sea Vista Ranches for a total not to exceed 975 AUMs. Herding, fencing and natural barriers will be used to disperse livestock to reduce trampling impact.

The combined forage production of San Carpoforo, Sur Sur, and Sea Vista units is 2581 AUMs. The potential forage growth is almost three times the proposed grazing usage amounts. The grazing season will be extended by 15 days. The excess forage production will provide adequate soil cover needed to prevent erosion. During the winter and early spring fresh grass is growing over all the open range and water is available in intermittent drainages. This results in the cattle being widely distributed over the uplands with very

little or no activity in the riparian areas along the perennial streams. The cattle will be driven late in the grazing season to the Sur Sur Ranch. This Unit has developed water sources eliminating the need for cattle to go down to lower elevation creeks to acquire water. As result it is unlikely cattle waste will get into the perennial creeks. Only during the highest rainfall events when overland flow occurs and cattle waste is in or near the small drainages is it likely that water could become contaminated from livestock waste.

Erosion is not expected to be a problem due to the excess production of forbs and grasses over what the livestock will be using. During cooler months the cattle will tend to be on the sunny open upland areas where the fresh grass is growing. At this time cattle can get water from the intermittent streams and developed sources (troughs) located on the upland areas. Cattle will likely stay out of the riparian areas along the perennial creeks except when they are driven from one pasture to another. Monitoring will be performed to determine if fencing is needed around the seeps and wet areas. The riparian areas will be receiving little impact from grazing as a result they will provide an adequate buffer to the water resources. None of the local waters within the allotment area are listed as impaired by the Central Coast Regional Water Quality Control Board. With the proposed action this rating is expected to continue. Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality from grazing are not expected to occur with the implementation of Best Management Practices, (BMPs), Management, and Mitigations measures and other site specific constraints.

Continuation of Current Permit

Dutra Creek - No measurable negative effects are expected. Under this alternative grazing would occur throughout the winter. Examination of Dutra Creek below the road crossing showed that the riparian area was in properly functioning condition. This site was chosen for PFC due to the fact that approximately 2/3 of all grazing on this allotment occurred on the slopes above this point. This location is also down stream of most of the road miles in the watershed. The pool to riffle ratio was 44 percent with most of the pool bottoms covered by gravels. If there was excessive sediments in a stream channel the pools would decrease in size and the pool to riffle ratio would go down. Fine sediments and low pool to riffle ratio would be a symptom of over grazing and /or other related disturbances such as roads delivering significant volumes of sediment to the channel system. The pools in Dutra Creek contained a number of small trout which indicates cool oxygenated water.

San Carpoforo Creek - Examination of San Carpoforo Creek showed it to be functional at risk. This rating is the result of heavy flooding associated with the El Nino winter of 1997-98. The eroded banks and the deposited sediment from this event can be found upstream on private land. The private land and the FS administered land upstream of the private land has not been grazed or burned in a fire since 1970. This erosion and deposition is a natural event. Approximately 1/3 of the grazing allotment drains directly to the San Carpoforo Creek.

The cattle were not found to be inhibiting or slowing the recovery of the rock armored channel along San Carpoforo Creek. The stream banks showed very few hoof prints. The willows along the creek near the pastures show very little browsing. The present grazing activity is not slowing the recovery of the riparian vegetation in and near the San Carpoforo Creek. The riparian area is recovering through natural processes.

Some contamination could occur from animal waste due to overland flow during very heavy rainfall. Any waste deposited in or near the small intermittent and ephemeral channels could contaminate the water in the channel. The allotment will retain a more than adequate volume of dry residual matter which will protect the soil from erosion, by slowing overland flow and increase soil infiltration. The San Carpoforo allotment contains several seeps which are unfenced. A concern was raised regarding the effects of cattle grazing around the seeps contaminating the water and increase erosion. No noticeable riling and gulling was found to occur around the seeps viewed between San Carpoforo Creek and Turkey Springs Camp. All seeps had sufficient dry residual matter in around them (Roath 2003). Contamination is possible from animal waste located in and near the seeps flowing away from the seep during and immediately after large rainfall events. In-between storm events, the seeps are usually isolated from the normal water watercourses restricting the spread of contamination.

Erosion is not a concern because of the high forage production and the residual dry matter that protects these soils. Presently the seeps do not look like they have been over used or received long-term impacts from current grazing. None of the local waters within the allotment area are listed as impaired by the Central Coast Regional Water Quality Control Board. Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality from grazing are not expected to occur with the implementation of Best Management Practices, (BMPs), Management, and Mitigations measures and other site specific constraints.

Buckeye Allotment

No Action (Proposed Action)

Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Existing water sources used for domestic purposes would remain the same and should be developed to meet state and county health standards. Periodic high flows of sediment will continue to move down drainage channel due to wildfire, large storms and natural landscape instability. Any grazing effects to streambanks, riparian and uplands would improve over time.

No measurable cumulative watershed effects are expected to occur with this alternative.

Keep Allotment Vacant

Direct, Indirect and Cumulative Effects – Environmental effects are similar to the proposed action.

Twitchell Allotment

No Action (Proposed Action)

No measurable cumulative watershed effects are expected to occur with this alternative. Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Any existing water sources used for domestic purposes should be developed to meet state and county health standards. Periodic high flows of sediment will move down due to wildfire, large storms and natural landscape instability.

Continuation of Current Permit

The suitable range produces about 910 AUMs (Roath 2003). This expected level of production is 8.5 times the amount to be used. This level of grazing will provide ample residual dry matter for soil protection, slow overland flow and increase soil infiltration. The season of use is during the cool and wet times of the year, this will encourage the livestock to disperse over the warm sunny slopes in the spring and keep them out of the cool damp redwood forest lining the streams. The riparian areas would be uninviting to livestock in the winter. The heavy shade found in the Redwood riparian corridor limits the volume of forage produced in the riparian areas. The livestock are expected to stay 900 feet or more from the West Fork of Limekiln Creek (more than the 300 foot requirement). During highest rainfall events it is possible for runoff to become contaminated by animal waste if the waste is deposited in or near ephemeral channels.

Limekiln State Park located below and is far enough away that any well(s) serving the campground and park residences will be unaffected when the wells are constructed to proper state and county sanitation standards.

No measurable cumulative effects are expected because of the excess production of forage that will protect the soil over what is used by livestock. The location of the livestock-use-areas at a distance above and away from the riparian area will provide a sufficient buffer preventing water contamination except possibly during the highest winter rainstorms. None of the local waters within the allotment area are listed as impaired by the Central Coast Regional Water Quality Control Board. The LPNF expects the unimpaired rating to continue with this alternative. Any cumulative watershed effects associated with this alternative such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction and water quality from grazing are not expected to occur with the implementation of Best Management Practices, (BMPs), Management, and Mitigations measures and other site specific constraints.

Torre Allotment

No Action (Proposed Action)

No measurable cumulative watershed effects are expected to occur with this alternative. Surface water would not be potable due to the presence of wildlife and the decay of both animal and certain plant materials. Any existing water sources used for domestic purposes should be developed to meet state and county health standards. Periodic high flows of sediment will move down due to wildfire, large storms and natural landscape instability. Any effects from past grazing will continue to recover at a natural rate.

Keep Allotment Vacant

Direct, Indirect and Cumulative Effects – Environmental effects are similar to the proposed action.

D. Threatened and Endangered Species

Direct, Indirect and Cumulative Effects Common to All Allotments for which the proposed action may effect federally listed species.

Smith's blue butterfly

No Action (No Grazing)

Direct and Indirect Effects – No effects from livestock use.

Proposed Action/Continuation of Current Permit

Direct and Indirect Effects - The relative amount and availability of palatable forage within the allotments has a direct influence on the degree of grazing within or adjacent to SBB habitat and potential utilization of buckwheat by livestock. By designating key areas for monitoring the utilization of palatable forage in primary and secondary range adjacent to seacliff buckwheat stands, range managers will be able to ensure that livestock are removed from the allotment well before forage becomes limiting and thus reduce the likelihood that cattle will browse within seacliff buckwheat stands.

Since secondary range is used very little or not at all under existing management, effects occurred within secondary range or beyond is expected to be negligible.

Where seacliff buckwheat does occur in areas used by livestock, browsing of seacliff buckwheat would occur to a small extent. Where there is an overlap between suitable/occupied SBB habitat and primary range, there is a risk that livestock use may affect pupating SBB by trampling individual pupae or by compacting the duff where they are located. Livestock are expected to travel primarily on established trails, which should limit potential trampling to those trails. The amount of SBB habitat impacted by livestock trails is expected to be a relatively small proportion of the available habitat.

Livestock may cause disturbance to adults, interfering with mating and feeding activities, in those areas where livestock are present during the flowering period of the host plants.

Studies conducted by Arnold (1978) found that adults leave buckwheat for evening roosts in grassy areas adjacent to the major patches of food plants. Generally, the roosting sites were somewhat sheltered from the prevailing winds by taller vegetation. The shorter vegetation used for roosting was near the ground, which radiated heat accumulated during the day. Heavy use of these roost sites by cattle could have an adverse impact on this microhabitat. Light to no use may result in accumulated residual dry matter, preventing access to on-ground roosting sites. Moderate use may benefit the SBB by providing a patchy diverse arrangement of vegetation to roost within.

Cumulative effects – We are not aware of any new proposals for developments or major changes in on-going activities on State or private lands adjacent to these allotments. There will continue to be annual road maintenance and repair work by CalTrans on Highway 1 and by Monterey County Public Works on Nacimiento-Ferguson Road in response to washouts and slides. Grazing on private land in-holdings and private lands adjacent to National Forest System lands is anticipated to continue at the current rate.

Following all management requirements listed in the Biological Opinion (USFWS 2003) and Biological Assessment (Kwasny 2003) incorporated into this analysis (Standard Management Requirements) will eliminate or minimize impacts to the Smiths blue butterfly. Viable populations will continue to be well distributed across the Big Sur Coast. The amount of plants lost for SBBs and the amount of incidental take would be immeasurable relative to the entire species range. The majority of SBB habitat occurs on steep slopes outside primary and secondary range, over ¼ mile from developed water, the host plants are not a preferred forage species, and standards require that more palatable forage remain available to livestock.

The invasion of non-native invasive weeds, in particular jubata grass (*Cortaderia jubata*), will continue to displace habitat for the SBB. Deer will continue to utilize coastal scrub habitat and browse seacliff buckwheat. Seacliff buckwheat stands will continue to be impacted by recreational hiking along developed trails and near recreation facilities. Excessive recreational hiking/treading will continue to compact the soil, preventing expansion of buckwheat stands and normal root growth. Selection of an action alternative will not result in a measurable change in the percentage of seacliff buckwheat stands on the MRD nor reduce the likelihood of both the survival and recovery of the Smith blue butterfly in the wild by reducing the reproduction, numbers or distribution. No measurable cumulative effects are expected.

South Central Steelhead

No Action (No Grazing)

Direct and Indirect Effects – No effects from livestock use.

Proposed Action/Continuation of Current Permit

Direct and Indirect effects - For the most part, direct effects involve mechanical disturbance and trampling of eggs and fry. Both eggs and fry are noted as being most susceptible from February through April. Trampling can cause direct mortality or injury to incubating fish within redds, and less likely, injury to juveniles or adults. The potential for trampling of redds and fish is limited in most locations due to the typically steep channel banks, steep inner gorges, and dense vegetation along anadromous stream reaches restricting livestock access. A variety of mitigation measures to avoid adverse effects on steelhead trout have been incorporated into the action alternatives. There will be no livestock access to the anadromous (steelhead accessible) reaches of Plaskett, Willow, Alder, Salmon or San Carpoforo Creeks. Access to Mill will be incidental, and Prewitt creek will be controlled. This results in an extremely small to no probability for direct effects from livestock walking within those anadromous reaches (e.g. little to no opportunity for livestock to step on fish or disturb redds by walking in the channel). Specifics regarding each allotment are found in the Biological Assessment of South-Central Trout (Peckham et al. 2001) [available in the project file]. (See Appendix G for a Summary of Stream Access by Steelhead and by Livestock)

Indirect effects on water quality from cattle grazing are limited; there are few areas where cattle can access perennial streams directly. Most perennial sections of streams are not accessible by cattle, or are not attractive to them. Cattle access to steelhead streams in steep, heavily vegetated riparian areas is very limited if not completely closed. Ephemeral riparian areas accessible by cattle are on the upper-most slopes in the

grasslands. Impacts to these reaches from cattle do not appear to have measurably modified the vegetation within ephemeral drainages. Indirect effects are typically associated with over use of riparian habitats by livestock. Increased siltation/sedimentation, changes in stream morphology and/or increases in water temperatures are all potential effects. In total these changes may result in loss of food, habitat for concealment, reproduction, and shade (temperature modification) for trout.

Cumulative Effects - We are not aware of any new proposals for developments or major changes in on-going activities on State or private lands adjacent to these eight allotments. There will continue to be annual road maintenance and repair work by Cal Trans on Highway 1 in response to road washouts and slides. Grazing on private land in-holdings and private lands adjacent to National Forest System lands is anticipated to continue at the current rate. Within the Forest boundaries, steelhead habitat is in very good if not excellent condition (Peckham et al. 2001). The numbers of anadromous fish are much reduced from historic levels for a variety of reasons well outside the control of the Forest Service. What this means in terms of assessing the effects of range management in conjunction with other activities is also not clear. Potential impacts from range management on National Forest System lands in these watersheds are very limited relative to natural disturbance and the effects of periodic wildfires. No interdependent or interrelated effects are expected from this action. Dense riparian vegetation in Plaskett and Prewitt creeks will discourage recreational use except during fishing season. No measurable cumulative effects are expected.

E. Heritage Resources

The following direct, indirect and cumulative effects are situation-specific to the grazing units identified in the Purpose and Need.

Gorda Allotment – Pacific Valley Unit (high-risk heritage resource site)

No Action (No Grazing)

Direct and Indirect Effects – There would be no effects on the site from livestock grazing.

Proposed Action or Continuation of Current Permit

Direct and Indirect Effects – The proposed fences would comply with the LPNF Grazing-Heritage Resource Strategy. This would prevent access by livestock to heritage resources sites identified in need of protection. Effects of grazing would be eliminated. Indirectly, vegetative cover should increase covering adding further protection.

Cumulative Effects – Ground squirrel and gopher activity will continue. Vegetative cover will help prevent illegal digging. Cumulatively, the effects from this alternative are similar to the no action alternative.

II. Consequences Relative to Significance Elements

In 1978, the Council on Environmental Quality promulgated regulations for implementing the National Environmental Policy Act (NEPA). These regulations (40 CFR Parts 1500-1508) include a definition of “significantly” as used in NEPA. The eleven elements of this definition are critical in a finding of no significant impact when an action will not have a significant effect on the human environment and is therefore exempt from requirements to prepare an environmental impact statement.

Context: The context of the Proposed Action is limited to the coastal rangelands along the Big Sur coast within the Monterey Ranger District, Los Padres National Forest (Appendix H, maps). The environmental consequences are further confined to the four allotments (Gorda, Alder Creek, Salmon Creek, San Carpoforo) and the three recently acquired ranches (Kozy Kove, Sea Vista, Sur Sur) where grazing is proposed, and the three allotments proposed for closing (Torre Canyon, Twitchell, Buckeye). Two allotments will be grazed yearlong (Alder Creek, Salmon Creek); the rest are to be grazed seasonally for approximately 6 months or less (Gorda, San Carpoforo, Kozy Kove Ranch, Sea Vista Ranch, and Sur Sur Ranch). The amount of time is further limited by rotational grazing systems between pastures, annual forage production and available water. The allotments proposed for grazing permits cover an area of approximately 24,380 acres with a total of approximately 325 animals. The Big Sur Coastal Planning Unit (USDA Forest Service, 1977) with the addition of recently acquired properties contains approximately 167,600 acres. Of the total land area, roughly 70% is NFS lands. Of the remaining acreage, approximately 28% is in private holdings and 2% in other public ownerships. In terms of affected area, the Proposed Action affects a small portion of the Big Sur Coastal Planning Unit, approximately 14%. Based on past and present monitoring and evaluations the grazing methodologies described in this environmental assessment when applied in conjunction with LRMP standards and guidelines, Best Management Practices, Standard Management Requirements and site-specific guidelines presented in the Proposed Action are effective to help prevent or minimize impacts of grazing on the human environment within the coastal rangelands.

Intensity:

1. Impacts may be both beneficial and adverse. A significant effect may exist even if, on balance, effects are believed to be beneficial.

In some cases the Proposed Action poses both beneficial and adverse impacts. The analyses conducted as part of this EA have indicated that the level of impacts either adverse or beneficial are insignificant, separately or cumulatively.

Soils

This proposal does pose beneficial and adverse effects on soil compaction. In summary, the Coastal Range Allotment Analysis- Soils Input (Roath 2003) [available in the project file] disclosed that treading by cattle when the soil is wet could cause a loss of soil porosity and an increase in soil density (compaction). Any short-term reduction in porosity due to trampling would be expected to occur in the top 1-4 inches of soil. A reduction in soil porosity can result in reduced water infiltration into the soil, more runoff and a higher risk of erosion. The actual effect would be dependent upon both the degree of change in soil porosity as well as the percentage of land in a given area that has been

affected. Factors that determine the actual effects and consequences that occur include: The amount of moisture in the soil at the time when grazing occurs; the soil texture or particle size of the particular soil; level of soil organic matter in the topsoil; distribution of livestock (Roath 2003).

Key factors the Proposed Action incorporated to mitigate this affect in the long-term are:

- a) Residual dry matter standards. The annual growth of grass and forb roots and their death and decay increases the organic matter level in the soil and creates new macropores which allows water infiltration and movement through the soil. Soils that have high levels of fine organic matter or humus in the topsoil tend to recover their porosity more rapidly than those with low levels of organic matter. The amount of soil cover is probably the most important factor that determines the risk of erosion.
- b) Utilization guidelines. The expected high forage production on these soils will exceed what is utilized and soil cover will be sufficient to minimize erosion and invasion of non-native invasive plants.
- c) Season of use promotes uniform dispersal of cattle. Livestock and utilization will be distributed across the unit as uniformly as natural features and facilities will allow, reducing both the degree of change in soil porosity as well as the percentage of the land in a given area that has been affected.

The potential effects of grazing on soil quality are not significant in comparison to the natural disturbance factors at work in the area, such as erosion following wildfire, landslides, and the rapid uplift of the coast range resulting in increased geologic rates of erosion and sedimentation. Erosion is not a concern in general because the high forage production from these soils and the soil cover it produces appear to be providing the protection needed to maintain soils across the allotments. Only a few localized sites have exhibited some sedimentation concerns and corrective measures are proposed or in place to address these sites (e.g. fencing on Plaskett Creek and limited crossing and monitoring of Prewitt Creek).

By incorporating the grazing methodologies described in this environmental assessment when applied in conjunction with LRMP standards and guidelines, Best Management Practices, Standard Management Requirements and site-specific guidelines presented in the Proposed Action no measurable cumulative effects on the soils are expected.

FS R5 Sensitive Plants and Plant Diversity

Sensitive Plants

This proposal does pose beneficial and adverse effects on plant diversity including Forest Service R5 Sensitive plants. Biological Evaluations (BE) for the potential effects on Sensitive plants (Foster 2003, 2004) [available in the project file] identified herbivory and physical damage as short-term effects. The BEs considered the factors that contribute to a risk of adverse effects (i.e., life history, palatability, grazing season, location – primary/secondary range or outside primary/secondary range), and evaluated the long-term effects of the Proposed Action. The determination is that the Proposed

Action is not likely to cause a trend to federal listing and in the long-term is maintaining viable populations well distributed across the coastal rangelands.

Field surveys have been completed as per the Region 5 supplement to the Forest Service Handbook for Threatened and Endangered Plants (R5 FSH 2609.25) during the 2005 field season. Monitoring of sites containing sensitive plant species within the coastal rangelands will be the responsibility of the range administrator in conjunction with the Forest botanist. Through effectiveness monitoring (see proposed action) within areas occupied by Sensitive plant species we are able to determine if livestock impacts are occurring. If Sensitive plant species appear to be in decline due to livestock, this new information will be considered and a determination made as to what avoidance or minimization measures should be incorporated into the allotment management plan and annual operating instructions.

Plant Diversity

Kwasny (2003) summarized reference data in the Coastal Rangelands Affected Environment [available in the project file] that analyzed the effects of grazing on rangeland plant diversity. Long-term studies support the position that light to moderate grazing has a positive effect on native vegetation, particularly native perennial grasses; livestock grazing is compatible with native biodiversity preservation; and that decreased vegetation height and litter depth (through grazing) has a positive effect on native annual forb species richness and cover.

Further references summarized by D'Antonio et al (2002) suggest a positive effect of grazing on native vegetation, particularly native perennial grasses. Wet season and continuous grazing in particular appear to have a positive effect on native perennial grasses; the effect of grazing on native forbs is negligible; exotic grasses appear to be little affected by grazing in general but may benefit slightly from continuous grazing; exotic forbs appear to benefit slightly from grazing, particularly in the dry season.

In the short term, using Residual Dry Matter (RDM) for monitoring purposes is an accepted method provided in the US Forest Service R5 Rangeland Analysis and Planning Guide (1997). RDM is the dry forage component remaining at the end of the dry season, and a major manageable factor governing productivity and composition (UC Leaflet 21378). RDM indicates the previous season's use and can be used to describe the health or condition of annual rangelands (UC Leaflet 21486). RDM provides favorable microenvironments for early seedling growth, soil protection from erosion, adequate soil organic matter, increases water infiltration and soil water holding capacity and a source of low-moisture fall forage for livestock feed (UC Leaflet 21327, George & Menke 1996). Residue is the variable in the fall that can be most controlled by management.

In the long term, Condition and Trend transects have been established on key areas within each allotment to track identified key species and provide us with information in regards to the ecological status of the entire site. Ecological status scorecards for coastal rangelands have not been developed as of this date. Once the scorecards are available, we will use our C&T data to assess the ecological function of the site and compliment our process for formulating management prescriptions.

By incorporating the grazing methodologies described in this environmental assessment when applied in conjunction with LRMP standards and guidelines, Best Management

Practices, Standard Management Requirements and site-specific guidelines presented in the Proposed Action, the primary and secondary rangelands will provide sufficient cover to help defend against noxious weed spread, help maintain health and vigor of desirable plant species, and provide for conditions supporting plant species diversity.

Browse may become part of livestock diet as the herbaceous species senesce. During seasonal grazing the herbaceous vegetation is still palatable, minimizing the browsing of oak seedlings, riparian woody vegetation or other brush. On the two yearlong allotments (Alder Creek and Salmon Creek), key areas and sensitive areas will be monitored for established use standards. When proper utilization is reached then the livestock will be removed from the unit, pasture or allotment.

Within the three vacant allotments, species composition and herbage production will correspond to the amount of RDM on the ground when the growing season begins. High RDM is associated with predominately annual grasses, which shade out small forbs lowering diversity. On the Twitchell Allotment (and other sites supporting native perennial grasses) it is expected that the perennial grasses will be suppressed. Diversity will continue to be lower than potential. Weather would be the primary influence on vegetation productivity.

Noxious Weeds

A weed risk assessment (Kwasny 2003) [available in the project file] was developed to determine the risk of introducing and spreading “noxious weeds” associated with the Proposed Action. In summary, the Mill Creek and Pacific Valley units (Gorda allotment) have a moderate potential for weed spread in response to the Proposed Action, while the risk is low for the remainder of the coastal rangelands. Additional Residual Dry Matter standards and modified season-of-use is expected to impede the spread of noxious weeds on these two Units. Evaluation of non-native invasive plants monitoring reports (Standard Management Requirement) will determine the effectiveness of our management in impeding the spread of noxious weeds.

2. The degree to which the Proposed Action affects public health or safety.

Localized contamination by pathogens that could impact human health in surface water, ground water, and soils can result from livestock in pastures and rangelands. Rangeland streams can show increased coliform bacterial levels with fecal coliform levels tending to increase as intensity of livestock use increases. Fecal coliform serve as indicators that pathogens could exist and flourish. The extent of contamination is usually determined by livestock density, sizing, and frequency of grazing, and access to surface waters.

The State has very strict conditions for water systems that serve the public. The public water system has to be properly maintained and if surface water is used the water needs to receive treatment. The water in a public system needs to be periodically tested. If a well is used for a public water source it must meet certain design criteria. One of the most important is that it must be sealed from surface contamination with a minimum of a 50-foot surface seal. This results in water coming from aquifers greater than 50 feet below the land surface (California Department of Water Resources 1991). For private wells a surface seal is also needed to prevent contamination. The private water source should be at least 20 feet below land surface (California Department of Water Resources 1991).

Grazing has been an ongoing activity in the coastal watersheds for many years even before these lands became National Forest lands. Any one with a private water system is well aware of this livestock grazing. Current range management practices have eliminated the historic pattern of over-utilization of key areas (U.S. Forest Service 1999).

Any source of water from an open water system, such as a spring, is subject to contamination. Livestock are not the only source of contamination. It is not easy to determine the source of contamination and any open water system such as a spring box could be contaminated from a variety of sources. Dissmeyer (2000) lists many examples and sources of contamination. These include rodents, dogs, deer and even birds; all warm-blooded creatures can be carriers of pathogens. Some coliform bacteria may also result from the decomposition of plant matter and animal matter. As a result all water systems should be constructed to standards that prevent contamination regardless of the presence or absence of livestock. The most common way of developing a safe water source is with a properly constructed well, both vertical or horizontal, built to state standards that feeds into a closed water system (California Department of Water Resources 1991.)

Surface water contamination from waste

As noted above, surface water can become contaminated from any one of a number of sources this can include livestock waste, but also contamination could come from wildlife and any other animals. If livestock waste or any other animal waste is deposited near or in a water channel it can become a source of contamination. In general all open waters carry some contaminants (Dissmeyer 2000). The level of contamination can naturally vary from day to day with water flow.

Livestock waste will be found in the greatest abundance in areas where the livestock spend most of their time. If livestock grazing and loafing is concentrated near perennial springs and seeps generally waste will be found near these waters. When livestock are more widely dispersed there is less chance of contamination. One of the best ways of controlling livestock dispersal is through season of use. During the winter-wet season livestock will be widely distributed across the units due to the wide availability of green forage, warmer temperatures on the open sunny slopes and the availability of water in the intermittent channels (personal comm. Jeff Kwasny, Big Sur Ecosystem Mgr). If the livestock are widely dispersed then overall waste will be more widely dispersed. Conversely, during summer months livestock will tend to concentrate in the damper riparian areas where green feed is located and cooler temperatures, which can concentrate waste.

Animal waste, in general, when spread over the landscape doesn't automatically mean that it will become a contaminate of open water. When livestock waste is deposited on the ground it immediately begins the process to become part of the soil. Liquids from the waste, original or from wetting rains will infiltrate into the soil under and around the waste. Soil has a very high capacity to absorb nutrients and break down the bacteria that comes from the waste. Temperature, moisture, oxygen and sunlight will determine how quickly the waste becomes part of the soil.

Under very specific conditions livestock waste and any other animal waste can become a water pollution problem. The problem occurs when waste is deposited directly into water or when the fresh waste is washed directly from the soil into the channel by overland

flow. Under ordinary rainfall events the liquids from the waste will infiltrate into the soil. Any contaminants that may come from the waste will be held and neutralized by the soil. Overland flow is a condition that develops only during one of two types of rainfall events, which are not ordinary weather events.

1. Intensity of rainfall on the soil surface exceeds the rate it can infiltrate into the soil and some of the rainfall runs off as overland flow.
2. If rainfall has been falling at a fairly high rate over a number of days. The soil profile will become completely saturated. Any additional rain will run off and as overland flow. Any live and dry fibrous matter (RDM) and non-movable objects such as pebbles and rocks on the soil surface will slow overland flow and increase infiltration.

Nutrient enrichment

Nutrient enrichment can at times be a problem in a stream system. Nutrient enrichment can manifest itself as attached algae found coating boulder and other objects on the channel bottom. Livestock when they are concentrated in a riparian can result in nutrient enrichment. The more the livestock are dispersed over the general landscape the less chance there is for nutrient enrichment. When livestock are widely dispersed it is extremely difficult to distinguish nutrient enrichment from livestock from natural sources.

A wildfire will release very high volumes of nutrients to streams within the burned watershed. The leaching of ash and soil after a wildfire releases many times more nutrients to a stream system than possibly could come from any other source. When there is a good cover of vegetation on a watershed the vegetation will capture and retain almost all available nutrients found in the soil. Wildfire releases these nutrients as part of the ash. For a number of years after a fire there will be excess nutrients in the soil, beyond what the newly emerging vegetation can use. This excess can and will slowly leach into the stream system causing nutrient enrichment. Over the last ten years several large natural and human caused wildfires have burned portions of the watersheds in which these allotments are located (Table 2). Trying to tie nutrient enrichment to any single cause other than fire is very difficult.

Another common source of nutrients most people forget about is natural leaf fall, in the case of alders which is a nitrogen fixing trees, the leaves that fall from them are a source of fertilization when they decompose on the bank and in the creek. Ordinary organic matter when piled thick as duff on the forest floor and in riparian areas will also support nitrogen-fixing bacteria.

There are a number of other sources of nutrient/mineral enrichment. Deep circulating water can bring mineral rich water to the surface. In Limekiln Creek (Twitchell allotment) minerals from deep circulating water with the help of algae are coating the bed of the stream with calcium minerals (U.S. Forest Service 1999). Another obvious source is a poorly maintained septic system on private in holdings. Overall, nutrients from livestock waste are generally not significant or measurable when compared to many background sources.

In summary, the Coastal Rangeland Allotment Analysis - Hydrological (Andresen 2003) [available in the project file] determined potential non-source pollution from livestock

waste would be found in greatest abundance in areas where the livestock spend most of their time. If livestock grazing and loafing is concentrated near perennial springs and seeps then generally waste will be found near these waters. When livestock are more widely dispersed there is less chance of contamination. One of the best ways of controlling livestock dispersal is through season of use. During the winter-wet season livestock will widely distributed across the units due to the abundance of green forage, warmer temperatures on the open sunny slopes and the availability of dispersed water sources. When livestock are widely dispersed it would likely be impossible to distinguish contamination or nutrient enrichment from natural sources. The Forest is not aware of any contamination or public health problems within the action area.

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

There are no historic or cultural resources (buildings), parklands, prime farmlands, perennial wetlands, wild and scenic rivers, or ecological critical areas within the coastal rangelands. Wilderness designation overlaps approximately 16,000 acres within the coastal rangelands (Table 2). The Recreation and Wilderness Specialist Reports for the Re-Issuance of Livestock Grazing Permits (Oosterhous 2003) [available in the project file] evaluated the effects of issuing grazing on recreation and wilderness values and determined that there were no cumulative effects in continuing existing uses (grazing). The Report further states we are to ‘provide an atmosphere that is conducive to a “wilderness experience” in which users recognize the historical and legal role of grazing practices within designated wilderness in conjunction with the multi-use management philosophy of the U.S. Forest Service’. It is noted that Congress intends for domestic livestock grazing to continue in wilderness.

Table 2. Summary of Coastal Rangelands Wilderness Acres

Allotment/Ranch	Wilderness (date of designation)	Acres
Torre	Ventana (2002)	188
Twitchell	Ventana (1992)	4,126
Gorda-Mill Creek	Ventana (1992)	1,677
	Silver Peak (2002)	2
Gorda- Plaskett	Silver Peak (2002)	3,296
Alder Creek	Silver Peak (1992)	371
Buckeye	Silver Peak (1992)	2,455
Salmon Creek	Silver Peak (1992)	86
Kozy Kove	Silver Peak (2002)	185
Sea Vista	Silver Peak (2002)	14
Sur Sur	Silver Peak (2002)	117
San Carpoforo	Silver Peak (1992)	1,579
	Silver Peak (2002)	1,968
Total		16,064

Effects on recreation from livestock grazing include visual impacts (removal of vegetation tops and remaining stubble, trampled vegetation, manure, fences, and other range improvements); auditory impacts (sounds of domestic livestock); and olfactory impacts (smells of animals and animal wastes). Conflicts can occur between visitors and livestock or with the dogs used by permit holders to control herds. Recreationists who prefer a livestock-free experience yet choose to visit areas that are actively grazed hold these concerns. A positive effect of livestock grazing is the developed water resources that are available for equestrian recreation users.

On the 15,544-acre Gorda Allotment, 3,296 acres within the 5,955-acre Plaskett Unit were designated wilderness under the Big Sur Wilderness and Conservation Act of 2002. There are no Forest developed trails or campsites within this newly designated wilderness. Livestock grazing on the Plaskett Unit has been ongoing since circa 1880s. There is no compelling reason to determine that the unique characteristics used to recommend this area for wilderness will be adversely effected as a result of implementing the Propose Action.

The 4,132-acre Mill Creek Unit of the Gorda Allotment contains 1,677 acres within the Ventana Wilderness. Due to the physical terrain, the ten to twelve head of cattle that utilize this portion of the Unit tend to stay on the grass ridges above Nacimiento-Ferguson road. There are no Forest developed trails or campsites there. Very few people hike this area, or can visually see it. There is no compelling reason to determine that the unique characteristics used to recommend this area for wilderness will be adversely affected as a result of implementing the Propose Action.

On the 2,525-acre Alder Creek Allotment, 371 acres are within the Silver Peak Wilderness. There are no Forest developed trails or campsites within this portion of Wilderness. Although there are no boundary fences, steep terrain and physical barriers (escarpments, brush), distance to primary grazing areas, and lack of adequate forage (less than 200 lbs/acre) categorizes these lands as not capable of sustaining domestic livestock. In the last seven years of monitoring, there has been no evidence (trailing, observations, lost animals) that livestock have attempted to utilize this area. As long as there is adequate water and forage within the primary grazing areas on the allotment, the probability of livestock venturing into this portion of the Silver Peak Wilderness is low.

On the 398-acre Kozy Kove Ranch and the 211-acre Sea Vista Ranch, 185 acres and 14 acres respectively were designated wilderness under the Big Sur Wilderness and Conservation Act of 2002. There are no Forest developed trails or campsites within this portion of newly designated wilderness. Livestock grazing on this ranch has been ongoing since circa 1880s. There is no compelling reason to determine that the unique characteristics used to recommend portion of this historic ranch for wilderness will be adversely affected as a result of implementing the Propose Action.

On the 1915-acre Sur Sur Ranch, 117 acres were designated wilderness under the Big Sur Wilderness and Conservation Act of 2002. These acres are predominately oak-savannah and include both primary and secondary range contiguous with the adjacent San Carpoforo allotment (also wilderness). There are no Forest developed trails or campsites within this newly designated wilderness. Livestock grazing on this ranch has been ongoing since circa 1880s. There is no compelling reason to determine that the unique characteristics used to recommend portion of this historic ranch for wilderness will be adversely affected as a result of implementing the Proposed Action.

On the 3,546-acre San Carpoforo Allotment, 1,578 acres have been in the Silver Peak Wilderness since 1992. The remaining 1,968 acres were designated wilderness under the Big Sur Wilderness and Conservation Act of 2002. Grazing in this area has been ongoing since the Mission Era, specifically in conjunction with the founding and development of Mission San Antonio de Padua in 1771. An improved dirt road, used by owners of private in holdings, bisects the allotment roughly in half. The public identified the enclosure at Dutra Camp as compromising wilderness values. This has been mitigated in the Proposed Action through enlargement and redesign. Monitoring has revealed little use by livestock at the three remaining primitive camps. Furthermore, by incorporating the Sea Vista and Sur Sur Ranches the cattle will be herded off wilderness and away from the three primitive camps and the connecting Dutra trail during the last portion of the grazing season which overlaps somewhat when primary recreation use begins.

Typically, most recreational use within the coastal rangelands is during the dry Spring and Summer months (Table 3). Conflicts between livestock grazing and recreation use are mitigated by the prescribed season-of-use within wilderness. It is during the cooler wet season when recreation use is at its lowest. Also, the season-of-use promotes distribution and utilization across the allotment as uniformly as natural features allow, reducing concentrated use and evidence of livestock presence. Our emphasis is to manage grazing in a way that recognizes all values. Much of the projected recreation use within the coastal rangelands is adjacent to streams and in meadows and riparian areas within close proximity of Highway 1. There are no plans for additional developed recreation sites or trails to redirect use to other areas within the coastal rangelands.

Recreation type	Allotment	Wilderness
Gorda – Prewitt Unit Prewitt Camp (primitive); Stagg Camp (primitive); Prewitt Loop trail (2 mile segment)		No
Gorda – PV Unit Sand Dollar Beach (developed day use)		No
San Carpoforo Allotment Dutra Camp (primitive) Turkey Springs Camp (primitive) San Carpoforo Camp (primitive) Dutra Trail Elk Camp (primitive)		Yes

Table 3: Coastal rangelands developed recreation.

In Summary, grazing would result in livestock consumption of accessible plants found to be palatable, leaving undisturbed areas with unpalatable or inaccessible plants. Primary use would be the grasslands. An effect of this would be the continuation of current grassland species composition, precluding plant community reversion toward the statutory essentials of wilderness that is unimpeded by human action. Kwasny (2003)

summarized literature that supported livestock grazing as compatible with native biodiversity preservation. The Weed Risk Assessment (Kwasny 2003) disclosed that the wilderness areas have a low vulnerability for introduction or spreading of noxious weeds by the Proposed Action.

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

Extensive public involvement efforts (see Chapter 1) including Public Scoping and two EA Review Comment periods (Appendix I) have not revealed any other significant controversies or significant issues regarding the environmental effects of the Proposed Action or alternatives.

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

The interdisciplinary team utilized professional experience and the best available science in their specialist reports when analyzing the effects on the environment. Scientists have been monitoring the effects of livestock on the environment since the early 1900's. Any potential for uncertain, unique, or unknown risks have been thoroughly studied in the long history of planning, analyzing and public involvement for this project.

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

The Proposed Action would continue an already existing action with minor adjustment. Any future proposals would need to consider all relevant scientific and site-specific information available at the time and would require full compliance with NEPA. Neither the alternatives analyzed here, nor any of their individual components, would establish a precedent for future actions with significant effects, nor would they represent a decision in principle about future consideration.

Incorporating newly acquired properties (such as the ranches described herein) into appropriate management areas is a standard procedure and does not require the preparation of an EIS.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment.

Other actions, temporary actions, component parts: The action alternatives are not related to or dependent upon other actions in the project area which may contribute to cumulatively significant impacts; the action alternatives are not a component part of any larger action. Allotments are located in separate watersheds (Table 4) therefore they do not contribute to cumulative oceanfront watershed effects.

Table 4: Sub-Watersheds of Allotments

Allotments	Primary Sub-Watersheds
Alder Creek	Spruce & Alder Creeks
Buckeye	Soda Springs, Redwood & Villa Creeks
Kozy Kove	Oceanfront
Gorda Allotment-Mill Creek	Mill Creek
Gorda Allotment – Plaskett Unit	Willow & Plaskett Creeks
Gorda Allotment – Prewitt Unit	Mill & Prewitt Creeks
Gorda Allotment – Pacific Valley	Prewitt & Plaskett Creeks
Salmon Creek East & West	Salmon Creek
San Carpoforo	Dutra & San Carpoforo
Sur Sur Unit of San Carpoforo	Oceanfront
Sea Vista Unit of San Carpoforo	Oceanfront
Torre Allotment	Grimes, Lafler, Torre Creeks
Twitchell Allotment	Lime Kiln

Watershed

The Big Sur coastal watershed has a complex geological history. The steep and rugged topography is a result of faulting, folding, landslides and igneous intrusion. Runoff ranges from moderate to very rapid and the erosion hazards range from moderate to very high. General soil erosion over the landscape results in the delivery of fine sands, silts, and clays to the streams, while landslides are the main source of coarse gravel and boulders in the stream systems. After a fire, both coarse and fine material will wash into the stream channel during moderate rainfall events due to lack of stabilizing vegetation. Fine sediment arriving in the stream channel when the stream is not in flood is the most harmful. These fine sediments will embed the gravel and cobble substrates, reduce spaces for invertebrate production, and may impede steelhead spawning or redd development.

The topography, vegetative distribution and structure generally restrict most cattle access from riparian areas and stream corridors throughout the coastal rangelands. Grazing opportunities based on available forage occur on ridge tops and mid-elevation benches and potreros where gentler terrain and deeper soils allow for grasslands and other more open vegetation types.

Past impacts have occurred from: road construction, timber harvesting, structures (e.g. houses, water tanks), recreational activities, grazing and wildfire. Currently, there are a number of private property in-holdings within the coastal rangelands that withdraw water from stream courses and continue to potentially contribute septic disposal. Small numbers of livestock graze on private land with the exception of the Hearst Ranch, which continues to graze varying numbers of cattle within the San Carpoforo watershed.

There are other activities tentatively planned for implementation within the watershed. The watersheds may be entered at a later date to do watershed improvement projects, fuels thinning, fire control, or recreation work. When the required NEPA analysis is completed for these projects, any watershed effects from coastal grazing will be included

in the analysis. There may be continued development on privately owned lands within the watersheds. No specific projects have been identified at this time. Future state and private projects reasonably certain to occur within the project area include continued grazing of neighboring private lands at similar levels, on-going maintenance of Highway 1 by California Department of Transportation (CalTrans), and the continuation of driving and maintenance along private dirt roads. These operations and activities have the potential to increase sedimentation into drainages along the coast. CalTrans has proposed two mudslide disposal sites near the town of Gorda pending approval from the California Coastal Commission. There are no stream channels within the disposal sites that could potentially transport sediment if the Coastal Commission approves the project. The Los Padres National Forest is unaware of any substantive proposed activities within local and adjacent state parks along the Monterey coast.

Proper Functioning Condition (PFC) assessments have been conducted within the Gorda and San Carpoforo allotments [available in the project file] indicating cattle are not measurably affecting the functioning of coastal streams, and will be conducted every five years (Standard Management Requirements). The PFC assessment provides a consistent approach for assessing the physical functioning of riparian-wetland areas through consideration of hydrology, vegetation, and soil/landform attributes (USDI, 1995). While the methodology and resultant data is “reach based”, the ratings are typically aggregated and analyzed at the watershed scale.

For the most part, direct effects of grazing involve mechanical disturbance and trampling of streambanks. The potential for trampling is limited in most locations due to the typically steep channel banks, steep inner gorges, armored (rocks) stream channel and dense vegetation along anadromous stream reaches restricting livestock access. Livestock normally meet their daily water needs in one of two ways: a) directly from a stream, spring or seep, and/or, b) from developed water sources such as impoundments, tanks, or troughs. Through the use of water developments, mainly troughs on these allotments, livestock are generally evenly distributed in small numbers throughout the allotments and do not ordinarily gather or congregate in or near the stream courses (see Anadromous Fish and Allotment Map, Appendix G). A layer of moist marine air and rainfall of 50 to 60 inches a year over the allotments keeps forage moist and intermittent streams flowing from approximately mid November until late in June. Abundant availability of water allows cattle to move freely about the allotments and not concentrate for extended periods near perennial water sources. All grazing seasons fall between November 1 and June 15 except the Plaskett, Prewitt, and Pacific Valley units of the Gorda Allotments which allow cattle from 2/1 to 8/1, 2/1 to 8/15, and 3/1 to 9/15, respectively. Five out of the six to seven months of grazing on the Plaskett, Prewitt, and Pacific Valley Units occur during the wet season. During the one to two months that cattle graze these units during the drier season, well-dispersed water troughs, and inaccessibility to perennial water (from fencing or natural barriers) prevents cattle from concentrating along perennial watercourses.

Indirect effects of grazing are typically associated with over use of riparian habitats by livestock. Increased siltation/sedimentation, changes in stream morphology and/or increases in water temperatures are all potential effects. The impacts of cattle grazing on riparian and aquatic systems of the western United States have been extensively researched and documented (Meehan, 1991). These potential effects include: changes to riparian vegetation composition, diversity and vigor, increased compaction, reduced

channel stability, and in extreme cases, lowered water tables and channel elevations and impacts to water quality (increase in sediment production and temperature). Sediment production may be increased through the reduced channel stability, and from upland sources where grazing reduces ground cover to the point where erosion is increased. Grazing may impact water quality via fecal droppings. In total these changes may result in loss of food, habitat for concealment, reproduction, and shade (temperature modification) for fisheries. Some of these effects in turn can adversely affect invertebrate production. As displayed on the Allotment Maps (Appendix H), the primary and secondary range available to livestock is generally on the ridgelines or in the mid-slope areas within the allotments.

There is a low to moderate risk of sedimentation to streams in those areas where livestock have the potential to reach the riparian areas and ephemeral drainages in the headwaters of Mill, Prewitt, Plaskett, Willow, and San Carpoforo Creeks because of the relatively low numbers of livestock that graze for relatively short periods of the year. Due to the wide distribution of the livestock on the allotments and the vast number of small headwater ephemeral drainages, there is little concentrated use or measurable impact from grazing activities. The light to moderate utilization by livestock allows the on-site vegetation to help capture and slow down any overland water or sediment flow. Moderate utilization leaves an average of 1,000 lbs/acre of residual dry matter. In addition, livestock tend to graze on the ridge tops more so than in the steep drainages.

A Beneficial Use is a resource or activity that would be directly affected by a change in water quality or quantity. The beneficial uses in the affected watersheds of the proposed action include municipal or domestic water supply to communities or individuals, agriculture, resident fish and aquatic life, wildlife, fisheries habitat, groundwater recharge, and contact and non-contact recreation for forest visitors at recreation sites (Central Coast Regional Water Quality Control Board Basin Plan 1994).

The State Water Resources Control Board also administers section 303(d) of the Clean Water Act of 1972, which addresses identifying water quality limited streams, streams or segments of streams which do not meet water quality standards. On July 25, 2003, the EPA gave final approval to California's Section 303(d) list of water quality limited segments. There are no listed streams in the project area, nor do any of the area streams drain into a listed stream. In addition to these there is one Area of Special Biological Significance (ASBS) which occurs adjacent to the project area, the ocean area surrounding the mouth of Salmon Creek. We are not aware of any data from the monitoring of these areas that show impairments to beneficial uses or violation of water quality standards within the proposed project area. There does not appear to be any measurable cumulative effects as all streams have been assessed as operating at their proper functioning condition.

Trails and campgrounds can adversely affect streams if they are located close to streams or ephemeral drainages by adding sediment and accelerated erosion of streambanks (see Appendix H and Table 3). Examples are: Gorda Allotment – Mill Creek Trail (Mill Creek unit); Prewitt Loop Trail and associated campsites (Prewitt Unit); Dutra Trail and associated campsites (San Carpoforo allotment). Dispersed camping and recreation is a contributor to watershed and riparian degradation within the affected watersheds.

Wildfires occur fairly often along the Monterey coast (Table 5), are a natural process, and can effectively open up densely vegetated areas on the landscape. Wildfires can result in

elevated sediment production and water yields causing short-term and long-term effects in the stream channels and in the aquatic communities. As per the current LRMP, the level of livestock grazing will not be increased over the permitted use for a period of at least three seasons following a wildland or prescribed fire. In addition, the Forest Service performs an on-site range readiness inspection prior to the next grazing season to determine the appropriateness of livestock grazing relating to resource values and ability to control the livestock within the allotment. Subsequently, after a wildfire and after the range readiness is performed, the degree to which livestock grazing is appropriate and allowed, if at all, is established (numbers and season of use).

Wildfires (Date)	Acres	Affected Watershed	Affected Allotment
Buckeye (1970)	44,360	Redwood, Salmon, Dutra, San Carpoforo	Buckeye, Salmon Creek, Kozy Kove, Sea Vista, Sur Sur, San Carpoforo
Gamboa (1981)	3,792	Lime Kiln	Twitchell
Gorda-Rat (1985)	65,700	Alder, Willow, Lime Kiln, Mill	Alder Creek, Twitchell, Gorda
Wild (1996)	25,620	Mill, Plaskett	Gorda
Kirk (1999)	87,000	Big Creek, Vicente, Lime Kiln, Mill	Twitchell, Gorda
Plaskett II (2000)	8,000	Plaskett, Willow	Gorda

Table 5. Coastal fire history within coastal rangelands

By far the greatest source of sediments in any drainage will come from erosion after a fire. Calculations made for the Plaskett II Fire - Burned Area Emergency Rehabilitation report showed that erosion would likely be between 9-16 times the normal sediment yield from an unburned watershed (Mai, 2000). Actual sediment measurements on large distant fires such as those on the Carmel River show sedimentation rates up to 30 times normal.

The Wild Cattle Fire in 1996 burned upper portions of both Prewitt Creek and Mill Creek watersheds. This fire would yield an increased sediment load to these creeks for several years. Another portion of Mill Creek watershed was burned in the 1999 Kirk Fire. This would yield additional sediments to Mill Creek. With all these fires one would expect that the streams would be choked with sediment.

An onsite review of Mill Creek actually showed that a debris flow came off the north portion of the watershed flowing into Mill Creek. This debris flow was caused by debris coming from the Kirk Fire burned area and off the Nacimiento-Ferguson road. The debris traveled through the riparian area left mud marks several feet high on the trunks of several redwood trees before flowing into Mill Creek. However, looking at the Mill Creek channel upstream and down stream of the debris flow there was no obvious difference in channel structure. Due to Mill Creeks steep nature (2-4% slopes) any debris and sediment was quickly washed and sorted. This process has been documented in other

watersheds by research; most recently Ferguson (2003). The fine material goes into and remains in suspension due to water volume and turbulence. Most of the fine material was flushed out to sea, while the coarse gravel and boulders were left as a lag. This characteristic is common to all drainages found below the allotments.

Road densities within the affected sub-watersheds are shown in Table 6. Roads can act as extensions of the stream channel (Wemple, et al., 1996; Jones and Grant, 1996; Brown, 1980; Rice, et al., 1979). Road density, location, slope, and road material are factors used to determine the amount of sediment routed from the road to the stream channel. Within the analysis area, roads are one of the primary mechanisms for routing sediment to streams (USDA, 1999). Roads and trails provide access to most of the area. Development of private land within the analysis area has contributed to stream and riparian degradation. The debris flow that came off the Kirk Fire and the county's Nacimiento-Ferguson road deposited sediment directly into the creek. Other roads including Forest Service roads are heavily rutted and are in need of repair and are a measurable source of sediment. Over the whole landscape, roads and the drainage from the roads, are typically delivering considerably more sediment to the channel system than grazing.

Watershed	Road Density mi/sq.mi	Allotment
Mill	2	Gorda
Prewitt	0.5	Gorda
Plaskett	1.7	Gorda
Willow	1.5	Gorda
Alder	1	Alder Creek
Villa	0.2	Buckeye
Salmon	0.3	Salmon Creek
San Carpoforo	0.6	San Carpoforo

Table 6. Road density per watershed

Riparian buffers are known to be able to capture sediment in runoff and neutralize potential nutrients and chemicals from areas beyond the edge of the riparian area. One published study (Welsch, 1991) recommends a buffer width 95 feet between pastures, croplands and open water streams. The Forest Riparian Conservation Strategy and LRMP standards provide a minimum of 100 feet and at least 300 feet of buffer in anadromous streams. The Water Erosion Prediction Project (WEPP) is a program that analyzes the potential yield of sediments to a channel by the activities and their distance from the watercourse. The WEPP program was developed at the University of Indiana and later modified for the application in the western United States by the US Department of Agriculture, Forest Service, Rocky Mountain Research Station in conjunction with the University of Idaho. Modeling using WEPP shows that when activities are more than

300 feet away from a watercourse with a functioning riparian area, overland flow from an area of activity will produce no noticeable increase in sediment to the channel above natural conditions.

The LRMP specifies that we will keep 1,000 lbs /acre or more of Residual Dry Matter or more on the ground. This will slow overland flow, reduce erosion and provide for soil infiltration. The Residual Dry Matter Guidelines in the Proposed Action will provide the necessary buffer along the seasonal and intermittent channels. Spaeth et al. (1996) concluded that infiltration rates were positively correlated with mulch (cover), percent sand, soil structure rating and biomass. Infiltration increased as values for these variables increased. Grazing strategies that maintain adequate vegetative cover are the best approaches to reducing grazing caused erosion and sedimentation (George, 1995).

Cumulative watershed effects (CWEs) include any changes that involve watershed processes and are influenced by multiple land use activities (Reid 1993). They do not represent a new type of impact. Changes that accumulate in time or space are considered CWEs. The watersheds in the project area were evaluated using watershed stream surveys, fisheries surveys, field observations by soil, fisheries and watershed specialists, the Soil Survey for the Los Padres National Forest, engineering, aerial photo data and the Proper Functioning Condition (PFC) protocols (U.S. BLM 1998). Narratives addressing the expected cumulative watershed effects on water quality for each alternative for each allotment are in the Hydrological Working Paper – Coastal Grazing Analysis 2005 (available in the project file).

If a Cumulative Watershed Effect were to occur, the most probable mechanism is considered to be chronic sedimentation. This would most likely occur within low gradient reaches of the watershed or at major confluences and their tributaries under the following circumstances:

- Failure to implement Best Management Practices (both grazing and road), Riparian Area Standards and Guidelines, and other required mitigation.
- Extreme water yields resulting from abnormally high intensity, magnitude, and duration storm events.
- Removal of all vegetative matter and ground cover resulting from a wildfire.

Recovery of the channel system and its beneficial uses would be dependent upon the magnitude and extent of the impact that occurs. Other factors that could affect recovery include the amount and intensity of rainfall following an impact and the exact location of the impact relative to beneficial uses.

In order to ameliorate the potential to affect water quality and beneficial uses within the Coastal Rangelands, a suite of Best Management Practices, Standard Management Requirements, Monitoring and Adaptive Management have been included in the Proposed Action. These practices will be used to reduce sediment delivery on both proposed activities and on any existing problems. As sedimentation and grazing practices should be controlled through implementation of the Proposed Action, the potential of sedimentation and degradation resulting from grazing to the immediate channels and the channels downstream from the allotments should be minimal.

Cumulative watershed effects were addressed by using a combination of Proper Functioning Condition protocols on selected streams; evaluating past, present and

reasonably foreseeable activities on all land ownership within the watersheds; site visits by the soil scientist, hydrologist, range specialist, botanist, fisheries biologist, and wildlife specialist; photo interpretations; fisheries surveys; and professional judgment based on best available scientific literature. The Equivalent Roded Area methodology, ERA, was considered but not used. Evaluating grazing practices using the ERA methodology would not provide the level of assessment that actual on the ground evaluation by specialists provided. A properly functioning condition assessment of the whole stream/creek is not needed only representative samples need to be assessed. Reaches chosen for assessment were in areas where grazing activities were likely to show the greatest impact based on field observations, aerial photos, past studies and inventories.

In summary, no measurable cumulative watershed effects associated with the Proposed Action such as sedimentation, decreased riparian and upslope productivity, streambank alteration, soil compaction, water quality, and surface hydrology were identified in the Coastal Grazing Analysis, nor in any other water quality assessments known to the Forest (Andresen 2003, Peckham et al. 2001, Roath 2003, Gould 2005).

Endangered and Threatened Species

Smith's blue butterfly

There are approximately 55,000 acres of Smith's blue butterfly habitat along the Big Sur coast (Status Review for the Smith's blue butterfly, USFWS 2003) [available in the project file]. Habitat is coastal sage scrub plant communities that contain seacliff buckwheat (*Eriogonum parvifolium*) and/or coast buckwheat (*E. latifolium*). Both the larval and adult life stages of the Smith's blue butterfly feed primarily on these two perennial species of buckwheat. Together, these buckwheats function as the sole larval and primary adult food plants for Smith's blue butterfly (Arnold 1983). The Smith's blue butterfly is also dependent on seacliff buckwheat and coast buckwheat for a substrate for egg laying, and for cover during pupation.

Direct and indirect effects on the federally listed endangered Smith's blue butterfly (SBB) would occur in habitat adjacent to or within primary² and secondary³ range on each respective allotment (Table 7). Cumulatively, this affected habitat equals 190.5 acres. No critical habitat has been designated for this species, therefore none will be affected.

² Primary range is defined as that part of the allotment which livestock naturally prefer to use. Typically it includes the forage-producing areas that are readily accessible and have available water. Forage value and palatability is high in comparison to the rest of the allotment's vegetation. Ordinarily primary range will be grazed to allowable use levels before livestock graze other parts of the allotment to any great extent.

³ Secondary range is where forage value and palatability of vegetation is lower than primary areas and terrain is steeper making it a less desirable area to livestock. Ordinarily secondary range is used very little or not at all under existing management.

Allotment	Acres of buckwheat in primary range	Acres of buckwheat in secondary range
Alder Creek	2.5	15.2
Kozy Kove	0.1	2.9
Gorda-Mill Creek	11.6	38.3
Gorda-Plaskett	1.8	8
Gorda-Prewitt	0	0
Gorda-PV	14.6	0.7
Salmon Creek	1.3	16.6
San Carpoforo	0	0
Sea Vista/ Sur Sur	10.6	66.2
Totals	42.5	148

Table 7. Acres of SBB habitat in coastal rangeland allotments

Where seacliff buckwheat does occur in areas used by livestock, browsing of seacliff buckwheat could occur to a small extent. Where there is an overlap between suitable/occupied SBB habitat and primary range, there is a risk that livestock use may affect the SBB by compacting the duff where pupae are located or browse flowers containing eggs or larvae. Livestock may cause disturbance to adults, interfering with mating and feeding activities, in those areas where livestock are present during the flowering period of the host plants. Livestock are expected to travel primarily on established trails, which should limit potential trampling to those trails. The only livestock trail identified as potentially impacting SBBs is approximately 150 feet of trail within the Alder Creek allotment. Given there are 55,000 acres of known habitat and 190 acres of livestock accessible habitat within the coastal rangelands (Table 5), livestock trails would have minimal effects on the populations of SBBs within the coastal rangelands.

The relative amount and availability of palatable forage within the allotments has a direct influence on the degree of grazing within or adjacent to SBB habitat and potential utilization of buckwheat by livestock. By designating key areas for monitoring (see allotment maps) the utilization of palatable forage in primary and secondary range adjacent to seacliff buckwheat stands, range managers will be able to ensure that livestock are removed from the allotment well before forage becomes limiting and thus reduce the likelihood that cattle will browse within seacliff buckwheat stands.

Since secondary range is used very little or not at all under existing management, potential effects within secondary range or beyond is expected to be negligible. Following all management requirements listed in the Biological Opinion on the Effects of Permitted Grazing Allotments on the SBB on the Monterey Ranger District (USFWS 2003) [available in the project file] and the SBB Biological Assessment for Livestock Grazing on the Monterey Ranger District (Kwasny 2003) [available in the project file] will eliminate or minimize impacts to the SBB. The proposed action is not likely to jeopardize the continued existence of the SBB (USFWS 2003). Viable populations will continue to be well distributed across the coastal rangelands and Big Sur Coast.

The potential amount of plants lost for SBBs and incidental take would be immeasurable relative to the entire species range. The amount of habitat potentially affected is 0.3%.

Grazing has occurred on the coastal portion of the Monterey Ranger District (MRD) for over 100 years. In the early part of this century livestock numbers and their range were significantly larger than today. The residual effect of this past grazing use on Smith's blue butterfly habitat suitability is unknown. Similar effects can result from grazing occurring on adjacent private lands, however less than 10 percent of the area circumscribed by the boundaries of the MRD is private land. Most of this private land is too steep for grazing use.

Cumulative loss of habitat as a result of urban development will continue. Landslides and erosion events will continue to provide the disturbances required for establishment of the buckwheats. The invasion of non-native invasive weeds, in particular jubata grass (*Cortaderia jubata*), will continue to displace habitat for the SBB. Deer will continue to utilize coastal scrub habitat and browse seacliff buckwheat. Seacliff buckwheat stands will continue to be impacted by recreational hiking along developed trails and near recreation facilities. Excessive recreational hiking/treading will continue to compact the soil, preventing expansion of buckwheat stands and normal root growth. Selection of an action alternative would not result in a measurable change in the percentage of seacliff buckwheat stands on the Monterey Ranger District nor reduce the likelihood of both the survival and recovery of the Smith blue butterfly in the wild by reducing the reproduction, numbers or distribution within the coastal rangelands.

South Central Steelhead Trout

Steelhead along the Monterey coast are best known from the Salinas, Carmel, Big Sur and Little Sur river systems. Collectively, the relatively smaller, steeper drainages along the west slope of the Santa Lucia Range provide a limited amount of habitat within their lower reaches. The lower reaches of Limekiln, Mill, Prewitt, Plaskett, Willow, Alder, Salmon and San Carpofo creek have been identified as accessible to south-central steelhead. Critical habitat has been proposed (Federal Register 226, Vol. 69, No. 237, December 10, 2004) which includes occupied streams along the Big Sur coast below impassible barriers. Final designations are pending. NOAA Fisheries has concurred that implementation of the proposed action would not adversely affect proposed critical habitat (NOAA Fisheries 2005).

For the most part, direct effects involve mechanical disturbance and trampling of eggs and fry. Both eggs and fry are noted as being most susceptible from February through April. Trampling can cause direct mortality or injury to incubating fish within redds, and less likely, injury to juveniles or adults. The potential for trampling of redds and fish is limited in most locations due to the typically steep channel banks, steep inner gorges, and dense vegetation along anadromous stream reaches restricting livestock access. A variety of mitigation measures to avoid adverse effects on steelhead trout have been incorporated into the action alternatives. There will be no livestock access to the anadromous (steelhead accessible) reaches of Plaskett, Willow, Alder, Salmon or San Carpofo Creeks. Access to Mill will be incidental, and Prewitt creek will be controlled. This results in an extremely small to no probability for direct effects from livestock walking within those anadromous reaches (e.g. little to no opportunity for livestock to step on fish or disturb redds by walking in the channel). Specifics regarding each allotment are found in the Biological Assessment of South-Central Trout (Peckham et al. 2001) [available in the project file]. (See Appendix G for a Summary of Stream Access by Steelhead and by Livestock)

Direct effects on water quality from cattle grazing are limited; there are few areas where cattle can access perennial streams directly. Most perennial sections of streams are not accessible by cattle, or are not attractive to them. Cattle access to steelhead streams in steep, heavily vegetated riparian areas is very limited if not completely closed. Ephemeral riparian areas accessible by cattle are on the upper-most slopes in the grasslands. Impacts to these reaches from cattle do not appear to have measurably modified the vegetation within ephemeral drainages.

Indirect effects are typically associated with over use of riparian habitats by livestock. Increased siltation/sedimentation, changes in stream morphology and/or increases in water temperatures are all potential effects. In total these changes may result in loss of food, habitat for concealment, reproduction, and shade (temperature modification) for trout.

There is a low to moderate risk of sedimentation to streams in those areas where livestock have the potential to reach the riparian areas and stream channels in the headwaters (above anadromy) of Mill, Prewitt, Plaskett, Willow, and San Carpoforo Creeks because of the relatively low numbers of livestock that graze for relatively short periods of the year. Due to the wide distribution of the livestock on the allotments and the vast number of small headwater ephemeral drainages, there is little concentrated use or impact from grazing activities. The light to moderate utilization by livestock allows the on-site vegetation to help capture and slow down any overland water or sediment flow. Moderate utilization leaves an average of 1,000 lbs/acre or residual dry matter. In addition, livestock tend to graze on the ridge tops more so than in the steep drainages.

The Biological Assessment (Peckham et al. 2001), updated by Cooper (2003) [available in the project file] determined that grazing may affect but is not likely to adversely affect threatened south-central steelhead. A Biological Opinion from the National Marine Fisheries Service (2001 & 2004) [available in the project file] concurred with our determination.

A description of past and existing activities along the Monterey coast are described in the Ocean Front Watershed Analysis (USDA Forest Service 1999) [available in the project file]. The watersheds affected by this proposed action are generally in healthy condition, with low disturbance levels and low road densities. We are not aware of any new proposals for developments or major changes in on-going activities on State or private lands adjacent to these eight allotments. There will continue to be annual road maintenance and repair work by Cal Trans on Highway 1 in response to road washouts and slides. Grazing on private land in-holdings and private lands adjacent to National Forest System lands is anticipated to continue at the current rate. Within the Forest boundaries, steelhead habitat is in very good if not excellent condition (Peckham et al. 2001). The numbers of anadromous fish are much reduced from historic levels for a variety of reasons well outside the control of the Forest Service. What this means in terms of assessing the effects of range management in conjunction with other activities is also not clear. Potential impacts from range management on National Forest System lands in these watersheds are very limited relative to natural disturbance and the effects of periodic wildfires. No interdependent or interrelated effects are expected from this action.

We will implement Best Management Practices (BMPs), applicable to grazing (Appendix D), as effective means of reducing water quality impacts from non-point sources of

pollution. Additionally, water quality sampling provided by the Regional Water Quality Control Board and/or Monterey Bay Sanctuary Citizen Watershed Monitoring Network, and/or Forest Service for Kirk, Mill, Plaskett, Prewitt, Willow and San Carpoforo creeks has been and will continue to be evaluated.

Proper Functioning Condition (PFC) assessments have been conducted [available in the project file] indicating cattle are not measurably affecting the functioning of coastal streams, and will be conducted every five years (Standard Management Requirements). The PFC assessment provides a consistent approach for assessing the physical functioning of riparian-wetland areas through consideration of hydrology, vegetation, and soil/landform attributes (USDI, 1995). While the methodology and resultant data is “reach based”, the ratings can be aggregated and analyzed at the watershed scale. For steelhead streams, proper functioning streams develop diverse ponding and channel characteristics to provide habitat and water temperature for fish production, and support greater diversity.

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.

Inventory for the units in the Monterey District Coastal Grazing Allotments has been completed pursuant to the Grazing-Heritage Resource Strategy (USDA LPF, revised 2003) which is subsumed under the Programmatic Agreement between Forest Service and the Advisory Council on Historic Preservation Regarding Rangeland Management Activities on National Forest System Lands (PA) 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 (MOU).

The Heritage Department of the Los Padres National Forest maintains a chart of sites identified as potentially at risk within the Area of Potential Effect for each unit of the allotments. An annual monitoring plan has been developed that identifies and ranks these sites within each allotment. In addition, trigger points have been identified that will require resource protection measures for the sites if adverse impacts are discovered. The monitoring plan also provides for the implementation of additional inventory should rangeland conditions or use within the allotment change. Monitoring of these sites will be the responsibility of the rangeland administrator as well as one of the professional archaeologists on the forest staff, usually the Zone Archaeologist assigned to the district. The Range Administrator and the Archaeologist will review the results of the monitoring at least annually to determine appropriate protection measures, if any, are needed within any unit of the allotments. Protection measures are subject to the approval of the Forest Heritage Program Leader pursuant to the Grazing-Heritage Resource Strategy and PA.

Compliance with the National Historic Preservation Act (NHPA) has been met with the implementation of the annual monitoring plan, pursuant to the Grazing-Heritage Resource Strategy and PA, as part of the inventory process along with the identification of heritage sites (including Traditional Culture Practice Areas) at risk from grazing within the allotments. Consultation with local Salinan and Esselen tribes has been met through written notification and request for comments, and responses to the comments, and personal contacts and site visits where appropriate.

The revised Grazing-Heritage Resource Strategy (USDA LPF 2003) [available in the project file] has been reviewed by the Office of Historic Preservation and found to be consistent with standards established in previous documents (letter dated 4/16/2004).

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.

Proposed critical habitat for the threatened steelhead trout exists within the coastal rangelands. Biological Assessments determined that the action alternatives may affect but are not likely to adversely affect the threatened south-central steelhead trout, and are likely to adversely effect the endangered Smith’s blue butterfly (SBB). The FWS Biological Opinion (2001) found not threat to jeopardy of the species. Section 10 of the ESA provides for the ‘taking’ of the SBB so long as the taking is incidental to the action.

In further compliance with requirements of ESA, the Forest Service prepared another biological assessment (BA) for potentially affected threatened or endangered wildlife species (Cooper 2000), updated (Cooper 2003) [available in the project file]. The BA determined that the action alternatives would have no adverse effects on the Vernal Pool Tadpole Shrimp, Vernal Pool Fairy Shrimp, or California red-legged frog. U.S Fish and Wildlife Service concurred in their Biological Opinion (2001 & 2004) [available in the project file]. References used in development of these BAs and in the BAs for the SBB and south-central trout included species experts, student research theses, widely accepted reference manuals, internal and external agency publications, and reports based on relevant site-specific surveys.

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

The action alternatives will not threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. This alternative is consistent with the Los Padres National Forest Land and Resource Management Plan (LRMP) and with the National Forest Management Act. The EA is in compliance with the National Environmental Policy Act. The finding of the Biological Evaluation prepared by Cooper (2003) found no threat to the viability of any Forest Service listed Sensitive Species. This EA is in compliance with the National Environmental Policy Act.

Management Indicator Species

A Project Level Assessment (Cooper 2003) [available in the project file] was completed to evaluate landscape and project-level impacts to habitat conditions associated with the six Species Associations and related Management Indicator Species (MIS) identified in the LRMP EIS. In summary, no significant effects on habitat conditions were predicted.

Migratory Bird Treaty Act

An analysis of ‘High Priority’ birds with regards to the Migratory Bird Treaty Act was completed (Cooper 2003) [available in the project file]. The proposed action will not have a measurable negative effect on populations of migratory bird species.

Coastal Act Consistency

The Forest worked with the California Coastal Commission on assessing the consistency of this proposal. In a consistency determination (CD-18-88 June 7, 1988), the Commission found the practice of grazing, as authorized in the Los Padres National Forest Land and Resource Management Plan, within the Monterey coastal zone as consistent with the California Coastal Act of 1976. Commission staff has advised the Forest (CCC 2005) that the proposed continuation of grazing within the coastal zone remains consistent with the Act and Local Coastal Program Policies. In particular: Section 3.3 Environmentally Sensitive Habitats, 3.3.3 Specific Policies #7 “Land uses where natural grassland is found shall be compatible with the maintenance of the habitat...Compatible uses include managed grazing and low-intensity recreational and residential uses.”; 3.6 Agriculture, 3.6.2 General Policies #8 “The U.S. Forest Service and the State Department of Parks and Recreation should lease grazing land to private individuals in order that such areas may continue in traditional agricultural use.”

Non-significant forest plan amendment

Directions on Forest Plan Amendments are found in the LRMP, Chapter 1.4. Incorporating the newly acquired properties into the adjacent management areas is a standard procedure. A non-significant amendment is considered to be a change that does not significantly change the overall direction or intent of the Plan. The LRMP has determined that livestock grazing is suitable for management areas 42 and 64. No non-suitable areas for grazing were identified by the Interdisciplinary Team within the newly acquired ranches. By designating those acquired lands in the Kozy Kove, Sea Vista, and Sur Sur ranches into adjacent management area 42 and the portions designated wilderness by congress into management area 64, will not significantly alter the long term relationship between projected levels of multiple use goods and services in the LRMP.

LRMP Management Direction, Forest-Wide Standards and Guidelines, and Management Area Prescriptions are detailed in Appendix C.

Clean Water Act

To our knowledge, all of the creeks below the allotments meet water quality standards for beneficial uses established by the Central Coast Regional Water Quality Control Board, the administrative authority for the Clean Water Act. The Forest Service at the regional level in conjunction with SWRCB agreed to a number Best Management Practices (BMP) that cover many activities on the Forests (USFS 2000). Compliance with the Clean Water Act is achieved through implementation and monitoring of BMPs as prescribed in the Proposed Action.

Livestock waste will be found in the greatest abundance in areas where the livestock spend most of their time. If livestock grazing and loafing is concentrated near perennial springs and seeps then generally waste will be found near these waters. When livestock are more widely dispersed there is less of a chance of contamination. One of the best ways of controlling livestock dispersal is through season of use. During the winter-wet season livestock will be distributed across the units due to the wide availability of green forage, warmer temperatures on the open sunny slopes and the availability of water in the intermittent channels.

Grazing as a source of sediment: When investigating the potential linkages between livestock and upland hydrologic process, the primary concern is infiltration. Reduced infiltration and increased overland flow in the uplands can lead to secondary effects on peak flows, erosion, contaminant transport, and water quality degradation (Allen-Diaz et al., 1999). Vegetative cover over the soil surface is extremely important in maintaining and improving infiltration rates. Cover can take the form of tree canopy, brush, grass, or litter. RDM covering the soil surface can be viewed as two layers, the top, which is undecomposed plant material, and the bottom, which is decomposed material that will behave like mineral soil. The lower layer can have a substantial storage capacity, over 200% by weight in some cases (Tate, 1995).

Livestock grazing affects watershed hydrologic properties by removing protective plant cover and by trampling. Gifford (1985) concluded that there is no consistent evidence concerning the importance of one species of vegetation over another with respect to providing cover to safeguard infiltration and reduce erosion. Spaeth, et al. (1996) concluded that infiltration rates were positively correlated with mulch (cover), percent sand, soil structure rating and biomass. Infiltration increased as values for these variables increased. Grazing strategies that maintain adequate vegetative cover are the best approaches to reducing grazing caused erosion and sedimentation (George, 1995).

The Forest Service Interdisciplinary Team determined that moderate grazing that leaves at least 1000 pounds/acre of residual dry matter, Standards and Guidelines of the Los Padres Land and Resource Management Plan, and BMPs for grazing will prevent any measurable upland erosion and protect water quality.

Water quality data for years 2001-2004 provided by the Monterey Bay Sanctuary Citizen Watershed Monitoring Network (available in the project file) displays no discrepancy between water quality from streams within or outside watersheds containing livestock grazing on National Forest System lands along the Big Sur coast. All streams on NFS lands meet Regional Water Quality Standards (Water Quality Control Plan, Central Coast Basin, 1994). If effectiveness monitoring identifies abnormal results, further investigation will be conducted to determine cause and appropriate mitigation actions will be taken.

Cost Analysis

A social and economic analysis was conducted during the planning process of the Final Environmental Impact Statement Land and Resource Management Plan (FEIS), Los Padres National Forest. For reference see: FEIS Sections 2.1, 2.2, 2.4, 3, 4, and FEIS Appendix B.

Table 8 provides a comparison of costs to the Forest range program for constructing or dismantling structural improvements between alternatives. Structures not listed for dismantling under the No Grazing alternative will be left in place for wildlife use or provide a benefit to the government (i.e. Forest Service/private boundary lines, assist in multiple use management). Under the No Grazing alternatives, dismantling costs include both labor and resources. Under the Grazing alternatives costs are for materials only, labor will be contributed by permittee.

Table 8. Structural improvement costs to construct or dismantle

Allotment	No Grazing	Proposed Action	Grazing with no change
Torre	NSC	NSC	\$6,631
Twitchell	\$823	\$823	NSC
Gorda			
Mill Creek	NSC	NSC	NSC
Prewitt	NSC	\$813	NSC
Plaskett	\$823	NSC	NSC
Pacific Valley	\$873	\$1038	\$1038
Alder Creek	NSC	NSC	NSC
Buckeye	NSC	NSC	\$813
Salmon Creek	NSC	NSC	NSC
Kozy Kove	NSC	NSC	NSC
Sea Vista	NSC	NSC	NSC
Sur Sur	NSC	NSC	NSC
San Carpoforo	\$2536	\$965	NSC

NSC = no significant cost.

Chapter 4 – Federal, State, Local Agencies and Tribes Contacted

Monterey Bay National Marine Sanctuary
National Marine Fisheries Service
National Resource Conservation Service
United States Fish and Wildlife Service
California Department of Fish and Game
California Regional Water Quality Control Board
University of California Agriculture & Natural Resources Cooperative Extension
Esselen Tribal Members
Salinan Tribal Members