2011 Meadow Condition and Grazing Utilization Report:
Stanislaus National Forest

Above: Heavily pocked spring near Deer Creek
Below: Severe headcut at Upper Round Meadow
SUMMARY

In 2011, CSERC continued to monitor meadow condition and the degree of grazing utilization at more than 30 mountain meadows on the Stanislaus National Forest. Where utilization transects and photo points were known, we measured pre-season ungrazed heights and post-season grazed heights (where applicable), plus we took pre- and post-season pictures at photo points, according to Forest Service protocol. As a result of the exceptionally deep, lingering snow pack this year, many of the upper elevation allotments were not grazed this season. As such, our staff put an emphasis on looking at lower elevation meadows and did not visit many of the allotments that we do on a typical year. Utilization was calculated using height-weight curves for *Carex integra* and *Carex nebraskensis* published in the Journal of Range Management (McDougald, N. & Platt, R., 1976. A Method of Determining Utilization for Wet Mountain Meadows on the Summit Allotment, Sequoia National Forest, California. Journal of Range Management 29(6)).

During our meadow visits, CSERC’s staff scientists examined the meadows for signs of current-season and long-term damage to biological and hydrological resources. In many of the meadows where we measured both pre- and post-season vegetation heights, the meadows were over-utilized or grazed beyond the minimum stubble heights. Furthermore, trampling, chiseling, and pocking of streambanks, seeps, springs, ponds and other wet areas were common. Stream channel entrenchment was the long-term problem most often observed, and most meadows suffered from some degree of entrenchment and/or headcutting. Where stream entrenchment occurred, it has often resulted overtime in the dewatering of meadows and a subsequent shift in vegetation composition from sedge and rush species to annual grasses, upland forbs and/or sage. Some meadows that were not yet entrenched had head-cuts that without rehabilitation will migrate upstream and result in entrenchment of the entire stream and de-watering of the meadow.

As part of our report on each meadow surveyed, we provide management recommendations that may remediate current meadow damage and will help to protect sensitive biological resources. Under appropriate management, damage to streambanks, fens, springs, seeps, ponds, meadow vegetation, willows and aspens is preventable. These management strategies include fencing at-risk areas, increasing animal distribution control measures, reducing the numbers of livestock, armoring of head-cuts, rehabilitation of entrenched streams, removing invasive species, and prescribing rest periods of one, five, ten, or more years. Some of these management strategies have already been successful in protecting or rehabilitating damaged meadows.
One of the key concerns we share with this report is the continued failure of the Forest to provide clear, consistent protection for fens, seeps, springs, and other special aquatic resources. The Region clearly indicates in both the Sierra Framework and the Framework Amendment that fens, springs, and seeps are to receive special protection. While the Stanislaus Forest has taken the positive step to conduct fen inventory surveys at varying degrees of effectiveness on the four districts, as of present there are few fens with fencing protecting them from livestock grazing, pocking, trampling, or sloughing. On the contrary, year after year cows continue to damage fens, seeps, and springs without any responsible Forest official taking firm action.

Protection of special feature aquatic resources cannot wait years into the future until new allotment management plans are approved for each allotment. In order to comply with Regional and Forest goals and standards, it is essential that the Forest identify how known, identified seeps, springs, and fens will be protected in 2012. This year, in 2011, CSERC staff and volunteers assisted the Calaveras, Summit, and Groveland districts with restoration projects at several sensitive meadows, including Sapps, Cable, Stump, Leland Gully, and Scout’s Gully. Rehabilitation work included stream bank restoration, fence construction, fence maintenance, seed collection, seed dispersal, and invasive species removal. Our Center looks forward to working with the Forest Service on more restoration and fencing projects in the future.

The following pages provide detailed reports on condition and grazing utilization for several mountain meadows in the Stanislaus National Forest. Meadows are arranged by allotment. This report contains printed photos, as well as an included CD with additional photos of the meadows discussed and the utilization data.
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Meadow: Crab
District: Summit

Allotment: Bell Mdw/Bear Lake
Permitee: Ben Cassenetto

Quad: Pinecrest
Section: 20 SW
Township: T4N
Range: R18E
Elevation: 7600 feet

Elevation: 7600 feet

Key species: Carex integra
Average ungrazed height: 7.9

Utilization standard: 40%
Average grazed height: unknown

Measured utilization: NA

Sensitive or at-risk species:
• Seeps/spring, wet areas
• Fens
• Aspens
• Willows
• Highly erosive soils

Resource damage caused by grazing:
• Bare soil
• Gullies
• Aspen suppression
• Pocking of established fen, streams, and other wet areas

Resource damage not caused by grazing:
• None observed

Management recommendations:
• Construct and maintain a fence around the fens and fen-like areas
• Construct a fence around the aspens
• Five year period of rest for entire meadow
• Gully restoration

2011 field notes:
• 7/19: Ungrazed heights were taken in a mesic area above the established fen. Pictures were taken at photo points. Scars are present on the fen and adjacent areas due to heavy pocking and chiseling from past years. The soil is very wet and fragile. The upper part of the main meadow is very dry and contains very little vegetation. The vegetation becomes progressively wetter and lusher in the lower part of the meadow.
• 8/16: Meadow was only lightly grazed. There was some new pocking and chiseling that had been added to the established fen and other wet areas.
• No post-season follow-up visit was conducted in 2011.
Crab Meadow: Map of fen area at Crab Meadow (above). Cumulative damage from years of pocking and chiseling of the fens is readily apparent early in the grazing season (below).
**Meadow:** Bell I (Lower)  
**Allotment:** Bell Mdw/Bear Lake  
**District:** Summit  
**Permitee:** Ben Cassenetto

**Quad:** Pinecrest  
**Township:** T4N  
**Section:** 36 N  
**Range:** R18E  
**Elevation:** 6400 feet

**Key species:** Carex integra  
**Average ungrazed height:** 17.7  
**Average grazed height:** 2.0  
**Measured utilization:** **86%**

**Sensitive or at-risk species:**  
- Aspen  
- Willows  
- Spring/seep  
- Bell Creek

**Resource damage caused by grazing:**  
- Bare soil (in some places)  
- Suppression of willow and aspen regeneration  
- Spring within meadow trampled into a mud pit

**Resource damage not caused by grazing:**  
- Streambank damage from past extreme storm events

**Management recommendations:**  
- Five-year rest period  
- Construct a fence around the spring within the meadow  
- Construct a fence around aspens  
- Monitor willow browsing utilization

**2011 field notes:**  
- **7-21:** Took ungrazed heights and pictures at photo-points. Lots of algae present in a spring that has been turned into a muddy ‘cow wallow’. Vegetation is very lush. Meadow is mistakenly signed ‘Middle Bell Meadow’.  
- **10-11:** Took post-grazing measurements and pictures at photo point sites. Overall, the meadow still looks very lush, but the mesic areas containing Carex integra were much more heavily grazed than the wetter areas. The spring in the meadow has been heavily pocked up into a mud pit by cattle and contains a lot of cow patties.
Bell Meadow 1 (Lower Bell): Spring that has been grazed and trampled into a mud pit by cattle.
**Meadow:** Bell II (Middle)  
**District:** Summit  
**Allotment:** Bell Mdw/Bear Lake  
**Permitee:** Ben Cassenetto

**Quad:** Pinecrest  
**Section:** 25/30/31/32  
**Township:** T4N  
**Range:** R18E/R19E  
**Elevation:** 6550 feet  
**Average ungrazed height:** 18.4  
**Average grazed height:** 3.2  
**Measured utilization:** 75%

**Key species:** *Carex integr*a  
**Utilization standard:** 40%

**Sensitive or at-risk species:**  
- Aspen  
- Willows  
- Wet areas  
- Streams

**Resource damage caused by grazing:**  
- Willow and aspen suppression  
- Bare soil (in some places)  
- Heavy pocking/chiseling of Bell Creek downstream of aspen exclosure

**Resource damage not caused by grazing:**  
- None observed

**Management recommendations:**  
- Monitor willow and aspen utilization  
- Maintain fence around aspen exclosure  
- Extend aspen exclosure fence to include unfenced part of Bell Creek

**2011 field notes:**  
- 7-21: Measured pre-grazed heights and took pictures at photo-point sites. Aspen exclosure fence is down.  
- 9-28: Cows seen trespassing in aspen exclosure. Fence is up, but broken on the downstream side where it crosses Bell Creek. Lots of cow patties in the water.  
- 10-11: Took post-season measurements and pictures at photo point sites. Some of the aspens/willows outside the aspen exclosure have been heavily utilized, which could affect aspen/willow regeneration. The flows of Bell Creek are much higher than a few weeks ago and have washed away some of the cow patties previously seen in the water.
Bell Meadow 2 (Middle Bell): Large bare patches of soil exist in the meadow (above). Cow patties and pocking in Bell Creek just below the aspen exclosure (below).
Bell Meadow 2 (Middle Bell): A break in the fence led to cattle trespassing into the aspen exclosure (above). Some of the aspens outside the exclosure were heavily utilized by cattle (below).
Bell Meadow 2 (Middle Bell): Lower branches of many of the willows were heavily utilized by cattle (below).
Meadow: Lower Round
District: Summit
Allotment: Bell Mdw/Bear Lake
Permitee: Ben Cassenetto

Quad: Pinecrest
Township: T4N
Section: 35/36
Range: R18E
Elevation: 6400 feet

Key species: Carex integra
Average ungrazed height: 16.9
Utilization standard: 40%
Average grazed height: 2.5
Measured utilization: 80%

Sensitive or at-risk species:
• Aspen
• Willows
• Meadow vegetation
• Tributary of Bell Creek

Resource damage caused by grazing:
• Bare soil (in some places)
• Suppression of willow and aspen regeneration
• Stream banks of tributary to Bell Creek heavily damaged and entrenched
• Meadow dehydration
• Poor water quality

Resource damage not caused by grazing:
• Streambank damage from past extreme storm events

Management recommendations:
• Five-year rest period
• Construct a fence around aspens
• Monitor willow browsing utilization
• Restore stream channel
• Limit cattle access to the tributary to Bell Creek to protect water quality and prevent further stream entrenchment

2011 field notes:
• 7-21: Took ungrazed heights in mesic area along stream and pictures at photo-point sites. Algae was present in stream.
• 9-28: Took post-grazing measurements and pictures at photo-point sites. Cows do not appear to have been in the area for some time as there is some regrowth of vegetation. Extensive pocking and chiseling of stream banks is present along tributary to Bell Creek. A lot of algae was also observed in the tributary stream. Water quality tests throughout the summer show that there is a significant increase in the amount of E. Coli
in the water when cattle are present (see CSERC’s water quality report for more information). Dry, bare dirt is present in many areas and may have had very little vegetative growth all season.
Lower Round Meadow: The tributary to Bell Creek is becoming entrenched (above). Fresh stream bank trampling and chiseling adds cumulatively to damage from past years (below).

Lower Round Meadow: Cloudy, algae-laden water in the tributary to Bell Creek. Water quality tests throughout the summer indicate that there is a significant increase in the amount of E. Coli in the water when cattle are present (see CSERC’s water quality report for more information).
**Meadow:** Upper Round  
**District:** Summit

**Allotment:** Bell Mdw/Bear Lake  
**Permitee:** Ben Cassenetto

**Quad:** Pinecrest  
**Section:** 35/36  
**Township:** T4N  
**Range:** R18E

**Elevation:** 6400 feet  
**Average grazed height:** 3

**Key species:** *Carex integra*  
**Utilization standard:** 40%

**Average ungrazed height:** 10.9  
**Measured utilization:** 61%

**Sensitive or at-risk species:**
- Aspen
- Willows
- Streams
- Meadow vegetation

**Resource damage caused by grazing:**
- Bare soil (in some places)
- Suppression of willow and aspen regeneration
- Extreme headcuts and stream entrenchment
- Severe meadow dehydration
- Conifer encroachment

**Resource damage not caused by grazing:**
- Streambank damage from past extreme storm events

**Management recommendations:**
- Ten-year rest period
- Construct a fence around aspens
- Rehabilitate headcuts
- Restore stream channels
- Monitor willow browsing utilization

**2011 field notes:**
- 6-11: Took pre-season measurements and photos at Upper Round. Fresh sloughing off streambanks and at headcuts was observed. Meadow is in need of hydrological restoration.
- 9-20: Where mesic area is (large % of meadow), grass has been grazed down to a bare minimum. Young aspens are visibly grazed. Headcuts and streambanks in meadow have been further sloughed and destabilized by intense livestock pressure.
**Meadow:** Big Creek Basin  
**District:** Groveland  
**Allotment:** Curtain  
**Permitee:** Erickson  
**Quad:** Ascension Mountain  
**Section:** 8  
**Township:** T2S  
**Range:** R19E  
**Elevation:** 4600 feet

**Key species:** Poa sp.  
**Utilization standard:** 4 inches  
**Average ungrazed height:** unknown  
**Average grazed height:** unknown  
**Measured utilization:** NA

**Sensitive or at-risk species:**  
- Stream  
- Seeps/spring, wet areas  
- Meadow vegetation

**Resource damage caused by grazing:**  
- Headcuts  
- Stream entrenchment  
- Pocking of wet areas

**Resource damage not caused by grazing:**  
- Noxious weeds (bull thistle)

**Management recommendations:**  
- Rehabilitate entrenched stream and headcuts  
- Remove noxious weeds

**2011 field notes:**  
- 6-15: Took photos of meadow, but lush vegetation makes it difficult to see damage from past years. Area is ungrazed. Algae present in standing water. Possible headcuts forming in at least 3 spots.  
- No post-grazing visit was conducted for 2011.
**Meadow:** Deer Creek Coral  
**District:** Mi-Wok  
**Quad:** Twain Harte  
**Section:** 21 SE  
**Township:** T3N  
**Range:** R16E  
**Elevation:** 3500 feet  

**Allotment:** Deer Creek  
**Permitee:** Beeman/Reid  
**Average ungrazed height:** unknown  
**Average grazed height:** unknown  
**Measured utilization:** NA

**Key species:** unknown  
**Utilization standard:** unknown

**Sensitive or at-risk species:**
- Stream  
- Seeps/spring, wet areas  
- Meadow vegetation

**Resource damage caused by grazing:**
- Severe pocking of wet, seepy areas  
- Bare soil (in some places)

**Resource damage not caused by grazing:**
- None observed

**Management recommendations:**
- Reduce the number and amount of time cattle are allowed in this area

**2011 field notes:**
- 5-26: Took ungrazed pictures at photo point sites. There were clear signs of significant pocking of wet areas from past years. A major spring that is partially enclosed within the coral (only 30' from Deer Creek) has turned into a large mud pit with sparse vegetation.  
- 8-4: Area within the coral appeared lightly grazed.  
- No post-season visit was conducted for 2011.
Deer Creek Coral: Location of the Deer Creek Coral (above). A major spring that is partially enclosed in the coral has been turned into a mud pit (below – photo taken on 5/26/11).
**Meadow:** Deer Creek Seeps  
**District:** Mi-Wok  
**Allotment:** Deer Creek  
**Permitee:** Beeman/Reid  

**Quad:** Twain Harte  
**Section:** 22  
**Township:** T3N  
**Range:** R16E  
**Elevation:** 3700 feet  

**Key species:** unknown  
**Utilization standard:** unknown  

**Average ungrazed height:** unknown  
**Average grazed height:** unknown  
**Measured utilization:** NA  

**Sensitive or at-risk species:**  
- Stream  
- Seeps/spring, wet areas  
- *Mimus pulchellus* (CNPS list 1b)  
- Meadow vegetation  

**Resource damage caused by grazing:**  
- Pocking and trampling of wet areas  
- Bare soil (in some places)  

**Resource damage not apparently caused by grazing:**  
- OHV tracks going through a population of *Mimus Pulchellus*  
- Noxious weeds (bull thistle)  

**Management recommendations:**  
- Construct a fence around the seeps to protect wet habitat in an area that is otherwise very dry during the summer months  
- Remove noxious weeds from the area  

**2011 field notes:**  
- 5-26: Took ungrazed pictures at photos point sites. There were clear signs of significant pocking and heavy trampling of wet areas from past years. OHV tracks were observed going through a population of *Mimus Pulchellus* at the upper end of seep #1 (see map for seep locations).  
- 8-4: Two seeps were visited – seep #1 and seep #2. Seep #2 is located just upstream from seep #1 along Deer Creek (see map). Both seeps have been moderately grazed; however, forage was grazed much shorter in wet areas than dry areas. Seep #1 had fresh pocking that has added cumulatively to trampling from past years. Seep #2 was heavily pocked and chiseled with lots of noxious weeds (bull thistle). Like seep #1, the damage at seep #2 appears to be the result of cumulative years of trampling by cattle. The wet habitat that both of these seeps provide appears to be an exception to an area that is otherwise very dry during the summer months. The seeps should be fenced to protect their habitat value.
• 8-31: Both seeps are heavily grazed, pocked up, and chiseled. Lots of noxious weeds are flowering. Took photos.
Deer Creek Seeps: Location of seeps (above). Fresh pocking has added cumulatively to damage from past years at seep #1 (below).

Deer Creek Seeps: Early in the season, OHV tracks were found running through a population of *Mimulus pulchellus* just up hill from seep #1.
Deer Creek Seeps: As at seep #1, severe pocking has added cumulatively to damage from past years at seep #2. Note how dry the surrounding area is in comparison to the seeps at this time of year (August); this indicates that the wet habitat provided by the seeps may be highly valuable for this area (above and below).
Meadow: Thompson
District: Mi-Wok

Allotment: Duckwall
Permittee: Haydn-Myer/Brennan

Quad: Duckwall Mtn.
Section: 27 S
Elevation: 4500 feet

Township: T2N
Range: R17E

Key species: Carex integra
Utilization standard: 50% utilization

Average ungrazed height: unknown
Average grazed height: unknown
Measured utilization: NA

Sensitive or at-risk species:
• Stream
• Willows
• Aspens
• Meadow Vegetation

Resource damage caused by grazing:
• Stream severely entrenched and headcut problematic
• Meadow dehydration and general decline of meadow vegetation
• Willow and aspen regeneration suppressed

Resource damage not caused by grazing:
• Historic farming and homestead actions may be partial cause for overall poor condition
• Aspens appear to have some sort of disease as indicated by the brown spots on their leaves and general loss of their leaves

Management recommendations:
• Rehabilitate stream and fence stream
• Maintain fence around aspens
• Five year rest period

2011 field notes:
• 9-20: Meadow has been moderately grazed, especially in wetter areas along stream. There is a moderate amount of pocking near stream. There are no cattle in the meadow. Fence is down around aspen stand and it appears that cattle have recently trespassed into the area. Many of the aspens have brown spots on their leaves and appear to be losing them prematurely. Some of the smaller aspens have no leaves at all. Although the aspen degradation is likely due in part to cattle grazing, the aspens appear to be being stressed by some kind of disease. No post-grazing stubble heights were measured as the meadow did not appear overgrazed and no pre-season heights had been taken earlier in the summer.
Thompson Meadow: Aspens have brown spots on their leaves and appear to be losing them prematurely. This may be an indication that they are being stressed by some sort of disease. Fence should be maintained around aspens to prevent further stress from cattle.
**Meadow:** Indian Springs  
**District:** Mi-Wok  

**Allotment:** Hunter Creek  
**Permitee:** Brennan  

**Quad:** Duckwall Mountain  
**Section:** 26/27  
**Township:** T1N  
**Range:** R17E  
**Elevation:** 4200 feet  

**Key species:** Unknown  
**Average ungrazed height:** unknown  
**Utilization standard:** 4 inches  
**Average grazed height:** unknown  
**Measured utilization:** unknown  

**Sensitive or at-risk species:**  
- Seeps/springs, wet areas  
- Meadow vegetation  

**Resource damage caused by grazing:**  
- Bare soil (in some places)  
- Conifer encroachment  
- Pocking and chiseling of seeps/springs  

**Resource damage not caused by grazing:**  
- None observed  

**Management recommendations:**  
- Remove young conifers that have encroached into meadow  

**2011 field notes:**  
- 6-17: Took pictures of the area. There is light grazing evidence, including fresh hoof marks and a ‘cow patty’ by the road. Pocking and chiseling from past years is readily apparent in wet areas and is creating hummocky mounds of grass on many of the springs/seeps. Major young conifer encroachment is widespread throughout the meadow. Many of the conifers are growing from the hummocky mounds created by the cattle. A fire appears to have gone through the area at some point, which may be another reason for such widespread conifer encroachment.  
- 9-12: Meadow is moderately grazed with an average stubble height greater than 4 inches. Fresh ‘cow patties’ indicate cows have been here recently. Most of the wet areas in the meadow had minor fresh pocking. However, Indian Spring itself was heavily pocked with cow patties in the water.
Indian Springs: Conifers are heavily encroaching into the meadow.
Meadow: Wet Meadow
District: Mi-Wok

Allotment: Hunter Creek
Permitee: Brennan

Quad: Tuolumne
Section: 24 E
Elevation: 3600 feet

Township: T1N
Range: R16E

Key species: Unknown
Utilization standard: 4 inches

Average ungrazed height: unknown
Average grazed height: unknown
Measured utilization: NA

Sensitive or at-risk species:
• Seeps/spring, wet areas
• Stream
• Meadow vegetation

Resource damage caused by grazing:
• Bare soil (in some places)
• Heavy pocking and chiseling of wet areas including springs/seeps, nearby stream, and tributaries

Resource damage not caused by grazing:
• None observed

Management recommendations:
• Maintain fence that is around meadow
• Reduce number of cows in meadow and time allowed in meadow

2011 field notes:
• 6-17: Took pictures of the area. The wet area at the lower end of the meadow is heavily pocked and chiseled, and appears to be the result of cumulative damage from this season as well as past years. The fence that encloses the meadow is down and in need of repair. The area has been moderately grazed by cattle, including some of the reeds in the wet, seepy area. All the contaminants sourced from cattle appear to be flowing directly into a creek that is adjacent to the meadow. We walked upstream along the creek and found there to be a significant amount of pocking along the stream banks as well as along the tributaries to the creek.
• 9-12: The area has been heavily grazed in the mesic areas above the seep with an average stubble height of <4 inches. The fence around the meadow is still down, even though it is required to be put up by the Forest Service. The wet area at the lower end of the meadow is severely pocked and chiseled. Algae was seen in the water.
Wet Meadow: The fence that is supposed to exclude cattle from the meadow was down during the entire summer season (above left). As a result, cattle were allowed to heavily pock up the wet areas within the meadow (above right, below).
Wet Meadow: The mesic areas of the meadow were heavily grazed.
**Meadow:** Walton Cabin Spring  
**District:** Mi-Wok

**Allotment:** Hunter Creek  
**Permitee:** Brennan

**Quad:** Duckwall Mountain  
**Section:** 3 S  
**Township:** T1S  
**Range:** R17E

**Elevation:** 3400 feet  
**Average ungrazed height:** unknown

**Key species:** Unknown  
**Average grazed height:** unknown

**Utilization standard:** 4 inches  
**Measured utilization:** NA

**Sensitive or at-risk species:**  
• Seeps/spring, wet areas

**Resource damage caused by grazing:**  
• None observed

**Resource damage not caused by grazing:**  
• None observed

**Management recommendations:**  
• None

**2011 field notes:**  
• 6-17: Took pictures of the area. Most of the meadow is fairly dried out already. Two springs below the meadow are filled with cattails and have some water remaining. There are some perennial sedge species near springs. The creek below the meadow is running. The main part of the meadow is filled with vetch and annual grass species. No major cattle damage is evident and there is no evidence that cattle have been here this season.
• No follow-up visit was conducted in 2011.
Meadow: Boggy
District: Mi-Wok
Allotment: Rosasco
Permitee: Crook/Erickson
Quad: Cherry Lake N.
Section: 35 NE
Township: T2N
Range: R18E
Elevation: 5602 feet

Key species: Carex nebraskensis
Average ungrazed height: 15.2
Utilization standard: 4 inches
Average grazed height: 7.5
Measured utilization: 32%

Sensitive or at-risk species:
• Fen
• Willows
• Stream
• Wet areas
• Drosera rotundifolia (Sundew)

Resource damage caused by grazing:
• Moderate pocking of wet areas within meadow
• Small advancing headcut forming along stream within meadow
• Heavy pocking and chiseling of downstream area not included within the fence exclosure
• Stream entrenchment both in and outside fence exclosure
• Poor water quality

Resource damage not caused by grazing:
• Noxious weeds (mullein and bull thistle)

Management recommendations:
• Continue to remove cows before utilization is exceeded
• Continue to maintain fence and only use meadow as a gathering pasture
• Restore or bar headcut so that it does not advance upstream
• Remove noxious weeds from meadow and surrounding area
• Extend fence exclosure further downstream
• Limit cattle access to stream to protect water quality

2011 field notes:
• 6-28: Took ungrazed heights and pictures at photo-point sites. Cows were in the main part of the meadow earlier this year and have lightly grazed, but fence has now been put-up by permitee. A headcut is forming along the stream in the meadow that should be restored before it gets worse and advances upstream. Meadow looks especially lush and wet this year. There is some pocking from cows trespassing in the meadow earlier this season. Lots of sundew in wet areas.
• 9-29: Cows were seen within meadow. Area downstream of fence exclosure is heavily pocked up, chiseled, and has fresh sloughing off of stream banks. Algae and cow patties were also observed in the water just downstream of the fence exclosure. Water quality tests throughout the summer show this area to have a high E. Coli count when cows are present (see CSERC’s water quality report for more information). The fence exclosure should be extended further downstream to prevent further damage to stream banks. Rancher was in the area collecting cows and was somewhat confrontational toward CSERC staff. Main fence was broken.

• 10-3: Took post-season grazing measurements and pictures at photo point sites. Some pocking was observed near headcut. Meadow does not look overgrazed.
Boggy Meadow: Pocking in meadow from early season trespass (above). An advancing headcut needs to be barred to prevent further stream entrenchment and meadow dehydration (below).
Boggy meadow: The area just downstream of the fence exclosure was heavily pocked up by cattle and should be included in the exclosure to prevent further damage (above). Extensive amounts of algae just downstream of the fence exclosure (below).
**Meadow:** Cable  
**Allotment:** Jawbone/Rosasco  
**District:** Groveland  
**Permitee:** Crook/Erickson  

**Quad:** Cherry Lake N.  
**Section:** 27 NE  
**Township:** T2N  
**Range:** R18E  

**Elevation:** 5400 feet  
**Average ungrazed height:** not grazed  
**Average grazed height:** not grazed  
**Measured utilization:** NA

**Key species:** unknown  
**Utilization standard:** unknown

**Sensitive or at-risk species:**
- Meadow vegetation

**Resource damage caused by past grazing:**
- General decline of meadow vegetation
- Meadow dehydration

**Resource damage not caused by grazing:**
- Invasive weeds (wooly mullein and bull thistle)

**Management recommendations:**
- Maintain fence around meadow
- Remove invasive weeds from surrounding areas so they do not encroach into the meadow

**2011 field notes:**
- 6-14: The fence was put up and repaired by CSERC staff. The snow lingered late this year and plants are just starting to emerge in the meadow.
- 8-2: CSERC staff returned and removed all visible invasive weeds from the meadow. The amount of invasive weeds in the meadow is significantly less than in past years, however the invasive weeds located on nearby SPI clearcuts and within other adjacent areas could easily encroach back into the meadow unless they are removed. The meadow vegetation within the fence is very tall compared to unfenced meadows nearby.
Cable Meadow: CSERC staff putting up a cattle exclusion fence at Cable Meadow (above). Grass remained long and lush in Cable Meadow throughout the grazing season (below).
Meadow: Cottonwood
District: Groveland
Quad: Cherry Lake S.
Section: 31 NW
Elevation: 5520 feet
Key species: Carex integra
Utilization standard: 4 inches

Allotment: Jawbone/Rosasco
Permitee: Crook/Erickson
Township: T2N
Range: R18E
Average ungrazed height: 12.5
Average grazed height: unknown
Measured utilization: NA

Sensitive or at-risk species:
• Streams
• Aspens
• Meadow vegetation

Resource damage caused by grazing:
• Past suppression of aspen regeneration (electric fence around aspens)
• Stream headcuts and minor entrenchment within meadow
• Trampling and chiseling of stream banks downstream outside of fenced area along Cottonwood Creek and upstream above culvert on road 2N24

Resource damage not caused by grazing:
• Aspens appear to have some sort of disease as indicated by the brown spots on their leaves and general loss of their leaves

Management recommendations:
• Restore headcut forming in meadow and areas downstream that have become entrenched
• Reduce number of cows in allotment
• Maintain fenced areas around and adjacent to the meadow
• Remove noxious weeds (bull thistle and mullein) that are in the areas surrounding the meadow to prevent them from spreading into the meadow
• Fence out the damaged areas downstream of the meadow just below the fenced portion of Cottonwood Creek and upstream just above the culvert along road 2N24

2011 field notes:
• 6-28: We took ungrazed heights and pictures at photo points. Main fence is up around the meadow, but external fences are still down. Cows are present outside of main fenced area and have begun to pock and chisel stream banks just downstream of the meadow.
• 10-3: Took pictures of the meadow from established photo points. Transect area appeared ungrazed, so no post-season measurements were
taken. However, cattle appear to have been in the meadow very briefly as evidenced by minor pocking and light grazing near the electric fence around the aspens. The aspens have some sort of spotting on their leaves and appear to have been losing their leaves pre-maturely, which indicates that they may have some sort of disease. Stream banks were heavily trampled and chiseled downstream just below the fenced portion of Cottonwood Creek and just above the culvert along road 2N24.
Cottonwood Meadow: Map of the Cottonwood Meadow/Creek area (above). Minor headcut in Cottonwood Meadow should be barred to prevent further stream entrenchment (below).
Cottonwood Meadow: Cattle grazing (above) and pocking (below) from an early season trespass into the Cottonwood Creek exclosure just downstream of Cottonwood Meadow.
Cottonwood Meadow: Algae in water within Cottonwood Creek exclosure just below Cottonwood Meadow (above). A steep heavily trampled cattle trail just downstream of the Cottonwood Creek fence exclosure could increase the amount of sediment flowing into Cottonwood Creek (below – see map above for location).
Cottonwood Meadow: Cattle have heavily pocked and trampled Cottonwood Creek just above the culvert on Rd. 2N24 (see map above for location). This area should be included in the Cottonwood Creek fence exclosure to prevent further stream bank damage.
**Meadow:** Jawbone  
**District:** Groveland  
**Quad:** Cherry Lake N.  
**Section:** 23 SW  
**Elevation:** 5700 feet  
**Key species:** Carex integra  
**Utilization standard:** 4 inches

**Allotment:** Jawbone / Rosasco  
**Permittee:** Crook  
**Township:** T2N  
**Range:** R18E

**Average ungrazed height:** 12.4
**Average grazed height:** 1.4
**Measured utilization:** 86%

**Sensitive or at-risk species:**  
- Meadow vegetation  
- Willows

**Resource damage caused by grazing:**  
- General decline of meadow vegetation  
- Utilization standard exceeded  
- Large gully/headcut forming at the base of meadow near road  
- Some pocking of wet areas  
- Meadow dehydration  
- Conifer encroachment  
- Utilization standard exceeded

**Resource damage not apparently caused by grazing:**  
- Invasive weeds (wooly mullein and bull thistle)  
- Meadow divided by road

**Management recommendations:**  
- Reduce number of cows in allotment  
- Limit time cows are present on meadow  
- Remove invasive weeds from meadow and adjacent areas  
- Restore gully/headcut that is forming at the base of the meadow

**2011 field notes:**  
- 6-28: We took ungrazed measurements and pictures at photo-point sites. Road appears to be affecting meadow drainage. The bottom of the meadow is slightly depressed and a large headcut/gully is forming at the base of the meadow by the road next to a culvert. Some light grazing has already taken place in the meadow.
- 9-20: Post-season grazing heights were measured. Meadow is overgrazed with an average stubble height of less than 2 inches. Area around headcut/gully at base of meadow is pocked up and chiseled. Invasive weeds are encroaching into the meadow.
Jawbone Meadow: Location of meadow (above). Meadow has been overgrazed to an average stubble height of less than 2 inches (below).
Jawbone Meadow: A large gully/headcut is forming along the road by a culvert.
**Meadow:** Lower Femmons  
**District:** Groveland

**Allotment:** Jawbone / Rosasco  
**Permitee:** Crook

**Quad:** Duckwall Mtn.  
**Section:** 17 SW  
**Township:** T1N  
**Range:** R18E

**Elevation:** 4100 feet  
**Range:** R18E

**Key species:** *Danthonia californicus*  
**Utilization standard:** unknown

**Average ungrazed height:** not grazed  
**Average grazed height:** not grazed  
**Measured utilization:** NA

**Sensitive or at-risk species:**
- *Mimulus pulchellus* (CNPS list 1b)
- Seeps/spring, wet areas
- Meadow vegetation

**Resource damage caused by grazing:**
- General decline of meadow vegetation over decades of use

**Resource damage not caused by grazing:**
- *Poa bulbosa* (exotic-invasive grass) infestation

**Management recommendations:**
- Eradicate *Poa bulbosa* population
- Continue excluding livestock

**2011 field notes:**
- 5-25: Took pictures at photo points. No ungrazed heights were measured as no culms were present on *Danthonia californicus*. Fence is up around meadow. Wildflowers, including *Mimulus Pulchellus* and Fivespot, are especially abundant this year.
- 9-20: Took pictures at photo points. No post-grazing heights were measured because meadow was not grazed in 2011.
**Meadow:** Upper Femmons  
**District:** Groveland  
**Quad:** Duckwall Mtn.  
**Section:** 17 SW  
**Elevation:** 4100 feet  

**Allotment:** Jawbone / Rosasco  
**Permitee:** Crook  
**Township:** T1N  
**Range:** R18E

**Key species:** Danthonia californicus  
**Utilization standard:** 4 inches

**Average ungrazed height:** 9.6  
**Average grazed height:** not grazed  
**Measured utilization:** NA

**Sensitive or at-risk species:**  
- *Mimulus pulchellus* (CNPS list 1b)  
- Wet areas  
- Meadow vegetation  
- Seeps/spring

**Resource damage caused by grazing:**  
- Bare soil and general decline of meadow vegetation

**Resource damage not caused by grazing:**  
- *Poa bulbosa* (exotic-invasive grass) infestation  
- Dewatering of meadow caused by trench being dug along road

**Management recommendations:**  
- Eradicate *Poa bulbosa* population  
- Continue excluding livestock  
- Fix trench that has been dug along road at base of meadow

**2011 field notes:**  
- 5-25: Light grazing has already occurred in the meadow due to a cattle trespass earlier in the season. There is some deep pocking in the meadow (~1 foot deep) in wet areas. No cows are present at this time. Grazed and ungrazed heights were taken along with pictures at photo point sites. A logging operation is occurring just up the road from the meadow. A trench has been dug along the road at the base of the meadow to make it easier for logging trucks to get to an SPI logging site. The trench is dewatering the meadow and diverting the water across the road. The meadow is much wetter and lusher than during an average year.
- 9-20: Pictures were taken at photo point sites. No post grazing heights were measured because the meadow was not grazed this year. The trench along the road at the base of the meadow has not been fixed and is continuing to dewater the meadow.
Upper Femmons Meadow: A trench was dug at the base of the meadow to make it easier for logging trucks to access an SPI logging site just up the road from the meadow. The trench is dewatering the meadow and diverting the water across the road.
Upper Femmons Meadow: Deep pocking occurred early in the season after cattle trespassed into the meadow. The hooves of the cattle penetrated deeply into the fragile wet soil (above left and below). *Mimulus pulchellus* was in the vicinity of the deep pocking (above right).
Meadow: Stump
District: Groveland

Allotment: Jawbone / Rosasco
Permittee: Crook / Erickson

Quad: Cherry Lake S.
Section: 35/36
Elevation: 5400 feet

Township: T2N
Range: R19E

Key species: unknown
Utilization standard: unknown

Average ungrazed height: unknown
Average grazed height: unknown
Measured utilization: NA

Sensitive or at-risk species:
• Meadow vegetation

Resource damage caused by past grazing:
• General decline of meadow vegetation

Resource damage not caused by grazing:
• Invasive weeds (woolly mullein and bull thistle)
• Meadow dehydration from conifers planted in meadow after fire
• Significant grazing of meadow during five year rest period

Management recommendations:
• Maintain fence around meadow
• Remove invasive weeds from meadow and surrounding areas
• Continue to exclude livestock from the meadow as it did not receive the five year rest period that it was intended to have
• May want to consider removing some of the conifers so that meadow doesn’t continue to dry out

2011 field notes:
• 8-2: CSERC staff finished putting up and repairing fence on the north side of the road that is supposed to be maintained by the Forest Service. Cows had trespassed into the area and had already grazed down much of the vegetation. Invasive weeds were removed from the meadow, but could easily encroach back into the meadow from adjacent lands if they are not removed from surrounding areas.
• 8-17: CSERC staff returned to the area and finished putting up and repairing the fence on the south side of the road. Cows had been trespassing into the area for much of the summer. Invasive weeds were removed from the meadow, but as on the north side of the road, could easily encroach from adjacent lands if they are not eliminated from surrounding areas. The conifers in the meadow that were planted after the fire several years ago are likely contributing to the dehydration of the meadow.
• 9-29: Fence on the north side of the road was broken. On closer observation, it appears that someone deliberately cut the wire, removed fence clips, and laid the wire back on each side to create an opening that’s approximately 15-20 feet wide. Several cows were observed grazing inside the fence.
Stump Meadow: Cattle trespassed into the meadow early in the season because the fence was not put up before cattle were allowed on the allotment (above). CSERC staff and volunteers assisted the Forest Service in putting the fence up so
that cattle would be excluded from the meadow for the remainder of the season (below).

Stump Meadow: Cattle trespassed into the meadow after CSERC staff and volunteers worked hard to assist the Forest Service in putting up the fence.
(above). The wires looked like they had been deliberately cut, fence clips removed, and wire laid back to create an opening that was 15-20 ft. wide (below).
**Meadow:** Wolfin  
**District:** Groveland

**Allotment:** Jawbone/Rosasco  
**Permittee:** Crook/Erickson

**Quad:** Hull Creek  
**Section:** 20 SW  
**Township:** T2N  
**Range:** R18E  
**Elevation:** 5000 feet

**Key species:** Carex integra  
**Utilization standard:** unknown

**Average ungrazed height:** unknown  
**Average grazed height:** unknown  
**Measured utilization:** NA

**Sensitive or at-risk species:**  
- Stream  
- Willows  
- Seeps/spring, wet areas  
- Fens  
- Meadow vegetation

**Resource damage caused by grazing:**  
- Severe headcutting and entrenchment of streams  
- Severe pocking and trampling of seeps/springs, wet areas, fens, and streambanks  
- Areas of bare soil and general over-utilization

**Resource damage not caused by grazing:**  
- None observed

**Management recommendations:**  
- Rehabilitate stream and headcuts  
- Fence meadow  
- Let meadow rest for at least 5 years  
- Allow livestock to graze only for short period after meadow dries out near end of season, and exclude entirely from fens (manage similar to Boggy Meadow)  
- Establish new transect in mesic area of meadow that has enough Carex integra to represent the meadow

**2011 field notes:**  
- 6-28: Pictures were taken at photo points. The Carex integra at the established transect was not showing culms. In general, Carex integra seems to be lacking in the established transect area. It seems that there might be more appropriate areas for utilization in the mesic areas of the lower part of the meadow. Pre-grazed heights for Carex scopularum were taken in the upper part of the meadow because of the lack of Carex integra. There was no evidence that cows had entered the meadow yet this season.
9-20: Pictures were taken at photo point sites. Both the upper and lower parts of the meadow were only moderately grazed compared to other years. No post-season measurements were taken. Cows were still present in the area. There is only a minor amount of pocking and chiseling of wet areas and stream banks compared to other years. Some of the headcuts in the lower part of the meadow look as if they have gotten bigger.
**Meadow:** Spring off Eagle Ck.  
**District:** Groveland  
**Allotment:** Jupiter  
**Permitee:** Beeman/Reid

**Quad:** Crandall Peak  
**Section:** 5 SW  
**Township:** T3N  
**Range:** R16E  
**Elevation:** 3500 feet

**Key species:** unknown  
**Utilization standard:** unknown  
**Average ungrazed height:** unknown  
**Average grazed height:** unknown  
**Measured utilization:** NA

**Sensitive or at-risk species:**
- Stream
- Seep/spring, wet areas
- Meadow vegetation

**Resource damage caused by grazing:**
- Pocking and chiseling of stream and other seasonally wet areas
- Conifer encroachment

**Resource damage not caused by grazing:**
- Not observed

**Management recommendations:**
- Limit the amount of time cows are allowed in this area and/or fence out.

**2011 field notes:**
- 8-4: The spring is now dry, but is clearly a seasonally wet area. Water is still running in Eagle Creek. Extensive pocking was seen throughout the area. *Carex* species have been grazed to an average stubble height of ~2-3 inches. The Eagle Creek drainage has been trampled, chiseled, and pocked up. The location of the meadow/spring area is ~1 mile past the junction of Rd. 2N69 (Italian Bar) and Rd. 4N17 on the right side of the road just after crossing over Eagle Creek. It’s a small downhill walk through the forest to reach the meadow.
- No post-grazing visit was conducted for 2011.
Spring off Rd. 4N17 (Eagle Creek watershed): Location of spring/ meadow (above). Although the area is now fairly dry, extensive pocking from earlier in the season was observed throughout the spring/ meadow (below).
Spring off Rd. 4N17 (Eagle Creek watershed): The Eagle Creek drainage, adjacent to the spring/meadow, was trampled and pocked up by cattle.
Meadow:  Funks
District:  Mi-Wok

Allotment:  Lower Hull
Permitee:  Mailloux

Quad:  Hull Creek
Section:  10 N
Elevation:  5184 feet

District:  Mi-Wok
Permitee:  Mailloux

Township:  T2N
Range:  R17E

Key species:  Carex integra
Utilization standard:  30%

Average ungrazed height:  8.3
Average grazed height:  1.9
Measured utilization:  68%

Sensitive or at-risk species:
•  Willows
•  Stream
•  Meadow vegetation

Resource damage caused by grazing:
•  Large areas of bare soil
•  Chiseled stream banks
•  Pocking along stream and in wet areas

Resource damage not caused by grazing:
•  OHV damage

Management recommendations:
•  Install boulders to exclude OHVs.
•  Reduce number of cows and time permitted in meadow

2011 field notes:
•  6-23: Took ungrazed measurements and pictures at photo-point sites. There is no evidence that cattle have been in the meadow this season. OHV tracks were seen going through the meadow.
•  8-12: Meadow has been grazed down to 1-3” in mesic areas. Vegetation in wetter areas has only been moderately grazed. There is some fresh pocking in wet areas (especially at stream crossing) and fresh chiseling of stream banks.
•  9-13: Took post-grazing measurements and pictures at photo-point sites. Wetter areas have been grazed less than drier areas. There is extensive chiseling along stream banks, especially at stream crossing area. There are dusty, denuded sections in the meadow that look like ‘cow wallows’.
Funks Meadow: Large area of bare soil (above). Freshly trampled stream banks are sloughing off material (below).
Meadow: Hull
District: Mi-Wok
Quad: Hull Creek
Section: 35 S
Elevation: 5324 feet

Key species: Carex integra
Utilization standard: unknown

Meadow: Hull
District: Mi-Wok
Quad: Hull Creek
Section: 35 S
Elevation: 5324 feet

Allotment: Lower Hull
Permittee: Mailloux
Township: T3N
Range: R17E

Average ungrazed height: 8.6
Average grazed height: 2.5
Measured utilization: 58%

Sensitive or at-risk species:
- Stream
- Wet areas (lower meadow)
- Willows
- Meadow vegetation

Resource damage caused by grazing:
- Severe stream entrenchment (upper meadow) partially due to past grazing
- Meadow dehydration
- Conifer encroachment
- Bare soil (especially in upper meadow)
- General decline of meadow vegetation

Resource damage not caused by grazing:
- Severe stream entrenchment partially due to storm events
- OHV damage

Management recommendations:
- Five-year rest period
- Fence wet areas (lower meadow)
- Rehabilitate stream (upper meadow)
- Install boulders to exclude OHVs
- Remove encroaching conifers

2011 field notes:
- 6-23: Took ungrazed measurements and pictures at photo point sites. Water has just receded in several areas of the upper part of the meadow. This has been an especially wet year.
- 10-11: Took post-season measurements and pictures at photo point sites. OHV tracks were observed in the meadow.
Hull Meadow: The upper part of the meadow is much drier than the lower part due to severe stream entrenchment and resulting meadow dehydration (above). Fresh OHV tracks running through the meadow (below).
**Meadow:** Wet Meadow Spring  
**District:** Mi-Wok  
**Allotment:** Lower Hull  
**Permittee:** Mailloux

**Quad:** Hull Creek  
**Section:** 11 SW  
**Township:** T2N  
**Range:** R17E  
**Elevation:** 5400 feet

**Key species:** unknown  
**Average ungrazed height:** unknown  
**Average grazed height:** unknown  
**Utilization standard:** unknown  
**Measured utilization:** NA

**Sensitive or at-risk species:**
- Willows
- Stream
- Seeps/springs, possible fen areas
- *Drosera rotundifolia* (Sundew)

**Resource damage caused by grazing:**
- Bare soil (in some areas)
- Chiseled, pocked, and trampled stream banks and other wet areas
- Headcuts in both main meadow and stringer meadows
- Stream entrenchment
- Meadow dehydration

**Resource damage not caused by grazing:**
- Noxious weeds (mullein and bull thistle)

**Management recommendations:**
- Fence out the main meadow and stringer meadows downstream
- Restore headcuts and entrenched streams
- Remove encroaching conifers
- Remove noxious weeds

**2011 field notes:**
- 7-6: Took pictures at photo point sites. Lots of pocking observed in meadow and in stringer meadows along creek. The soil seems especially wet and fragile this year. Headcuts are forming in main part of meadow and in stringer meadow. There is a possible fen in the middle of the meadow as indicated by buried logs, peaty soil, and the fact that it bounces when walked on. If this area does not qualify as a fen, stream down-cutting and meadow dehydration may have contributed to its decline. *Drosera rotundifolia* (Sundew) was found along the streams in the meadow. Algae was seen in the streams. Meadow doesn’t appear overgrazed at this time.
• 8-12: Extensive pocking was observed throughout the meadow in both wetter and drier areas. Stream bank chiseling is occurring in both main part of meadow and downstream in stringer meadows. Many of the wet, fragile areas observed earlier this year along the streams have been turned into mud pits. *Drosera rotundifolia* (Sundew) habitat is being pocked and chiseled at this time and may be at risk. Forage has been grazed down to 1-4 inches in the meadow. Cows are still present. Noxious weeds have started to encroach into the meadow. There are several young cedar trees that have encroached into the meadow, which may be a result of meadow dehydration.

• 9-13: No cows are present. Took photos.
Wet Meadow Spring: Stream banks were especially fragile this year. A cattle trail has trampled this stream bank into a mud pit.
Wet Meadow Spring: Pocking was extensive throughout much of the wet areas (above). Some heavy pocking was found in the vicinity of *Drosera Rotundifolia* (Sundew) and its habitat (below).
Meadow: Pumpkin Gulch
District: Calaveras
Quad: Calaveras Dome
Section: 25
Elevation: 6700 feet

Allotment: Mattley
Permitee: Dell’Orto
Township: T7N
Range: R16E

Key species: Carex integra
Utilization standard: unknown

Average ungrazed height: unknown
Average grazed height: unknown
Measured utilization: NA

Sensitive or at-risk species:
- Alders
- Aspens
- Stream
- Wet areas

Resource damage caused by grazing:
- Not observed

Resource damage not caused by grazing:
- Not observed

Management recommendations:
- None

2011 field notes:
- 7-7: No cows are present. The area has very wet soil with little vegetative cover. The soil seems to be very sensitive to disturbance at this time. Not enough Carex integra growth was present to take pre-grazing measurements. Willows are nearly absent from the area, but there are a lot of alders and some aspen.
- No post-grazing visit was conducted for 2011.
**Meadow:** Adit 5-6  
**District:** Groveland  

**Allotment:** Meyer-Ferretti  
**Permitee:** Erickson  

**Quad:** Jawbone Ridge  
**Section:** 26 NE  
**Elevation:** 3250 feet  

**Township:** T1S  
**Range:** R17E  

**Key species:** unknown  
**Utilization standard:** unknown  

**Average ungrazed height:** unknown  
**Average grazed height:** unknown  
**Measured utilization:** NA  

**Sensitive or at-risk species:**  
- Seeps/springs, wet areas  
- Stream  
- Meadow vegetation  

**Resource damage caused by grazing:**  
- Pocking of seeps/springs, streams, and other wet areas  
- Chiseling of stream banks  
- Bare soil (in some places)  
- Overgrazing and removal of vegetative cover  

**Resource damage not caused by grazing:**  
- Invasive weeds (blackberries)  

**Management recommendations:**  
- Fence off the spring to protect wet habitat in an otherwise very dry area during the summer months  

**2011 field notes:**  
- 6-15: Cows are present, but ranchers were rounding up cows to take them out of the area. Grassy areas, including reeds, have been heavily grazed. Key species is unknown, but some mesic areas have been grazed down to an average stubble height of ~1-2 inches. Blackberries dominate much of the spring area. Extensive pocking was found in all wet areas not covered by blackberries. An area just downstream of the spring has been pocked and chiseled into a mud pit. Where present, water is very murky and contains algae.
Adit 5-6 Spring: Extensive pocking, chiseling, and grazing of wet, spring-fed habitat in an otherwise very dry area (above). An area just downstream of the spring has been pocked and chiseled into a mud pit (below).
Adit 5-6 Spring: Meadow vegetation was grazed down to an average stubble height of ~1-2 inches in mesic areas.
Meadow: Jones  
District: Groveland

Allotment: Middle Fork
Permittee: Erickson

Quad: Ascension Mountain
Section: 10 SE
Elevation: 3900 feet

Township: T1S
Range: R18E

Key species: unknown  
Utilization standard: 4 inches

Average ungrazed height: unknown  
Average grazed height: unknown
Measured utilization: NA

Sensitive or at-risk species:
- Seeps/springs, wet areas
- Meadow vegetation

Resource damage caused by grazing:
- Extensive pocking of seeps/springs and other wet areas
- Chiseling of stream banks
- Headcut formation
- Stream entrenchment
- Bare soil (in some places)
- Overgrazing and removal of vegetative cover

Resource damage not caused by grazing:
- None observed

Management recommendations:
- Reduce number of cows and amount of time allowed on meadow
- Restore areas of stream that are becoming entrenched

2011 field notes:
- 6-21: Cows are present. Heavy pocking and chiseling was observed in wet areas and appears to be the result of cumulative years of use by livestock. Dry areas are not as heavily pocked or chiseled, but are more grazed down than wet areas. The average stubble height is ~3-4 inches in mesic areas and ~6-8 inches in wetter areas. Much of the forage appears to be of annual type. Took photos.
- 8-23: Meadow is heavily grazed. The average stubble height is ~2 inches in mesic areas and ~2-5 inches in wet areas. There is heavy pocking throughout the meadow. Chiseling at the base of the meadow along the road has caused stream entrenchment and headcut formation. Some chiseling and stream entrenchment is also occurring in the upper part of the meadow. The entrenched areas are somewhat dried out and look as if they were wetter earlier in the season. Much of the remaining standing
water is cloudy and contains algae.

Jones Meadow: Stream entrenchment and headcut formation is beginning to occur at the base of the meadow along the road (above). Many of the areas that remained wet late into the summer were heavily pocked up and contained cloudy, algae-laden water (below).
Jones Meadow: In mesic areas, the grasses were grazed to an average stubble height of ~2 inches (above left). The ungrazed potential for this meadow is well above 18 inches (above right and below).
**Meadow:** Pond off Rd. 1S86  
**District:** Groveland  
**Quad:** Lake Eleanor  
**Section:** 2/3 S  
**Elevation:** 4450 feet

**Allotment:** Middle Fork  
**Permittee:** Erickson  
**Township:** T1S  
**Range:** R19E

**Key species:** unknown  
**Utilization standard:** unknown  
**Average ungrazed height:** unknown  
**Average grazed height:** unknown  
**Measured utilization:** NA

**Sensitive or at-risk species:**  
- Pond, wet areas  
- Meadow vegetation

**Resource damage caused by grazing:**  
- Some pocking of wet areas along shoreline

**Resource damage not caused by grazing:**  
- Invasive species (bullfrogs)

**Management recommendations:**  
- Remove invasive bull frogs  
- Limit amount of time cows are allowed to graze near shoreline

**2011 field notes:**  
- 8-23: Shoreline is lightly grazed with an average stubble height of approximately 12-24 inches. Some pocking and cow patties observed along shoreline. Cows appear to have just arrived to the area. Hundreds of bullfrogs were present and some small fish. The area seems to be ecologically valuable in that the surrounding forest is fairly dry.  
- No post-season follow-up visit was conducted in this area for 2011.
Pond off Rd. 1S86: Location of the pond (above). The pond is fairly large in size (below).
Pond off Rd. 1S86: Some pocking and cow patties were seen along the shoreline. Hundreds of bullfrogs were also observed jumping in the pond as we walked by.
Meadow: Rose Creek
District: Mi-Wok
Quad: Crandall Peak
Section: 2/3
Elevation: 3750 feet

Allotment: Rushing
Permittee: Ritts
Township: T3N
Range: R16E

Key species: unknown
Utilization standard: unknown

Average ungrazed height: unknown
Average grazed height: unknown
Measured utilization: NA

Sensitive or at-risk species:
- Seeps/spring, wet areas
- Stream
- Alders
- Meadow vegetation

Resource damage caused by grazing:
- Pocking and trampling of wet areas
- Bare soil (in some places)
- Chiseling of stream banks along Rose Creek and its tributary streams
- Overgrazing and resulting removal of vegetative cover in wet areas
- Poor water quality

Resource damage not apparently caused by grazing:
- Noxious weeds (bull thistle and mullein)

Management recommendations:
- Limit number of cows and amount of time cattle are allowed in the area
- Limit cattle access to stream to protect water quality for residents that live downstream in Jupiter
- Fence out seeps/springs to protect wet habitat in an area that is otherwise very dry during the summer months
- Remove noxious weeds from the area

2011 field notes:
- 5-26: Took photos of the area. Some pocking and chiseling is present of springs/seeps that appears to be cumulative from both past and present grazing seasons.
- 8-31: Took photos of the area. Walked along stream for approximately 1-2 miles. Nearly all wet areas have been pocked and grazed down to an average stubble height of ~1 inch (except rushes that cattle generally avoid). An area used as a stream crossing by cattle has been heavily trampled and chiseled. Water quality sampling in 2010 revealed that there is a significant increase in the amount of E. Coli in the water when cattle
are present (see CSERC's water quality report for more information). Poor water quality has the potential to affect people utilizing Rose Creek as a swimming hole just downstream in the Jupiter residential area.

Rose Creek: Algae-laden water was observed in Rose Creek and its tributary seeps/springs.
Rose Creek: This is just one of many seeps/springs that drains directly into Rose Creek. The seep has been damaged by many years of pocking, trampling, and overgrazing by cattle (above and below).
Meadow: Bourland
District: Mi-Wok

Allotment: Upper Hull
Permitee: Mailloux

Quad: Cherry Lake N.
Section: 17 SE
Elevation: 7280 feet

Township: T3N
Range: R19E

Key species: NA
Utilization standard: NA

Average ungrazed height: NA
Average grazed height: NA
Measured utilization: NA

Sensitive or at-risk species:
• Stream
• Ponds
• Wet, seepy areas
• Meadow vegetation

Resource damage caused by grazing:
• Pocking of wet, seepy areas
• Minor chiseling of edges of pond in main part of meadow
• Grazing and trampling of meadow vegetation
• Muddy, cattle created trails

Resource damage not caused by grazing:
• None observed

Management recommendations:
• Continue to manage area as a Research Natural Area
• Continue to exclude cattle from the meadow
• Cows should not be allowed on allotment until fence is up
• Take more care in putting the fence up to ensure there are no gaps or areas that could be easily broken by cattle

2011 field notes:
• 9-29: We heard reports that cattle were in the meadow, so we came out to check. Fence is up, but there are large gaps in many areas that are big enough for cattle to fit through. Cattle are no longer present, but it’s obvious that they have recently trespassed into the area. Vegetation has been grazed and trampled in the northwestern side of the meadow. There is also pocking and muddy, cattle-created trails present in many of the wet, seepy areas. Fresh cow patties were observed. The edges of the pond within the main part of the meadow have been pocked and chiseled in a few spots. The main part of the meadow doesn’t appear grazed. However, it’s completely unacceptable that cattle were in here at all because this is a Research Natural Area. More care should be taken in putting up the fence.
Bourland Meadow RNA: The fence around the meadow had large gaps that may have allowed cattle to trespass into the area (above). Fresh cow patties were observed inside the fence (below).
Bourland Meadow RNA: Vegetation was grazed in some of the wet, seepy areas along Bourland Creek (above). A muddy, cattle-created trail (below).
**Meadow:** Sam William Spring  
**District:** Mi-Wok  
**Allotment:** Upper Hull  
**Permitee:** Mailloux

**Quad:** Hull Creek  
**Section:** 28 E  
**Township:** T3N  
**Range:** R17E  
**Elevation:** 5100 feet

**Average ungrazed height:** 20.5  
**Average grazed height:** unknown  
**Measured utilization:** NA

**Key species:** unknown  
**Utilization standard:** 40% utilization or 4 inches

**Sensitive or at-risk species:**  
- Stream  
- Seep/spring  
- Meadow vegetation

**Resource damage caused by grazing:**  
- Stream entrenchment  
- Minor headcut  
- Bare soil and general decline of meadow vegetation due to lowered water table  
- Some conifer encroachment

**Resource damage not caused by grazing:**  
- None observed

**Management recommendations:**  
- Rehabilitate entrenched portion of stream

**2011 field notes:**  
- 7-6: Took ungrazed heights near stream using Carex species and took pictures at photo point sites. No cows were present at this time. Meadow has a high diversity of both native and non-native plants. The upper part of meadow is much wetter than the lower part of the meadow. The stream is somewhat entrenched in the lower part of the meadow resulting in meadow dehydration, loss of meadow vegetation, and some conifer encroachment. Algae was observed within the stream as well as heavy equipment tracks.  
- 9-26: Cows appeared to have been present for only a short period of time (possibly only a few days). The meadow is lightly grazed with some trampled vegetation. A minor amount of pocking was observed in wet areas. No post-grazing measurements or photos were taken, as meadow was not very grazed.
Sam William Spring: Heavy equipment tracks were observed in the stream within the meadow. Algae was also present in the water.
**Meadow:** Fahey  
**Allotment:** Westside  
**District:** Mi-Wok  
**Permitee:** Mailloux

**Quad:** Hull Creek  
**Section:** 9 S  
**Township:** T2N  
**Range:** R17E  
**Elevation:** 5265 feet

**Key species:** *Carex integra*  
**Utilization standard:** 40%

**Average ungrazed height:** 8.8  
**Average grazed height:** 1.5  
**Measured utilization:** 77%

**Sensitive or at-risk species:**
- Stream
- Stock ponds
- Seep/spring (upper meadow)
- Possible fen (lower meadow)
- Aspens
- Willows
- Meadow vegetation

**Resource damage caused by grazing:**
- Headcuts and stream entrenchment through possible fen (lower meadow)
- Trampling and pocking of spring (upper meadow)
- Bare soil (in some places)

**Resource damage not caused by grazing:**
- Noxious weeds (mullein)

**Management recommendations:**
- Reduce number of cows in meadow and time allowed in meadow
- Restore headcuts and entrenched stream (lower meadow)
- Fence aspen stand and seep/spring (upper meadow)
- Remove noxious weeds from meadow and surrounding areas

**2011 field notes:**
- 6-23: Took ungrazed measurements and pictures at photo-points.
- 8-12: In the upper meadow, *Carex* species have been grazed down to 1-3 inches in mesic areas. Vegetation in wetter areas has been moderately grazed. Corn lily has been grazed. The spring in the middle of the upper meadow is very trampled and poked up. The lower meadow has been grazed, but not as extensively as the upper meadow. Pocking is present. There does not appear to be any recent sloughing off of stream bank material at head cuts in the lower meadow.
• 9-13: Took post-grazing measurements and pictures at photo points. The upper meadow is heavily grazed, especially in mesic areas. The spring in the middle of the upper meadow has been heavily pocked into a mud pit and is full of algae. In the lower meadow, the mesic areas have been grazed down to an average stubble height of less than 4 inches. The wet areas in the lower meadow are heavily pocked up. Fresh chiseling of stream banks and sloughing off of material was observed.
Fahey (upper meadow): This spring was heavily trampled into a mud pit and contained a lot of algae. The spring should be fenced to prevent further damage from cattle.

Fahey (lower meadow): Fresh sloughing off of stream bank material causes stream entrenchment. This stream needs to be restored to prevent the continuation of this downward trend.
**Meadow:** Faust Cabin  
**Allotment:** Westside  
**District:** Mi-Wok  
**Permitee:** Mailloux  
**Quad:** Hull Creek  
**Section:** 9 N  
**Township:** T2N  
**Range:** R17E  
**Elevation:** 5724 feet  
**Key species:** Carex integra  
**Average ungrazed height:** 9.8  
**Average grazed height:** 1.7  
**Utilization standard:** 30%  
**Measured utilization:** 75%

**Sensitive or at-risk species:**  
- Seeps / spring  
- Stream  
- Meadow vegetation

**Resource damage caused by grazing:**  
- Pocking and chiseling of streambanks and seeps / spring  
- Headcuts  
- Conifer encroachment  
- Meadow dehydration and general decline of meadow vegetation

**Resource damage not caused by grazing:**  
- Noxious weeds (mullein)

**Management recommendations:**  
- Limit cattle access to the stream to prevent further degradation  
- Restore entrenched portions of stream  
- Armor (or rearmor) headcuts  
- Remove conifers that have recently encroached into meadow  
- Remove garbage from meadow  
- Remove noxious weeds from meadow and surrounding area

**2011 field notes:**  
- 6-23: Took ungrazed measurements and pictures at photo point sites. No cows were present. Meadow vegetation appears short compared to other years.  
- 8-12: Most of the Carex species are grazed down to an average stubble height of ~1-3 inches. Less preferred forage species, such as rushes, goldenrod, and yarrow, were still very tall and nearly ungrazed. Lots of pocking and cow patties were observed in wetter areas and near stream.  
- 9-13: Took post-season measurements and pictures at photo-point sites. Fresh stream bank chiseling and trampling was observed, especially at lower end of meadow where water is accessible. Stream is downcutting in
areas where previous Forest Service restoration work has taken place. Conifers are encroaching into the meadow. There are fresh cow patties in the water and lots of algae.

Faust Cabin Meadow: Fresh chiseling and sloughing off of stream banks along an area of stream that had been previously restored by the Forest Service (above).
We also observed an area of stream that had been trampled into a mud pit (below). The stream at both locations contained cloudy, algae-laden water.

Faust Cabin Meadow: The lower part of the meadow has suffered severe dehydration due to a large headcut (that was armored by the Forest Service). New young trees have started to encroach into the meadow despite previous efforts to remove encroaching conifers.
**Meadow:** Upper Wrights  
**District:** Mi-Wuk  
**Allotment:** Westside  
**Permitee:** Mailloux

**Quad:** Hull Creek  
**Section:** 27 SE  
**Township:** T3N  
**Range:** R17E  
**Elevation:** 5305 feet

**Key species:** *Carex integra*  
**Utilization standard:** 30% utilization  
**Average ungrazed height:** 10.0  
**Average grazed height:** 2.3  
**Measured utilization:** 68%

**Sensitive or at-risk species:**
- Stream
- Willows
- Meadow vegetation

**Resource damage caused by grazing:**
- Stream entrenchment
- Advancing headcuts in stream
- General decline of meadow vegetation due to lowered water table

**Resource damage not caused by grazing:**
- Noxious weeds
- Stream bank erosion from past extreme storm events

**Management recommendations:**
- Rehabilitate stream and fix headcuts
- Five year rest period

**2011 field notes:**
- 6-23: Fence is up. Took pre-season measurements and pictures at photo points. Past chiseling and trampling of stream banks is evident. No cows were present.
- 10-11: Took post-season measurements and pictures at photo point sites. Mesic areas have been more heavily grazed than wet areas. There is fresh stream bank chiseling and pocking in wet areas. Lots of fresh cow patties present throughout the meadow, including in the stream. Headcuts need to be fixed to prevent further stream entrenchment.
Upper Wrights Meadow: One of many headcuts that is advancing into the meadow needs to be barred to prevent further stream entrenchment (above). Heavily pocked and chiseled stream banks contribute to stream entrenchment and overall meadow dehydration (below).
**Meadow:** Weed  
**Allotment:** Upper Hull  
**District:** Mi-Wok  
**Permittee:** Mailloux  
**Quad:** Cherry Lake N.  
**Township:** T3N  
**Section:** 17 NW  
**Range:** R19E  
**Elevation:** 7372 feet

**Key species:** *Carex integra*  
**Average ungrazed height:** 13.1  
**Average grazed height:** 2.2  
**Utilization standard:** 30%  
**Measured utilization:** 76%

**Sensitive or at-risk species:**  
- Stream  
- Willows  
- Aspens  
- Seep/spring

**Resource damage caused by grazing:**  
- Stream severely entrenched  
- Bare soil and general decline of meadow vegetation due to lowered water table  
- Willow regeneration suppressed  
- Aspen regeneration suppressed

**Resource damage not caused by grazing:**  
- None observed

**Management recommendations:**  
- Fence meadow  
- Fence aspen  
- Rehabilitate stream  
- 5-year rest period

**2011 field notes:**  
- 9-14: Cattle are present. Took photos.  
- 9-29: No pre-season heights were taken early in the season, but we attempted to take pre-season measurements using remaining *C. integra* with culms. We also took post-season heights and pictures at photo point sites. For such a lush meadow, much of the vegetation appears to have been grazed or trampled. Cows are no longer present.
Weed Meadow: For such a lush meadow, a large portion of the vegetation was grazed down; notice the sticks that remain from larger plants (above). Post-grazing heights were very short in the vicinity of the transect (below).