

Central Sierra Environmental Resource Center
2015 Stanislaus National Forest
Meadow Condition and Grazing Utilization Report



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SUMMARY

In 2015, CSERC continued to monitor meadow condition and the degree of grazing utilization at more than 69 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. 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 occurs, it has often resulted over time 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.

Many of the allotments that this report covers had reduced numbers of cows grazing this year, which resulted in lower utilization numbers at many (but not all) of the meadows CSERC monitored. Some of these grazing allotments are currently going through NEPA to access whether or not to continue grazing at current levels or to reduce livestock numbers or where they are permitted to graze. One of the key concerns our staff has about grazing management in the Eagle and Herring Allotments is the effect that livestock grazing and poor management of livestock movement has on the Yosemite toad and their habitat. CSERC has also emphasized the need to protect key Special Aquatic Features by following established Standards and Guidelines that mandate protection of their habitat if they are evaluated to be in a degraded or degrading condition.

The following pages provide detailed reports on condition and grazing utilization for 34 mountain meadows that staff monitored in the Stanislaus National Forest in 2015. Meadows are arranged by allotment. Additional photos are available for all meadows reported on, and can be provided easily by contacting CSERC at 209-586-7440, or emailing Julia at julias@cserc.org.

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Meadow: Bell I (Lower)

District: Summit

Quad: Pinecrest

Section: 36 N

Elevation: 6400 feet

Key species: *Carex integra*

Utilization standard: 40%

Allotment: Bell Mdw/Bear Lake

Permitee: Ben Cassenetto

Township: T4N

Range: R18E

Average ungrazed height: 10.91 "

Average grazed height: 2.18 "

Measured utilization: 72% (+/- 3.2%)

Sensitive or at-risk species:

- Aspen
- Willows
- Spring/seep
- Bell Creek

Resource damage caused by grazing:

- Bare soil patches
- Suppression of willow and aspen regeneration
- Spring within meadow trampled into a mud pit

Management recommendations:

- Construct a fence around the spring within the meadow
- Construct a fence around aspens
- Monitor willow browsing utilization
- Move cows before utilization exceeded

2015 field notes:

- 6/16/15: Meadow is mature, grasses flowering. Took pre-season photos and measured *C. integra* along transect. No cows yet.
- 9/28/15: Took transect measurements and photos at photo points. Areas of heavy grazing in mesic habitat. Spring area at photo point #1 has been pocked extensively. Overall moderately to lightly grazed in wetter *Carex* species areas.





Lower Bell Meadow (Bell I): Before grazing (*top*) and after grazing (*bottom*). Pocking and heavy grazing in spring that is in upper part of meadow.



Lower Bell Meadow: photo point #3 before (top) and after (bottom) grazing shows heavy utilization of mesic meadow habitat in 2015.

Meadow: Bell II (Middle)

District: Summit

Quad: Pinecrest

Section: 25/30/31/32

Elevation: 6550 feet

Key species: *Carex integra*

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 enclosure

Resource damage not caused by grazing:

- None observed

Management recommendations:

- Monitor willow and aspen utilization
- Maintain fence around aspen enclosure
- Extend aspen enclosure fence to include unfenced part of Bell Creek

2015 field notes:

- 6/16/15: Took pre-season photos and measurements. Meadow mature with grasses flowering. No cows present.
- 9/28/15: Took photo point photographs and transect measurements. Cows have been along the creek (fence not maintained to keep them out), manure by the water. *Carex integra* is moderately grazed at transect, the rest of the meadow has only been moderately grazed.

Allotment: Bell Mdw/Bear Lake

Permitee: Ben Cassenetto

Township: T4N

Range: R18E/R19E

Average ungrazed height: 12"

Average grazed height: 1.5"

Measured utilization: 83% (+/- 1.08%)



Middle Bell Meadow: pre and post season photos show heavy grazing in mesic and drier parts of the meadow.



Middle Bell Meadow: pre and post season photos show heavy grazing in mesic and drier parts of the meadow.

Meadow: Lower Round

District: Summit

Quad: Pinecrest

Section: 35/36

Elevation: 6400 feet

Key species: *Carex integra*

Utilization standard: 40%

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 heavily damaged and entrenched
- Meadow dehydration
- Poor water quality

Management recommendations:

- **Reduce amount of time cows are allowed to spend in Upper and Lower Round.**
- **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

2015 field notes:

- 6/16/15: No cows yet. Took photos and transect measurement of *C. integra*. Stream bank and spring pocking and chiseling from other years visible. Stream and spring need protection to prevent further degradation.
- 9/28/15: Area where *Carex integra* grows (mesic part of meadow), is heavily

grazed. Creek between Upper and Lower Round Meadow has heavy trailing and sloughing and pocking. Took photo point photos and measurements.

Allotment: Bell Mdw/Bear Lake

Permittee: Ben Cassenetto

Township: T4N

Range: R18E

Average ungrazed height: 7.55 "

Average grazed height: 1.3 "

Measured utilization: 77% (+/- 1.96%)



Above: Spring/possible fen in Lower Round – heavy pocking continues to degrade this special aquatic feature. Pictures show pre, mid and after grazing conditions.



A season of degradation: Three photos of the same streambank throughout the season (June, August, September) show the high levels of grazing and livestock sloughing and pocking that continue to contribute to the deeply entrenched stream channel in Lower Round Meadow.



Lower Round Meadow: Before and after grazing 2015, photo point #2. Photo demonstrates overgrazed conditions in mesic areas of meadow.

Meadow: Upper Round

District: Summit

Quad: Pinecrest

Section: 35/36

Elevation: 6400 feet

Key species: *Carex integra*

Utilization standard: 40%

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

2015 field notes:

- 6/16/15: Took pre-season photographs and transect measurements. Meadow vegetation is mature (early compared to other years), flowering. Headcut drainage at base of meadow is visibly cumulatively sloughed, widened, and channelized.
- 9/28/15: Meadow is heavily grazed in mesic area of meadow. Took photos at photo points and transect measurements. Headcut areas are continually degrading through sloughing and pocking.

Allotment: Bell Mdw/Bear Lake

Permitee: Ben Cassenetto

Township: T4N

Range: R18E

Average ungrazed height: 9.1 "

Average grazed height: 1.18"

Measured utilization: 83% (+/- 1.13%)



Bottom: Area of *Carex integra* (the key plant species for Upper Round) is **uniformly overgrazed** to about a 1" stubble height.



Pre and post season at one of many major headcuts in Upper Round shows a season worth of hoof damage and overgrazing making stream continually vulnerable to erosion and down-cutting. **AREA NEEDS TO BE FENCED TO BLOCK LIVESTOCK ACCESS.**





Headcut at base of Upper Round has visibly reduced greenline from the beginning to end of season. Major crossing point for livestock as they head downstream is right at this headcut, needs to be fenced and livestock re-directed to avoid further sloughing and downcutting on headcut.

Meadow: Deer Creek Seeps

District: Mi-Wok

Quad: Twain Harte

Section: 22

Elevation: 3700 feet

Key species: *unknown*

Utilization standard: unknown

Sensitive or at-risk species:

- Stream
- Seeps/spring, wet areas
- *Mimulus pulchellus* (CNPS list 1b)
- Meadow vegetation

Resource damage caused by grazing:

- Pocking and trampling of wet areas
- Water contamination from feces
- Habitat loss from overgrazing
- Bare soil (in some places)

Resource damage not apparently caused by grazing:

- Noxious weeds (bull thistle)
- OHV off-route riding through spring sites and surrounding habitat

Management recommendations:

- Construct a fence around the seeps to protect wet habitat for wildlife, in an area that is otherwise very dry during the summer months
- More signage, vehicle blockades, and patrolling for OHV activities
- Remove noxious weeds from the area

2015 field notes:

- 4-23-15: Grasses mature, green, lush. No cows yet. Took pre-season photos. Lots of *Mimulus pulchellus*. Past damage at seeps (heavy chiseling) visible.

- 9-10-15: In the morning the staff met with Range staff (Pat Boyer and Sue Forbes), Fred Wong (District Ranger) and permittees and discussed problem areas at springs/seeps along Deer Creek. Discussion topics included whether water features were SAF's, whether they were degraded, and if so, were livestock responsible. In the afternoon, staff took post-season photographs at designated photo points. Observed browsing in spring/seeps to be at 1/2" stubble height and less. Severe pocking in seeps and chiseling along edges restricting wetland perimeter. Wetland area is shrinking compared to past years and some areas are observed as dry for the first time.

Allotment: Deer Creek

Permitee: Beeman/Reid

Township: T3N

Range: R16E

Average ungrazed height: unknown

Measured utilization: NA



Seeps at Deer Creek 2015: Pocking and chiseling of these limited wetland habitats is further disabling their ability to retain water and are at a minimum in Functional-At-Risk condition, due to intense livestock utilization. This has been magnified during the drought. The wildlife and watershed value is significantly diminished and degraded, and need immediate protection and restoration.



Deer Creek, Seep #1, 2015: **Before (left) and after (right) photos at key photo points show the seasonal degradation caused by livestock pocking, trampling, defecating, and overgrazing in key Special Aquatic Features.** This damage has been reported by the CSERC staff to the Forest Service for several years, demonstrating both seasonal and cumulative damage, but the Forest is yet to take any action to better protect these wetland habitats that are so critical for wildlife.



Deer Creek, Seep #2: **Before (left) and after (right) photos show another important wetland feature for an otherwise dry area of the forest, with high levels of forage utilization and soil disturbance.** These seeps have shrunk in their perimeter since staff has started monitoring them and have a dire need for rest from livestock impacts, and restoration is needed.

Meadow: Barn

District: Summit

Quad: Dardanelle

Section: 14 NW

Elevation: 7585 feet

Key species: *Carex nebraskensis*

Utilization standard: 60%

Allotment: Long Valley/Eagle

Permitee: Robert and Sherri Brennan

Township: T5N

Range: R19E

Average ungrazed height: 7.15"

Average grazed height: 2.8"

Measured utilization: 41% (+/-3.26%)

Sensitive or at-risk species:

- Stream
- Aspens
- Willows
- **Fens**

Resource damage visibly attributable to livestock grazing/presence:

- Suppression of aspen and willow regeneration
- Pocking, exposed organic soil, and water channeling in fens
- Water quality from fecal contamination

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Fence meadow and fens during wet season (manage same as Boggy)
- **Exclude cows entirely from fens behind main meadow near creek** (exclude with electric fence)

2015 field notes:

- 6/17/15: Took ungrazed heights and pictures at photo-points. Took photos of young aspen and of young fen.
- 10/16/15: Took utilization measurements and photos at photo points. Moderate grazing, within standards overall. Some regrowth since cows grazed this meadow, making utilization measurements higher than they would have been.



Barn Meadow 2015 – photo point A shows meadow has been grazed within standards this season.

Meadow: Eagle

District: Summit

Quad: Dardanelle

Section: 13 S

Elevation: 7531 feet

Key species: *Carex integra*

Utilization standard: 60%

Allotment: Long Valley/Eagle

Permitee: Robert and Sherri Brennan

Township: T5N

Range: R19E

Average ungrazed height: 10.79 "

Average grazed height: 3

Measured utilization: 51%

Sensitive or at-risk species:

- Stream
- Aspens
- Willows
- Fens

Resource damage caused by grazing:

- Suppression of aspen regeneration
- Streambank damage
- Exposed organic soil, pocking and channel formation in fens

Resource damage not caused by grazing:

- None observed

Management recommendations:

- Fence aspens
- Rehabilitate and fence streams and springs

2015 field notes:

- 6/17/15: Took pre-season photographs, and transect measurements of *Carex integra*.
- 10/16/15: Light to moderate grazing (heavier grazing in mesic meadow habitat). Lighter grazed conditions are a positive reflection of the effects of less cows grazing on an allotment.



Spring and fen areas (top) were heavily pocked and grazed in Eagle Meadow in 2015. Gathering at the end of the season draws cows to the wetter green areas in a meadow that browned early in a drought year (bottom).

Meadow: Long Valley

District: Summit

Quad: Dardanelle

Section: 17/20

Elevation: 7750 feet

Key species: *Carex nebraskensis*

Utilization standard: 60%

Allotment: Long Valley/Eagle Mdw

Permitee: Robert and Sherri Brennan

Township: T5N

Range: R20E

Average ungrazed height: 8.1 "

Average grazed height: 3.05"

Measured utilization: 40%

Sensitive or at-risk species:

- Willows
- Stream
- Aspens

Resource damage visibly attributable to livestock grazing/presence:

- Minor suppression of aspen regeneration

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Closely monitor condition of aspens
- Reduce utilization standard to 40%

2015 field notes:

- 6/17/15: Took pre-utilization measurements and photo point photos. Meadow very wet. Corn lily blooming. No evidence of cows accessing the area this season yet.
- 10/16/15: Light to moderate grazing. Took transect measurements and photo point photographs. Check on rotation schedule – how are Eagle Meadow and Long Valley both being grazed in the same season?



Meadow: Red Rock

District: Summit

Quad: Dardanelle

Section: 9 N

Elevation: 8268 feet

Key species: *Carex integra*

Utilization standard: 60%

Allotment: Long Valley/Eagle Mdw

Permitee: Robert and Sherri Brennan

Township: T5N

Range: R20E

Average ungrazed height: 8.3"

Average grazed height: n/a

Measured utilization: n/a

Sensitive or at-risk species:

- Stream
- Meadow vegetation

Resource damage visibly attributable to livestock grazing/presence:

- Severe stream entrenchment resulting in meadow dehydration and conversion to sage flat
- Pocking along streams and sloughing and trampling of stream banks
- Bare soil and general decline of meadow vegetation

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Rehabilitate stream to restore meadow hydrology
- Fence entire meadow
- Install boulders to exclude OHVs.
- 10 year rest period
- Reduce utilization standard to 40%

2015 field notes:

- 6/17/15: We took ungrazed measurements and pictures at photo-point sites and along stream. *Carex* is mature. No cows yet.
- 10/16/15: *C. nebraskensis* seems to be grazed heavier than *C. integra*. This seems to happen in drier years when *integra* dries more quickly than wetter-habitat grass species. Stream bed has higher levels of grazing (see photos on the right), as well as pocking and streambank trailing and sloughing from this season. Lower number of cattle grazing on the allotment = lower utilization levels.



Meadow: Bloomer**District:** Summit**Quad:** Dardanelle**Section:** 22/23 S**Elevation:** 8400 feet**Key species:** *Carex integra***Utilization standard:** unknown**Allotment: Herring Creek****Permitee:** Clifton Hodge Jr.**Township:** T5N**Range:** R19E**Average ungrazed height:** 10.72 "**Average grazed height:** 3.18 "**Measured utilization:** 57% (+/- 3.3 %)**Sensitive or at-risk species:**

- Pond
- Stream
- Willows
- Yosemite toads

Resource damage visibly attributable to livestock grazing/presence:

- Minor stream entrenchment, headcut
- Cattle concentrating around lake, shoreline pocking

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Fence out lake and at least a few acres around Bloomer Lake
- Rehabilitate stream, especially in headcut area.
- Establish water trough to draw livestock away from lakeshore.

2015 field notes:

- 6/24/15: Took pre-utilization measurements and photos at points. No evidence of cattle this season. Algae blooming extensively in low water in creek and pools. Pocking visible from previous years.
- 9/11/15: Photos taken at transect points. Transect measurements taken. Some light to moderately grazed patches. Shoreline of the lake looks much better than in past recent seasons. This is very likely attributable to the significantly reduced numbers of livestock on the Herring Allotment this season.

Meadow: Bluff

District: Summit

Quad: Pinecrest

Section: 35 W

Elevation: 8100 feet

Key species: *Carex integra*

Utilization standard: unknown

Sensitive or at-risk species:

- Stream
- Yosemite toads

Resource damage visibly attributable to livestock grazing/presence:

- Stream entrenched
- Wet areas/ fen pocked
- Soil pocking and trampling damaging organic soils.

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Rehabilitate stream
- Protect fen, move and repair trough

2015 field notes:

- 6/24/15: Meadow fence partly up. Took pre-utilization photos at points and fen area. No Yosemite toad observed. Vegetation tall and lush.
- 9/11/15: Three horses found at fen. Some areas grazed to 1-2 inches stubble height while other areas not grazed. **Packstock grazing needs to be monitored and have grazing standards and regulations established, especially for horses that are left in a meadow all summer (see photo for example of how much grazing horses can do in a meadow when left there for extended periods of time).** Fen looked to be in better condition than in previous seasons in regards to fresh pocking and grazing. Still recommend that this SAF be fenced off for protection due to long term cumulative damage. Every year besides 2015 has had significant damage documented at this fen location due to poor livestock management. Cows were at highly reduced numbers on this allotment in 2015, largely attributing to the reduced resource damage observed by CSERC staff.

Allotment: Herring Creek

Permitee: Clifton Hodge Jr.

Township: T5N

Range: R19E

Average ungrazed height: unknown

Average grazed height: unknown

Measured utilization: NA



Meadow: Bull Run (and Punch Bowl)

District: Summit

Quad: Pinecrest

Section: 36 S

Elevation: 6700 feet

Key species: unknown

Utilization standard: unknown

Species measured NA

Allotment: Herring Creek

Permitee: Clifton Hodge Jr.

Township: T5N

Range: R18E

Average ungrazed height: NA

Average grazed height: NA

Measured utilization: NA

Sensitive or at-risk species:

- Aspen
- Willows
- Stream
- Meadow vegetation
- Wetland habitat
- Springs/possible fens

Resource damage visibly attributable to livestock grazing/presence:

- Streambank channelization and down-cutting
- Pocking in spring/wet meadow habitat
- Aspen overbrowsing/suppression
- Overgrazing meadow cover

Management recommendations:

- Restoration of stream entrenchment
- Fence off damaged wetland habitat

2015 field notes:

- **7/1/15:**
 - **Bull Run:** Grass grazed moderately. Lots of pocking in wet area around willows and stream channel in lower part of meadow. No cows present. Took photos in wet area of pocking in grassy openings, and in seep heavily pocked at upper meadow.
 - **Punch Bowl:** Followed fresh cow trail into meadow. About 20 cows visible. Cow manure everywhere. Many areas grazed down to 2 inch stubble height. In all seeps fresh pocking is already occurring and there is manure in the springs and seeps. Concerns over Special Aquatic Features. Some fresh streambank damage has already occurred. Took photos in meadow, and at seeps and along streambank.
- **8/25/15:**
 - **Bull Run:** Heavier grazing and pocking documented since last field visit. Cows have been moved off of this part of the Allotment.
- **10/15/15:**
 - **Bull Run:** Moderate to heavy grazing evident, grasses have grown back since beginning of season. Cows weren't allowed to hang out in this area all summer as they have in previous years. Sloughing and pocking continues to worsen along wet spring area and stream banks. Deep pocking documented. The upper wet area of Bull Run is also moderately grazed. Took photos throughout.





Bull Run 2015: Grazing damage was less than documented in the past several seasons due to reduced numbers and cows not being left in Bull Run all summer. However the level of grazing still exceeded utilization standards, and wetland areas continue to also not meet established regulations for protection of Special Aquatic Features.

Meadow: Coyote

District: Summit

Quad: Pinecrest

Section: 34 S

Elevation: 8560 feet

Key species: unknown

Utilization standard: unknown

Species measured: *Carex integra*

Allotment: Herring Creek

Permitee: Clifton Hodge Jr.

Township: T5N

Range: R19E

Average ungrazed height: 10.61"

Average grazed height: 2.49"

Measured utilization: 70%

Sensitive or at-risk species:

- Willows
- Stream
- Meadow vegetation
- Wetland habitat
- Yosemite toad

Resource damage visibly attributable to livestock grazing/presence:

- Streambank damage and down-cutting

Resource damage not apparently caused by grazing:

- Muddy/braided trail largely damaged by horses and illegal OHV activity
- Stream diversion into trail

Management recommendations:

- Protect Yosemite toad habitat
- Restoration of stream entrenchment
- Repair diverted stream channel

2015 field notes:

- 6/24/15: Breeding pools empty (no water) and YOTO tadpole carcasses observed. Took transect above the trail, took photos of the stream where past incision has been recorded.
- 9/11/15: Took photos at the trail and at the headcut below the trail. No water. Transect measurements taken at fence post markers in upper meadow. Area below trail where stream incision is, is heavily chiseled and further degraded from previous season.



Coyote Meadow 2015: Heavy uniform grazing in some areas within the meadow, especially where *Carex integra* dominates.



Coyote Meadow 2015: Channelized and downcut stream in lower part of meadow continues to worsen from hoof chiseling and sloughing.

Meadow: Groundhog

District: Summit

Quad: Dardanelle, Donnell Lake

Section: 27 NE

Elevation: 8600 feet

Key species: unknown

Utilization standard: unknown

Allotment: Herring Creek

Permitee: Clifton Hodge Jr.

Township: T5N

Range: R19E

Average ungrazed height: NA

Average grazed height: NA

Measured utilization: NA

Sensitive or at-risk species:

- Yosemite toads
- Willows
- Stream

Resource damage caused by grazing:

- None apparent in fenced area
- Pocking of stream outside of fence

Resource damage not caused by grazing:

- Off-road driving in meadow is destabilizing delicate soils and threatening Yosemite Toad habitat.

Management recommendations:

- Re-erect fencing around meadow to protect Yosemite Toad habitat.

2015 field notes:

- **6/24/15:** Took photographs. USFS amphibian crew overlapped with our staff again at this meadow, and found 1 Yosemite toad tadpole in creek mid-meadow. Breeding pools almost dry, those with water had *Pseudacris regilla*.
- **9/11/15:** Some grazing has occurred. Stream has trampling and sloughing where livestock accessed it (bottom photo). No cattle present at this time. Illegal off-road vehicle driving has occurred in the meadow, tracks throughout breeding pools of YOTO (top photo). Staff attempted to block vehicle access with rocks and sticks, but many possible access points from dispersed camping remain. Blocking access to meadow from campsite with boulders or a berm should be considered.



Meadow: Hammil Canyon

District: Summit

Quad: Pinecrest

Elevation: 7,700 feet

Key species: N/A

Allotment: Herring Creek

Permittee: Clifton Hodge, Jr.

Township/Range/Section: T5N, R19E, Sect. 29

Utilization Standard: N/A

Sensitive or at-risk species:

- Stream
- Springs
- Willows
- Possible Yosemite Toad (via FS correspondence in 2015)

Resource damage visibly attributable to livestock grazing/presence:

- Stream entrenched and streambanks severely chiseled and sloughed. Cattle trailing along greenline at stream.
- Wet areas in meadow pocked from livestock hooves.

Resource damage not apparently caused by livestock grazing:

- None observed

Management recommendations:

- Restore meadow hydrology and implement 5 year rest period or rest until meadow recovered.
- Exclude livestock where YOTO breeding habitat is found (once surveys conducted)

2015 field notes:

- 6/25/15: No cows in meadow yet, meadow is in full bloom. Herring Creek flowing but pretty low (compared to previous seasons). Took photos in meadow, and at streambank curve that has been collapsing over the years from livestock trailing and sloughing.
- 10/15/15: Took photos of streambank damage, lots of recent/new sloughing. Meadow grazed moderately to heavily in some of the meadows. Little flow in creek, lots of pocking in stream and algae blooms are abundant.



Hammil Canyon 2015: Mesic areas where cows concentrate were heavily grazed. Top photo shows where the exclusion cage was this season, and provides a visual for how heavy utilization was in that Hammil Canyon meadow.



Hammil Canyon: Herring Creek streambanks are progressively deteriorating every season due to livestock sloughing (top right and bottom), collapse and chiseling (top right), and cattle trailing along stream edges and pocking along green line (bottom). Additionally, there are massive algae blooms throughout the creek, indicating high nutrient content possibly due to cow manure found all along creek edges. in wetland areas. and in water.

Meadow: Lower Three

District: Summit

Quad: Pinecrest

Section: 33 N

Elevation: 8359 feet

Key species: *unknown*

Utilization standard: unknown

Sensitive or at-risk species:

- Pond
- Yosemite toads
- Stream channel

Resource damage visibly attributable to livestock grazing/presence:

- Soil compaction and destabilizing
- Stream/riparian habitat
- Loss of habitat for perennial meadow grasses (through trampling, grazing, and drying of meadow habitat)
- Water quality from sedimentation and manure

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- **Follow AMP direction to not allow grazing in this meadow**

2015 field notes:

- 6/24/15: Stream choked with algae. Degradation of streambank evident, restoration and exclusion of stream is needed. Took photos at photo points.
- 10/15/15: Two horses still grazing in meadow (how long are they allowed to be there? Whose horses are these, Cooper permittees? BEH says that all Three Meadows are supposed to be off-limits). Fence is up. Green metal livestock gate across the stream. Took photos.

Allotment: Herring Creek

Permittee: Clifton Hodge Jr.

Township: T5N

Range: R19E

Average ungrazed height: NA

Average grazed height: NA

Measured utilization: NA



Lower Three Meadow: Horses grazing in a Yosemite toad-occupied meadow all summer causes moderate to heavy utilization. Forest Service documents share that this meadow is supposed to be off-limits to grazing.



Meadow: Willow

District: Summit

Quad: Pinecrest

Section: 28

Elevation: 8000 feet

Key species: *C. integra*, *C. scopularum*

Utilization standard: 40% or 4"

Sensitive species or at-risk resources:

- Stream
- Springs
- Willows
- Sierra Nevada yellow-legged frog
- Willow flycatcher

Resource damage visibly attributable to livestock grazing/presence:

- Stream entrenched
- Wet areas pocked and contaminated by manure
- Meadow vegetation

Resource damage not caused by grazing:

- None observed

Management recommendations:

- Block stream access for SNYLF
- Protect pools for amphibian habitat

2015 field notes:

- 6/25/15: Meadow ungrazed. *Carex* mature. Took photos at photo points and transect measurements. Willow Creek has a low flow compared to other years.
- 10/15/15: Took transect measurements and photos at photo points. Meadow is heavily grazed, especially in mesic habitat where *Carex integra* dominates. No flow in creek. No leaves on willows.

Allotment: Herring Creek

Permittee: Clifton Hodge Jr.

Township: 5N

Range: 18E

Average ungrazed height: *C. integra* 7.91",
C. scopularum: 7.71"

Average grazed height: *C.i.*: .88", *C.s.*: 2.43"

Measured utilization: *C.integra.*: 86% (+/-1 %),
C.scopularum.: 61.03% (+/-3.45%)



Willow Meadow 2015: Pond where *Pseudacris regilla* breeds, was clogged with algae this year.



Willow Meadow 2015: heavily grazed conditions were observed both at transect measurement locations, and at photo point locations, as pre- and post-grazing photographs reveal.

Meadow: Wire Corral

District: Summit

Quad: Pinecrest

Section: 32

Elevation: 8560 f

Key species: NA

Utilization standard: unknown

Allotment: Herring Creek

Permitee: Clifton Hodge Jr.

Township: T4N

Range: R19E

Average ungrazed height: NA

Average grazed height: NA

Measured utilization: NA

Sensitive or at-risk species or habitats:

- Willows
- Stream
- Meadow vegetation
- Wetland habitat
- Fens
- Yosemite Toad

Resource damage visibly attributable to livestock grazing/presence:

- Streambank damage and down-cutting
- Deep pocking in wet spring areas
- Fen pocking and grazing

Resource damage not apparently caused by grazing:

- None

Management recommendations:

- Fence meadow to protect critical habitat for Yosemite Toad

2015 field notes:

- 6/24/15: Twenty four cows in Wire Corral Meadow. Yosemite Toad (YOTO) tadpoles have not gone through metamorphosis and were found in the spring pools in the lower part of the meadow. Evidence of recent grazing and hoof pocking documented throughout, concentrated in wet areas where more than a dozen juvenile YOTO were found without having to search. Several young YOTO were found in deep pock marks, raising question of whether they could get out. Photos taken at utilization cages and of a YOTO tadpole captured by USFS Amphibian bio-tech staff that was present and documenting that hundreds of YOTO tadpoles were in the pools still.
- 7/1/15: 12-13 cows found in meadow, YOTO still in breeding pools. Documented with photos.
- 7/16/15: Found a stock pond just across the road from Wire Corral Meadow filled with tadpoles that had the possibility of being Yosemite toads. Photographed to report to USFS. Found out at later date that these tadpoles were likely Western toads that had possibly hybridized with the nearby YOTO, so would be managed as YOTO in the future.



Wire Corral Meadow, 2015: A recently metamorphosed Yosemite toad in the heavily grazed and pocked wetland area in lower Wire Corral. **Especially considering the size and slow movement of recently metamorphosed toads, CSERC staff raises the concern whether this at-risk amphibian is truly being protected.** Habitat and shelter is drastically affected by livestock, and they are in danger of trampling and other potentially fatal hazards that have been widely acknowledged by Forest Service scientists.

- 8/11/15: CSERC staff visiting meadow found the area heavily grazed in lower area, and juvenile toads and recent metamorphs scattered throughout meadow. Cows still in the meadow. Photographed conditions. Heavy pocking and grazing raises concerns that toads are at high risk for trampling by cows, or predation due to lack of suitable vegetative cover.
- 8/14/15: Cows still in Wire Corral, took photos.
- 9/11/15: Cows still in meadow – we counted 13 and could hear more down the drainage. Stubble height ½ to 1 inch in most places with a maximum of 2 to 3 inches along springs where we found two Yosemite toads. Took photos of toads, cows, and exclusion cages.



Top left: Cows in forest directly next to YOTO tadpole-occupied breeding pools in Wire Corral. Top right: Freshly pocked and grazed wetland area next to breeding pools, where many juvenile toads were encountered on same day. Bottom left and right: Forest amphibian-tech collecting tadpole sample (note cows in background) to verify that YOTO tadpoles were in pools.

Wire Corral 2015: CSERC staff found dozens of cows grazing multiple times in Wire Corral Meadow while Yosemite toad tadpoles still occupied the well-known breeding pools. After reporting the first documented violation and being reassured that cows were being moved, staff continued to find cows still in the meadow (pocking, grazing and defecating in breeding pools) before toads had metamorphosed in the following weeks. The issue finally escalated to the level of US Fish and Wildlife coming out for a field visit to see why toads weren't being protected in this meadow. For the rest of the summer cows were found in Wire Corral Meadow, even though much of the Allotment remained ungrazed due to reduced numbers of livestock being grazed by permittee. As a result of poor livestock movement management by the Forest, the juvenile and adult toads that are regularly found within the Meadow's boundaries faced non-stop deterioration of habitat and risks of being trampled all summer. This has commonly been the case in previous years in Wire Corral, yet corrective action has yet to be taken to address the issue. **This is a strong example of the need to exclude livestock from Yosemite toad habitat, as current management practices fail to protect them in all phases of their life.**



Wire Corral 2015: Yosemite toad faced many threats to vitality from wrongful and poor livestock management. Top left: Breeding pools in lower meadow still occupied by YOTO tadpoles, recently grazed, pocked, and defecated in. Top right: Algae blooms resulting from high fecal loading of wetland area were found in freshwater pools and effected the health of that water for toads and tadpoles. Middle left: Fresh hoof mark with recently metamorphosed YOTO in its print, emphasizing the risk of YOTO being trampled. Mid-right: Another fresh pock in wetland area with young YOTO next to it. Deep pocking can trap small amphibians. Bottom left: One of many spring areas where YOTO is commonly found every season, with fresh pocking and grazing degrading the health of the spring habitat. Not protecting the features of a meadow that allow a Yosemite toad to survive fails to protect the toad as well. Bottom right: Juvenile Yosemite toad on top of fresh cow manure. Manure puts YOTO at risk directly (possible crushing when feces drops, and indirectly (negatively affects water quality and habitat).



Wire Corral Meadow, 2015: The Forest installed several utilization cages in the bottom are of the meadow where YOTO are commonly found and near to the breeding pools. **Photos taken by CSERC staff throughout the season demonstrate the high level of grazing in Wire Corral this season.** Removal of vegetation is acknowledged by the Forest Service to be detrimental to YOTO as it makes them vulnerable to predation as well as to overheating from lack of shade. This is demonstrative of the poor management of livestock in the Herring Allotment this season as many other meadows remained largely untouched by grazing, yet cows were allowed to linger in and degrade one of the most highly populated locations for the Yosemite toad.

Meadow: Alternate to Bloomfield

District: Calaveras

Quad: Ebbetts Pass

Section: 19

Elevation: 7020 feet

Key species: *Carex integra*

Utilization standard: 40%

Allotment: Highland Lakes

Permitee: Woosters

Township: T8N

Range: R20E

Average ungrazed height: 6.9 "

Average grazed height: 1.1 "

Measured utilization: 84% (+/- 1.8%)

Sensitive or at-risk species:

- Wet areas
- Spring
- Stream channel

Resource damage visibly attributable to livestock grazing/presence:

- Some patches of bare soil
- One small area of bank sloughing due to hooves
- Removal of vegetative cover

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Fence off wet portion of meadow to protect from cattle trampling

2015 field notes:

- 6-30-15: Cows already grazed this meadow. There are cows in the area, but not in meadow while we are there. Grazed "moderately" so far. Took transect measurements, still plenty of *Carex integra* there for us to measure.
- 7-28-15: Cows have grazed this part of the allotment and have now been moved on to other part of the allotment. Took post-utilization measurements. Stream (now dry) has heavy chiseling and pocking (*see photos*).



Alt. to Bloomfield: Top left (pre-season) and right (post-season) show that the ephemeral channel in the meadow has been notably pocked and chiseled from a season of use. This is causing instability of the channel. Bottom left (pre) and right (post) shows heavy level of grazing in a month of use.

Meadow: Arnot
District: Calaveras

Allotment: Highland Lakes
Permittee: Wooster

Quad: Ebbetts Pass
Section: 4
Elevation: 8404 feet

Township: T7N
Range: R20E

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

Average ungrazed height: 9.65 "
Average grazed height: 2.3 "
Measured utilization: 69% (+/- 2.06%)

Sensitive or at-risk resources:

- Streams
- Willows

Resource damage visibly attributable to livestock grazing/presence:

- Overgrazing of meadow vegetation.
- Stream entrenchment

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Fewer cows on allotment. More movement of cattle by permittee.

2015 field notes:

- 8-6: Meadow mature, cows present. Took measurements along the transect line.
- 10-6: Heavily to moderately grazed (uniform) throughout. Lots of manure. Heavily incised channels are dewatering the meadow. Downcutting and chiseling are severe along feeder channels.





Arnot Meadow: Severely entrenched stream in Arnot continues to degrade. Before and after grazing photos document heavy willow browse, overgrazing of soil stabilizing vegetation, and more sloughing and chiseling of stream banks.



Arnot Meadow 2015: Before and after photos correlate with transect measurements, showing that livestock have overgrazed beyond utilization standards in the transect area.

Meadow: Bear Tree

District: Calaveras

Quad: Dardanelles Cone

Section: 33 SW

Elevation: 8365 feet

Key species: *unknown*

Utilization standard: unknown

Allotment: Highland Lakes

Permitee: Wooster

Township: T7N

Range: R20E

Average ungrazed height: NA

Average grazed height: NA

Sensitive or at-risk resource or species:

- Fen
- Willows
- Stream
- Moss matt
- Yosemite Toad

Resource damage caused by grazing:

- Fen
- Bare earth patches within meadow
- Streambank stability
- Trampling/pocking of wet areas

Resource damage not caused by grazing:

- None observed

Management recommendations:

- Reduce number of cows and time allowed on meadow
- Fence off fen within meadow
- Protect/monitor SMZs and YOTO breeding pool habitat

2015 field notes:

- 8-6-15: Grass is mature, took photos of Yosemite toad breeding pools, creek, fen, and meadow.
- 10-6-15: Meadow is heavily grazed in mesic areas (large area). Fen has fresh pocking from livestock hooves. Streambank for main creek and tributary stream have sloughing and pocking along shore. Spring (dried this time of year) where YOTO breed is extensively pocked with lots of manure. Fen heavily pocked, for 4th year in a row.



Tributary creek (source is the fen and upland areas of the meadow) to main creek in Bear Tree Meadow is heavily chiseled, overgrazed, and channelizing.



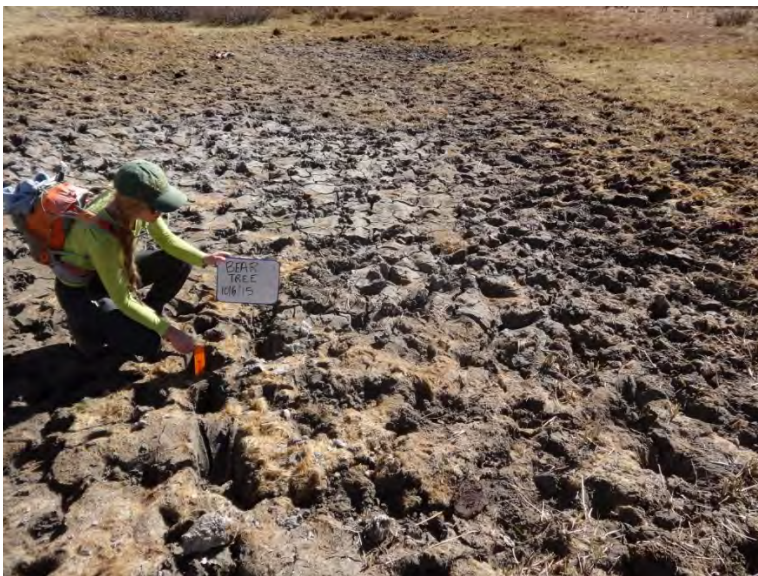
SMZ's in Bear Tree Meadow: Streams throughout Bear Tree are supposed to be maintained to a 4" stubble height along banks. Chiseling, sloughing, and overgrazing documented all along this meadow's streams in 2015.



Before and after photos, Bear Tree Meadow, 2015. Visual assesment indicates that meadow has been grazed past utilization.



Bear Tree Meadow fen: pre-season condition on 8-6-15 (top left), and end of season condition on 10-6-15 (top right, and above). Extensive pocking of peat evident. Over-grazing around fen perimeter. This Special Aquatic Feature (SAF) is supposed to be protected according to Forest Standards and Guidelines.



Bear Tree Meadow: Spring shown here is in upper meadow and is a confirmed Yosemite toad breeding pool, which undergoes extreme pocking, overgrazing, and contamination from feces every season, resulting in long-term cumulative damage to this essential habitat for a federally threatened species. Top left is pre-season (wrong year written on the board), and top right is post-season, 2015.

Meadow: Bloomfield

District: Calaveras

Quad: Ebbetts Pass

Section: 19

Elevation: 7020 feet

Key species: *Carex integra*

Utilization standard: not grazed

Measured utilization: not taken

Sensitive or at-risk species:

- Wet areas
- Spring
- Stream channel

Resource damage visibly attributable to livestock grazing/presence:

- Some patches of bare soil
- Streambank outside of meadow fence (trib. to N. Fork Mokelumne) is highly degraded from sloughing, grazing, and chiseling. (see picture at right)
- Removal of vegetative cover

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Keep fence better maintained and have consequences for cattle trespass.

2015 field notes:

- 7-28: Cows inside fence, meadow grazed in areas. Took photos. Many cows still in area hanging outside fence.

Cows inside Bloomfield (top right and middle), and poor fence conditions shown (bottom right).

Allotment: Highland Lakes

Permitee: Wooster

Township: T8N

Range: R20E

Average ungrazed height: not taken

Average grazed height: not taken



Meadow: Half Moon **Allotment:** Highland Lakes

District: Calaveras

Permittee: Wooster

Quad: Dardanelles Cone

Township: T8N

Section: 33E

Range: R20E

Elevation: 8200 feet

Sensitive or at-risk species:

- Stream
- Willows
- Yosemite Toad

Resource damage visibly attributable to livestock grazing/presence:

- Stream entrenched

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Reduce number of cows and time allowed on meadow

2015 field notes:

- 8-6: Grass mature, lots of chorus frogs along shoreline. Took pre-season photographs.
- 10-6: *There are at least 7 cows by Half Moon Lake, cows were supposed to be off the allotment a week ago.* Heavily pocked and grazed along the north and east side of the lake, and stream tributaries leading into lake. Cattle trails along shoreline are well-

established and restricting water flow. Shoreline disturbance exceeding 20% for a good portion of the lake perimeter. Grazing beyond utilization in all mesic meadow areas surrounding lake, and cows have grazed as far into the lake as they were able to wade.

According to the 2015 AOI for Highland Lakes, the meadow NE of Half Moon is an occupied Yosemite toad site, and part of the

management plan to mitigate for the species is to not allow cows into this part of the unit until after September 1st. A field observation of the YOTO occupied meadow and conditions of Half Moon Lake indicate cows have been in this area for longer than a month. In addition the permittee is supposed to “move cattle that congregate excessively in occupied toad habitat to areas not occupied by toads”. At YOTO occupied sites cattle are supposed to be managed “so as to prevent disturbance to stream banks and natural lake and pond shorelines from exceeding 20% of stream reach or natural lake and pond shorelines”. Clearly grazing management direction is not being followed and protections that are supposed to mitigate for livestock damage in YOTO habitat are being violated.



Half Moon Lake: Top two photos show the extreme pocking and soil disturbance along stream tributaries to the lake. Hydrological connectivity is at risk. Bottom photo shows 7 cows still at Half Moon a week after they were supposed to be off the allotment.



Half Moon Lake:
Shoreline is *heavily* trailed, compacted and pocked. Cows have been allowed to concentrate in this area for an extended period of time (and still are here despite an allotment off-date of 10/1/15). **The maximum of 20% shoreline disturbance mandated by Forest Plan Amendment as well as the AOI is clearly not being followed.**



Meadow: Lower Gardner

District: Calaveras

Quad: Dardanelles Cone

Section: 33/34

Elevation: 8372 feet

Key species: *Carex scopularum* & *integra*

Utilization standard: 40%

Allotment: Highland Lakes

Permitee: Wooster

Township: T8N

Range: R20E

	<i>scopularum</i>	<i>integra</i>
Average ungrazed height:	12,95 "	12,57 "
Average grazed height:	2.83 "	1.67 "
Measured utilization:	59.4%	80%
(+/- 3.99% for <i>scopularum</i> and +/- 2.16% for <i>integra</i>)		

Sensitive or at-risk species:

- Stream
- Yosemite toad breeding site

Resource damage visibly attributable to livestock grazing/presence:

- Stream entrenched
- Gullies forming

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Reduce number of cows and time allowed on meadow



2015 field notes:

- 8-6: At least 10 cows present. Grasses are mature. Did key species measurement along transect lines. *C. scopularum* heads are drying. Stream below meadow has severely pocked and chiseled cow trail.
- 10-6: *C. scopularum* habitat is the only area in large meadow that is not uniformly heavily grazed. It browned early in season. *Scopularum* that still has green is much more heavily grazed. Lots of manure. Area in stream below meadow very heavily trailed along and sloughed.



Tributary to North Fork Mokeulmne below Lower Lower Gardner: Before (left) and after (right) photos from 2015 show the high level of degradation to the stream bank that one season of livestock grazing, trampling, pocking, and sloughing has caused. Cumulative effects are also visible as the cattle trail and sloughing on the streambank causes channelization and soil compaction that are affecting the hydrological health of the meadow and creek.



Lower Gardner: **before (left) and after (right) grazing. 2015. Visibly overgrazed beyond utilization standards.** Top left and right photos show Yosemite toad breeding habitat that is heavily grazed and trampled by the end of the season.

Meadow: Lower Lower Gardner
District: Calaveras

Allotment: Highland Lakes
Permittee: Wooster

Quad: Dardanelles Cone
Section: 33E
Elevation: 8200 feet

Township: T8N
Range: R20E

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

	<i>scopularum</i>	<i>integra</i>
Average ungrazed height:	9.4 "	12.6 "
Average grazed height:	2.63 "	1.34 "
Measured utilization:	54%	86%

(Standard dev. of +/- 1.79% for *integra* and +/- 2.94% for *scopularum*)

Sensitive or at-risk species:

- Stream
- Willows
- Yosemite Toad

Resource damage visibly attributable to livestock grazing/presence:

- Stream entrenched

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Reduce number of cows and time allowed on meadow

2015 field notes:

- 8-6: Took transect measurements, photos of wet areas, grass is fully mature.
- 10-6: Did post-utilization measurements along transect for *C. scopularum* and *C. integra*. Took photos of overgrazed conditions (uniformly heavily grazed), and of pocked and sloughed stream below meadow. Not protecting habitat integrity for YOTO, no cover for juveniles. Lots of manure.





Lower Lower Gardner: wetland area below meadow (part of tributary to North Fork Mokeulmne) before and after grazing, 2015. Heavy utilization of forage, and pocking and defecation in wetland habitat.



Lower Lower Gardner Meadow: Before and after photos show overgrazing past utilization standards throughout much of meadow.



Lower Lower Gardner Meadow: Before and after photos show overgrazing past utilization standards throughout much of meadow. Areas that are moving to early seral conditions are becoming increasingly unstable through hoof action and overgrazing that disturbs and kills the roots of existing vegetation.

Meadow: Sheep

District: Calaveras

Allotment: Highland Lakes

Permitee: Wooster

Quad: Ebbetts Pass

Section: 11 NW

Township: T8N

Range: R19E

Elevation: 8648 feet

Key species: unknown

Utilization standard: unknown

Average ungrazed height: not measured

Average grazed height: not measured

Sensitive or at-risk species:

- Stream
- Meadow vegetation
- Possible relict fen (desiccated)

Resource damage visibly attributable to livestock grazing/presence:

- Multiple headcuts resulting in severe stream entrenchment
- Resulting meadow dehydration and conversion to sage flat
- Bare soil and general decline of meadow

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Rehabilitate stream channels
- Fence entire meadow
- 10 year rest period/discontinue grazing

2015 field notes:

- 7-28: Found new damage at large headcut on creek. Fence around transect area in poor condition, inside fence line has definitely been grazed in several areas. Cows present during visit but outside fence area. Took photos and photo points.



A note from CSERC about Sheep Meadow: This is the second year in a row that CSERC has documented evidence of cows grazing within the exclusion area of Sheep Meadow. The areas of the meadow that cows are allowed access to, are grazed to dust in most areas and constricting the greenline around the highly entrenched stream through hoof damage and overgrazing. This meadow's hydrological condition is clearly non-functional and yet grazing is continued to be allowed in this severely damaged meadow. The Forest Plan clearly spells out that meadows in Non-Functional condition should be on rest until their condition is in an upward trend from Functional-At-Risk. All of these points are compelling reasons that Sheep Meadow should be rested from grazing by the Forest immediately, and also have a project planned to restore the watertable and meadow.



Sheep Meadow 2015: Top left and right photo how heavily grazed meadow inside and outside of the exclusion, as well as the poor fence conditions that are allowing livestock to trespass. Bottom left and right photo show the stream below the livestock exclusion area and the extreme trampling and trailing that are constricting and channelizing the stream.



Sheep Meadow: At left, CSERC staff member is standing by a large hole in the fenceline where recent cow trails show that this is one location that livestock has been accessing the exclusion area.



Active down-cutting and head-cutting of Sheep Meadow. Cattle activity (trampling, sloughing, chiseling, overgrazing) is contributing to the drying out of the meadow and the destabilization of streambanks.



Sheep Meadow: top photo is from 2006, bottom is from 2015. Site of restoration has clearly blown out and continues to headcut back into the meadow.

Meadow: Upper Gardner
District: Calaveras

Quad: Dardanelles Cone
Section: 4
Elevation: 8517 feet

Key species: *Carex scopularum*
Utilization standard: 30%

Sensitive or at-risk species:

- Stream
- Wet areas and ponds
- Possible fen

Resource damage caused by grazing:

- Gullies
- Bare earth patches within meadow
- Streambank and pond shore stability

Resource damage not caused by grazing:

- None observed

Management recommendations:

- Protect riparian areas.

2015 field notes:

- 8-6: We took ungrazed measurements and pictures. Grass is mature, cows heard in the distance.
- 10-6: *Carex integra* and mesic habitat is heavily grazed. *Carex scopularum* has been brown and dead for awhile, and light to moderate grazing observed. Pond is heavily pocked along perimeter, including possible fen. Stream at far end of meadow (stays green) has heavy utilization and pocking.

Allotment: Highland Lakes
Permitee: Wooster

Township: T7N, T7.5N
Range: R20E

Average ungrazed height: 11.28"
Average grazed height: 5.39"
Measured utilization: 22% (+/- 3.94%)





Upper Gardner: pond with possible fen is extensively pocked in around around shoreline, grazed heavily, and defecated in. this grazing management is not meeting the 20% shoreline disturbance outlined in the Forest Standard and Guideline.





As the past several pages of before and after photos show, the wetland areas of Upper Gardner Meadow are heavily hit especially in a drought year. Streambank damage and stream channelization, lowering of water table a concern. Active management and movement of livestock needed.

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

2015 field notes

7-3-15: Severe pocking in wet meadow area muddy and contaminated seeps. Not functional condition. Sloughing and chiseling down the length of the hillslope. What is the status of the fence there? CSERC staff was under the impression that it is supposed to be maintained.



Meadow: Jawbone

District: Groveland

Quad: Cherry Lake N.

Section: 23 SW

Elevation: 5700 feet

Allotment: Jawbone/Rosasco

Permitee: Crook

Township: T2N

Range: R18E

Key species: *Carex integra*

Utilization standard: 4 inches

Average ungrazed height: 6.18 "

Average grazed height: 1.57 "

Measured utilization: 66% (+/- .88%)

Sensitive or at-risk species and habitat:

- Meadow vegetation
- Seep at base of meadow
- 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, sloughing of wet areas
- Meadow dehydration
- Utilization standard exceeded

Resource damage not apparently caused by grazing:

- Invasive weeds (wooly mullein and bull thistle)
- Conifer encroachment
- 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

2015 field notes:

- 5-1-15: Meadow is dryer than normal, still has brown areas and vegetation appears more sparse than other years. There is a new ditch below meadow running along road that is draining meadow. Bull thistle and mullein throughout meadow. Took photos and utilization.
- 10-26-15: Took transect measurements and photo point photos. *Carex integra* heavily grazed but overall meadow is significantly less grazed than in previous years, correlating to the fact that cows were not in this part of the Jawbone Allotment very much this year.



May 2015, Jawbone Meadow: A manmade ditch (*top left and right*) has been dug along base of the meadow and is dewatering it in addition to the headcut (*left*) that has already affected this meadow's hydrology.



Grazing utilization this year was much less than in any other year since CSERC has started monitoring this allotment, as the pre-season (*bottom left*) and post-season (*bottom right*) photos show.



Other notes on meadows in the Jawbone Allotment

Fencelines cut around protected meadows:

CSERC monitors several meadows within the Jawbone/Rosasco Allotments. In addition to our monitoring work, our staff also has maintained (repaired and restrung) the fence lines that are supposed to be kept up (as stated in the AOI) around specific meadows that have had restoration work done to them. Several days of CSERC staff member's time are spent every spring fixing these fences, which administration of the Groveland RD has approved in the past. However, in the summer of 2015 our staff found that all of the fence lines were being intentionally cut (after we had repaired them) to allow access for cows to enter rested meadows. Assuming it was vandalism our staff immediately repaired the fencelines again, only to find a week or two later that they had been cut once more. After reporting the situation to the Groveland RD, it came to light that some of the range staff had authorized the permittee to cut the fence line. Our Center sees that these meadows are not restored and still need protection from grazing impacts - especially in a post-fire habitat where livestock will concentrate in green areas. **CSERC urges that Crest, Meteor, Long John, Upper John, and Silver remain prohibited from livestock grazing (with the exception of the specified use of specific meadows for gathering purposes) until at a minimum a forest hydrologist assesses their condition as restored and functional. In addition, we also ask that Boggy Meadow's fence remain intact permanently to exclude cows, as this meadow is exceptionally diverse and has fen habitat with the rare sundew plant growing in it.**



Fence line cut at Long John's Meadow

Boggy Meadow – An important field note about Boggy Meadow is that the spring that feeds this important wetland habitat dried up this year. The place where sundew grows and the fen/wetland habitat around it stayed mostly brown the entire season. This is highly concerning since the plant community found in this type of habitat depends on perennially wet soils to thrive. CSERC asks that the Forest continue to monitor and protect this area.



Fen habitat completely dry with little growth, even at the end of the season.

Upper and Lower Femmons –

These meadows are supposed to be on permanent rest from grazing but the fences have not been maintained due to salvage logging activities in the proximity (from the Rim Fire). **CSERC documented grazing and deep pocking in wet areas of both meadows in November 2015.** Our Center urges that once logging activity is completed in the area, that the Forest commit to repairing the fences. If that can not happen in 2016, CSERC asks that the Forest communicates to the permittees a need for them to actively herd their livestock out of those areas.



Lower Femmons (left) and Upper Femmons (above) show cattle trespass – grazing and deep pocking in wet areas of meadows.

Meadow: Funks

District: Mi-Wok

Quad: Hull Creek

Section: 10 N

Key species: *Carex integra*

Utilization standard: 30%

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
- Noxious weeds

Management recommendations:

- Reduce number of cows and time permitted in meadow
- Fence creek and place a trough in woods
- Restore meadow hydrology by bringing back up the water table (restore stream channel)

2015 field notes:

- 5-21-15: Took transect measurements and photo point photos. Mesic and wet grass species doing well but yellowing already. Hull Creek has low to medium flow. Damage on stream banks from last year evident with bare soil patches and sloughed banks. Meadow is to be ungrazed this year, permittee on suspension.
- 9-17-15: Took photo points photos, and transect measurements. Cows have been here, manure from this season throughout (*top right*). *Carex integra* moderately grazed (*top right*), streambank sloughing heavy at creek access point (*bottom right*). Manure throughout meadow. **ALLOTMENT NOT SUPPOSED TO BE GRAZED THIS SEASON – PERMITTEE ON**

Allotment: Lower Hull

Permittee: Mailloux

Township: T2N

Range: R17E

Elevation: 5184 feet

Average ungrazed height: 7.86"

Average grazed height: 2.46"

Measured utilization: 56% (+/-2.91%)



Meadow: Hull

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

Allotment: Lower Hull

Permittee: Mailloux
Township: T3N
Range: R17E

Key species: *Carex integra*
Utilization standard: unknown

Average ungrazed height: “
Average grazed height: “
Measured utilization:

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
- 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
- Move livestock once they graze close to utilization standards

2015 field notes:

- 6-26-15: Took photos at photo points and pre-utilization measurements.
- 9-17-15: Took photo point photos. Even though cows are not supposed to be here evidence of cows trespassing: grazing, pock marks (fresh) documented. Neighbor reports at least 19 cows were in meadow June 2015. Permittee’s permit is currently suspended.



Cow hoof pocks documented by CSERC staff in lower meadow show that despite the permittee being on suspension in 2015, another meadow (since Funks also had grazing trespass) was grazed by his cows over the summer.



Hull Meadow post-grazing September 2014 (left) compared to Hull Meadow not grazed September 2015 (right). Last year's absolute devastation of all vegetation from overgrazing is easy to see when looking at what the meadow looks like at the same time of year when not grazed. CSERC urges that should the current permittee be allowed to continue grazing on this allotment, that a much higher level of monitoring and management is carried out by Forest staff, to prevent the blatant abuse of grazing privileges that have occurred historically.

Meadow: Wet Meadow Spring

District: Mi-Wok

Quad: Hull Creek

Section: 11 SW

Key species: *unknown*

Utilization standard: unknown

Allotment: Lower Hull

Permittee: Mailloux

Township: T2N

Range: R17E

Elevation: 5400 feet

Average ungrazed height: unknown

Average grazed height: unknown

Sensitive or at-risk species:

- Willows
- Stream
- Seeps/springs, 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
- Stream entrenchment
- Meadow dehydration
- Fen habitat
- Sensitive plant habitat

Resource damage not caused by grazing:

- Noxious weeds

Management recommendations:

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

2015 field notes:

- 9-17: Meadow is dry. Took photo point photos of dry stream. No sundew found – completely dry where they normally grow (see photo top right). Fen areas dry (top right photo). Recommend that the Forest limit or exclude grazing here.

****CSERC was informed by Forest Service staff that cows were found that had “over-wintered” in Wet Meadow Springs by the permittee, a major violation of his permit.** Staff visit on 5/21/15 to the Meadow found that meadow was grazed and pocked due to the non-stop grazing activity there (see the 3 bottom photos to the right), and wetland/fen areas had not had any time to recover from the previous year’s onslaught. This was one of the contributing reasons that the permittee for this allotment had his permit suspended. This is especially problematic because the drought has already reduced the ability of this rare habitat to thrive, and bad livestock management has increased the chance that the fen habitat here may become non-functional. Our staff encourages the Forest to continue to consider revoking the grazing permit of the current permittee if there are any violations in the next grazing season.



Meadow: Rose Creek

District: Mi-Wok

Quad: Crandall Peak

Section: 2/3

Elevation: 3750 feet

Key species: *unknown*

Utilization standard: unknown

Allotment: Rushing

Permittee: Ritts

Township: T3N

Range: R16E

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:

- Heavy pocking and trampling of wet areas
- Bare soil (in some places)
- Chiseling of stream banks along Rose Creek and its tributary streams
- Overgrazed perennial and annual grasses in limited riparian zones
- 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 creek to protect water quality for residents that live downstream in Jupiter
- **Fence out seeps/springs to protect and restore wetland habitat in an area that is otherwise very dry during the summer months**
- Remove noxious weeds from the area

2015 field notes:

- 4-23: Seeps are still wet in some areas, but low flow and dry in places that are normally still wet. Heavy pocking and hummocking from previous years very visible with exposed soils. Rose Creek has a low flow, took 3 water samples and an algae sample. Took pre-season photos. Area is still green and fairly lush.
- 9-10: Took post-season photos at key springs/seeps as well as at creek. Many spring/seep sections are dry that haven't been seen dry before. Severe pocking and chiseling in wetland features from this season adding to the past damage. Highly overgrazed. Wetter areas are mud pits, no vegetation.



Rose Creek Seeps, 2015: these photos help show the extreme grazing that happens in all the seeps and springs in the Rose Creek area. **It seems as though there is no monitoring done in this area by Forest Service or permittees**, and every year cows are allowed to graze for however long the permit season is, with no regard to resource protection. **There is a strong need to re-evaluate the grazing plan for the Rushing Allotment.**



Top: Extremely hummocked soils all throughout the seep areas, and **vegetation is grazed to mud or ¼" stubble height.** Wetland flow is being visibly constricted, and channelized.



Rose Creek Seeps: Photos of before (top) and after (bottom) grazing in 2015 in the same spot, and shows the intense concentration of livestock in the seeps which are by early summer the only place in the area where green forage is available. Extremely pocked, contaminated, and overgrazed. This is a Special Aquatic Feature and should be protected from livestock due to downward trends.



Rose Creek: Before (top) and after (bottom) show the streambank along Rose Creek grazed to dirt- ¼" stubble height , even rushes are heavily grazed.

Meadow: Cirque Meadow

District: Calaveras

Quad: Spicer Mdw. Res.

Section: 4 center

Elevation: 8200 feet

Key species: *Carex scopularum*

Utilization standard: unknown

Sensitive or at-risk species:

- Stream
- Fen
- Willows

Resource damage visibly attributable to livestock grazing/presence:

- Stream entrenchment
- Streambank damage
- Dehydration of fen (historic)

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Rehabilitate and fence streams
- Fence off fens
- Don't allow livestock to exceed grazing utilization standards

2015 field notes:

- 6-30: Took photo points and pre-season measurements. Creek low. Meadow is in full bloom.
- 9-22: Overall meadow is heavily and uniformly grazed to 1-3" stubble height. Area where transect is located has been largely ignored by cows since it browns and dries before other grass species. The *Carex integra* are still green and very heavily utilized. Streambanks are notably chiseled and sloughed (fresh). Lots of manure.

Allotment: Pacific Valley

Permitee: Whittle

Township: T7N

Range: R19E

Average ungrazed height: 14.88 "

Average grazed height: 4.72"

Measured utilization: 31.54% (+/-3.78%)



This page: Chiseling, sloughing and overgrazing the streambanks of Pacific Creek is leading to downcutting and channelization in the meadow. Water table is dropping. Top photo is pre-grazing 2015, and bottom photo is post-grazing 2015.



Before and after 2015: Meadow grazed past acceptable utilization levels in mesic areas.

Meadow: Stanislaus

District: Calaveras

Quad: Pacific Valley

Section: 31 W

Elevation: 7760 feet

Key species: *Carex integra*

Utilization standard: unknown

Sensitive or at-risk species:

- Pond
- Stream
- *Epilobium howellii*
- Sierra Nevada yellow-legged frog

Resource damage visibly attributable to livestock grazing/presence:

- Stream entrenched
- Bare patches of soil

Resource damage not apparently caused by grazing:

- None observed

Management recommendations:

- Maintain restoration project in upper meadow
- Fence pond
- **Fence stream (headwaters of the North Fork Stanislaus) –SNYLF occupied**
- Rehabilitate entrenched stream

2015 field notes:

- 6-30-15: Evidence of known previous cattle tress pass evident (beginning of summer). Some grazing, sloughing of banks near SNYLF breeding area and slight pocking. Many small and large SNYLF tadpoles present. Took photo at photo points and pre-utilization measurements, photos in SNYLF habitat.
- 10-13-15: 1 to 2 inch stubble height over most of meadow. SNYLF habitat has sloughing of bank. Saw tadpoles and 2 adult frogs. Took photo points and transect measurements. Pond area heavily pocked. Longer stubble height in SNYLF habitat than in past years (*see before and after photos below*), but heavy pocking and streambank sloughing in other parts of SNYLF occupied pools (*see next page*).

Unfenced area of meadow (close to highway) heavily grazed and restoration efforts are failing, likely due to streambank stabilization from livestock sloughing, pocking (*see report on page 82*).

Allotment: Stanislaus Meadow

Permitee: Airola

Township: T8N

Range: R19E

Average ungrazed height: 9.35 "

Average grazed height: 1.75 "

Measured utilization: 74% (+/-1.31%)





SNYLF Pools in N. Fork Stanislaus headwaters: Although some areas were less utilized by livestock this year, areas that were easy for cows to access were still heavily pocked, streambanks sloughed and forage heavily utilized. Clearly the SNYLF occupying these pools are being affected negatively by livestock presence: manure and sediment contaminating water, loss of vegetative shelter, and degradation of stream stability.



Stanislaus Meadow. Top left and right: before and after grazing in upper part of gathering meadow; shows overutilization and chiseling around wetland area is constricting the channel. Middle left and right; Photo point 2 before and after, in drier meadow habitat. Vegetation grazed past utilization standards. Bottom left; seasonal pond area is heavily pocked. Bottom right; another area of heavy sloughing and streambank degradation along SNYLF occupied pools.



Upper Stanislaus Meadow (at Hwy 4 entrance): As these photos show, this meadow is one cows are allowed to linger in far past utilization standards being met. Wet areas are heavily pocked and chiseled causing dewatering of wetland areas, and channelization along streams. The restoration work that was done in this meadow is losing (and in some places, has lost) its function to stabilize the downcutting and headcutting in the stream channel. CSERC has reported the poor livestock movement and post-grazing conditions at this meadow for many years but the forest is yet to make any positive change to management.