INTRODUCTION

The grazing subcommittee spent many hours in meetings and in the field discussing how to manage grazing in the Teanaway Community Forest. In starting these discussions, the group recognized that the Legislature and the TCF Management plan both stated that grazing and watershed protection will occur. The group also recognized that other goals, such as aquatic habitat restoration, and recreation, overlap grazing management and need to be considered when moving forward. The subcommittee developed this document and recommends it be used as a framework for identifying where cattle can graze in the TCF, what tools might be used to manage grazing, and what metrics might be used to evaluate success. The framework should be used when developing the lease and when implementing projects. It is based on Objectives from the TCF plan and is meant to accomplish this Goal: To maintain grazing while protecting key watershed functions and aquatic habitat. When discussing various approaches to managing grazing, the sub-committee choose an approach they felt would balance both aspects of the goal. This approach will require substantial investments in fencing and other infrastructure in order to protect key riparian areas. The approach described below represents a substantial change from the status quo, but additional actions (such as restoration) may be necessary to achieve a properly functioning watershed.

GRAZING AREAS

Table 1 below describes general areas that the sub-committee recommends be implemented to accomplish the goals the legislature set.

Table 1 - Grazing Management in the Teanaway

GRAZING AREA	LOCATION	OBJECTIVE	METRIC	POTENTIAL ACTION	COST*	TIME FRAME	IMPLEMENTATION
Area 1	Major floodplains (NFT, WFT, MFT, Indian, & Jack – see Figure 1)	Encourage grazing in locations other than floodplains.	Livestock presence (no livestock)	Exclude livestock. Until cattle are off, these are Type 3 Areas.	$45,000/yr (3 miles new fence/yr) + $1,000/mile for maintenance	8 years. At least first 7 priorities completed by Year 5 (see Table 2).	In year 1, plan in more detail where fence will be located; obtain permits and funding. Start with known problems, and where restoration is occurring (Table 2). Area 3 until fenced. Incentivize lease holder to begin work.
Area 2	Specific sites (known sites are at Storey, Shirk, Middle)	Ensure measures are in place to protect the watershed	Infrastructure is installed and effective.	Develop local improvements with site-specific infrastructure (off-site water, stream crossings)	$20,000/yr (4 sites/yr) + time for inventory	10 years (4 sites per year)	Conduct inventory and prioritize projects by December 2018. Complete 4 priorities per year.

Area 3	Other grazed areas	Manage grazing to limit damage to fish and wildlife habitat	- Shrub utilization (<25%) - Stubble height, upland (>4") - Stubble height, riparian (>8") - Bank alteration (<15%)	Monitor grazing use and move cattle to more appropriate locations. Monitor representative locations in each stream sub-basin (Table 3)	Staff time for monitoring = 100 hours/yr (10 sites, visits every 2-3 weeks)	10 years	Riparian grass stubble height can be 6" before July 31st. After July 31st it is 8" stubble height.

**Costs are estimates.*

The sub-committee also developed and recommends several **principles** to follow when developing lease documents and implementing the grazing framework.

When developing lease documents:

- The subcommittee does not expect it to be economically feasible for the lease holder to pay for all improvements. The lease holder will be expected to contribute some portion of funding or labor for improvements. The agencies should look at options such as rental reimbursement to increase incentives for the grazer, and then look elsewhere for outside funding to pay for improvements.
- Area 1 locations that are not fenced should be treated as an Area 3 until they are fenced. Additional monitoring of these sites is necessary until they are fenced. Area 2 sites without improvements should be treated like Area 3 until treated.
- Monitoring is primarily the responsibility of DNR and WDFW, but volunteers and lease-holders may be appropriate for some tasks.
- It will be important for grazing lease-holders to be willing to work with the agencies and our partners. This may include applying for RCPP funds through the local conservation district, working with WDFW and NGOs to implement non-lethal wolf management practices, and work with a technical group of experts to adaptively manage the grazing lease.
- Grazing by other animals, such as sheep, may be appropriate in the TCF, but specific metrics should be developed for sheep to ensure the watershed is protected at the same level. It is possible that less infrastructure would be required for Type 1 areas, and the technical team will revisit this issue if the lease is awarded for sheep grazing.

When implementing the framework:

- Goals provided by the Legislature and written into the TCF Management Plan must be met. On many occasions, the committee has made the commitment to moving both grazing and watershed protection forward.
- It is recognized that the watershed is currently well under its full functional potential and needs to be restored. The rate of recovery needs to be greatest in the floodplains and riparian areas that support fish species and are currently in a degraded state.

- It is understood that it will take time to find money for the infrastructure, and that we may not get much fence or infrastructure built the first year, but that we will ramp up building as money comes in. The sub-committee agrees that the primary focus of this funding should be toward protecting key riparian areas.
- A tech team should go out and review where to site specific fences and to evaluate fence design, location, and purpose where there are concerns about impacts to recreation and other TCF Goal areas. There is not a one-size fits all fencing prescription, but a need to be flexible and draw from available fencing options while still meeting the intent of fencing out floodplains. Consider the repair and use of existing fences to meet the intent.
- Area 1 exclusions should be focused on the geomorphic floodplain and channel migration zone.

Adaptive Management:

- A standing technical team should be formed to provide ongoing recommendations on how to implement and adaptively manage grazing in the TCF. The team should consist of DNR, WDFW, YN, NOAA Fisheries, a range specialist, and the grazing lease-holders. The team should consider changes to this framework if it is found not to be achieving the goals and objectives stated above. The team should operate based on consensus and report back to the full Advisory Committee. Major changes should be reviewed by the full Advisory Committee.
- Fences may not be needed at a location if the riparian area and floodplain is functioning properly and grazing can be managed in a way to protect those assets. Determining this should be done by the technical team. If there is no consensus, the default is to fully fence the areas described in Table 2 and Figure 1.
- The lease-holder will need to respond promptly to move cattle based on in-season monitoring and to respond to issues that arise. If gates are left open, or infrastructure is damaged in-season, or is not working as designed, the lease-holder will need to make prompt adjustments, repairs, or improvements as necessary to protect the resource.
- Unforeseen events or circumstances such as a drought or fire may create the need to change in-season grazing. The agencies should utilize data from its monitoring sites (described below) to understand forage availability in case of any unforeseen circumstance and determine if in-season grazing reductions should occur.
- As fencing and other infrastructure are installed, cattle movements and behavior is expected to change. We cannot predict with certainty the specifics regarding the scale or timing of changes in cattle movement and behavior. Photo points or other observational qualitative data should be collected to assess changes across the landscape and ascertain if these changes are positive or negative. If negative changes are occurring, the technical team should convene to discuss the cause and develop an appropriate solution.
- Input from the full Advisory Committee, other standing committees such as the Recreation Planning Committee, or other groups such as the lease holders, private property owners, or persons with expertise in the area of grazing management should be considered and changes made to this framework if appropriate to adapt to changing conditions, or if fencing and other infrastructure is not meeting the stated objective.

- If funds are short, determination of what infrastructure to build should be determined on a case by case basis (ie, either finish an Area 2 site or build a mile of fence, depending on relative need). This will be determined by on-the-ground discussion of need and priority by the technical team.

DETAIL OF AREA 1 PRIORITIES

These areas will be fenced out to avoid damage to floodplains. Until they are fenced, they may be grazed according to the guidelines for Area 3. This approach will provide more watershed protection from grazing impacts than the status quo until fencing eliminates grazing impacts.

The following priority list is made based on the following parameters:

1) Exclusion should prioritize areas that are the most degraded, that would see the quickest response from reducing grazing pressure, or where conditions are being exacerbated by grazing.
2) It should consider existing stream and floodplain restoration projects and where possible, compliment these projects to maximize the benefits of restoration.
3) Objectives of the fencing projects are to eliminate livestock grazing pressure on the floodplain and stream bank trampling.

Table 2 - Area 1 Fencing Priorities

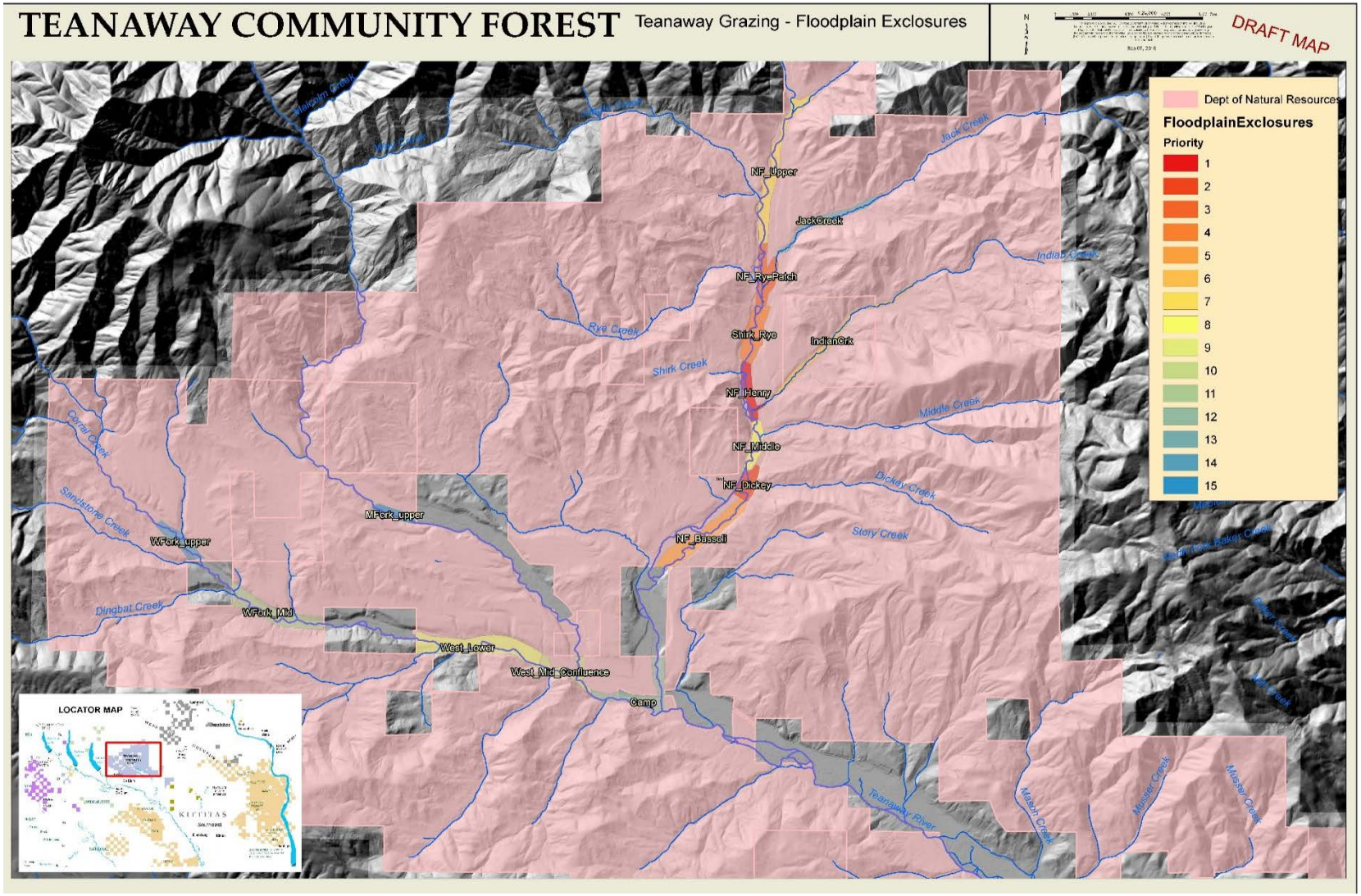
Floodplain Area	Priority	Acres	Perimeter (miles)	Notes
Henry Field (mouth of Indian Creek at NFT)	1	45	2	
Dickey Creek (at NFT)	2	41	1	
Rye Patch (mouth of Jack Creek at NFT) and Acclimation Facility	3	67	2	At the end of the 3rd year, at least the top 3 priorities should be completed.
NFT, between Shirk and Indian Crk	4	76	2	
Bussoli Field	5	115	3	
Indian Creek (above county road)	6	79	2	
Jack Creek	7	54	3	At the end of the 5th year , at least the top 7 priorities should be completed
N. Fork Upper	8	61	2	After the top 5 priorities are completed, revisit the other priorities to see if needs have changed.
N. Fork – Middle Creek	9	42	1	
W. Fork Lower (Carlson Crk)	10	161	3	
West Fork/Middle Fork Confluence	11	49	2	
W. Fork Mid	12	112	3	
North Fork, Teanaway River confluence	13	92	3	
Jack Creek	14	54	3	
W Fork Upper	15	46	1	

Mid Fork Upper	16	29	1	All Area 1 floodplains should be fence by year 8.

When implementing these projects, the agencies should:

- Use topography to act as a barrier. This may allow for reduced fence miles built.
- Consider recreation, driver safety, cattle movement, and maintenance issues when siting and designing fences.
- Consider placement of other infrastructure such as water troughs and turn-in, turn-out locations when siting fences.
- Use the first year to plan and get permits.
- Consider taking small trees from pre-commercial thinning projects and use them as fences.
- Adjust the priority list if it means we can manage livestock in a more effective manner.
- Use the technical group to look at how progress is being made and what adjustments need to happen.
- Create gaps in the fence to allow livestock to cross rivers, but encourage cattle to access water away from Area 1 and other highly sensitive areas.
- Construct fencing to protect the geomorphic floodplain and the channel migration zone.

Figure 1 – Area 1 Floodplain Fencing



DETAIL OF AREA 2 - These are specific locations that have impacts associated with grazing that can be treated. The sites should be checked periodically to ensure the treatment is effective. Four sites from this list should be treated per year.
The full list is due December 2018. Below is an initial list of Area 2 activities.

Table 3 - Area 2 Locations

Location	Issue	Response
Storey Creek	Stream incision is occurring near a watering hole. Bank trampling and utilization of riparian vegetation has been observed.	Install a water trough and a section of fence to prevent cattle from accessing their typical watering spot. Using logs from adjacent uplands may be appropriate here.
Rye Patch (No Name Crk)	A small stream with no defined bank in some areas is incising along a portion of its length. Bank trampling and utilization of riparian vegetation, including shrubs has been observed.	Install a water trough to encourage cattle to get water away from the stream. Locate, design, and install a proper cattle crossing. Fencing may be necessary
Shirk Creek	Bank trampling is occurring when cattle go to the stream to get water. The stream is intermittent during the summer months and access to favorite water spots forces cattle to congregate by the stream.	Install a water trough to encourage cattle to get water away from the stream. Utilize salt or nutrient blocks in combination with water.
Confluence meadow (NFT and WFT)	Cattle are entering the WFT for water, and then wondering upstream to West Fork Campground. The meadow is mostly fenced off, but the fence is not complete.	Complete the fence around the meadow. Install a water trough or a river fence to keep cattle in the meadow.
West Fork	Cattle are entering the river for water.	Install a water trough.

DETAIL OF AREA 3
These are areas where grazing occurs. Monitoring of these areas by agency staff will ensure the goal of protecting the watershed is met. Lease holder compliance is detailed below.

Monitoring
The following are the metrics that will be assessed in areas that are grazed. Monitoring will occur every 2-3 weeks starting in mid-July. Refer to Table 4 and Figure 2 for the locations of the monitoring sites. Sites are assumed to be representative of the sub-basin in which they are located. The agencies will use in-season monitoring as a "move trigger", where livestock are moved from the sub-basins when the triggers at that site are met. Yearly grazing standards will be assessed based on end-of-season monitoring. The monitoring protocol is based on the BLM's Multiple Indicator Monitoring (MIM), (TR 1737-23; 2011). If drought, fire, or other unforeseen circumstances limit current-year growth of herbaceous

species, care should be taken by the monitors to understand that the standards are actually capable of being met that year. The technical team may advise DNR and WDFW to relocate monitoring sites as appropriate.

- Riparian herbaceous stubble height: Follow MIM protocol for assessing utilization of stabilizing riparian species along the greenline on riparian areas suited for such species. The move trigger is 6" stubble height during the growing season (prior to July 31st) and the compliance standard is 8" at the end of the growing season.
- Shrub utilization: Follow MIM protocol for assessing utilization of shrubs along the greenline. The move trigger and the compliance standard are both less than 25% utilization (range of 15-30% with 90% confidence).
- Streambank trampling: Follow MIM protocol for assessing trampling along the greenline. The move trigger and the compliance standard are both less than 15% bank alteration.
- Upland herbaceous stubble height: Landscape appearance step transects. The move trigger and the compliance standard are both 4" stubble height.

At all times lessee must move animals when notified by the State in a timely and responsive manner. Once a move trigger has occurred at a particular location, livestock should be prevented from re-grazing that location until the following year.

Compliance

End-of-season monitoring (first couple of weeks of October) will be used to determine if grazing standards are met. For the North Fork Lease, there are approximately 11 monitoring sites. Metrics at each location will be evaluated to determine if that location is in compliance. The targets used to determine if compliance actions are taken are designed to allow the lease-holder to learn and adapt to the conditions of the lease.
Targets:

- Year 1: 75% of locations across the lease must be to standard.
- Year 2: 90% of locations across the lease must be to standard. Only half of sites not meeting standards may be locations that didn't meet standards in Year 1.
- Year 3 and on: 100% of metrics across the lease must be to standard, with no sites allowed to miss standards in consecutive years.

Compliance actions:

- Following 1st year of noncompliance: in subsequent year, the state will take one of two actions:
  - Shorten the livestock grazing season by two weeks, or
  - Rest the sub-basin in which the non-compliance occurred.
- Following consecutive years of noncompliance: in subsequent year, shorten the grazing season by two weeks, up to one month.

- Following 3rd year of noncompliance and any additional noncompliant years thereafter within any 5-yr period: in subsequent year, livestock season will be shortened an additional 2 weeks and technical team to consider stocking reductions or other appropriate changes in the lease. This may include changing the grazing framework if the approach is not achieving the stated goals and objectives.

The West Fork and First Creek Leases have two and one monitoring sites, respectively. Compliance actions on these leases will follow DNR standard lease guidelines, including changing the grazing season or schedule, charging monetary payments, or ending the lease if appropriate.

Table 4 - Monitoring Locations

Number	Name	Location	Metric	Reasoning
1	Storey Creek	-120.87336, 47.26796	Riparian herbaceous stubble height, upland stubble height, shrub utilization, and streambank trampling	The stream and meadow downstream from private land is intermittent, but shows potential to have stabilizing riparian herbaceous vegetation as well as shrubs along the streambank. Meadow vegetation is likely dominated by bluegrass and timothy.
2	North Fork Teanaway @ Bussoli Field (Type 1 area)	-120.87352, 47.27743	Riparian herbaceous stubble height, upland stubble height, shrub utilization	The river at this point is heavily vegetated so meadow sites are recommended to monitor use. The floodplain meadow has potential to have stabilizing riparian herbaceous vegetation and shrubs. Upland meadow vegetation is likely dominated by bluegrass and timothy.
3	Lower Dickey Creek (Type 1 area)	-120.85808, 47.28773	Riparian herbaceous stubble height, upland stubble height, shrub utilization, and streambank trampling.	The stream shows potential to have stabilizing riparian herbaceous vegetation as well as shrubs along the streambank. Meadow vegetation is likely dominated by bluegrass and snowberry.
4	Lick Creek area	-120.88929, 47.28356	Riparian herbaceous stubble height, upland stubble height, shrub utilization	This is a small sub-drainage but with suitable moisture for stabilizing plants in places. Bank alteration is not recommended due to the absence of an observed channel. Any of the meadows along this sub-drainage might work but the coordinates correspond to one that is slightly removed from the Lick Creek road. Meadow vegetation is likely similar to those described above. Some aspen stands occur in the vicinity as well.
5	Shirk Creek	-120.87997, 47.30351	Riparian herbaceous stubble height, upland stubble height, shrub utilization, and streambank trampling	The meadow around upper Shirk Creek has intermittent water sources in the summer. It has the potential to have stabilizing riparian herbaceous vegetation as well as shrubs both along the streambank and into the meadow. Sometimes the bank channel is ill-defined so trampling may not be suitable.
6	Lower Indian Creek @ Henry Field (Type 1 area)	-120.85600, 47.30013	Riparian herbaceous stubble height, upland stubble height, shrub utilization, and streambank trampling.	The stream shows potential to have stabilizing riparian herbaceous vegetation as well as shrubs along the streambank. Meadow vegetation is likely dominated by bluegrass and timothy. (could also use existing MIM site along North Fork itself a few hundred meters upstream of Indian confluence)
7	Upper Indian (Type 1 area)	-120.82479, 47.31757	Riparian herbaceous stubble height, upland stubble height, shrub utilization, and streambank trampling.	The stream shows potential to have stabilizing riparian herbaceous vegetation as well as shrubs along the streambank. Meadow vegetation is likely dominated by bluegrass and timothy.

8	North Fork Teanaway @ Rye Patch	-120.85525, 47.31735	Riparian herbaceous stubble height, upland stubble height, shrub utilization	At this point the NFT contains large boulders, cobble, and dense vegetation of cottonwood and alder so meadow sites are recommended to monitor use. The floodplain meadow has potential to have stabilizing riparian herbaceous vegetation and shrubs. Upland meadow vegetation is likely dominated by bluegrass and timothy.
10	Rye Creek	-120.88654, 47.31049	Riparian herbaceous stubble height, upland stubble height, shrub utilization, and streambank trampling.	The upper end of Camp Lake has potential to have stabilizing riparian herbaceous vegetation and shrubs both along the streambank and into the meadow.
11	Jack Creek	Location TBD	Riparian herbaceous stubble height, upland stubble height, shrub utilization, bank alteration	Probably a suitable site either above or below the exclosure.
12	Jungle Creek	Location TBD	Upland stubble height	The channel is steep and well-vegetated with shrubs. Adjacent meadows are small and discontinuous and dominated by bluegrass and snowberry.
13	West Fork Tributary U-betcha area	-120.96970, 47.28869	Riparian herbaceous stubble height, upland stubble height, shrub utilization, (probably) bank alteration	Incised channel closer to the road. Downstream closer to aspens might be a better option. Meadow vegetation appears similar in composition and utilization to the frequently-used meadows along the North Fork and associated tributaries.
14	West Fork not too far upstream from end of pavement (Type 1 area)	-120.91191, 47.260822	Riparian herbaceous stubble height, shrub utilization, bank alteration	Existing MIM site location. Some herbivory is occurring here, and there are some riparian stabilizing species present.
15	First Creek	-120.68524, 47.207790	Riparian herbaceous stubble height, upland stubble height, shrub utilization, bank alteration	Existing MIM site location.

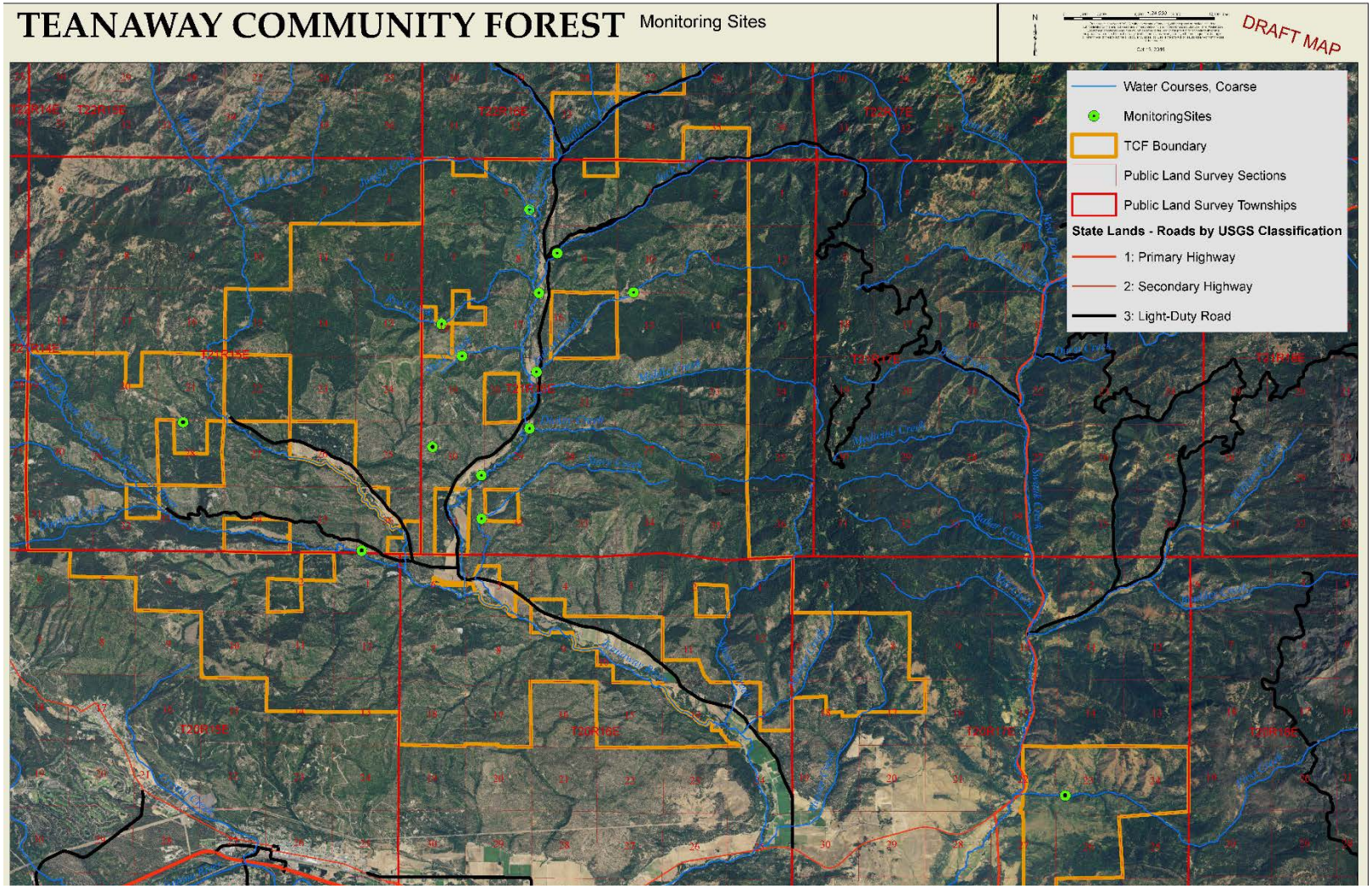


Figure 2 - Monitoring Sites