

RESPONSE TO ISRP COMMENTS

COLUMBIA CASCADE PROVINCE – OKANOGAN RIVER

PROJECT #29029: Perform Range Forage Inventory for Large Ungulates

1. **“...Probabilistic (statistical) sampling procedures are needed for selection of sites that will be used for determining a forage inventory.”**

Sampling process will follow procedures as outlined in **USDA, Natural Resource Conservation Service (NRCS) Technical Guide**. The NRCS has been involved in vegetation inventorying for many years. Their guide is considered the standard for inventorying rangeland and forestland throughout the west. In addition to the guide the Tribe will be utilizing the expertise of the resource specialists at the nearby Okanogan and Ferry County NRCS offices. The Tribe also employs a Vegetation Ecologist who will work with the Tribes Fish & Wildlife Program to oversee the project during implementation.

Inventory site selection will be based on soil type. Each soil type within the sub-basin will be sampled enough times so as to attain an adequate representation of vegetation supported by that soil type. Detailed sampling procedures/requirements for range and forest vegetation are covered in the above-mentioned NRCS technical guide.

2. **“The specific sample areas, methods, and sampling frequency and intensity (i.e., how many samples of what type where and when.) need to be specified. Details must be given or adequate references to published literature given for not only site selection procedures, but for data collection procedures.”**

Methodology for the forage inventory will follow procedures as outlined in the in **USDA, Natural Resource Conservation Service (NRCS) Technical Guide, National Range and Pasture Handbook, Sept. 1997. Interpreting Indicators of Rangeland Health** (NRCS Technical Guide) will also be used as technical support. Soil types as established during the soil survey by the then Soil Conservation Service (SCS) will be units sampled in the project area. Intensity of samples will be a sampling point for every 200 acres. The

Okanogan sub-basin is 345,000 acres, approximately 50% of which is privately owned. Our plan is to inventory only the Tribal land within the sub-basin so there will be approximately 862 inventory plots/write-ups for the project area. Each soil type within the project area will be sampled a minimum of 3 times. Soil types supporting a wider variety of vegetation will be sampled more often.

3. “What vegetation data are collected in the field and what is the accuracy and precision?” (The ISRP needs to be convinced that scientifically valid sampling plans are used and that useful data are obtained beyond estimation of total AUM’s for large blocks of land.)

Data will be recorded on NRCS, or a variation thereof, Forest Understory Vegetation or Range Vegetation Write-up forms. Vegetation data collected in the field will include, for each mapped unit, plant species present, cover class of each species, height of shrubs, and annual production (lbs/acre) by species. Plant species abundance will be based on canopy cover and recorded by Daubenmire cover classes (+, T, 1 – 6). Production estimates will also follow NRCS methodologies and use 9.6 square feet circular plots randomly placed within the sample unit. All annual production of vegetation up to 4.5 feet high within the circular plot will be clipped and weighed by species. Vegetative material will be weighed in grams and then multiplied by 10 to attain lbs/acre. Every 10th plot will be weighed in this manner. For the 9 other plots ocular estimates of production by species will be performed. The 10th plot serves both as a source of actual measured production values as well as a tool for helping reduce bias in the ocular estimates performed by the field technicians.

Other information recorded at each inventory site will include: soil type, slope, aspect, elevation, successional stage, canopy cover of overstory species, basal area, habitat type/range site, and percents of bare ground, litter, and surface fragments. Also noted will be evidence of past disturbance such as fire, logging, insect/disease, wind, and livestock use.

4. “The scale at which the forage inventory is conducted is not clear. What is the size of unit for which the forage inventory is given? Will a map be prepared with, for example, contour lines of forage available? Habitat types present? Annual production by species? What does a forage inventory amount to and how good are the data in terms of precision and accuracy?”

Approximately 172,000 acres are to be inventoried in the Okanogan Sub-basin Watershed. From information derived from this Range Forage Inventory Project estimates of forage production as it pertains to livestock, elk, mule deer, white tail deer, moose, and big horn sheep can be made. Weighted forage values (forage value ratings), by ungulate, are given for each plant

species encountered in the inventory. When production (lbs/acre) by species are determined they are then factored by the forage value rating for that plant/ungulate species combination. When all the values are added up the results are an estimate of the amount of forage avail for a particular ungulate for each ecological site in a similar successional stage within the project area. All values for ecological sites can then be added to determine total forage available (AUM's) for a particular ungulate within a watershed or sub-basin, etc.

All plots will be GPS's. These plots and information recorded on field data forms will be stored in GIS layers and tied to existing soil polygons. This information will then be used to make forage production maps for each species in question. With the field data recorded into GIS any number of maps, or types of analysis, can be made.

5. “The proposal should include a component for long-term monitoring and evaluation.”

Monitoring will be done by the Tribes Range and the Fish & Wildlife programs. Currently the Range program is setting up monitoring sites throughout the Okanogan sub-basin. Photos are taken at each monitoring location and vegetation parameters such as species present and production are recorded. Range is also in the process of setting up permanent vegetation monitoring transects in the sub-basin. Data for vegetation at these sites will include species composition. These photo points and permanent transects will provide long-term trend data for both the Range program and the Fish & Wildlife program. Data from these monitoring sites will then be used to adjust livestock management within the sub-basin.

Livestock utilization is also monitored and used to influence resource management throughout the Okanogan sub-basin.