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2016 Western National Rangeland Assessment CDE
Part 5 - Grazing Management Scenario

You are a county extension educator in west central Idaho (Mountain precipitation zone) and you have been approached by a couple who have raised high quality hay in your county for many years. They are considering downsizing their hay operation and turning some of their hay ground into a BLM wild horse refuge for 30 horses (1.25 AUE). They have 4 pastures totaling 1,642 acres. They asked you to come out and sample biomass with them to determine the carrying capacity. You took 3 samples from each pasture and averaged them to determine forage production for each pasture. They plan to use hay from other parts of their operation and feed the refugee horses in a drylot from October 1 through May 15.

The North Fork of Hornet Creek provides water for the Ridge and Spring Feeding Pastures. The Timber and Meadow pastures each have 2 stock water tanks (see map). Salt will be moved according to forage utilization. The spring feeding pasture has been used in early spring in the past, but to protect wet soils from damage, it will now be utilized in late May for a few days. The other three pastures will be utilized in a rotation that allows for each pasture to be utilized during a different part of the season every year.

Additionally, this area is home to the northern Idaho ground squirrel, a species endemic (native) to and only found in this region. The northern Idaho ground squirrel was listed as "Threatened" under the Endangered Species Act in 2000, and is still listed currently. Forest Service and Idaho Fish and Game biologists have determined there is a population of 200 northern Idaho ground squirrels as well as 325 of the larger, more common Columbia ground squirrels on this property. Northern Idaho ground squirrels hibernate 9 months out of the year and Columbia ground squirrels hibernate 7 months out of the year. Both ground squirrels have an AUE of .003.

Pasture name	Sample 1 g/0.1 m²	Sample 2 g/0.1 m²	Sample 3 g/0.1 m²	Average g/0.1 m²	Acres	Allowable Utilization
Timber	7.3	20.7	14		960	40%
Meadow	66.2	41.1	51.7		200	45%
Spring Feeding	11.6	29.7	12.7		50	60%
Ridge	51.2	36	25.6		432	25%

*HINTS:

$$\frac{1\ g}{0.1\ m^2} \times \frac{10{,}000\ m^2}{1\ ha} \times \frac{1\ kg}{1{,}000\ g}$$

$$\frac{1\ kg}{1\ ha} = \frac{0.89218\ lb}{1\ ac}$$

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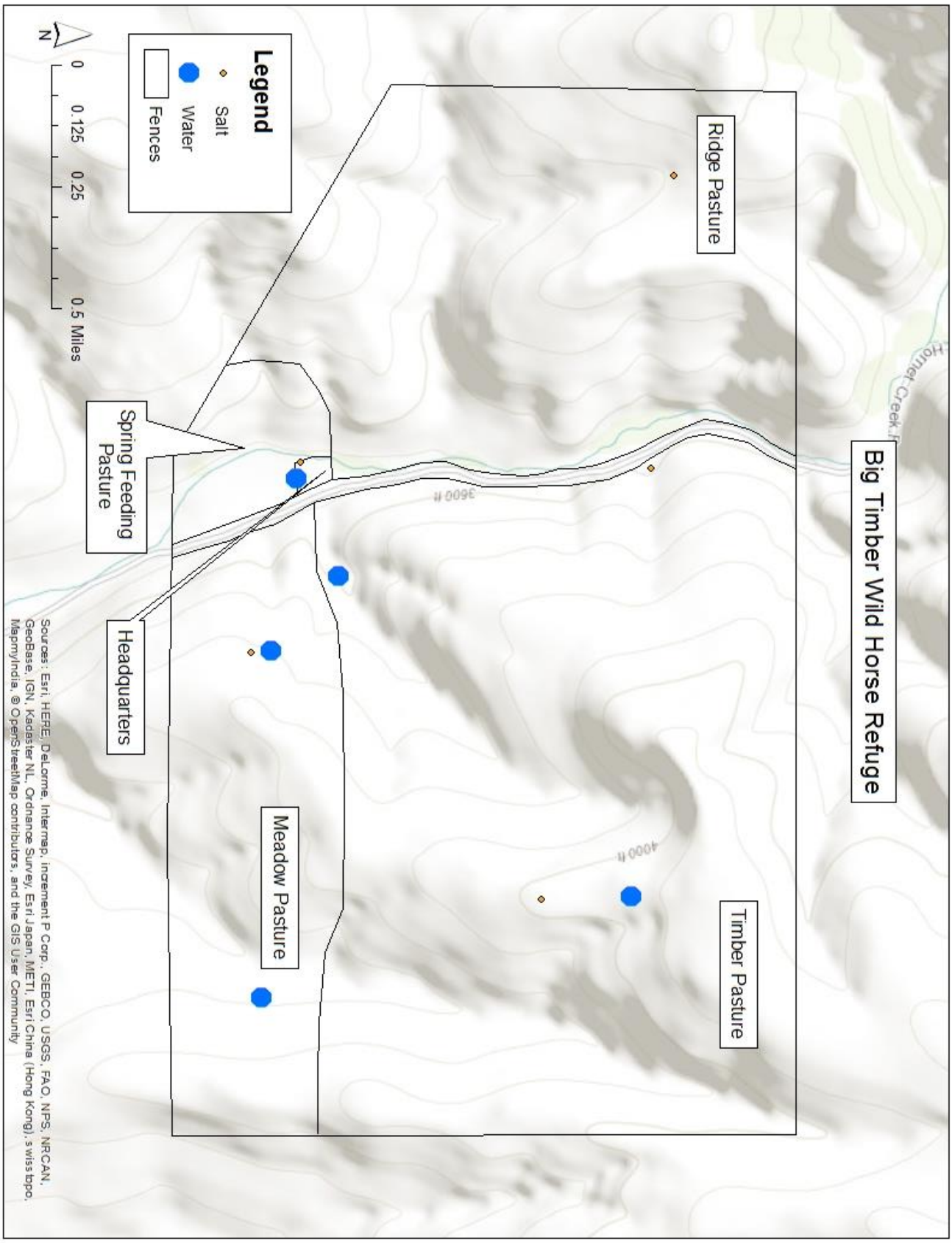

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Part 5 - Stocking Rate and Management Recommendations (Completed at beginning or end of event) *(90 points)*
Students will complete the problem individually but at the same time as a group.

Supply of usable forage = 1,315,679.22 pounds **AND** 1,754.24 AUMs *30 pts*

Forage demand = 131,572.50 pounds **AND** 175.43 AUMs *30 pts*

Determine if the stocking rate is appropriate for the site. You must show your work in order to receive full credit. (Check appropriate box) *10 pts*

❒ Decrease Stocking Rate ■ Increase Stocking Rate ❒ Keep Rate the Same

Space for Calculations:

Choose the correct management activities that apply to improve this site *(Select "Yes" for all that apply and select "No" for all that do not; 2pts each)* *20 pts*

Yes	No		Yes	No	
❑	■	Defer from spring grazing	❑	■	Control brush, trees and/or noxious weeds
❑	■	Rest from grazing for a growing season	❑	■	Seed or interseed with adapted species
❑	■	Install a rotation grazing system	❑	■	Reduce human recreation activities on site
❑	■	Add or revise fencing	■	❑	Manage for endangered species
■	❑	Develop additional water sites	■	■	Change salt location

Can be either since problem already states that they'll will move the salt.

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AVAILABLE FORAGE

Pasture Name	Sample 1 g/0.1 m^2	Sample 2 g/0.1 m^2	Sample 3 g/0.1 m^2	***Average g/0.1 m^2***
Timber	7.3	20.7	14	***14***
Meadow	66.2	41.1	51.7	***53***
Spring Feeding	11.6	29.7	12.7	***18***
Ridge	51.2	36	25.6	***37.6***

Pasture Name	**g/0.1 m^2**		**conversion**		**kg/ha**		**conversion**		**lbs/ac**		**acres**		**lbs**
Timber	14	x	100	=	1400	x	0.89218	=	1249.05	x	960	=	1,199,088.00
Meadow	53	x	100	=	5300	x	0.89218	=	4728.55	x	200	=	945,710.00
Spring Feeding	18	x	100	=	1800	x	0.89218	=	1605.91	x	50	=	80,296.20
Ridge	37.6	x	100	=	3760	x	0.89218	=	3354.60	x	432	=	1,449,187.20

*Hint: (1/.1) x (10,000/1) x (1/1,000) = 100 (see equation above)

Pasture Name	**total forage**		**utilization**		**available**	
Timber	1,199,088.00	x	0.4	=	479,635.20	lbs
Meadow	945,710.00	x	0.45	=	425,569.50	lbs
Spring Feeding	80,296.20	x	0.6	=	48,177.72	lbs
Ridge	1,449,187.20	x	0.25	=	362,296.80	lbs
					1,315,679.22	lbs
					1,754.24	AUMs

FORAGE DEMAND

30	Horses	x	1.25	AUE	x	4.5	months	=	168.75	AUMs
325	Columbia	x	0.003	AUE	x	5	months	=	4.88	AUMs
200	N. Idaho	x	0.003	AUE	x	3	months	=	1.80	AUMs
									175.43	AUMs
									131,572.50	lbs

*Please note that when this problem was first released during the 2016 contest, conversion calculations were incorrectly done on the key, so numbers were off by a factor of 10. This problem has now been corrected, but still has the original input data, so supply and demand may seem very distant relative to each other. However, the math process should be correct.