IGBC North Cascades Ecosystem Tech Team Update

29 May 2024

History of North Cascades Recovery Zone

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Tech Team Update

- North Cascades Ecosystem Grizzly Bear Restoration Plan/Environmental Impact Statement and 10(j) experimental population designation
- Core Area: continued discussion and work through No Net Loss MOU
- All BMUs calculated core with recommended change to high use trails to assess new baseline

Habitat Standards

- National Forests within grizzly bear Recovery Zones use 3 main standards to maintain grizzly bear habitat and human access: Core area, and open and total motorized route density (OMRD and TMRD).

- In 1997, the USFS and NPS agreed to “No Net Loss” of core area for grizzly bears in the NCE.

- This has been tracked and implemented through section 7 analyses.

No Net Loss in the NCE

No net loss of core within any BMU

- **Definition of core area:**
  the area which is > 0.3 miles (500 meters) from any open motorized access route or high use non-motorized access route

- **Definition of high use non-motorized route:**
  any route that receives more than 20 parties per week at least once during early or late season

    - Zone of influence is the same (500 m) as motorized routes
    - Qualitative assessment with recreation staff
    - High use trails have increased substantially in the NCE in recent years

Recreation Effects on Grizzly Bears

Literature review:

- Of 26 papers reviewed, 14 studies reported distances at which bears were displaced by nonmotorized recreation: 4 studies found no effect or a weak effect.
- 10 studies found displacement and reported an effect greater than zero.
- Including the four studies that found no effect, these distances ranged from 0 – 750 m with an average of 213 m and a median of 122 m.
- Not included in analysis was a technical review paper that found an average displacement distance at 270 m (Mattson 2019).

Recommendation – High Use Trails

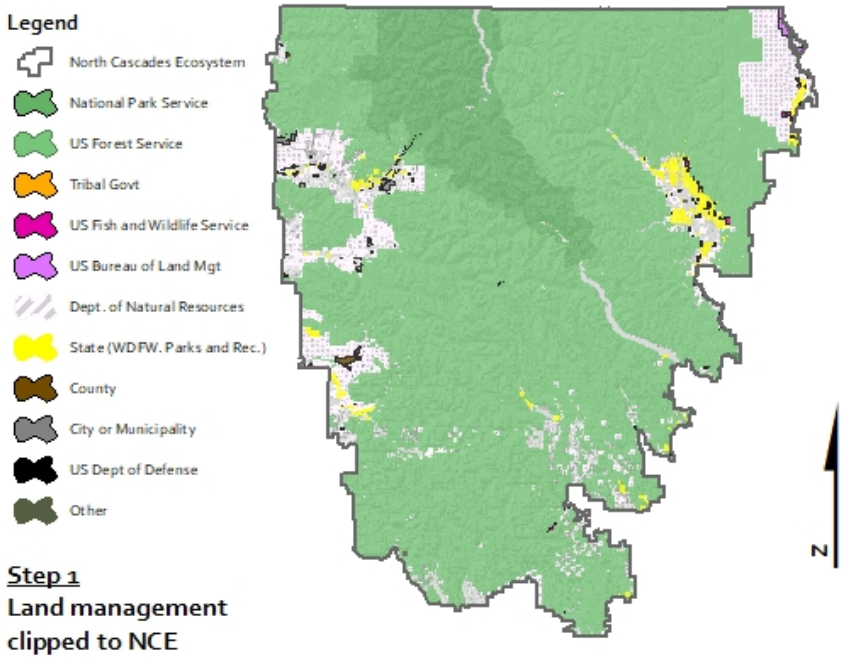
- High use non-motorized trails:

- Tech team conducted a literature review to revisit the effects of high use trails on grizzly bears and the definition of high use. Currently: 500 m zone of influence around trails with >20 parties per week. Based on that review we recommend the following:

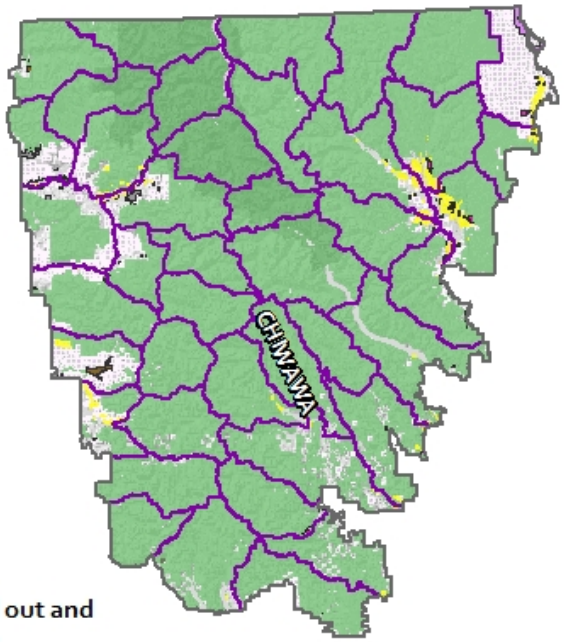
  Recommendation: Reduce zone of influence from 500 m to 250 m based on literature review.

  Recommendation: Consider all maintained trails as high use for the new baseline, save for trails that are unlikely to become high use. Treat unmaintained trails as low use. Non-system or user-created trails and winter recreation trails are not included in this calculation. If better information or data comes out this definition should be updated.

Baseline Analysis

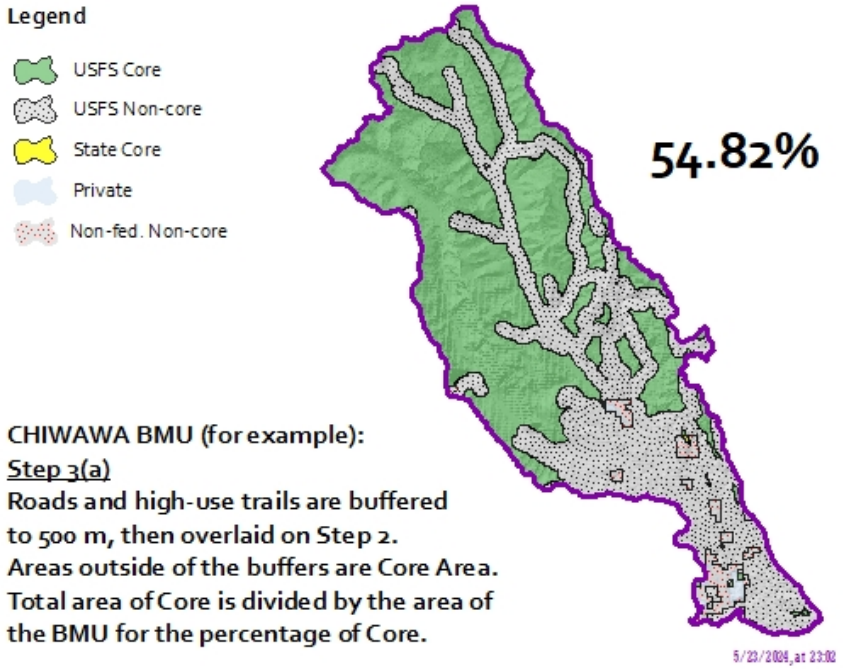


Step 1
Land management clipped to NCE

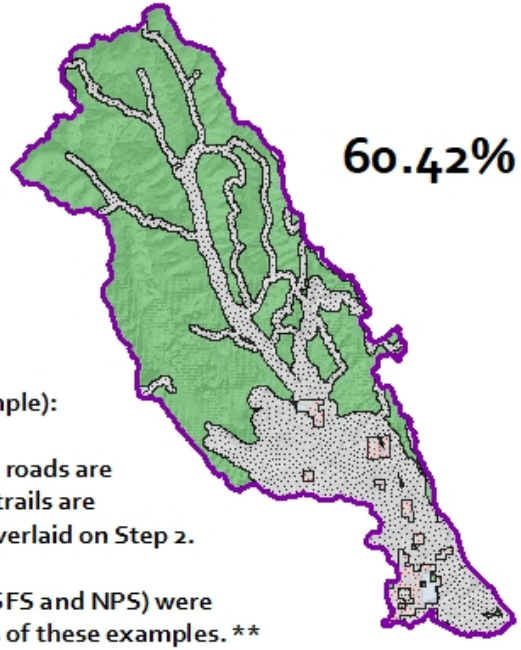


Step 2
Step 1 is clipped to BMUs.

Each BMU is clipped out and analyzed separately.



CHIWAWA BMU (for example):
Step 3(a)
Roads and high-use trails are buffered to 500 m, then overlaid on Step 2.
Areas outside of the buffers are Core Area.
Total area of Core is divided by the area of the BMU for the percentage of Core.



CHIWAWA BMU (for example):
Step 3(b)
Same as Step 3(a), except roads are buffered to 500 m and all trails are buffered to 250 m, then overlaid on Step 2.

** ONLY federal lands (USFS and NPS) were analyzed for the purposes of these examples. **

Recommendations – High Use Trails

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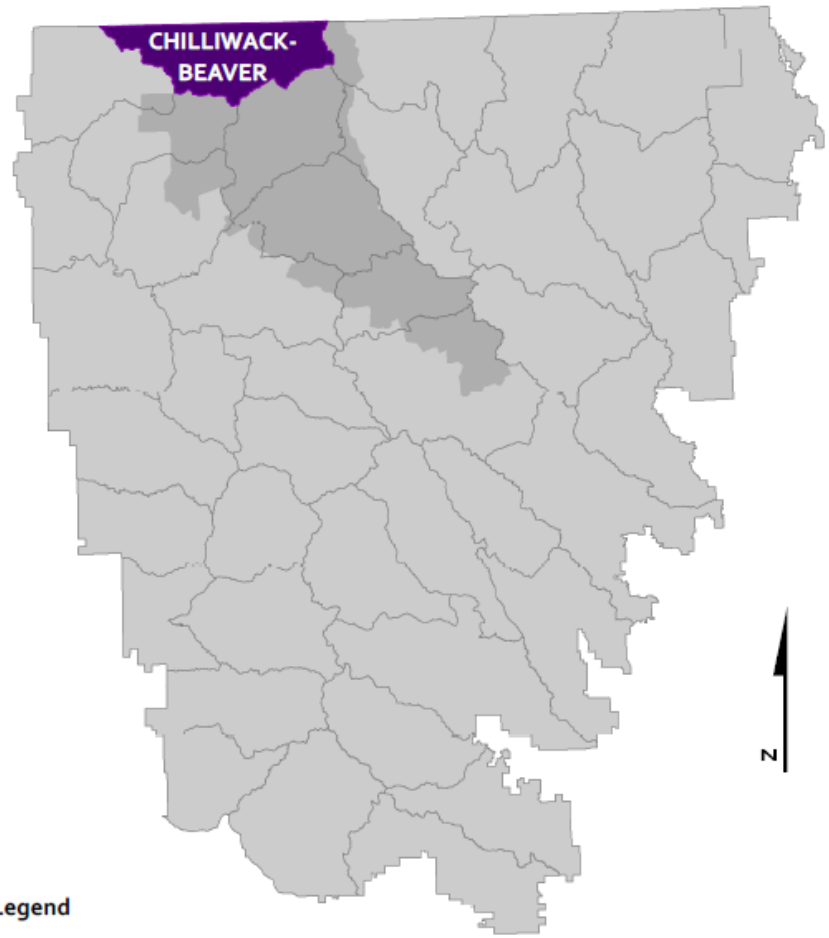
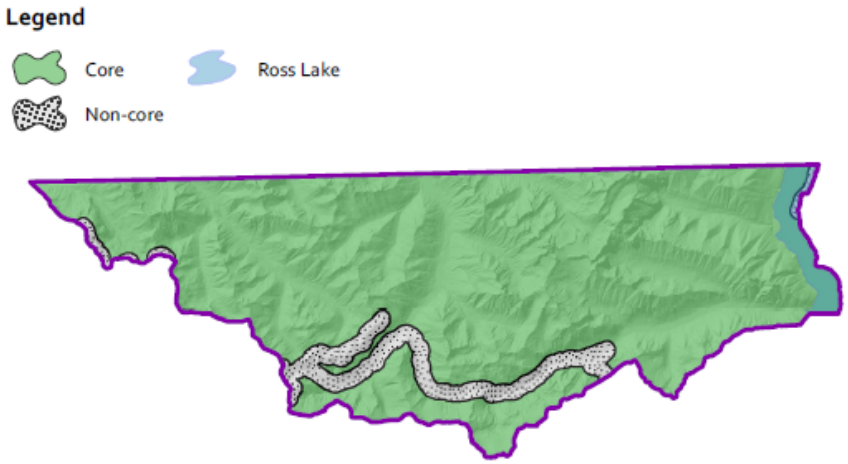
CHILLIWACK-BEAVER BMU (shared NPS and USFS)

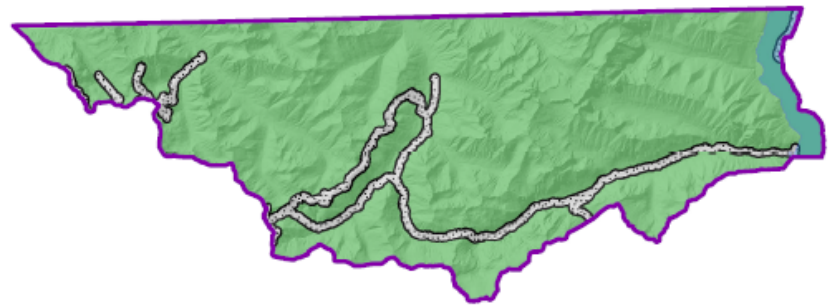
BMU with roads and high use trails buffered to 500 m
vs
example with roads buffered to 500 m and all trails to 250 m.





92.73%

BMU with roads and high use trails buffered to 500 m.



92.28%

Example with roads buffered to 500m and all trails to 250 m.

Recommendations – High Use Trails

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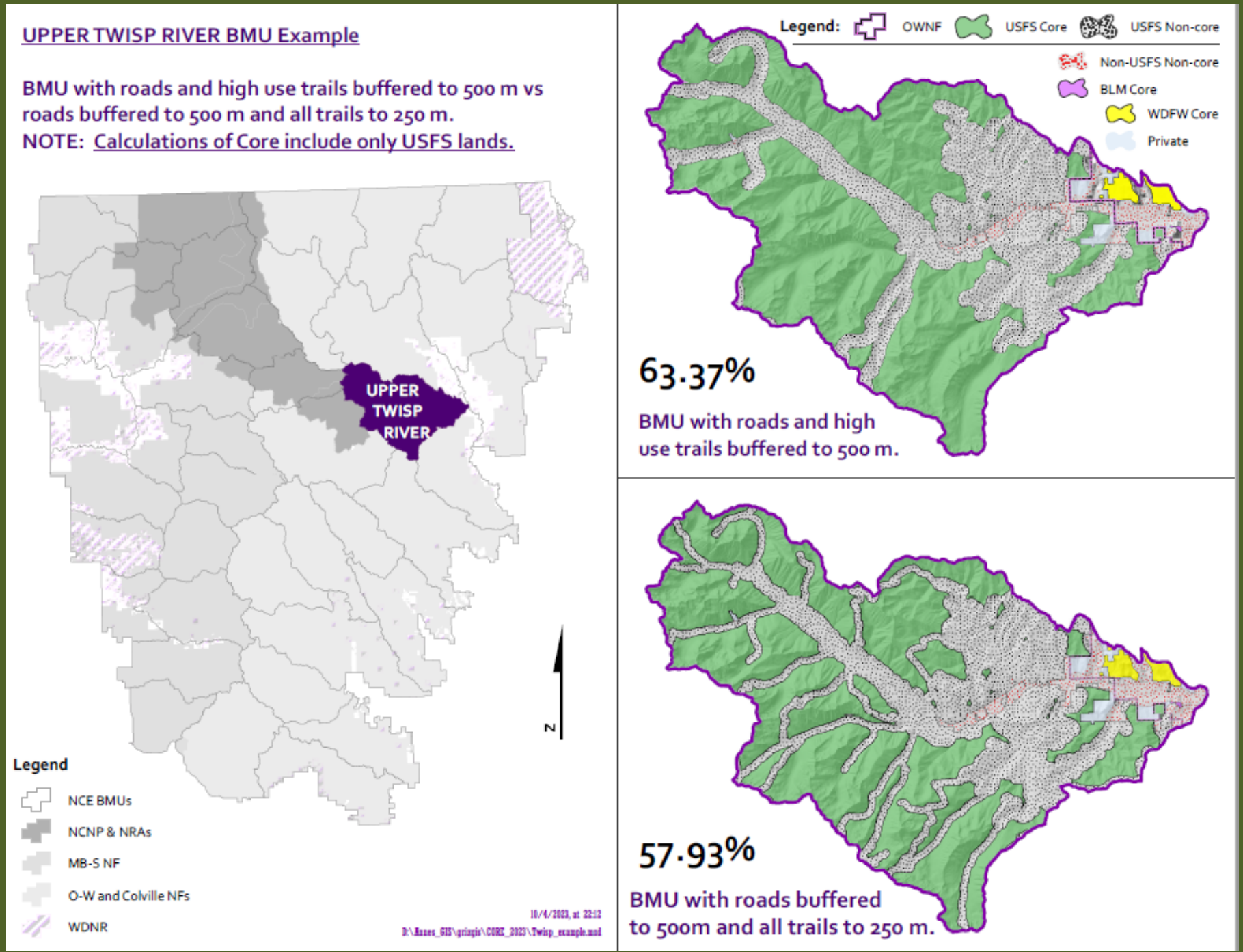

Recommendations – High Use Trails

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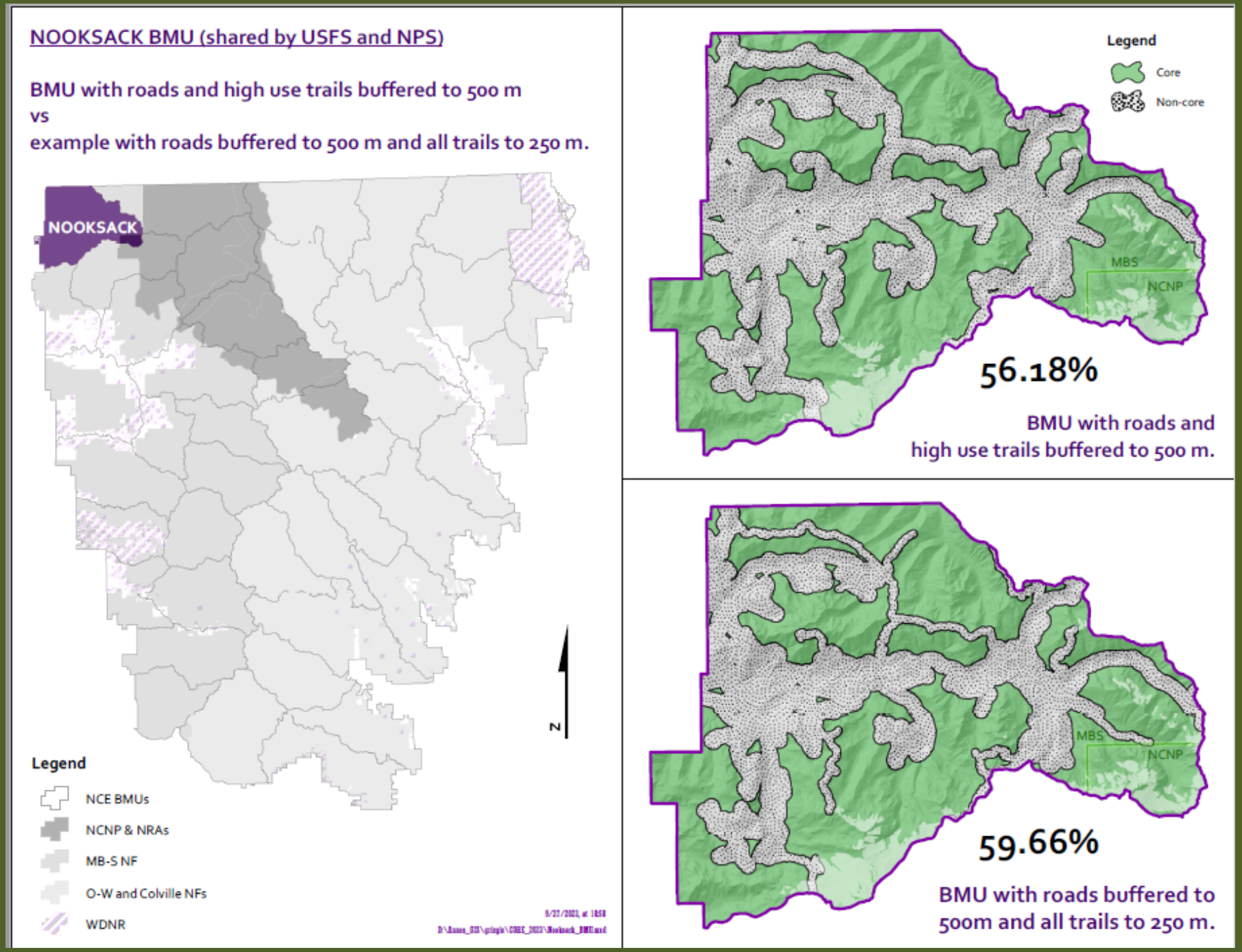

Recommendations – High Use Trails

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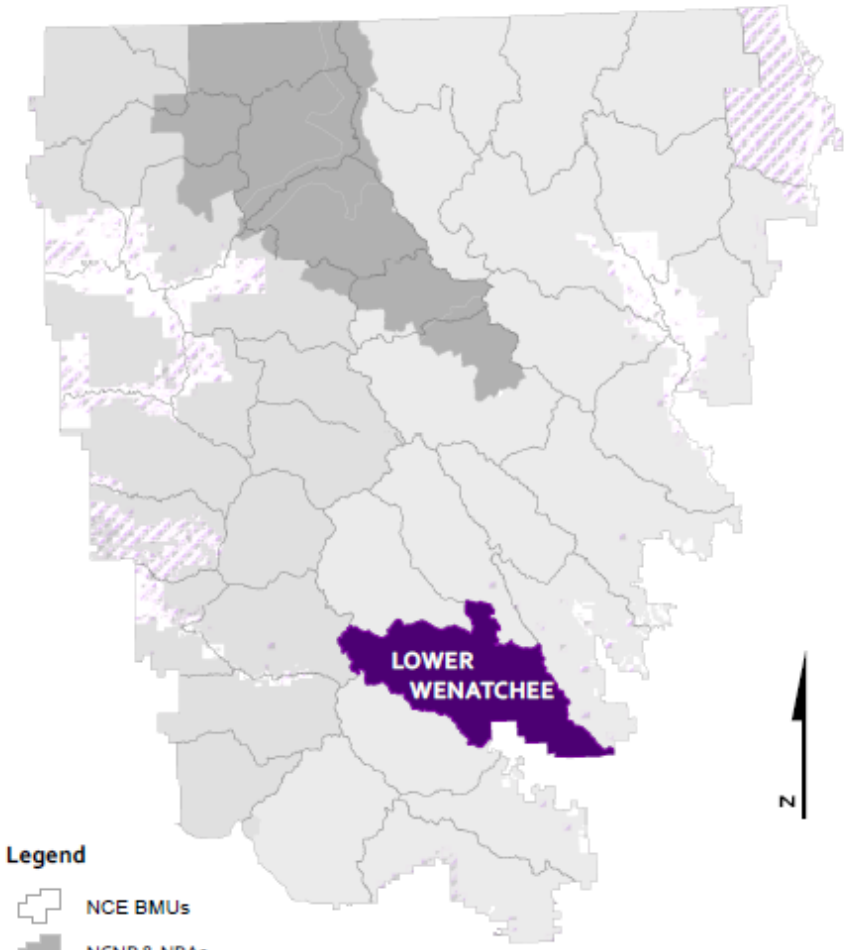
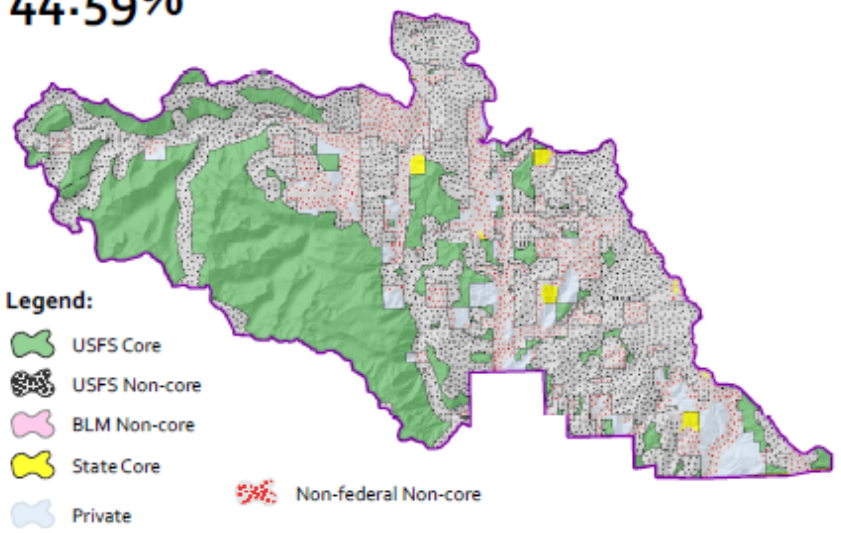
LOWER WENATCHEE BMU Example

BMU with roads and high use trails buffered to 500 m vs roads buffered to 500 m and all trails to 250 m.
NOTE: Calculations of Core include only USFS lands.

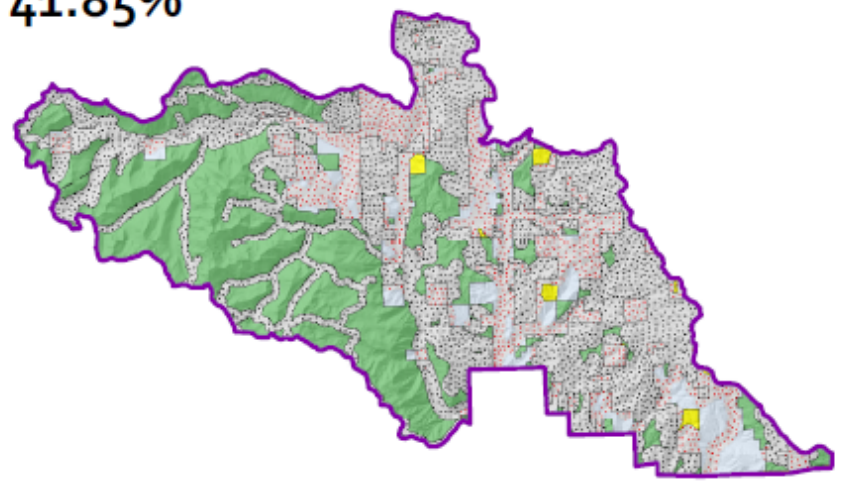


44.59%



BMU with roads and high use trails buffered to 500 m.

41.85%



BMU with roads buffered to 500m and all trails to 250 m.

Recommendations – High Use Trails

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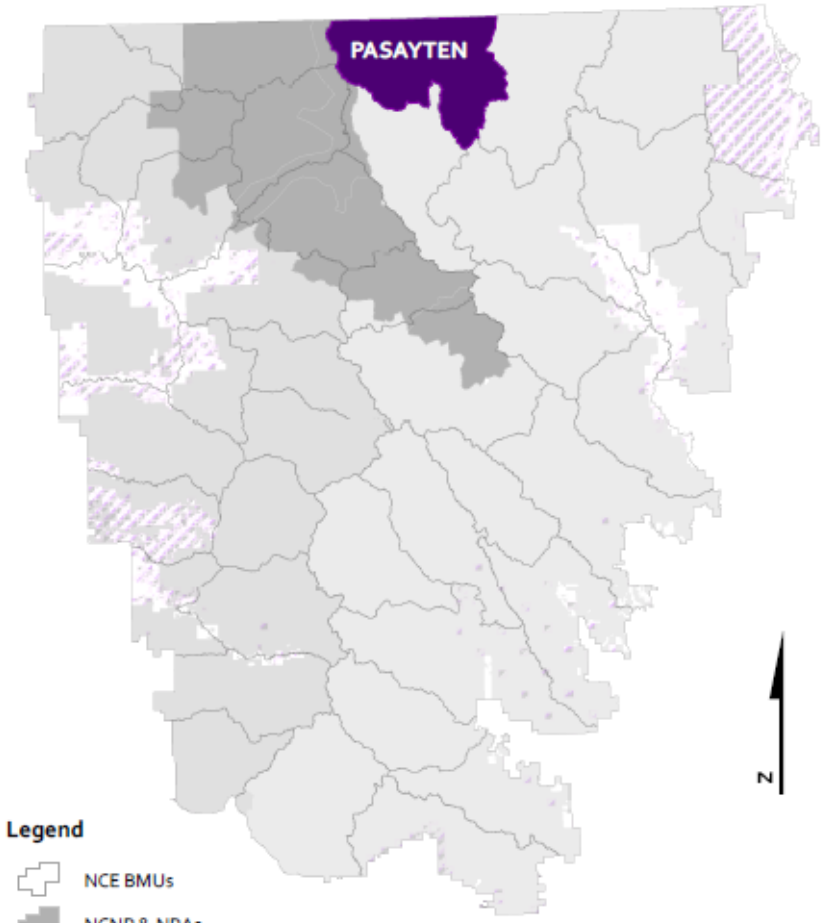
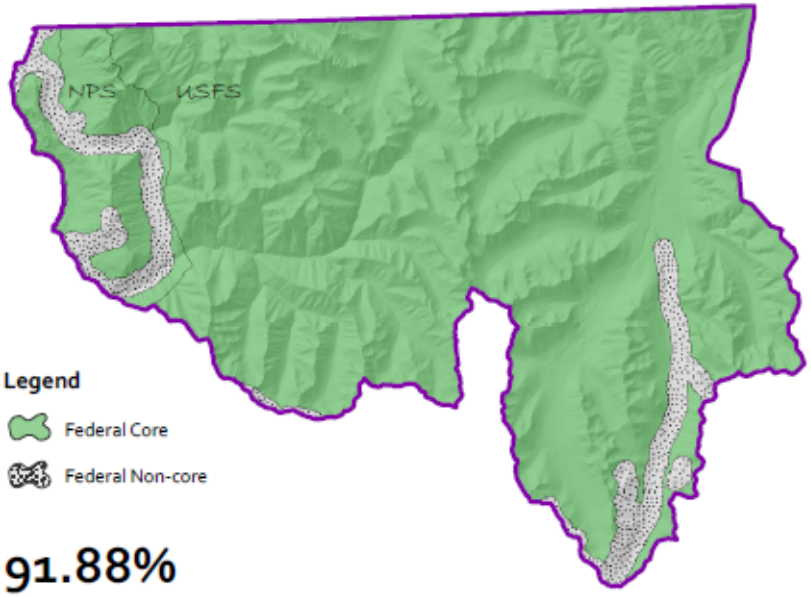
PASAYTEN BMU Example

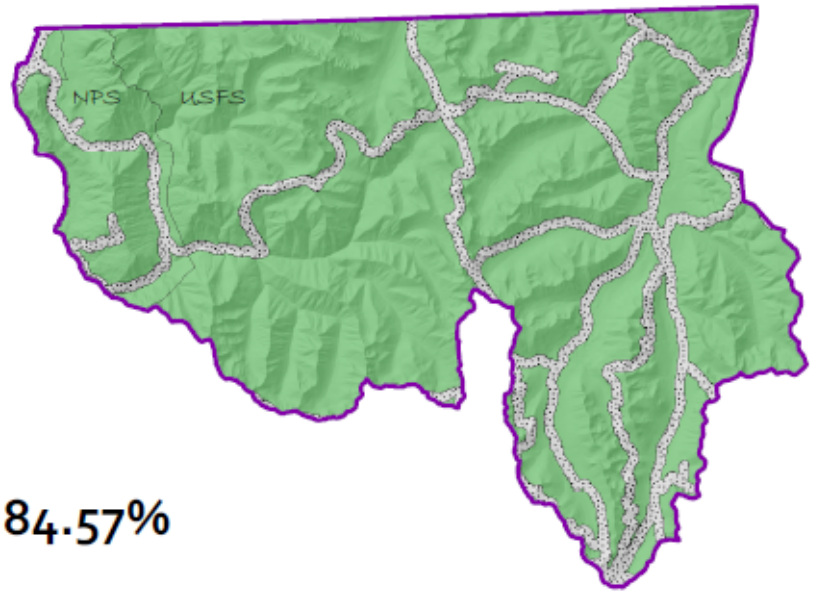
BMU with roads and high use trails buffered to 500 m vs roads buffered to 500 m and all trails to 250 m.
NOTE: Calculations of Core include only USFS lands.





91.88%

BMU with roads and high use trails buffered to 500 m.



84.57%

BMU with roads buffered to 500m and all trails to 250 m.

Recommendations – High Use Trails

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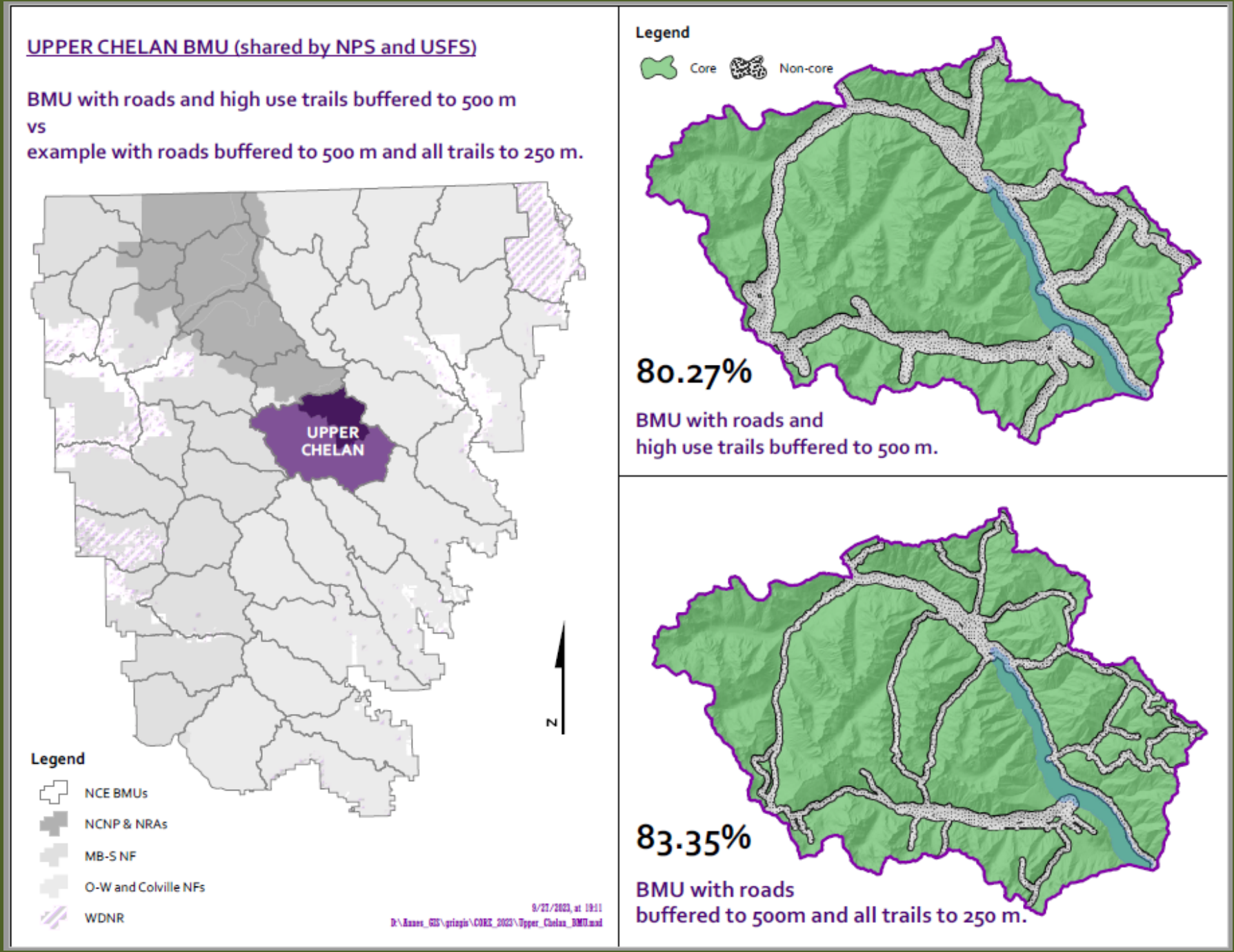

How will change affect core?

- 37 BMUs analyzed for core area changes with recommended change to give approximate estimate

- Analysis is a draft until road and trail data are more definitive

- Approximately 79% increase in core area

- East side of Cascades:
  - 18 BMUs analyzed
  - 13 % increase in core
- West side of the Cascades:
  - 19 BMUs analyzed
  - 66% increase

Grizzly Bear Sighting Criteria

Current:

1. Class 1 (confirmed)
2. Class 2 (probable)
3. Class 3 (unknown)
4. Class 4 (not a grizzly bear)

Recommended:

1. Class 1 (confirmed)
2. Class 2 (indeterminant)
3. Class 3 (not a grizzly bear)

Questions?


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41°F
MINISTRY OF FORESTS, LANDS, AND NATURAL RESOURCE OPERATIONS
RECONYX

Recreation Effects on Grizzly Bears

Does non-motorized recreation affect grizzly bears?

- Grizzly bears spend less time foraging and consume fewer calories when recreationists are present (White et al. 1999)
- Recreation can cause temporal and spatial displacement with associated increases in energetic costs and declines in nutritional intake. Regulating recreation may reduce impacts on reproduction and survival (Fortin et al. 2016)
- Grizzly bears move away from hikers in most encounters (Sahlén et al. 2015: 89 – 95 %; Ordiz et al. 2019: 75 %)

Recreation Effects on Grizzly Bears

- Graves et al. 2002 found that 3 of 4 bears showed less than expected use of areas within 450-600 m of single track (mostly non-motorized use) trails in Montana

- Kasworm and Manley 1990 found that areas within 122 m of trails were used less than expected through spring and fall in western Montana.

- Grizzly bears responded more strongly to people on foot in remote areas than to any other stimulus tested (e.g., fixed wing aircraft). Bears reacted to people on foot at distances <150 m (Mclellan and Shackleton 1989)

- Bear distances from trails averaged 73 +/- 6 m and was explained best by differences in individual bears, rather than seasons or other predictors. (Cristescu et al. 2016)

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Recreation Effects on Grizzly Bears

Uncertainties:

- **Threshold effect – how many people on a trail results in displacement?**

  Muhly et al. 2011 - Trail cameras in southwest Alberta. Predators (including grizzly bears) were less abundant on roads and trails that exceeded 18 humans/day.

- **Population level effects of non-motorized recreation**

  IGBC Science Committee: high priority research area relevant to all Recovery Zones.