I'm very disappointed, but not a bit surprised, that the Bitterroot National Forest (BNF) prioritizes commercial logging as the major activity on the Bitterroot Front Project. I'm disappointed because BNF appears to have disregarded the public input given in six public pre-scoping meetings in 2020 held to *"understand the opportunities, concerns, needs, or interests in management activities of participants for the Forest to consider…..and keep them engaged, informed, and to build trust".* And I'm not surprised because every BNF project I've been involved with, including the Westside, Gold Butterfly, Darby Lumber Lands 2, Mud Creek, and Piquett Creek projects, have also been all about getting the cut out.

The commercial logging priority is explained by the timber mandates coming down from Washington bureaucrats and politicians. Kurt Steele, former acting supervisor of BNF, told the Bitterroot Restoration Committee in 2018 that the Trump administration had increased timber mandates by 50%, and a top USFS official speaking at the 2021 Montana Forest Collaborative meeting said that Region 1 forests are judged solely on their timber output. **Please disclose the relationship of BNF's funding to both Washington, D.C. timber mandates and the Infrastructure bill.**

Scoping's statement on p. 10 confirms the commercial harvest priority: "*After identifying where commercial vegetation management may be an appropriate tool to meet project objectives, we are considering where non-commercial vegetation and forest fuels treatments are appropriate to move the project area towards our desired conditions. These areas include those that recently experienced wildfire events, management areas or designated areas where commercial harvesting is not allowed, areas of regeneration harvest since 1980, and other inaccessible parts of the project area."* In other words, you will commercially log wherever you can, and where you cannot, will consider "other restoration" activities. **Please give the reasons why you think commercial logging is the best and most effective restoration activity.** There do appear to be ample opportunities to meet your objectives by doing non-commercial treatments of areas burned more than 20 years ago, and logged areas from the past 40 years**.** Many of these areas are crowded with thick small trees, and might benefit from non-commercial thinning. **Please prioritize non-commercial restoration of these areas (previous burns and clearcuts) rather than commercial logging of marketable timber.**

And although numerous pre-scoping comments asked for attention to road maintenance, trails, watersheds, and recreation, those are relegated to secondary objectives that you'd "*like to accomplish as opportunities become available".* **Please include in the project and budget for maintenance of existing system roads and trails, creation of new trails especially in the foothills area, and improved and new signage relating to the travel plan.**

The 2020 public pre-scoping meetings had 250 attendees who submitted 650 total comments. Although the majority of comments either asked questions, requested more information, or related personal observations or knowledge, the #1 substantive comment was to ask for no commercial logging like that done by BNF in the past (58 comments). The #2 comment (41 comments) was opposition to building new roads. The #3 comment (27 comments) asked BNF to reduce the project's size. There were 21 comments in favor of commercial logging, many that stated "I'd rather see logging trucks than fire trucks" which was the message implied by BNF's/Byron Burney's presentation at the start of the meetings. There were also 19 comments opposing the conditions-based analysis process, 16 requesting

better trail maintenance and/or more trails, 11 requesting better road maintenance, and 8 complaints about the lack of monitoring in previous projects. But my favorite comment was one given in the Stevensville meeting: *"Is this just a polite exercise, or will the input actually count and be acted upon?"* Now we know the answer.

Disregarding public input is nothing new, either. On the Westside project, the majority of scoping comments (68%) opposed the new roads and logging around the Coyote Coulee trail (many were adjacent homeowners that BNF claimed were being helped!), and yet not a single change was made as a result. BNF even refused to put a buffer around the trail—it appears that Pyramid Lumber needed every single log. On the Gold Butterfly project, over 75% of commenters asked for Alternative 3 or a modified Alternative 3, which included no new roads and not allowing commercial harvest in old growth. But instead, BNF chose their original preferred alternative, only modified to eliminate the regeneration harvest (clearcutting) of old growth because it violated HFRA, and to propose a site-specific Old Growth amendment to the Forest Plan to allow commercial cutting of some of these old, large trees. In a recent BNF employee newsletter, Supervisor Matt Anderson wrote about the Bitterroot Front project: *"We just need to remember that the majority of folks who live here support the work we are doing. It's easy to get depressed about the loud 1% of negative voices that comment on our projects."* The loud 1% ? Either he is ignorant of history, or he is actively attempting to subvert the public process. Apparently BNF has also been running field trips and giving presentations to select groups that will support the project, without offering the same activities to the public. All of this is deplorable behavior by the ones in charge of our public lands.

In 2017, a local resident in cooperation with Amy Fox of BNF looked at the 118 projects on the BNF between 2010 and 2017 that required a decision document. On these projects, there were 41 people/groups that filed objections, with a total of 88 objections. Not a single objection resulted in any change on the ground for the project.

Clearly, BNF has a poor record of public collaboration. **Please show how the Bitterroot Front project is following NEPA guidelines that require early and meaningful collaboration and maximum transparency in the decision-making process.**

The Bitterroot Front introductory video used the same tactics as the pre-scoping meetings: putting the fear of fire into people first, and then implying that this logging project will save their homes and property. Yet protecting private property from fire is not included in the purpose and need, probably because you know full well that it is a false narrative, given Jack Cohen's and others' research. Calkin, Cohen et al (2014) state: *"Focusing on wildland vegetation…….furthers the illusion that WUI protection does not require homeowner engagement".* The introductory video is in conflict with National Forest direction to educate the public to accept wildfire as a natural and necessary part of the forest ecosystem. In addition, it's worth noting that the Roaring Lion fire resulted from an abandoned campfire and that BNF was still allowing campfires during this hot and dry year. Perhaps a better and easier way than logging to prevent such fires would simply be to shut down the campfire season under these weather conditions. After all, that year there had already been one major wildfire a month earlier just to the south (the Observation Fire).

The video went on to show Gordy Sanders of Pyramid Lumber, who is probably the real BNF Supervisor, talking about how their activities are "light on the land" while showing a giant feller-buncher in action. The entire video was a shameful use of public funds and public employees' time.

Calkin, D.E., Cohen, J.B, Finney, M.A., and Thompson, M.P., 2014, How risk management can prevent future wildfire disasters in the wildland-urban interface: PNAS, v. 111, n. 2, p. 746, www.pnas.org/cgi/doi/10.1073/pnas.1315088111

"Conditions-based Analysis" being used on the Bitterroot Front project does not give enough information to allow the public to submit significant and meaningful comments. BNF does not disclose site-specific details of where and when roads and logging will occur over the next 20 years, yet it makes it clear that once those details are later disclosed, the public will have no formal process by which to analyze the environmental effects as required by the NEPA. Location and type of vegetative manipulation do matter, as do the amount and location of new road construction. It is problematic that there's a lack of analysis and therefore disclosure. Conditions-based analysis is certainly a violation of the intent of NEPA, if not the NEPA statutes themselves. Steve Brown stated that not all 87 square miles identified for commercial logging would be logged. If true, then why not disclose which areas will be harvested commercially? In addition, conditions-based analysis relies heavily on design features to mitigate impacts. On BNF's recent Westside and DLL2 projects, I have documented numerous violations and non-compliances with design features, Montana Streamside Management Zone laws, HFRA, and the Forest Plan. Many design features, if they were followed, have not worked, for example regarding spread of weeds. Conditions-based analysis also requires continuous project and post-project monitoring to enable adaptive management. Monitoring has been minimal to non-existent on previous projects. There are numerous instances on previous projects where road maintenance was curtailed after project completion, causing sediment influx to streams and severe gullying of roads. **Abandon the Conditions-based analysis approach and instead disclose all treatment units, treatment types, and road construction and reconstruction, including temporary roads. Show that you will follow the ICO principles of Hessburg et al (2015) and Churchill et al (2013) to create a forest that is more ecologically sound than your previous project results. Include in the project budget the funding necessary for ongoing project and post-project monitoring, reclamation, and road maintenance. Please disclose all post-project monitoring activities and results on the Hayes Creek Fuel Reduction Project (late 2000s) and Westside Project (late 2010s). Include reclamation actions taken as a result of this monitoring.**

Churchill, D.J., A.J. Larson, S.M.A. Jeronimo, M.C. Dahlgreen, and J.F. Franklin. 2013. The ICO approach to quantifying and restoring forest spatial pattern: Implementation guide. Version 2.0. Stewardship Forestry, Vashon, Washington, USA

Hessburg, P.F., et al., 2015, Restoring fire-prone Inland Pacific landscapes: seven core principles: Landscape Ecology, v. 30, p, 1805–1835. DOI 10.1007/s10980-015-0218-0

Please release maps showing treatment units, treatment types, and roads overlaid on a base layer showing IRAs, RWAs, RNAs, and Wilderness. Please also release kml files with this information so the public can see this information on Google Earth. I requested kml maps during scoping from Steve Brown, but was denied. I was able to generate these on my own, showing forest, roadless, and

Wilderness boundaries. Images of the entire Bitterroot Front project generated from the kml files are included at the end of my comments. These images show that almost all areas outside the roadless areas (IRAs, RCAs, RNAs) are completely (and shockingly) fragmented by past logging, a dense road system, and past wildfires. It's no wonder Steve Brown denied my request. I can't see how (or why) you could do so much commercial logging without logging every last scrap of intact forest left outside the roadless areas. Such logging is likely to lead to less, not more, diversity and heterogeneity on the landscape scale. You also propose to log in the roadless areas. Why? The majority of the roadless area lies above the ponderosa pine-Doug fir dominated area of historically relatively frequent fire and is hardly in need of "restoration". Much has burned in mixed severity fires, just as it has always done. The 2001 Roadless Rule allows cutting in the IRAs only if it will "maintain or improve one or more of the roadless characteristics". It is hard to imagine logging ever doing so, but **if BNF wants to enter IRAs, they must show how timber harvest will improve roadless characteristics. Give examples from previous projects.**

Similarly, wilderness characteristics are supposed to be maintained in RWAs so they can potentially be designated as Wilderness in the future. RNAs are supposed to be left to natural processes to serve as controls. Your assurances that you will not build roads in roadless areas are meaningless because temporary roads are not roads by your definition and neither are the roads created by feller-bunchers. In the past, the Region 1 has precluded previously logged IRAs from being considered for Wilderness status, certainly a violation of the intent of the Roadless Rule. **Stay out of all IRAs. RCAs, and RNAs.**

An EIS, not an EA, is required to analyze this project. The enormous size of the project, its inclusion of IRAs, RWAs, RNAs, and proposed Wild (Blodgett Creek) and Scenic (Lost Horse Creek) Rivers, and the presence of or potential for ESA-listed species such as Bull Trout, Lynx, Wolverine, Grizzly, and Whitebark Pine, all call for an EIS, not an EA. The project area has also been heavily and adversely affected by past disturbances, including logging on a massive scale, a very high road density, and large areas of previous wildfires. **These cumulative impacts need to be analyzed as required by NEPA. And how can a 20-year-long project, especially in this area, possibly have no significant impact?** I suspect that not a single BNF employee currently involved in this project will still be here in 20 years. Federal guidance on preparing NEPA documents states that *"an EA should be a concise public document of no more than 10-15 pages*" and that "*in most cases, a lengthy EA indicates that an EIS is needed*". An EIS will require that additional alternatives be developed in addition to No Action and could potentially result in a better project. **Please prepare an EIS to analyze this project**. **Analyze cumulative impacts.**

The Purpose and Needs of the project are identical to every other BNF commercial logging project. In addition, the Purpose and Need "to improve resilience to disturbances by modifying forest structure" includes the solution/remedy "by modifying forest structure". "Modifying forest structure" is neither a purpose nor a need, unless you mean the real purpose of the project is logging. In doing so, you rule out all other remedies and alternatives for achieving the purpose "*to improve resilience to disturbances".* This narrows the alternatives to include only one solution: to modify forest structure and composition. It prevents any other alternatives to be considered, even if other alternatives might be more effective at improving resilience. For example, concerning insects and disease, some research (Bailey et al, 2005; Christiansen et al, 1987; McNulty et al, 2014; Six et al, 2014, 2018, 2021; Sthulz et al 2009) suggests the

best way to improve resilience to insects and disease is through passive management to let the forest adapt. A Citizens Guide to NEPA, p. 16, states: "The purpose and need statement explains to the reader why an agency action is necessary, and serves as the basis for identifying the reasonable alternatives that meet the purpose and need" (https://ceq.doe.gov/get-involved/citizens_guide_to_nepa.html). **Please remove "by modifying forest structure" from the purpose and need, and consider and analyze other reasonable alternatives to improve resilience as required by NEPA.**

Bailey, J.K., Deckert, R., Scheitzer, J.A., Rehill, B.J., Lindroth, R.L., Gehring, C., and Whitham, T.G., 2005, Host plant genetics affect hidden ecological players: links among *Populus*, condensed tannins, and fungal endophyte infection: Canadian Journal of Botany, v. 83, p. 356–361 (2005) doi: 10.1139/B05-008.

Christiansen, E., R.H. Waring, and A.A. Beeryman. 1987, Resistance of conifers to bark beetle attack: Searching for general relationships: Forest Ecology and Management, v. 22, p. 89-106.

Hadfield, J.S., Mathiason, R.L., and Hawksworth, F.G., 2000, Douglas Fir Dwarf Mistletoe: Forest Insect and Disease Leaflet 54, USDA-FS, 10 p.

Hoffman, J.T., 2004, Management of Dwarf Mistletoe, 2004, USDA-FS https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5187427.pdf

McNulty, S.G., Boggs, J.L., and Sun, G., 2014, The rise of the mediocre forest: why chronically stressed trees may better survive extreme episodic climate variability: New Forests, v. 45, p. 403-415.

Six, D.L., Biber, E., and Long, E., 2014, Management for Mountain Pine Beetle Outbreak Suppression: Does Relevant Science Support Current Policy? Forests, v. *5*, p. 103-133, doi:10.3390/f5010103.

Six, D.L., Vergobbi, C. and Cutter, M., 2018, Are survivors different? Genetic-based selection of trees by mountain pine beetle during a climate-change-driven outbreak in a high-elevation pine forest: Plant Science, Plant Sci., 23 July 2018 | https://doi.org/10.3389/fpls.2018.00993

Six, D.L.,et al, 2021, Growth, Chemistry, and Genetic Profiles of Whitebark Pine Forests Affected by Climate-Driven Mountain Pine Beetle Outbreak: Frontiers in Forests and Global Change, v. 4 , Article 671510.

Sthultz, c.M., Gehring, C.A., and Whitam, Deadly combination of genes and drought: increased mortality of herbivore-resistant trees in a foundation species: Global Change Biology, v. 15, 1949–1961, doi: 10.1111/j.1365-2486.2009.01901.x

Watson, D.M., and Herring, M., 2012, Mistletoe as a keystone resource: an experimental test: Proceedings of the Royal Society, v. 279, p. 3853-3860.. R. Soc. B (2012) 279, 3853-3860 doi:10.1098/rspb.2012.0856.

Your statement on p. 6 stating: "(Arno 1976) found an average fire-free interval of 11 to 16 years in ponderosa pine and Douglas fir-dominated sites" is a misrepresentation of Arno's work. His re-examination of this research (Arno and Peterson, 1983) revealed some important nuances. First, they determined that the larger the fire scar sample area, the shorter the fire-free interval. They postulated that this is because all fire scars in the study area are "added together", but not all fires spread through the entire study area, resulting in an apparent fire-free interval that was shorter than reality. Second, they divided the data into forest zones/habitat types. Valley edges showed the shortest fire-free intervals, presumably because they were subject to frequent Indian burning. For the montane slopes, lower to mid-elevation forests (4,200 to 6,200 ft) with seral ponderosa and potential climax Doug fir that

comprise the majority of the low-mid elevations of the Bitterroot Front project, they found fire free intervals to be 20-31 years for study areas of the grove (intermediate) size. Subsequently, Arno et al. (1995) found mean fire-free interval to be 50 years at all study plot sizes at another BNF site (Fales Flat, Ponderosa pine-dominated with some Doug fir; 5,400-5,900' elevation). Arno and Peterson (1983) and Fryer (2016) also pointed out problems with basing fire history solely on fire scar studies, particularly the difficulty of determining the extent of pre-historic high severity fires. Many fire history researchers have attempted to address these problems and concluded that mixed severity fires were historically common in Ponderosa-pine-dominated forests (Baker et al, 2006; Odion et al, 2014; Lindbladh et al. 2013; Pierce and Meyer, 2008; Baker, 2017) . For example, Pierce and Meyer (2008) state: "*our results support a natural regime of mixed-severity fire in ponderosa-dominated forests in Idaho, a fire model that only includes frequent, low-severity fire is not applicable to this region"* .In addition, much of the Bitterroot Front project is above the pondersosa pine-dominated area of frequent fire, in forest types that historically had infrequent, high-severity fires

Many newer studies have found that fire-frequency in the northern Rockies has been overestimated and that mixed severity fires were historically common in dry, low elevation forests. They make the case for reintroducing fire without first doing extensive fuel treatments. In fact, you have examples of this possibility along the Bitterroot Front, including the 2016 backburn of the Observation Fire in steep terrain between Lost Horse Creek and the Observation Point, and the Roaring Lion fire in the area of Westside commercial harvest units 2a,b and the adjacent IRA. Of course, you logged those units after the fire anyway, possibly negating the beneficial effects of the mostly low-intensity fire. Your goal of eliminating all mixed and high severity wildfires is not ecologically sound, even for wildlife (for example, see Hutto, 1995, and Madison and Baxter, 2010).

Nepa requires that you use best available science. **Please review and summarize all scientific research since 1976 on fire history in the various forest types of the Bitterroot Front. Adjust treatments to reflect this research. For example, based on it, you may be able to re-introduce fire without commercial treatment in many areas. Please provide a wildfire history map for the area of this proposed project. Include all wildfires that occurred after 1950.**

Arno, S.F.; T. D. Peterson. 1983. Variation in estimates of fire intervals: a closer look at fire history on the Bitterroot National Forest. Research paper INT-301. Ogden, UT: USDA, Forest Service, Intermountain Forest. and Range Exp. Station.

Arno, S.F., Scott, J.H., and Hartwell, M.G., 1995, Age class structure of old growth Ponderosa Pine/Douglas Fir stands and its relationship to fire history: USFS Intermountain Research Station, Ogden Utah, Research Paper INT-RP-481, 29 p.

Baker WL (2017) Restoring and managing low-severity fire in dry-forest landscapes of the western USA. PLoS ONE 12(2): e0172288. https://doi.org/10.1371/journal.pone.0172288.

Baker, W.L., and Ehle, D., 2001, Uncertainty in surface-fire history: the case of ponderosa pine forests in the western United States: Canadian Journal of Forest Research. V. 31, p. 1205–1226. DOI: 10.1139/cjfr-31-7-1205.

Baker, W.L., T.T. Veblen, and Sherriff, R.L. 2007. Fire, fuels and restoration of ponderosa pine Douglas-fir forests in the Rocky Mountains, USA. Journal of Biogeography, 34: 251-269.

Brown PM, Kaufmann MR, Shepperd WD (1999). Long-term, landscape patterns of past fire events in a montane ponderosa pine forest of central Colorado. *Landscape Ecology* 14: 513-532.

Dellasala, D.A., Ingalsbee, T., and Hanson C.T, Everything you wanted to know about wildland fires in forests but were afraid to ask: Lessons learned, ways forward: https://forestlegacies.org/images/projects/wildfire-report-2018.pdf

Fryer, Janet L. 2016. Fire regimes of Northern Rocky Mountain ponderosa pine communities. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Missoula Fire Sciences Laboratory (Producer). Available: www.fs.fed.us/database/feis/fire_regimes/Northern_RM_ponderosa_pine/all.html

Hutto, R. L. 1995. Composition of bird communities following stand-replacement fires in Northern Rocky Mountain (U.S.A.) conifer forests. Conservation Biology 9: 1041–1058.

Malison, R.L., and C.V. Baxter. 2010. The fire pulse: wildfire stimulates flux of aquatic prey to terrestrial habitats driving increases in riparian consumers. Canadian Journal of Fisheries and Aquatic Sciences 67: 570-579.

Odion D.C., Hanson C.T., Arsenault A., Baker W.L., DellaSala D.A., Hutto R.L., Klenner W., Moritz M.A., Sherriff R.L., Veblen T.T., Williams M.A. 2014. Examining historical and current mixed-severity fire regimes in ponderosa pine and mixed-conifer forests of western North America. PLoS ONE 9: e87852.

Pierce, J., and Meyer, G., 2008, Long-Term Fire History from Alluvial Fan Sediments: The Role of Drought and Climate Variability, and Implications for Management of Rocky Mountain Forests: International Journal of Wildland Fire, v. 17, n. 1, DOI: 10.1071/WF07027

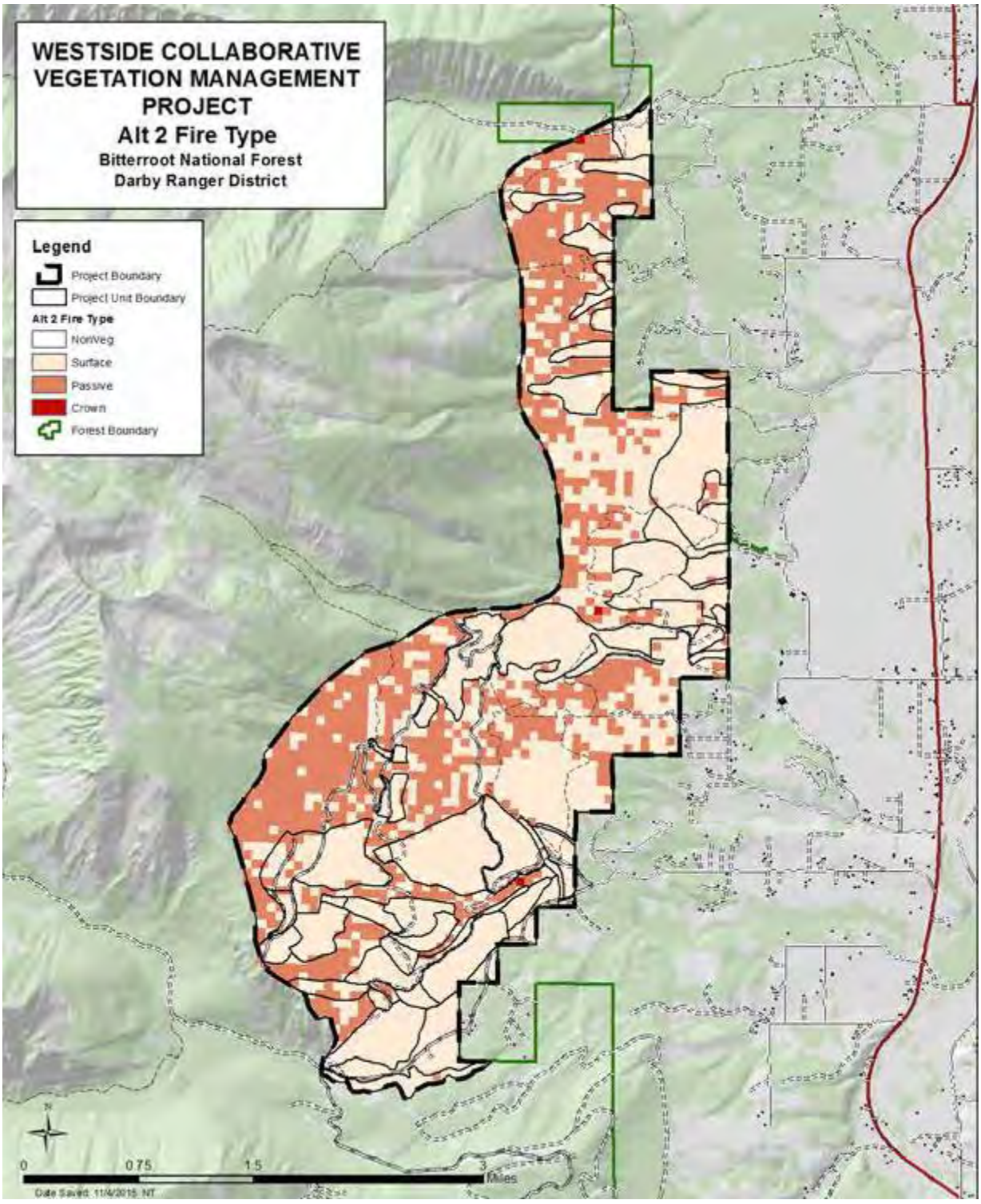
Swetnam, T.W., and Baisan, C.H., 1996, Historical Fire Regime Patterns in the Southwestern United States Since AD 1700, *in* CD Allen (ed), Fire Effects in Southwestern Forest: Proceedings of the 2nd La Mesa Fire Symposium, p. 11-32: USDA Forest Service, Rocky Mountain Research Station, General Technical Report RM-GTR-286.

Williams, M.A., W.L. Baker. 2012b. Comparison of the higher-severity fire regime in historical (A.D. 1800s) and modern (A.D. 1984-2009) montane forests across 624,156 ha of the Colorado Front Range. Ecosystems 15: 832-847..

In scoping document (p. 5) you state: *"The Bitterroot Front project area is part of a priority area of over 300,000 acres that has been identified by the Montana Forest Action Plan (MFAP) and has 5 of the top 10 Firesheds facing the most wildfire risk in Montana."* The scoping CPZ map shows a similar high fire risk hazard, with most WUI-adjacent areas showing highest (>90%) risk. Both the MFAP and CPZ maps appear highly inaccurate and incomplete, although the WUI area shading on the CPZ map obscures the fire risk rating there. For example, on the MFAP map between Lost Horse and Roaring Lion Creeks, areas that have been recently logged in the Westside (2018) and Hayes Creek (2010) projects, as well as areas burned in the 2016 Observation fire, still show high to very high fire hazard. In fact, the 2016, 1,500-acre Observation Fire is not even shown on the MFAP Recent Fire History map. And none of the areas

commercially logged in the Westside project (2018) were rated as high hazard by BNF even before they were logged! The Bitterroot Front CPZ map shows a similar high fire hazard rating for this area. On the next page of these comments is the map released in the Westside project EA showing fire potential for this area following completion of the Westside project. Note that there is virtually no potential for active crown fire (there was little even before the project, according to the Westside EA), with most areas having only potential for ground fire. Additionally, the Roaring Lion fire burned through the north half of this area, further lowering fire risk**. Why do the MFAP and CPZ maps show such high fire risk for this area? Why didn't the 2016 Roaring Lion and Observation Fires and the Hayes Creek and Westside timber projects lower this risk? Are the data for all the Bitterroot Front areas as inaccurate and incomplete as they are for this one?** We have to assume so. If the data are flawed, then the results are too. As with all models, if garbage is put in, then garbage will come out.

Please provide maps similar to those released on the Westside EA showing fire potential for ground, passive crown (torching), and active crown fire for the entire Bitterroot Front project so that we can accurately evaluate the fire risk for ourselves. Please justify the risk shown on your CPZ map with the data used to generate it. Please remove the WUI overlay so the fire risk is not obscured. Please release your 2019 Fire Risk Map with explanations and data sources used to generate it.

- 

Map from the Westside project EA showing fire potential of the Westside project area following the project. Despite the minimal potential for active crown fire (dark red), both BNF and MFAP maps show this area as high to very high risk/hazard.

The WUI shown on the BNF CPZ map is a political, not a scientific, boundary. It does not consider prevailing wind direction, topography, slope steepness, aspect, elevation, forest type, or proximity of structures. It is simply drawn from the BNF boundary into the forest for 1½ miles. BNF, with all their data, can certainly do better. For example, Jack Cohen's work suggests that maybe the WUI should include only the first 200 feet from structures. **Please provide a definition of WUI based on science, and on distance to structures, not the forest boundary.**

Calkin, D.E., Cohen, J.B, Finney, M.A., and Thompson, M.P., 2014, How risk management can prevent future wildfire disasters in the wildland-urban interface: PNAS, v. 111, n. 2, p. 746, www.pnas.org/cgi/doi/10.1073/pnas.1315088111

Cohen, J.D. 1999. Reducing the wildland fire threat to homes: Where and how much? PSW-GTR-173. 189-195. [0863]

Cohen, J.D. 2000.What is the wildland fire threat to homes? Presented as the Thompson Memorial Lecture, School of Forestry, Northern Arizona University, Flagstaff, AZ; April 10, 2000. [http://www.nps.gov/fire/download/pub_pub_wildlandfirethreat.pdf [0502]

Cohen, J.D. 2002.Wildland-urban fire: A different Approach. [1611] [http://www.firelab.org/]

Cohen, J.D. 2003a. An examination of the Summerhaven, Arizona home destruction related to the local wildland fire behavior during the June 2003 Aspen Fire. [1715] http://www.tucsonfirefoundation.com/wp-content/uploads/2012/07/2003-Summerhaven-Ho-Dest.pdf

Cohen, J.D. 2003b. Structure ignition assessment model (SIAM). USDA Forest Service General Technical Report PSW-GTR-158, 1995. An abbreviated version of this paper was presented at the Biswell Symposium: Fire Issues and Solutions in Urban Interface and Wildland Ecosystems, February 15–17, 1994,Walnut Creek, CA. [1716] [http://www.fs.fed.us/psw/publications/documents/psw_gtr158/psw_gtr158_05_cohen.pdf]

Cohen, J.D. 2003c. Thoughts on the wildland-urban interface fire problem. Published inWildfire Magazine and International Journal ofWildland Fire. http://www.nps.gov/fire/download/pub_pub_wildurbaninterface.pdf

Cohen, J.D. and J. Saveland. 1997. Structure ignition assessment can help reduce fire damages in the WUI. [1717] https://www.firelab.org/

On previous projects, naturally reclaimed undetermined and ghost roads were re-opened and not counted as new roads. Temporary roads were not considered roads. A look at Google Earth images reveals that almost all of the Bitterroot Front outside the IRAs and RWAs is densely roaded. Roads are very unpopular with the public owners of BNF. The Google Earth images at the end of this document show there are already way too many roads. **Please disclose the number of miles of roads, of all types, that already exist within the project area. Please build no new roads of any type, including system and temporary roads, and the re-opening of ghost and undetermined roads. All commercial logging should be within reach of existing system roads and require no new roads of any sort.**

Previous projects have never analyzed their effects on climate change or greenhouse gas emissions. Numerous recent studies show that logging emits significantly more greenhouse gases than wildfire (Campbell et al, 2011; Harris et al, 2016; Law and Waring, 2015; Law and others, 2017, 2022; Reinhardt and Holsinger, 2010; Stenzel et al, 2019; Wilson et al, 2021).Climate change is the driver of the big fires

you are concerned about. NEPA requires you to thoroughly analyze greenhouse gas emissions and the impacts of the project on climate change (Center for Biological Diversity v. Nat'l H'wy Traffic Safety Admin., 538 F.3d 1172, 1217 (9th 2008)) **. Please thoroughly analyze the project's effects on greenhouse gas emissions and climate change.**

Campbell, J.L., Harmon, M.E., Mitchell, S.R., 2011, Can fuel reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions? Frontiers in Ecology and Environment, doi:10.1890/110057.

Harris, N.L., and 6 others, 2016, Attribution of net carbon change by disturbance type across forest lands of the conterminous United States: *Carbon Balance Management, v. 11, 24 p.* DOI 10.1186/s13021-016-0066-5.

Law, B.E., and Waring, R.H., 2015, Carbon implications of current and future effects of drought, fire, and management on Pacific Northwest forests: Forest Ecology and Management, v. 355, p. 4-14.

Law, B.E., Hudibug, T.W., Berner, L.T., Kent, J.J., Buotte, P.C., and Harmon, M.E., 2017, Land use strategies to mitigate climate change in carbon-dense temperate forests: PNAS, www.pnas.org/cgi/doi/10.1073/pnas.1720064115.

Mildrexler, D.J.,et al, 2020, Large Trees Dominate Carbon Storage in Forests East of the Cascade Crest in the United States, Pacific Northwest: Frontiers in Forests and Global Change, v. 3, p. 1-15, Article 594274.

Reinhardt, E., and Holsinger, L, 2010, Effects of fuel treatments on carbon-disturbance relationships in forests of the northern Rocky Mountains: Forest Ecology and Management, v. 259, p. 1427–1435.

Segerstrom, C., 2018, Timber is Oregon's biggest carbon polluter: High Country News, May 16, 2018.

Stenzel, J.E., et al, 2019, Fixing a snag in carbon emissions estimates from wildfires: Global Change Biology, v. 25, 3985-3994, DOI: 10.1111/gcb.14716.

Stephenson, N.L. et al, 2014, Rate of tree carbon accumulation increases continuously with tree size: Nature, v. 507, p. 90-93, doi:10.1038/nature12914

Studies show that old and mature forests store more carbon than young forests (Mildrexler et al, 2020; Law et al, 2022). **Please identify, using on-the-ground surveys, all old growth and mature forests in the project area as per Biden's recent executive order. Release maps showing results in the EIS.** Remote sensing techniques are inadequate. For example, on the Westside project, 20 acres of old growth was logged and taken out of old growth status in violation of HFRA. BNF had denied this was old growth, but I confirmed it was after measuring and counting rings on the cut stumps. There are no old growth researchers that advocate cutting any old or large trees. Instead, because there is a deficit of old growth relative to historic levels, you should be trying to recruit more stands into old growth status. To do so, **please impose an upper dbh limit for ponderosa and doug fir of 16" on timber harvest to retain these mature trees. Follow the recommendations in the papers cited below. Do no commercial harvest or road building in old growth stands.**

Churchill, D.J., A.J. Larson, S.M.A. Jeronimo, M.C. Dahlgreen, and J.F. Franklin. 2013. The ICO approach to quantifying and restoring forest spatial pattern: Implementation guide. Version 2.0. Stewardship Forestry, Vashon, Washington, USA

Fiedler, C. E., P. Friederici, M. Petruncio, C. Denton, and W. D. Hacker. 2007a. Managing for old growth in frequent-fire landscapes. *Ecology and Society* **12**(2): 20. URL: http://www.ecologyandsociety.org/vol12/iss2/art20/

Fiedler, C. E., P. Friederici, and M. Petruncio. 2007b. Monitoring old growth in frequent-fire landscapes: *Ecology and Society* **12**(2): 22. URL: http://www.ecologyandsociety.org/vol12/iss2/art22/

Hessburg, P.F., et al., 2015, Restoring fire-prone Inland Pacific landscapes: seven core principles: Landscape Ecology, v. 30, p, 1805–1835. DOI 10.1007/s10980-015-0218-0

Pfister, R.D., et al, 1977, Forest types of Montana: Gen. Tech. Rep. INT-GTR-34. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest & Range Experiment Station. 174 p.

Rapp, V., 2003, New findings about old-growth forests: Pacific Northwest Research Station Science Update, 12 p. https://www.fs.fed.us/pnw/pubs/science-update-4.pdf

USDA Forest Service, 1987, Old Growth Habitat Characteristics and Management Guidelines. Kootenai National Forest, Forest Plan Appendix 17. USDA Forest Service Region One

Yanishevsky, Rosalind M., 1994. Old-Growth Overview: Fragmented Management of Fragmented Habitat. Pp. 7-36 *in* Rocky Mountain Challenge: Fulfilling a New Mission in the U.S. Forest Service. Association of Forest Service Employees For Environmental Ethics, P.O. Box 11615, Eugene, Oregon 97440, February, 1994.

Please demonstrate that commercial or non-commercial treatments are necessary prior to implementing prescribed fire. On other recent projects, you have created either widely and evenly spaced pine plantations, or, worse yet, clearcuts. Clearcutting is extremely unpopular with the public owners of BNF, and they are overwhelmingly detrimental to forest ecology. **Create no clearcuts of any size.**

One of your stated goals is to improve wildlife habitat. **Please show examples where activities similar to the ones proposed have actually improved wildlife habitat.** Similar activity—commercial logging followed by prescribed burning—in ponderosa forest in the project area as part of the BNF Hayes Creek project a decade ago resulted in a hot open forest with a ground cover of mostly knapweed that I call the knapweed savanna. Your heavily mechanized treatments are likely to provide similar results. In fact, Fielder and Dobson (2006) concluded that the most effective way to increase invasive weeds in a ponderosa forest is commercial thinning followed by a prescribed burn.

Dodson, E.K., and C.E. Fielder, 2006, Impacts of restoration treatments on alien plant invasion: Journal of Applied Ecology 43, 887–897.

Winter view of the knapweed savanna created by BNF's Hayes Creek project using a feller-buncher (2010) followed by prescribed burning in spring, 2012. Elevation 4,200'.

BNF is proposing site-specific amendments for EHE, old growth, coarse woody debris, and snags. Similar site-specific amendments are also proposed for the Mud Creek and Gold Butterfly projects, which together with the Bitterroot Front, cover a large percentage of BNF outside the Wilderness and WSAs. **Explain, then, how site-specific amendments are appropriate.** Site-specific amendments are meant to address unique characteristics of a particular forest area, not to repeatedly address conditions that are common throughout an entire forest or region. BNF is applying this amendment for all ongoing projects because it is no longer workable for the forest as a *whole*. Clearly, these amendments must be proposed as a forest-wide Forest Plan amendments, not amended away one geographic area at a time. BNF must conduct the required forest-wide planning and NEPA processes to amend old growth standards. BNF obviously knows this because a forest wide amendment is simultaneously being scoped. **Please provide an assessment of the proposed amendment's significance in the context of the larger forest plan as required (36 C.F.R. § 219.10(f), FSH 1922.5). Please evaluate this proposed forest plan amendment as to whether it would constitute a significant change in the long-term goods, outputs, and services projected for an entire National Forest as required by NFMA. Please explain what unique characteristics occur in the Bitterroot Front area that qualify it for a site-specific amendment when other identical amendments are proposed on two other large projects. Please provide analysis of cumulative effects of using this site specific amendment together with the other similar site specific amendments for the Mud Creek and Gold-Butterfly projects.**

One of your secondary goals is to address grazing (p. 5). Just what is meant by that statement? Currently there are 3 grazing allotments along the Bitterroot Front. The largest by far, the Trapper allotment, is currently vacant. Livestock grazing always degrades the ecosystem, so permanently retiring the vacant Trapper allotment offers a great opportunity for habitat and ecosystem improvement**. Please permanently retire the Trapper grazing allotment, and work towards voluntary retirement of the two active allotments. Do not offer more allotments; increased livestock grazing conflicts with the Purpose and Needs of the project .**

Photo of ungrazed BNF riparian area and creek on the left entering heavily grazed private land on the right, Bitterroot Front project area. The results of grazing are obvious.

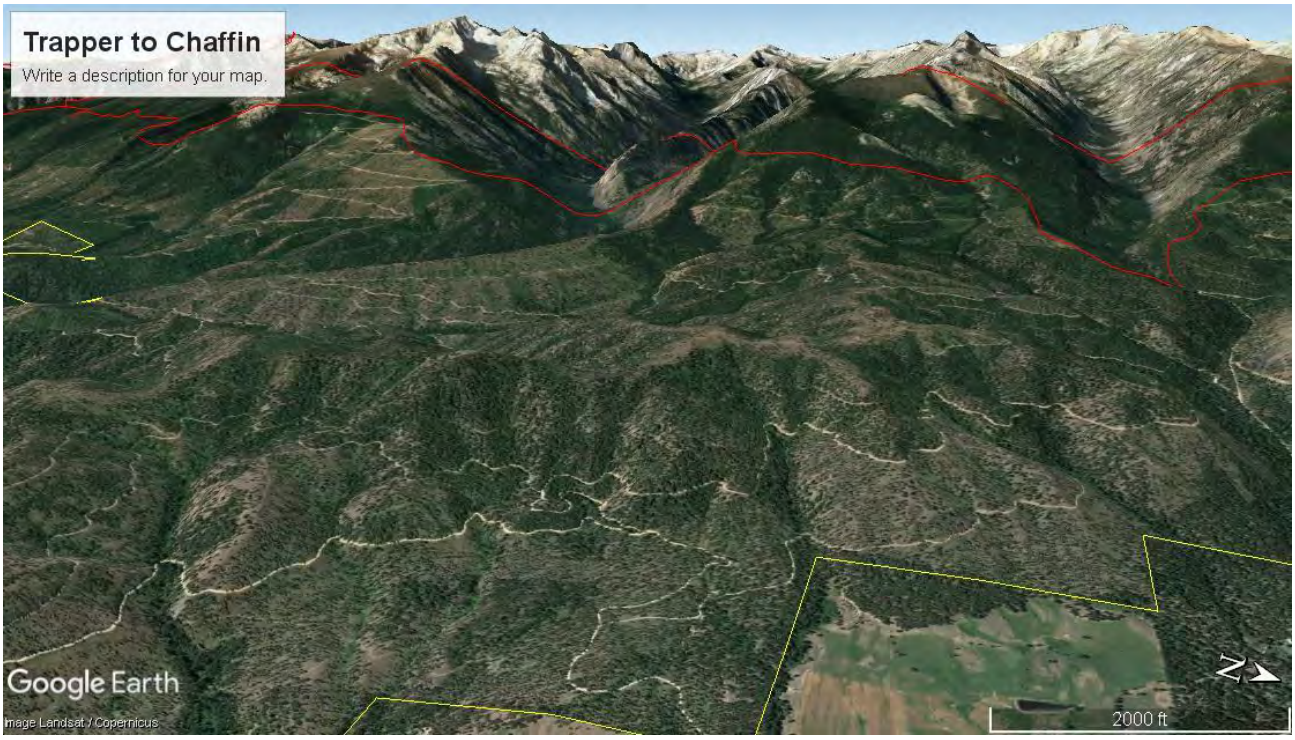
Summary: Prioritize non-commercial treatments of the endless previously logged and burned areas that contain thick, immature forest. Use prescribed fire where appropriate, but do no commercial logging beforehand. Do no new road construction of any type. Keep mechanical treatments out of IRAs. Stay out of RWAs and RNAs completely. Prioritize system road and trail maintenance. Improve private recreational opportunities, for example, by building new trails in easily accessible areas of the foothills. Permanently retire grazing allotments, and do not offer new ones. Teach people to live with wildfire, and encourage private landowners and homeowners to make their properties more fire wise. That's the only thing that will save their homes. Logging mature forest has never helped the fire problem, the forest ecosystem, or wildlife. It's 2022, and there are now more than 50,000 humans in

the Bitterroot Valley. Almost all value things that the forest can produce other than timber—clean water, clean air, wildlife, recreation, and unspoiled country.

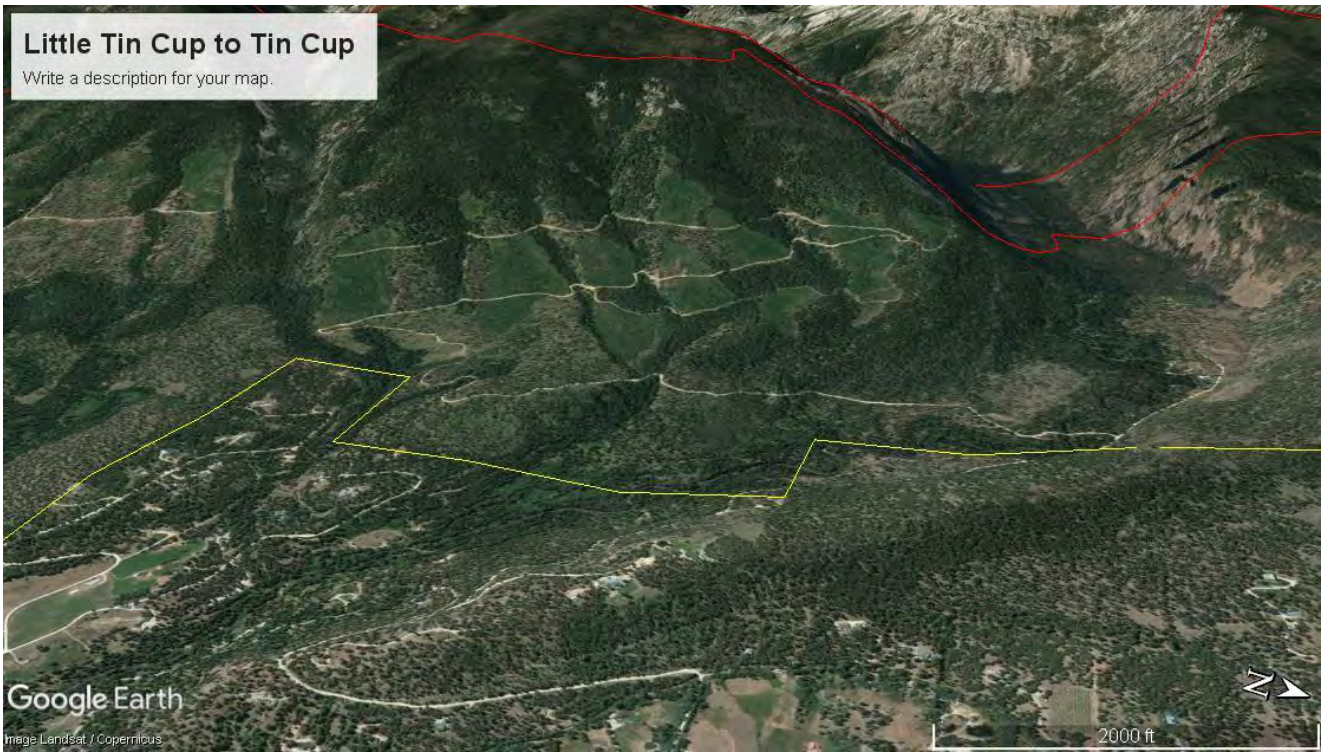
God has cared for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he cannot save them from fools.--John Muir

How true.

The following pages are Google Earth images of the entire Bitterroot Front project, from south to north, generated from kml files. They are westward views. The yellow lines represent the private-BNF boundary. Roadless areas (IRAs, RWAs, RNAs) lie beyond the nearest red line, which is the eastern boundary. The second, farther red line visible on some photos is the eastern Selway-Bitterroot Wilderness boundary. Boundaries are derived from the BNF database. It's helpful to zoom in to 200%. Note that almost all the BNF outside the roadless areas, between the yellow and red lines, is severely fragmented and impacted by previously logging and logging roads.




Chaffin to Little Tin Cup
Write a description for your map.
Google Earth
Image Landsat / Copernicus
2000 ft
N


Little Tin Cup to Tin Cup
Write a description for your map.
Google Earth
Image Landsat / Copernicus
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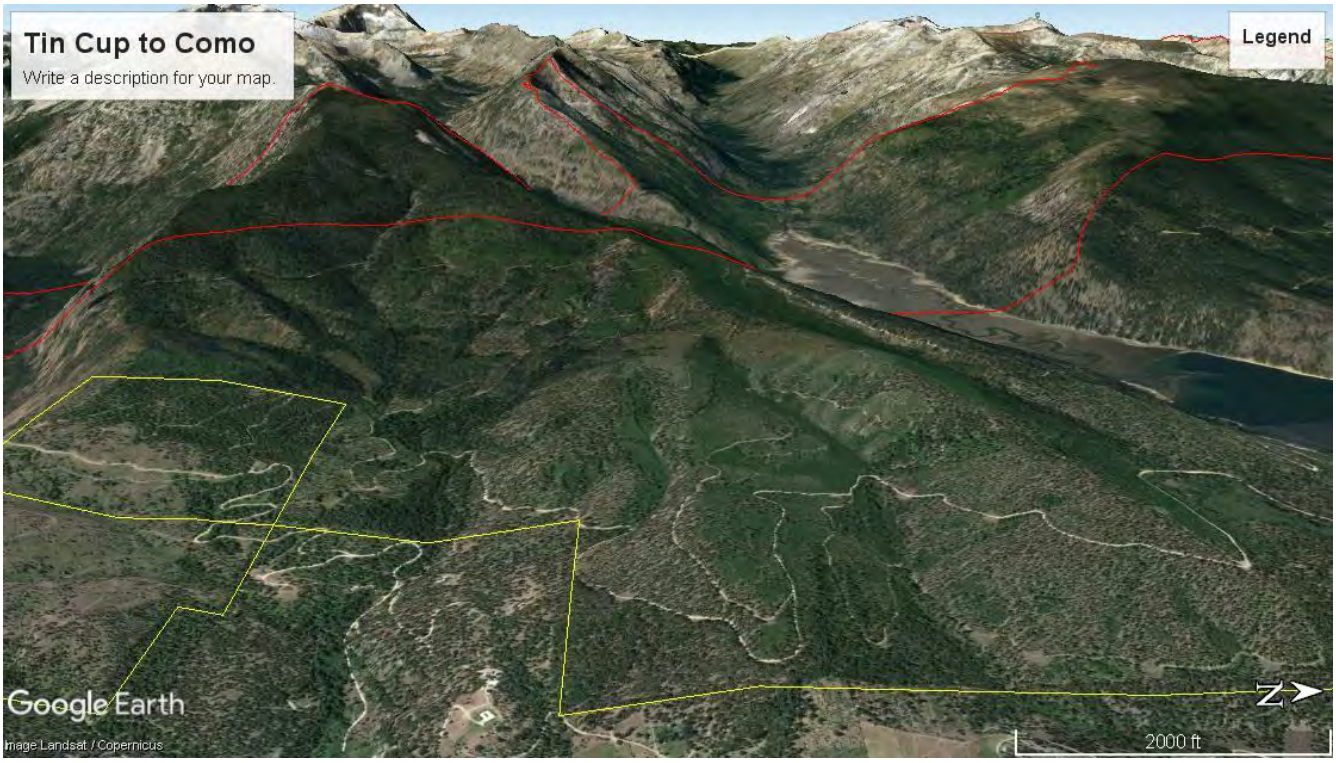
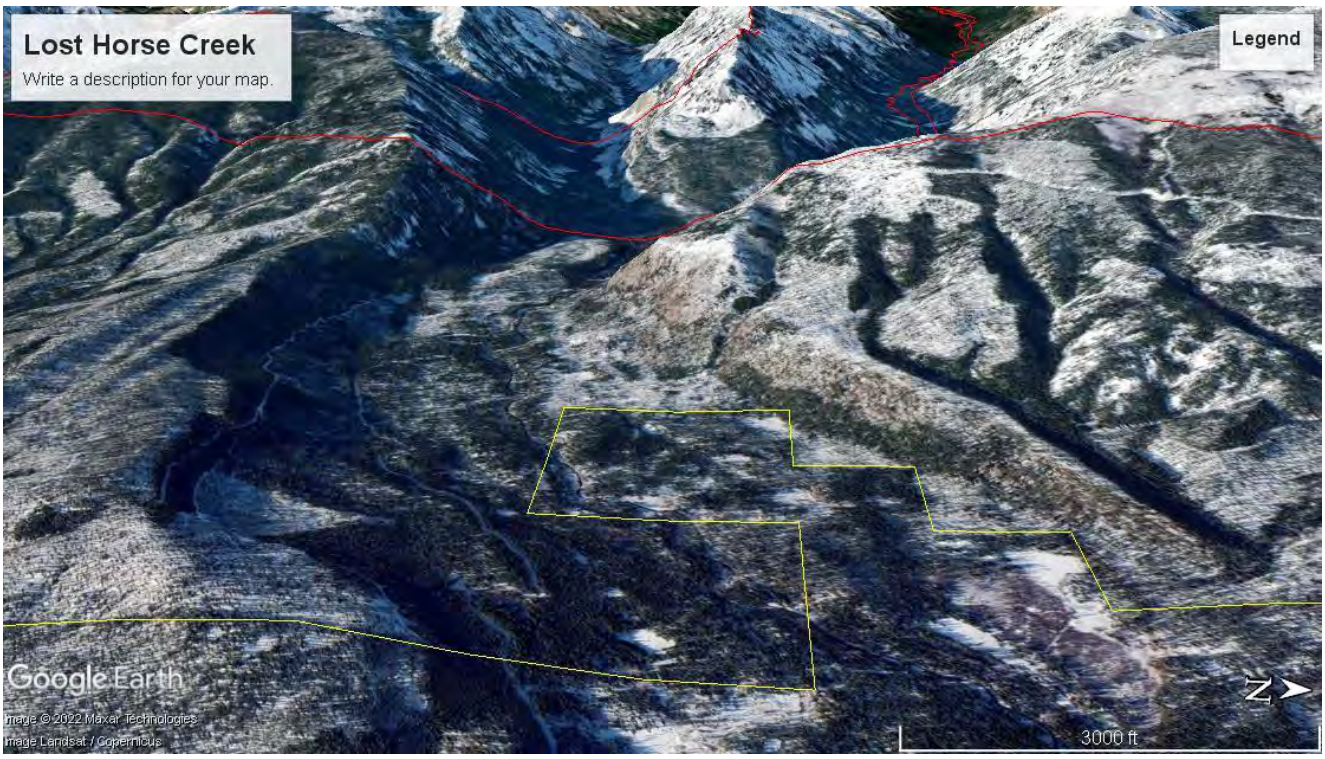

Tin Cup to Como
Write a description for your map.
Legend
Google Earth
Image Landsat / Copernicus
2000 ft


Como to Lost Horse
Google Earth
1 mi


Lost Horse Creek
Write a description for your map.
Legend
Google Earth
Image © 2022 Maxar Technologies
Image Landsat / Copernicus
3000 ft
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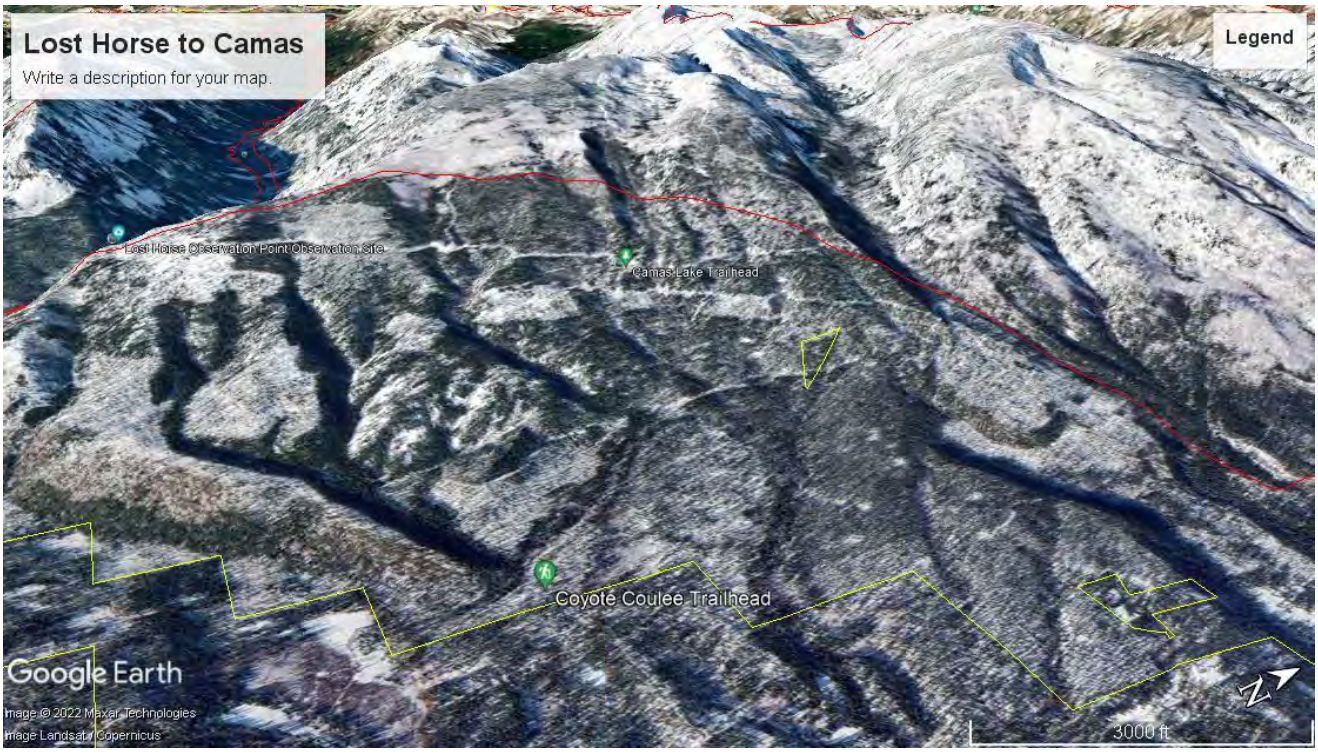
Lost Horse to Camas
Write a description for your map.
Legend
Lost Horse Observation Point Observation Site
Camas Lake Trailhead
Coyote Coulee Trailhead
Google Earth
Image © 2022 Maxar Technologies
Image Landsat / Copernicus
3000 ft
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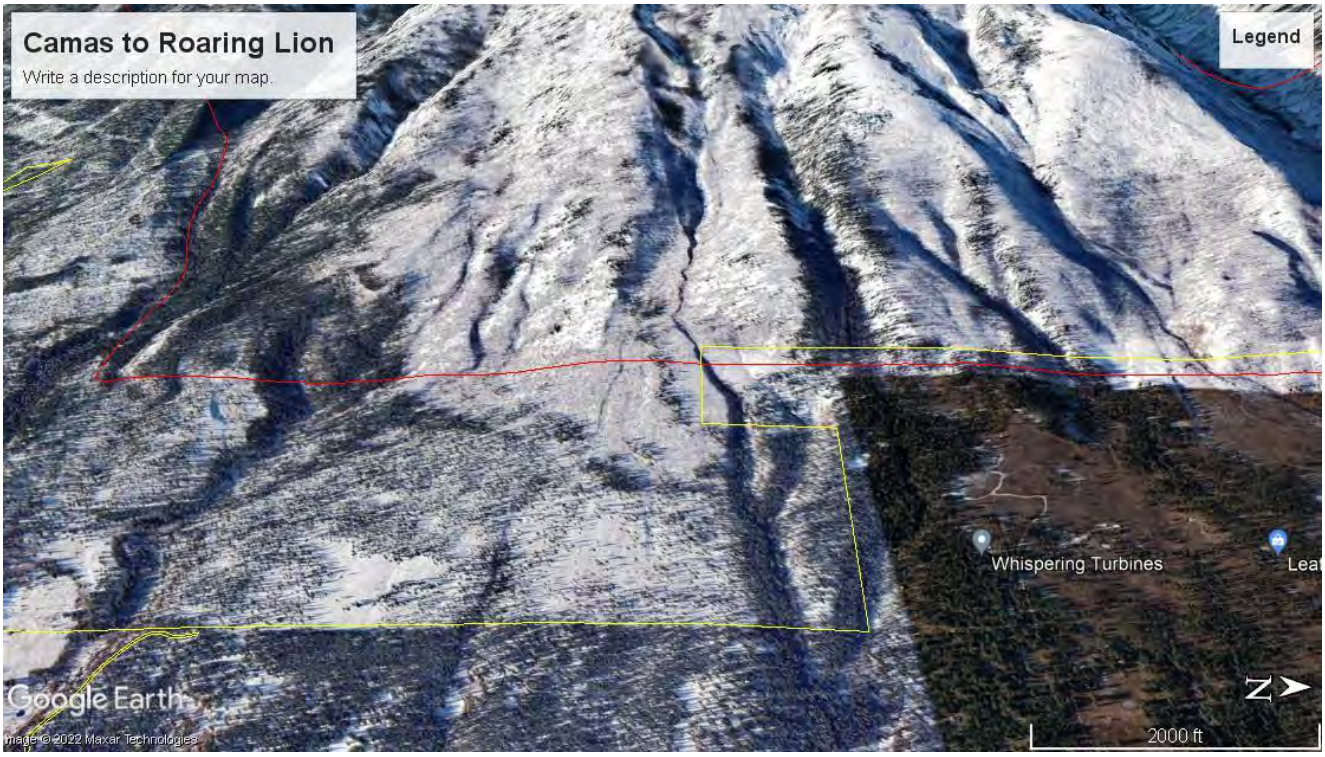
Camas to Roaring Lion
Write a description for your map.
Legend
Whispering Turbines
Google Earth
Image © 2022 Maxar Technologies
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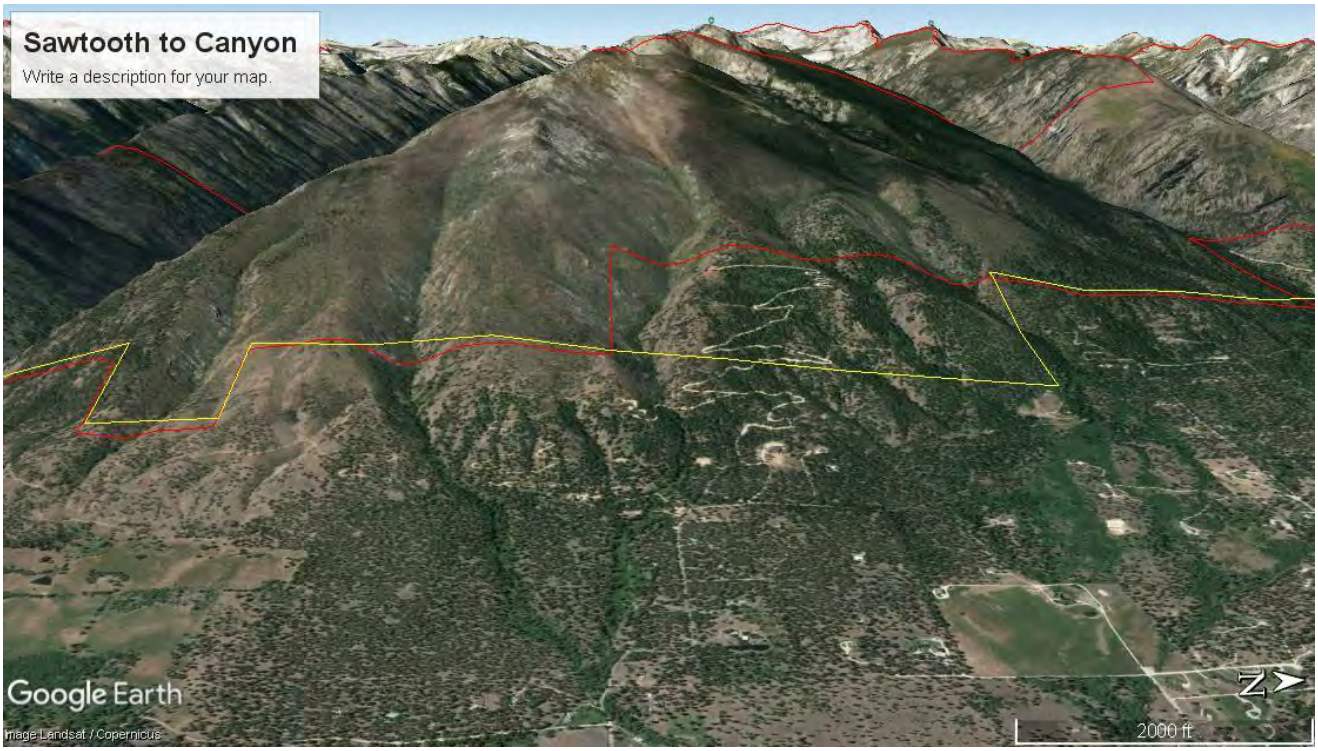
2000 ft


Sawtooth to Canyon
Write a description for your map.
Google Earth
Image Landsat / Copernicus
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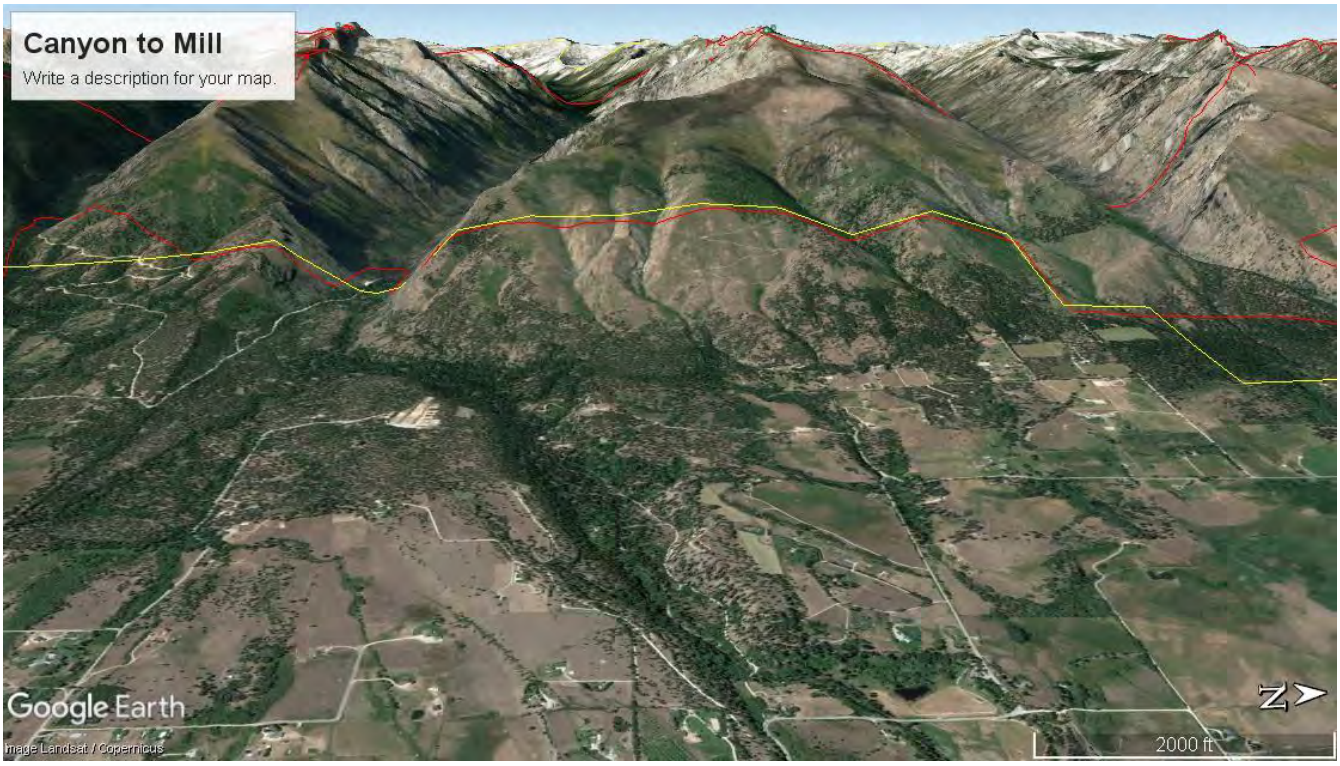
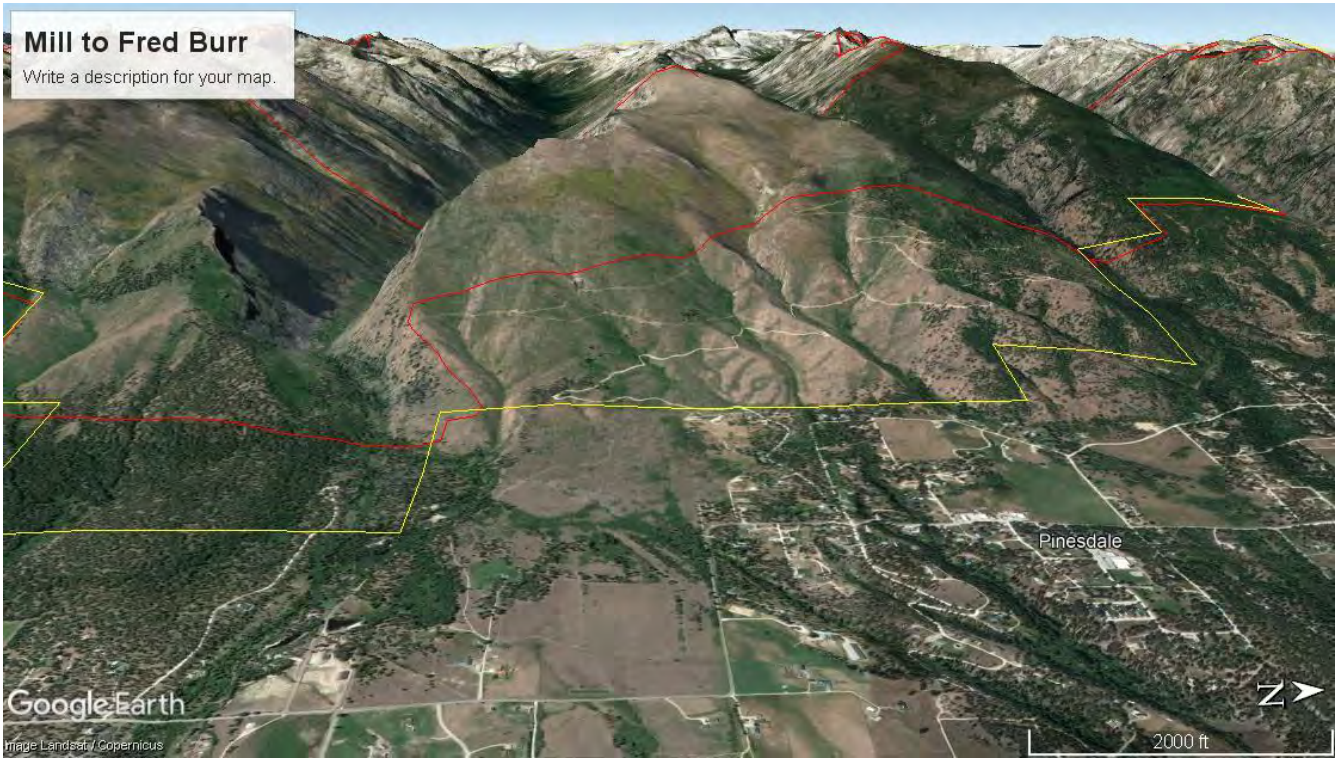
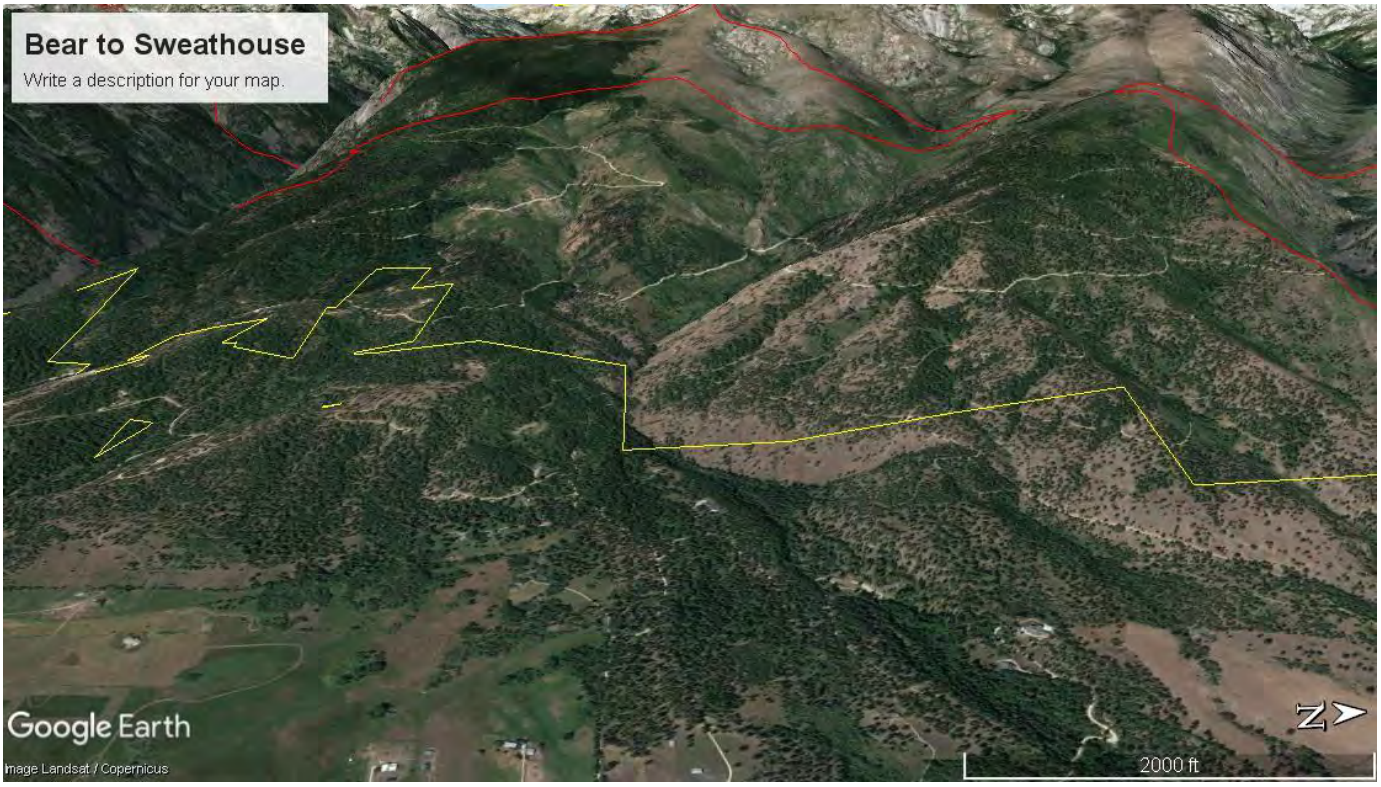
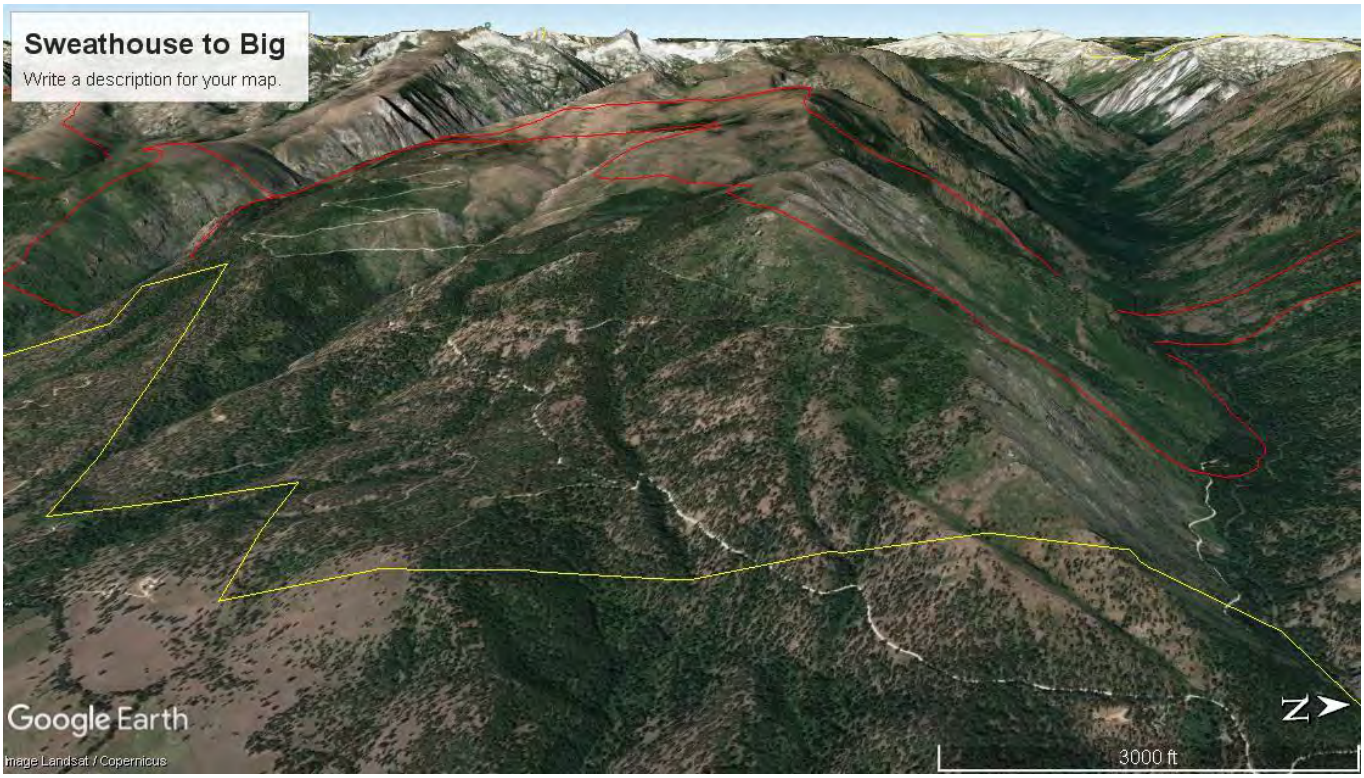
2000 ft


Canyon to Mill
Write a description for your map.
Google Earth
Image Landsat / Copernicus
2000 ft


Mill to Fred Burr
Write a description for your map.
Pinesdale
Google Earth
Image Landsat / Copernicus
2000 ft


Fred Burr to Bear
Write a description for your map.
Google Earth
Image Landsat / Copernicus
1000 ft


Bear to Sweathouse
Write a description for your map.
Google Earth
Image Landsat / Copernicus
2000 ft


Sweathouse to Big
Write a description for your map.
Google Earth
Image Landsat / Copernicus
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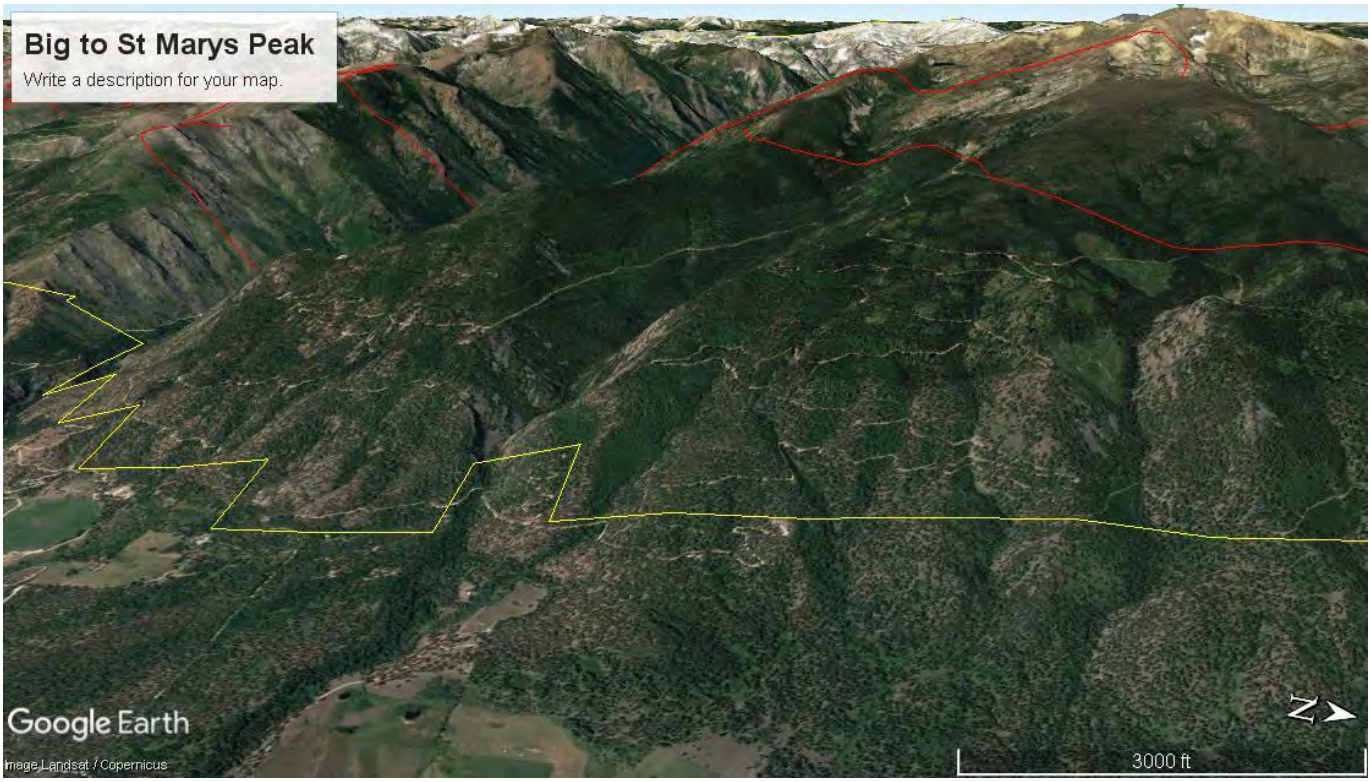
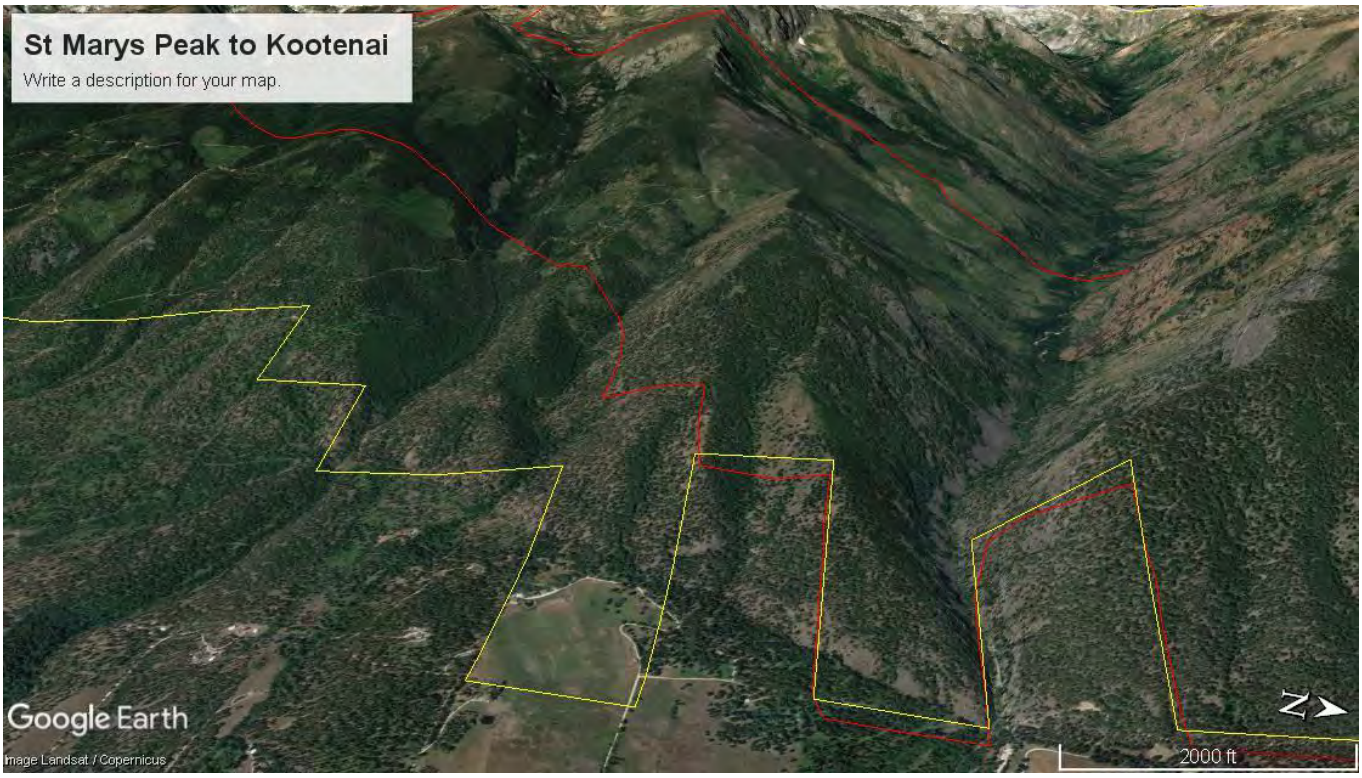
3000 ft


Big to St Marys Peak
Write a description for your map.
Google Earth
Image Landsat / Copernicus
N
3000 ft


St Marys Peak to Kootenai
Write a description for your map.
Google Earth
Image Landsat / Copernicus
2000 ft
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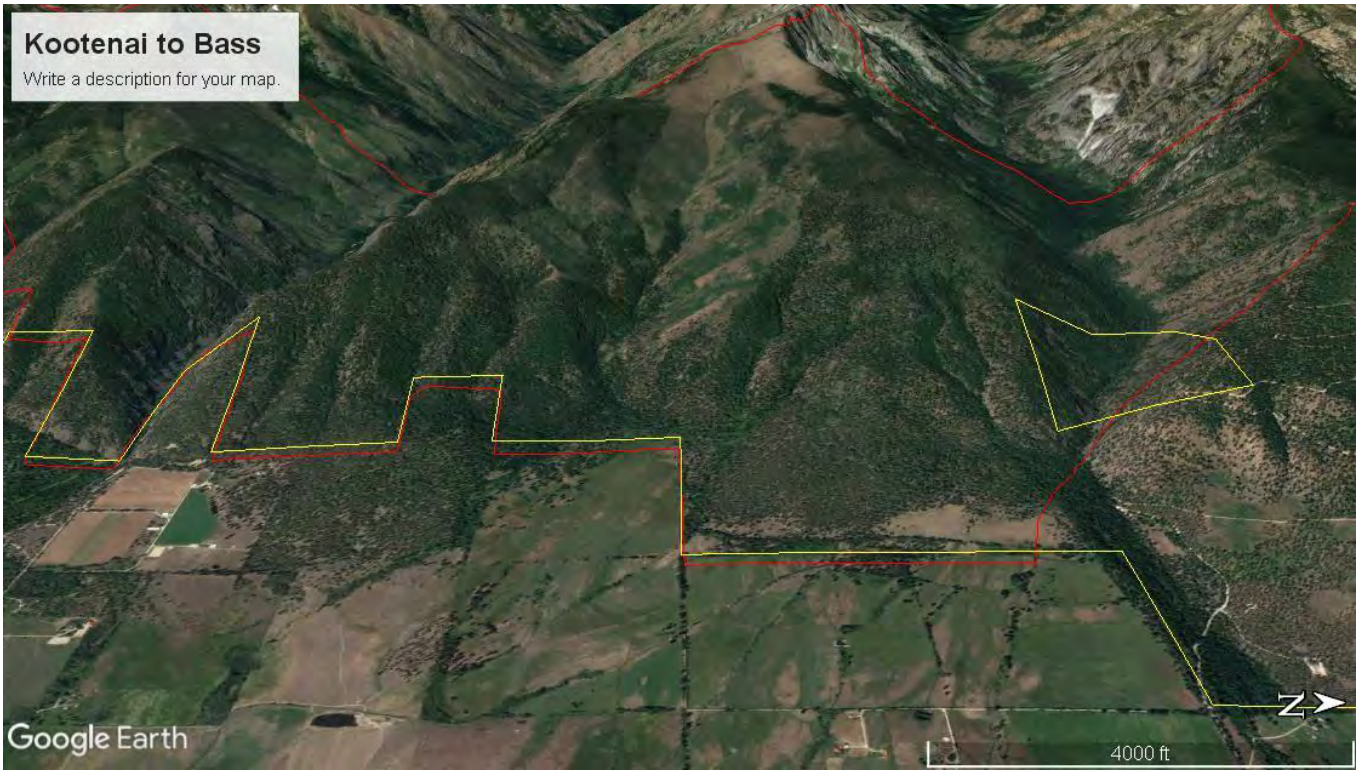
Kootenai to Bass
Write a description for your map.
Google Earth
4000 ft
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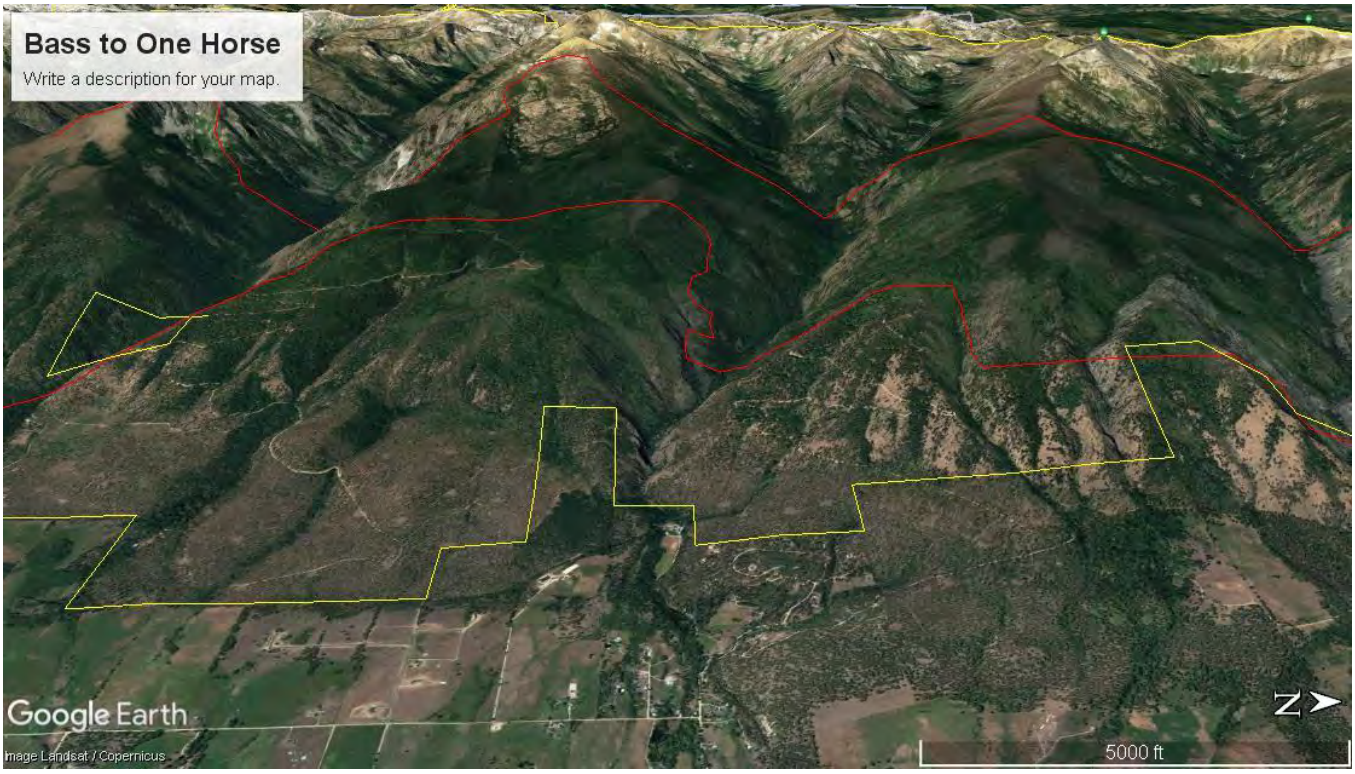
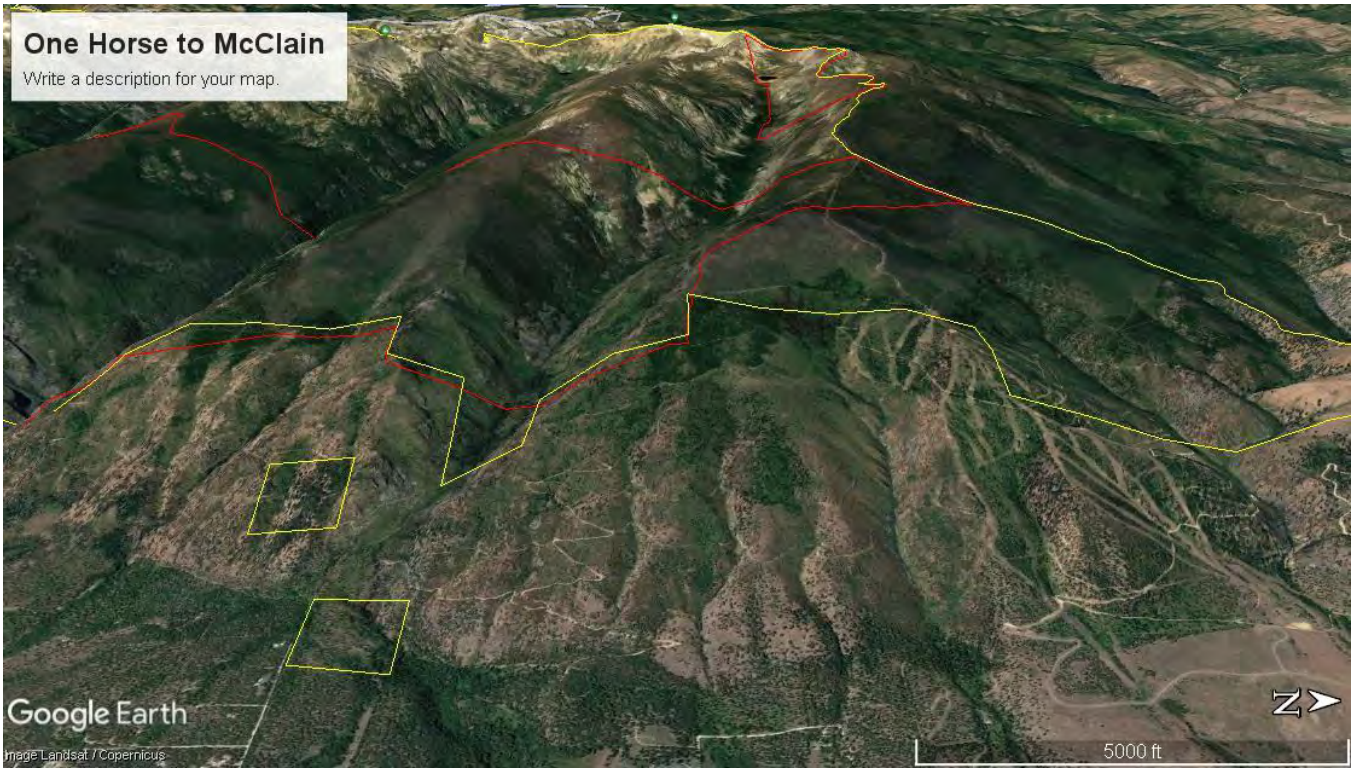

Bass to One Horse
Write a description for your map.
Google Earth
Image Landsat / Copernicus
5000 ft
N


One Horse to McClain
Write a description for your map.
Google Earth
Image Landsat / Copernicus
5000 ft
N