Declaration

Pacific Northwest National Scenic Trail

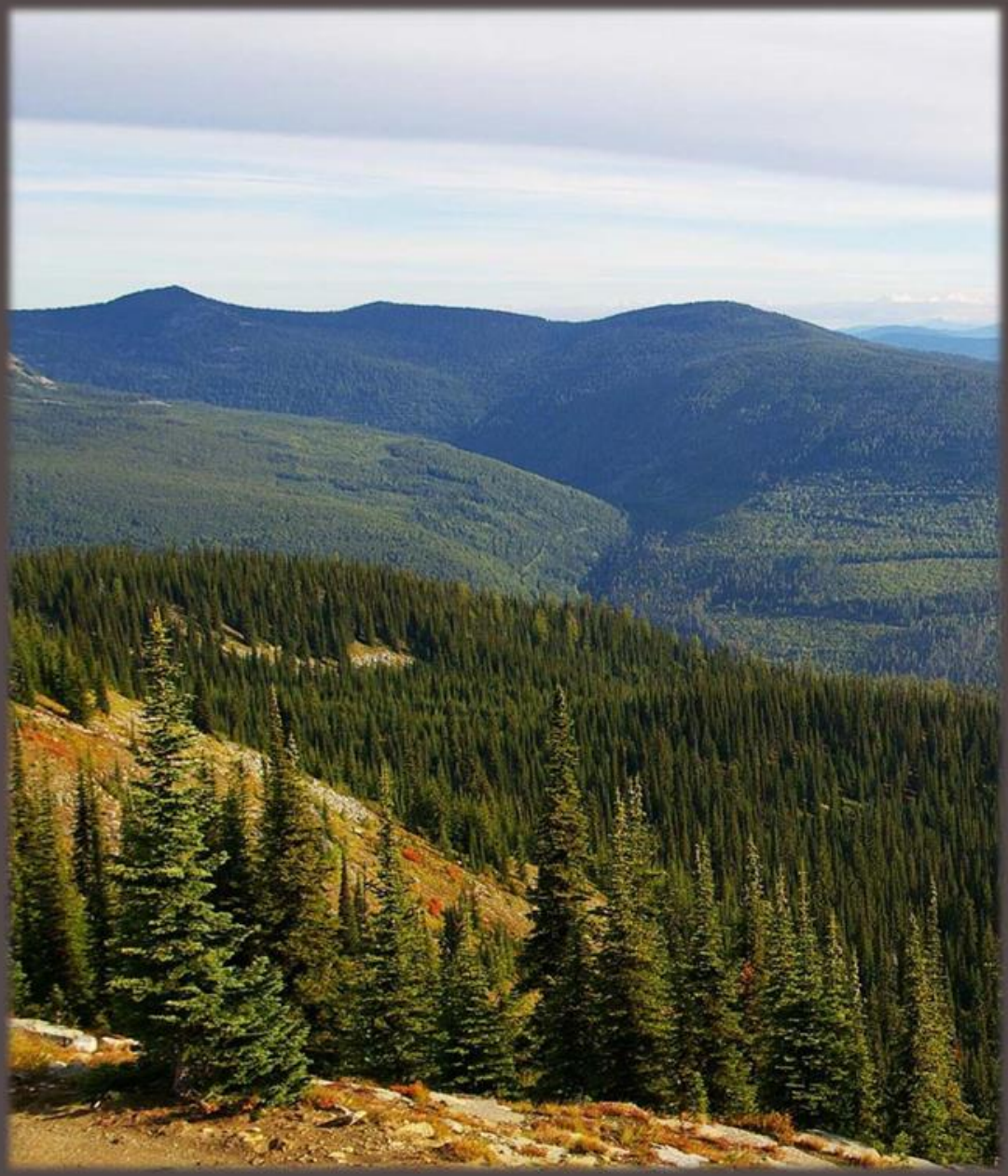
Yaak Valley Forest Council

v.

Sonny Perdue, Secretary of Agriculture

U.S. Forest Service, Northern Region

David J. Mattson, Ph.D.



2020

The Grizzly Bear Recovery Project

P.O. Box 2406,
Livingston,
Montana

I, DAVID J. MATTSON, hereby declare:

1. I am a scientist and retired wildlife management professional with extensive experience in grizzly bear research and conservation spanning four decades. My educational attainments include a B.S. in Forest Resource Management, an M.S. in Plant Ecology, and a Ph.D. in Wildlife Resource Management. My professional positions prior to retirement from the U.S. Geological Survey (USGS) in 2013 included: Research Wildlife Biologist, Leader of the Colorado Plateau Research Station, and Acting Center Director for the Southwest Biological Science Center, all with the USGS; Western Field Director of the Massachusetts Institute of Technology-USGS Science Impact Collaborative; Visiting Scholar at the Massachusetts Institute of Technology; and Lecturer and Visiting Senior Scientist at the Yale School of Forestry & Environmental Studies.

2. My dissertation focused on the ecology of grizzly bears in the Greater Yellowstone Ecosystem during 1977-1996 (Mattson 2000). I was a member of the Interagency Grizzly Bear Study Team during 1979-1993, and was charged with designing and supervising field investigations during 1985-1993. During 1997-2005, my investigations of broad-scale relations between habitat and grizzly bear demography, density, and persistence resulted in several publications of relevance to the current plight and future prospects of grizzly bears in the Cabinet-Yaak Ecosystem (Merrill et al. 1999; Mattson & Merrill 2002, 2004; Mattson et al. 2005), all of which were informed by 18 years of residence in northern Idaho and related travels and field work encompassing northwestern Montana.

3. Although my field studies of grizzly bears ended in 1993, my involvement in grizzly bear-related research, management, and education, both regionally and internationally, has continued through the present. Throughout my career I have been consulted by brown/grizzly bear managers and researchers worldwide, including from Russia, Japan, France, Spain, Greece, Italy, and, most notably, Canada. I have also given numerous public presentations on grizzly bear ecology and conservation, including talks, nationally, at the Smithsonian (Washington, D.C.) and American Museum of Natural History (New York, New York), and, regionally, at the Denver Museum of Natural History (Denver, Colorado), the Museum of Wildlife Art (Jackson, Wyoming), and the Museum of the Rockies (Bozeman, Montana).

4. What follows is my declaration regarding likely effects of the Pacific Northwest National Scenic Trail (hereafter, the PNT), as currently planned, on grizzly bears in the Yaak region of the Kootenai National Forest in northwestern Montana.

5. Many of the following points in my declaration draw heavily on objections I submitted on 12 November 2020 to the Northern Region of the Forest Service pertaining to the draft Decision Notice and Finding of No Significant Impact for Alternative 2 of the Black Ram Project in the Yaak region (hereafter, Mattson [2020]). My objections also covered the Black Ram Environmental Assessment and US Fish & Wildlife Service Biological Opinion dated 28 August 2020, reissued 7 October 2020, covering the Kootenai National Forest 2015 Land Management Plan (hereafter, the BiOp). These decision documents and my related objections cover most of the issues that have arisen in relation to the PNT. I refer in places to Mattson (2020) for greater elaboration of points of my declaration that follow, including information on supporting scientific references.

6. Small size and partial isolation make the Yaak grizzly bear population acutely vulnerable to unforeseen and unintended population declines that increase the odds of local extirpation (Mattson 2020:3-8).

7. There are, at most, 35 grizzly bears in the Yaak area existing at the lowest density documented for any bear population outside of harsh arctic environments. Even including grizzly bears in the contiguous Canadian Yahk population, total population size is no more than 60, but probably closer to 50. This handful of bears has been isolated for long enough from more robust grizzly bear populations elsewhere to result in demographic and even genetic differentiation. Immigration into the Yaak/Yahk population during the last 3 decades has amounted to roughly 1 surviving bear every 6 years, with surviving immigrants successfully reproducing only once every 10 years or so. This rate of immigration is insufficient for demographic rescue and only marginally sufficient for improving the genetic health of this population (Mattson 2020:6, Section A.2.a).

8. Populations of 50-60 bears have a high probability (50-90%) of extirpation within a relatively short period of time (100 years), largely from causes outside the control of managers, including environmental variation and chance events that affect mating and reproduction (Mattson 2020:6-7, Section A.2.b). Environmental variation, notably weather-driven variation in size of berry crops, has been a demonstrable driver of annual variation in grizzly bear deaths in the Cabinet-Yaak Ecosystem largely because bears tend to more often use human impacted areas when berry crops are poor (Mattson 2020:8, Section B.1).

9. Importantly, short-term (i.e., decadal) trends in population size have little effect on the long-term prospects of bear populations numbering 50-100—much less 30 or so. In other words, even if the Yaak population of grizzly bears were to have increased by a handful of

animals during the last 8-10 years, this presumed increase is of little relevance to judging the vulnerability of this population to increased human impacts—even allowing for the fact that an increase is better than a decrease (Mattson 2020:7, Section A.2.c).

10. In populations of 50-60 bears, loss of—or other harm to—even one additional adult female every 2-5 years can result in precipitous population declines (Mattson 2020:7, Section A.2.c). In other words, the fate of one bear in a population as small as that in the Yaak has a proportionately far greater demographic impact compared to the fate of one bear in a population numbering in the 100s (Mattson 2020:23-24, Section E.2). This critically important point is highlighted by the fact that the majority of bears occupying the Yaak trans-border population are descendants of just one female (Kasworm et al. 2020:29-30).

11. As important, population declines can go undetected by managers for years given the crude methods available for monitoring grizzly bear populations, including in the Cabinet-Yaak Ecosystem (see Mattson [2020:3-4, Section A.1.a] for a more complete description of problems with monitoring methods that create a lagged detection of population change). This dynamic makes intentional reversal of problematic trends all the more difficult.

12. Compounding this problematic situation, the best available information paints the picture of a Yaak grizzly bear population with a declining rate of growth since 2014 (Kasworm et al. [2020:40, figure 12]; Mattson [2020:38]; more specifically, the downward trend in estimated cumulative population growth rate beginning circa 2014)—contrary to claims by the Forest Service and US Fish & Wildlife Service (USFWS).

13. Moreover, methods used by the USFWS to project population growth post-2012 offer little or no information about actual growth of the entire population between 2012 and the present. The growth rate used to make projections is rendered largely irrelevant by including data

averaging 9 years in age from as far back as 1983 that apply only to female grizzly bears untainted by any prior conflicts with humans. In other words, the applied growth rate tells us little about growth of the population post-2012, the number of male bears, or numbers of bears in the population predisposed to be in conflicts with humans. All of this combines to not only create a spurious estimate of current population size and growth, but also estimates of both that are biased high (Mattson 2020:3-4, Section A.1.a).

14. Compounding the problems engendered for the Yaak grizzly bear population by the small size and partial isolation, the Motorized Access Management Standards incorporated into the 2015 Kootenai National Forest LMP not only assume that trail users on "low-use" trails have no impacts on grizzly bears (but see Mattson [2019] and points under 14, below), but otherwise do not provide levels of security adequate to ensure recovery of the Cabinet and Yaak grizzly bear populations (Mattson 2020:12-22, Section C)—Forest and USFWS claims notwithstanding.

15. Of relevance to judging the effects of trails, the only standard invoked by the Forest Service and USFWS for considering impacts, even under the current inadequate LMP security standards, is whether a trail is "high-use" versus "low-use" based on criteria that are antiquated and scientifically indefensible. Indeed, I was central to creating this discredited categorization in the 1980s as part of early efforts to assess the cumulative effects of humans on grizzly bears (e.g., Mattson et al. 1986, 2004; Weaver et al. 1986; Mattson & Knight 1991).

16. By contrast, Mattson (2019) provides a comprehensive review and synthesis of current scientific information regarding the effects of non-motorized recreationists on grizzly bears (referenced in USFWS BiOp [2020]:44, 93). This synthesis shows that the traditional distinction between high and low-use trails does not correlate with levels of impact on bears, and

that some of greatest harm can occur when there are comparatively few hikers and other non-motorized recreationist using a trail (see points 21, 23-24, below).

17. All of these facts reinforce the imperative for the Forest Service to take a precautionary approach to managing risk for the Yaak grizzly bear population. More concretely, such an approach entails increasing habitat security relative to the current indefensible baselines (see Mattson 2020:12-22, Section C); assuming the existence of human-related impacts in the many instances where there is uncertainty about these impacts; taking an evidence-based hard look at all of these existing and prospective impacts; including consideration of human impacts arising from trails used by comparatively few hikers; and undertaking a substantive good-faith evaluation of prospective impacts likely to arise from the Pacific Northwest National Scenic Trail (hereafter PNT) in lieu of the dismissive and scientifically indefensible approach evident to date.

18. The current route of the PNT intersects much of the most productive summer grizzly bear habitat in the Yaak region as well portions of this region that are used most heavily by grizzly bears (Figure 1 below; see also Mattson [2019]:41, figure 25). In other words, the PNT likely transects most summer seasonal ranges of the few grizzly bears living in the Yaak area.

19. The current route of the PNT also transects many of the open high-elevation ridgetops in the Yaak region. These high-elevation environments, sometimes characterized as slabrock or alpine areas, are known to be selected by grizzly bears for disproportionately heavy use in ecosystems comparable to that of the Yaak region (Zager [1980], Waller & Mace [1992], Apps et al. [2004], Nielson [2011]; see Mattson [2019]:40, figure 24b). Importantly, in contrast to areas with greater vertical cover, grizzly bears tend to react more strongly to encounters with

people in open areas such as those that typify high-elevation areas of the Yaak (Mattson 2019:11, Section 3.d; 34, Section 7).

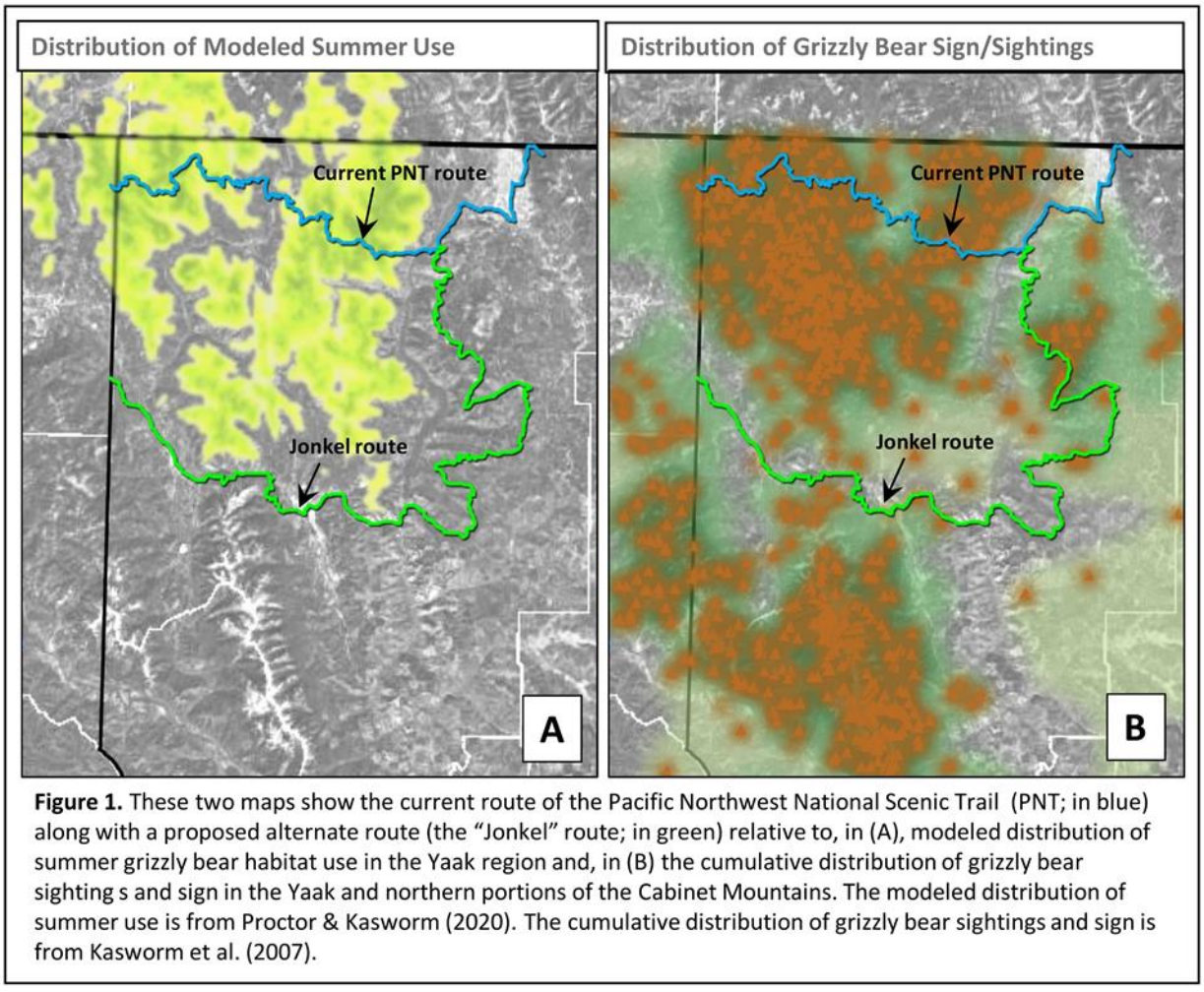


Figure 1. These two maps show the current route of the Pacific Northwest National Scenic Trail (PNT; in blue) along with a proposed alternate route (the "Jonkel" route; in green) relative to, in (A), modeled distribution of summer grizzly bear habitat use in the Yaak region and, in (B) the cumulative distribution of grizzly bear sighting s and sign in the Yaak and northern portions of the Cabinet Mountains. The modeled distribution of summer use is from Proctor & Kasworm (2020). The cumulative distribution of grizzly bear sightings and sign is from Kasworm et al. (2007).

20. Recent monitoring of Montana portions of the PNT (Coe et al. 2020) show that use is concentrated during late June through early August, during summer-time periods when grizzly bears are likely to be concentrated along the trail, and that levels of trail use are variable from one trail section to another and from one week to another. Even so, most segments have been travelled by 30-135 hiking groups per month, with certain weeks consistently experiencing 2-3 times greater levels of use. These levels and patterns of use are guaranteed to have the greatest impacts on grizzly bears by being erratic enough to debar high levels of predictability

for bears using an area, in turn increasing the odds of close encounters between people and bears and heightening the short- and long-term impacts of those encounters (Mattson [2019]:33, Section 7; also, see my points under 18, below).

21. Provisional results in Coe et al. (2020) regarding current trail traffic lend weight to a conclusion reached by Mattson (2019:42) in reference to likely effects of the PNT: "…even if trail traffic is confined to daylight hours, foreseeable levels will almost certainly remain below the 1-1.5 hikers per hour constituting the apparent threshold for development of human-specific tolerance and finer-tuned avoidance [among grizzly bears]—yet be heavy enough to guarantee encounters [between grizzly bears and people]."

22. Intersection of some of the most productive, heavily used, and preferred grizzly bear habitats in the Yaak region by the PNT guarantees that encounters between grizzly bears and trail users will be greater than expected by chance, along with related short-term and long-term impacts on bears, including flight, displacement, and avoidance (Mattson 2019:39). These bear behaviors typically result in physiological stress and habitat alienation (Mattson 2019:17-33, Sections 5-6). In the Yaak region, displaced bears would have few areas to go that are not closer to people and associated risks of elevated human-caused mortality (Mattson 2019:42; Mattson 2020:23-24, Section E.2).

23. The report by Mattson (2019) covering the effects of "pedestrians" (i.e., people of foot) on grizzly bears includes a section that specifically addresses prospective impacts of the PNT on grizzly bears in the Yaak region. Notably, this report was referenced on pages 44 and 93 by the USFWS in its 28 August and reissued 7 October 2020 Biological Opinion covering the Kootenai National Forest's 2015 Land Management Plan (LMP).

24. The following conclusions of relevance to the PNT are taken directly from Mattson (2019:37-42, Section 7), and reiterate some of the points made above:

- Whether judged in absolute or comparative terms, foreseeable pedestrian activity on the proposed PNT is guaranteed to adversely affect the small highly vulnerable population of grizzly bears in the Yaak region.

- Spatial overlap with the highest regional densities of grizzly bears alone guarantees a high likelihood of encounter between trail users and bears with both short- and long-term impacts.

- Perhaps paradoxically, impacts will likely be exacerbated by low grizzly bear densities and pedestrian traffic light enough to preclude predictability for bears.

- Under these circumstances, grizzly bears stand a good chance of being "startled" or "surprised" by trail users, or by simply responding as if encounters posed a threat.

- Grizzly bears will likely avoid the PNT as a natural consequence of strong reactions to encounters with trail users (Mattson 2019: Section 6.a.), with resulting alienation from otherwise important foraging habitats and displacement into lower-elevation areas that are likely to be less secure from human-caused mortality.

- Finally, hazards will be amplified for people and impacts accentuated for bears to the extent that off-trail pedestrian activity increases, the PNT is used by mountain bikers, or spur trails are constructed through high-elevation open habitats.

25. These conclusions based on the best available scientific information stand in stark contrast to those reached by the USFWS and Forest Service regarding likely effects of the PNT.

Conclusions reached by these two agencies are dismissive of any impacts based on a pattern of argumentation, logic, and disregard for scientific evidence that can only be described as arbitrary and capricious. This failure on the part of the USFWS is all the more striking given that the agency reached its conclusions after giving *pro forma* consideration to Mattson (2019), followed by deployment of convoluted logic and arbitrary disregard for the science it cited to conclude the impacts were likely to be minimal if not nonexistent (USFWS 2020:93).

26. Based on this evidence, information, and factual patterns, it is my considered professional opinion that: first, the Forest Service and USFWS failed to engage in a good-faith and scientifically defensible assessment of likely impacts to grizzly bears arising from improvements to and use of the PNT; and, second, that completion of the PNT as currently planned will result in irreversible harm, not only to individual grizzly bears and the Yaak grizzly bear population, but also to prospects for recovery of grizzly bears in the Cabinet-Yaak Ecosystem.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 19th day of November, 2020.

David J. Mattson

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