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Secretary Sonny Perdue

Department of Agriculture

USDA Forest Service

Attn: Alaska Roadless Rule

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Agency: Forest Service (FS)

Parent Agency: Department of Agriculture (USDA)

RE: International Association for Bear Research and Management comment letter on draft Environmental Impact Statement, alternatives to a proposed Alaska Roadless Rule #54511

Dear Secretary Perdue:

The International Association for Bear Research and Management (https://www.bearbiology.org) is the professional organization of bear researchers and managers that supports the science-based management and conservation of the world's eight bear species. We engage 500+ international members, publish the peer-reviewed journal Ursus and International Bear News, fund research and conservation projects, and hold scientific conferences worldwide. Two components of our mission statement are to "Support sound stewardship of the world's bears through science-based population and habitat management" and "Provide professional counsel and advice on issues of natural resource policy related to bear management and conservation." We offer the following comments on the Draft Environmental Impact Statement (DEIS) for the Alaska Roadless Rule. We support the "No-Action" alternative, Alternative 1, as it offers the greatest benefit to the ecological integrity of this salmon-supported bear ecosystem in the Tongass National Forest (Tongass).

Our overall scientific assessment is that the removal of the Tongass from the national Roadless Rule will likely have severe negative impacts on the long-term ecological health of the Tongass and important natural resources, including black (Ursus americanus) and brown bears (U. arctos). Tongass Land and Resource Management Plan (TLMP) management indicator species (deer, goshawk, marten, wolf, etc.), and anadromous salmon (Oncorhynchus spp.) are also susceptible to additional impacts of timber harvest and would not be adequately protected by TLMP provisions. In Southeast Alaska (SEAK), black bears are present throughout the mainland and on the islands south of Frederick Sound, while brown bears occupy islands north of this latitude. Brown bears exist in high density on the islands, moderate densities on the mainland, and occur at low density on a few recently colonized islands. Black and brown bears are important components of the SEAK landscape as they provide enormous economic, social, and cultural benefits to communities through hunting, recreation, and tourism, greatly improving rural area values. Inventoried roadless areas contain the most cohesive intact stands of old-growth forest and the most productive salmon watersheds on the Tongass. The removal of roadless areas threatens the long-term sustainability of this complex, interconnected, and important ecosystem.

We agree with the statement in the DEIS "The Tongass includes large, undeveloped, and natural land areas that represent expansive unfragmented blocks of wildlife habitat. This scale and size of contiguous habitat is not available elsewhere in the NFS outside of Alaska" (p. ES-3). For this reason alone we recommend continuation of the Roadless Rule to ensure habitat remains unaltered on the Tongass. Provisions in TLMP are not enough to protect bears over the long term. Best Management Practices (BMP) are difficult to enforce and often fail to avoid conflicts between people and bears. The habitat fragmentation caused by roads and logging is long-lasting and not easily reversed. The 9.2 million acres of the Tongass that are under current roadless protection represent a globally significant habitat for bears among the many other provisions they provide such as watershed protection, carbon sequestration, fisheries conservation, community recreation and subsistence, and the rapidly changing economy of Southeast Alaska where tourism is expanding and wildlife viewing is highly valued.

The Tongass is a region of international importance to brown and black bears and truly one of the last almost intact ecosystems supporting both species of bears. While many of our specific comments focus on impacts to brown bears, we also believe there will be similar impacts to black bears throughout their range in SEAK. The significance of the Tongass ecosystem is based on uniquely high bear densities, relatively undisturbed habitat, ecological contributions made by bears transporting marine derived nutrients from the ocean to terrestrial environment (Helfield and Naiman 2001, 2006), and the recreational opportunities provided by bears for both hunting and viewing (Titus et al. 1994, Fortin et al. 2016). The proposed action alternatives to roadless management would drastically disturb important habitats necessary for bear foraging, resting, and denning requirements. Some ecological impacts of removing the protections provided by the Roadless Rule include loss of forest cover, habitat fragmentation, and changes in biodiversity, soil, and carbon sequestration potential (Leighty et al. 2006). The primary impacts of the rule change to bears will likely be through ecosystem effects, specifically:

1. direct habitat loss and habitat and genetic fragmentation due to the size and scope of the timber development and associated road infrastructure (Schoen and Beier 1990, Schoen et al. 1994, Mace 2004, Proctor et al. 2012);

2. functional habitat loss due to bear avoidance of human development (Mattson 1990, Gibeau et al. 2002, Cristescu et al. 2016); and

3. impacts to regional salmon populations and subsequent impacts to salmon-dependent ecosystems and bears supported by them (Hilderbrand et al. 1999, 2004).

4. increased potential for human-bear interactions and increased bear mortality (legal, illegal, and defense of life and property kills) facilitated by increased road access (Boulanger and Stenhouse 2014).

Given that brown bears have low reproductive and recruitment rates, impacted populations are susceptible to declines as there may be a significant lag between decreased abundance and decline detection, hence difficulties arise in reversing population declines because of low productivity (Bunnell and Tait 1981, Doak 1995, McClellan 2015). These ecosystem effects have the potential to induce significant impacts to bears, salmon, and other wildlife. The DEIS coverage of these impacts is inadequate.

Impacts of commercial timber harvest

Riparian old-growth forest provides critical habitat to brown bears fishing for salmon (Helfield and Naiman 2006). Clearcut logging converts these productive old-growth forest stands to early successional forest that produce little habitat value for bears. The industrial development of timber harvest and road construction can create extensive ecological change and result in displacement of bears, leading to lower reproductive rates (Wakkinen and Kasworm 1997, Boulanger et al. 2013), elevated mortality risk (Roever et al. 2008), management removals when bears become conditioned to human food, and illegal mortality due to greater access to formerly undisturbed habitat (Benn and Herrero 2002, Nielsen et al. 2004, Schwartz et al. 2005). New logging opportunities would inevitably be concentrated on the rare, high-volume old-growth stands that still exist on the south part of the Tongass (DEIS p. 3-13). The DEIS provides a completely insufficient analysis of these types of effects on bears in the Tongass.

Impacts of roads

The adverse impacts of roads and industrial development on brown bears are well established in the scientific literature and contrary to the statements in the DEIS, they can impact bears at the population level (Boulanger and Stenhouse 2014, Can et al. 2014, Proctor et al. 2018). A principal factor reducing brown bear populations in North America has been the facilitation of human access into grizzly bear habitat by roads built for resource extraction (Boulanger and Stenhouse 2014). Increased, unstainable human-caused mortality is directly linked to access into prime bear habitat (Benn and Herrero 2002, Schwartz et al. 2005, Nielsen et al. 2004, Boulanger et al. 2013). Increasing road density in brown bear habitats has the potential to act as a population sink when high-quality habitats adjacent to roads attract brown bears into proximity with traffic and human activity (Waller and Servheen 2005). Roads have also affected changes in brown bear movements and distribution (Gibeau et al. 2002, Roever et al. 2008), behavior (Northrup et al. 2012), body condition (Hertel et al. 2016), and survival rates relative to roads (Boulanger et al. 2013). Population level concerns manifest when impacts affect survival and reproduction. In addition, road development has caused habitat and genetic fragmentation of brown bear populations (Chruszcz et al. 2003, Waller and Servheen 2005, Proctor et al. 2012, Kendall et al. 2016). Brown bears avoid roads with increased levels of traffic (Northrup et al. 2012), and increased access often results in increased mortality (Titus and Beier 1991). To our knowledge, relationships between road density and brown bear mortality have not been evaluated for the Tongass. We are confident that the selection of the preferred Alternative would substantively change the road density in several important wildlife analysis areas (WAA). Given the extent of road building associated with resource extraction in SEAK, it is critically important that threshold road densities are established for the Tongass to maintain population viability (Proctor et al. 2018). In Alberta, an area with similar resource development, survival and reproduction models were directly related to mortality and found an estimated road density threshold of 0.75 km road/km2 was necessary to ensure a stable population (Boulanger and Stenhouse 2014). In habitats with road densities below 0.5-0.6 km road/km2, bear survival was high and density was found to be three times higher (Mace et al. 1996, Proctor et al. 2017, Lamb et al. 2018). Proper planning and best management practices for roads and developed areas are essential for minimizing these impacts, but negative impacts will likely still occur even with BMP's in place.

Effects on bear movements

Large portions of the region support high densities of brown bears, some of which are among the most renown and iconic populations of brown bears in the world. Home ranges of brown bears in this area range from small on Admiralty Island (female 37 km2, male 100 km2; Schoen and Beier 1990) to large on the adjacent portions of the Tongass mainland (female 147 km2, male 555 km2; Flynn et al. 2012). This is due to the fact that intact and roadless, forested habitats, such as those found on Admiralty Island, provide bears with all of the necessary resources in a small geographic area. These unique, highly productive habitats allow bears to conserve energetic reserves and maximize energetic expenses on foraging and reproduction, rather than navigating through sink habitats at increased risk of mortality. When necessary, bears move great distances to concentrated food sources such as salmon runs (Mangipane et al. 2017). For example, on northeast Chichagof Island (NEC) where the forest has been intensively logged, female bears on salmon streams were forced to make long elevational migrations to avoid large male bears and clearcuts to find refugial habitat patches that were not available near the stream (Flynn et al. 2007). These additional movements were energetically costly to the population segment responsible for reproduction. The alternatives provided in the DEIS do not account for the large spatial requirements of bears and it is imperative that the final DEIS identify bear movement corridors prior to road placement. The programmatic nature of the analysis in the DEIS does not allow for a true assessment of impacts at a scale appropriate to bears and the ecosystem processes that support them.

Effects on salmon

Salmon are the foundation of the rich marine and terrestrial ecosystems of the Tongass and the removal of the Roadless Rule will impact critically important local fisheries. Any activity that reduces the availability of or access to salmon by wildlife will adversely affect wildlife populations and, indirectly, ecosystem-level processes (Hilderbrand et al. 1999, Ben-David et al. 2004). It is likely that timber harvested areas will experience a decline in salmon spawning and rearing habitat that could result in the degradation of the bear population (Hilderbrand et al. 1999, 2018; Mangipane et al. 2017). Any impacts to water quality, stream temperature, and fish abundance could ultimately affect bears in those and adjacent watersheds. Cumulative effects to salmon may be caused by past timber harvest practices that have reduced stream habitat quality, or by reductions in ocean survival rates for some salmon species.

Effects of human-food conflicts

Proper design, planning, and operation of facilities and activities are essential to prevent human-bear conflicts. Without this, it is highly likely that some bears will become conditioned to human foods obtained at the industrial sites and access roads (McCarthy and Seavoy 1994). Bears conditioned to human food and garbage often are killed (Benn and Herrero 2002, Gibeau, et al. 2002, Lamb et al. 2017). Measures to prevent this such as bear-resistant garbage containment, food and refuse storage facilities, and minimizing human-bear conflict are generally helpful but TLMP standards and BMP's have proven inadequate in protecting bears (Titus and Beier 1993, Baruch-Mordo et al. 2011).

Effects on denning

Several areas that are proposed in the DEIS are confirmed important bear denning areas (Schoen and Beier 1987, DeGayner et al. 2005, Porter et al. In prep). Noise and other disturbance associated with roads and timber harvest activities have the potential to disrupt denning bears. Disturbance during the denning period can cause den abandonment with increased energy expenditure and reduced cub survival (Swenson et al. 1997, Linnell et al. 2000). On Chichagof Island, Schoen et al. (1987) found bears preferred old-growth forest for denning and suggested avoiding timber harvest on slopes > 20[deg]and elevations > 300 m. In a recent study along the Yakutat forelands, a current inventoried roadless area, more than 1/3 of the brown bear population denned at low elevation (< 100 m) in den sites associated with old-growth trees beneath the roots or in cavities (Crupi 2017). Likewise, on Prince of Wales Island, many black bears denned at lower elevations suggesting that low elevation habitats have previously been undervalued in our understanding of den site selection (Porter et al. In prep). In both instances, trees selected for den sites were large diameter (> 1 m DBH) old-growth trees of various species, including Sitka spruce, Western hemlock, black cottonwood, Western red cedar, and Alaska yellow cedar. Trees of this size are rare on the landscape and comprise less than 1% of commercial forest stands (Albert and Schoen 2013). It is critical that the DEIS address the impacts associated with removal of den site structures for brown bears and black bears and eliminate development within 1.5 km of prime denning habitat.

Effects on viewing bears

The preferred alternative has potential to impact human viewing of brown bears in the coastal areas of the Tongass. The opportunity for people to observe wild bears fishing for salmon attracts tens of thousands of visitors to SEAK each year. Several developed viewing areas managed by the USDA Forest Service are of international significance and provide reliable viewing opportunities for the Alaska tourism industry. The relationship between Alaska tourists, salmon, and brown bears is significant and brown bears are the most highly valued wildlife viewing species (Miller et al. 1998). The impacts to outfitter/guide recreational opportunities are also substantial; a recent study by the University of Alaska showed direct purchases by bear viewing service providers and their households support approximately $36.3 million in economic production in the southcentral region of Alaska and spending by bear viewing service providers and households supports 490 sustainable jobs in the region, including 371 reported direct hires (Young and Little 2019). Demand for more bear viewing sites in SEAK has increased in recent years as small cruise vessels have expanded their reach to remote areas. Their clients are generally seeking roadless areas with natural conditions to view bears. These viewing sites are also important for scientific study, as comparisons between regulated and undeveloped bear viewing sites are necessary to inform proper management (Olsen et al. 1997). The impacts of an expanded road network on the continued suitability of current viewing areas and availability of future viewing areas is inadequately addressed in the DEIS.

Case study of impacts on Northeast Chichagof Island

Intensive commercial logging on both federal and private lands on NEC has resulted in high road densities, extensive long-term habitat alteration, and changes in brown bear density and distribution (Mooney 2015). To maintain hunting opportunity and minimize the risk of overharvest, the Alaska Board of Game (BOG) established the NEC Controlled Use Area in 1990 prohibiting the use of motorized land vehicles for brown bear hunting. Harvest continues to increase and high female harvest on NEC has promulgated several emergency order hunting closures, the most recent in 2011. In 2018 alone, 13 bears were killed in defense of life or property (DLP) on NEC. Given a harvest guideline level of 18 bears for NEC, this level of non-hunting mortality creates a conflict with harvest management and limits hunting opportunity. This departure of bears from the wild toward human settlements suggests that successional changes in the post-clearcut managed forest may be limiting available resources and result in bears searching for food near human developments, thereby increasing mortality risk. It is important to understand that only legal hunting can be managed, and increased development of roads into old-growth forest habitat invariably improves access which leads to increases in DLPs, illegal kills, and additional legal harvest. Therefore, the Alaska Department of Fish and Game's ability to successfully manage bear mortality and abundance will be compromised.

On NEC, Flynn et al. (2007) compared the effects of brown bear habitat use along a clearcut stream and a salmon stream in a relatively unaltered watershed. Female bears were found to be less abundant and produced fewer cubs on the stream with extensive timber harvest. Diet analyses revealed that female bears were able to consume significantly more salmon along the unimpaired stream. Bears' ability to maximize salmon intake is closely related to their reproductive success (Hilderbrand et al. 1999) and their undeterred access to salmon and proximity to secure habitat likely facilitates recruitment of more cubs. Assessment of the 500 ft. riparian stream no-cut buffers on NEC were found to be inadequate in providing cover and security to female bears and Flynn et al. (2007) recommended increasing riparian stream buffers to 1000 ft.

Case study of impacts on Kuiu and Prince of Wales islands

Black bear populations on Kuiu and Prince of Wales islands were once considered among the highest density populations (Peacock et al. 2011, Bethune 2014). Habitat loss as a result of old-growth logging and high road densities associated with timber harvest, combined with increased hunting mortality resulted in widespread conservation concerns. In 2010, the BOG responded with changes in SEAK black bear management, adopted a nonresident unguided draw hunt for SEAK, and implemented Controlled Use Areas to attempt to stem the decline. Further reductions in carrying capacity are expected as early successional forest is characterized by homogeneous structure with low habitat value (Alaback 1982). Black bears on Prince of Wales Island almost exclusively (98%) select den sites associated with large diameter tree structures (Porter et al. In prep). Continued old-growth logging authorized in TLMP and proposed by the DEIS action alternatives will further reduce the availability and recruitment of these unique tree structures suitable for denning.

The need for scientific research

In addition to considering the scientific evidence we present here, we urge that the final EIS thoroughly address with rigorous, multi-year studies questions about the specific impacts of the proposed amendments of the Roadless Rule and the cumulative effects (Johnson et al. 2005) on black and brown bears. In the past, as part of the process to assess mine, timber, and road development in Southeast Alaska extensive research efforts were initiated (Schoen and Beier 1990; Titus and Beier 1993, 1999; Flynn et al. 2012). Without supporting research, the DEIS lacks the scientific basis to conclude that bear populations can be sustained at current population levels with the degraded habitats that will remain.

Some relevant research questions raised through this DEIS that future studies must address are:

1. How does timber harvest and associated road density affect bear population vital rates and densities? Findings need to establish thresholds that limit bear mortality and maximize long-term sustainability of bear populations within the Tongass.

2. What are the impacts of road building and timber harvest on bear movement corridors and access to important salmon fishing sites and bear viewing areas?

3. What are the cumulative effects of climate change and interaction with other stressors on bears and other wildlife including salmon?

4. What are the predicted impacts of timber removal on the aquatic ecosystems, particularly salmon, and consequent impacts on bear populations?

5. How do bear populations respond to timber management, hunting harvest, and wildlife viewing in areas designated for resource development compared to public lands that are roadless and not designated as wilderness?

In summary, the intent of the 2001 Roadless Rule as quoted from the federal register online introduction to the DEIS, is to provide lasting protection for inventoried roadless areas within the National Forest System in the context of multiple-use land management. However, the potential impacts and effects of the proposed action as presented here are supported by scientific evidence but are not addressed or are inadequately reviewed in the DEIS. Therefore, the International Association for Bear Research and Management recommends adoption of the "No Action" alternative.

Thank you for your consideration of these comments.

Andreas Zedrosser

President, International Association for Bear Research and Management (IBA)

https://www.bearbiology.org

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