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Dear Ms. Pendelton:

Audubon Alaska appeals the Big Thorne Project on the Tongass National Forest.

The mission of Audubon is to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity. For more than a century, Audubon has built a legacy of conservation success by mobilizing the strength of its network of members, Chapters, Audubon Centers, state offices and dedicated professional staff to connect people with nature and the power to protect it.

Audubon and its members have a long history of involvement in the Tongass. Audubon members rely on the Tongass National Forest and, in particular, its large-tree old-growth systems for livelihoods, for subsistence, for recreation, and for the opportunity to enjoy a rare, beautiful and diverse ecosystem for its own sake. Alaska Audubon staff and board members have many years of experience on the Forest and have published numerous peer-reviewed articles on Tongass wildlife species and their relation to old-growth systems. In addition, in 2007, Audubon and The Nature Conservancy published "A Conservation Assessment and Resource Synthesis for the Coastal Forests & Mountain Ecoregion in Southeastern Alaska and the Tongass National Forest" that provides a common habitat inventory that encompasses all land classifications and ownerships throughout Southeastern Alaska.

Audubon Alaska generally does not comment on or appeal timber projects, preferring to focus on practical, landscape-scale solutions to ecosystem protection. However, in this case, Audubon Alaska has concerns over the impacts of Big Thorne to the entire Prince of Wales Island ecosystem. Big Thorne would make approximately 148.9 million board feet of timber available for harvest on Prince of Wales

from approximately 6,186 acres of old growth and 2,299 acres of young growth. 3,800 acres of the old growth (trees up to 800 years old, 100 feet tall and 12 feet in diameter) would be clear-cut (USDA Forest Service 2013b).

The sale continues the pattern of high-grade logging in the Tongass that has impacted many of the highest-value wildlife habitats on the Forest, and that has had cumulative impacts on a wide-range of birds and wildlife. Most importantly, we believe the latest data suggests that the cumulative impacts of the project threatens to end the healthy functioning of the Prince of Wales ecosystem by significantly reducing or even extirpating wolves on the island, and by reducing already limited Queen Charlotte goshawk populations. In plainest terms, the Big Thorne sale may be one of the last few straws to break the Prince of Wales' ecosystem's back, with consequences for the entire Tongass.

In this appeal, Audubon reviews the rarity and value of old growth and large old-growth in the Tongass National Forest and its value to birds and wildlife. We then discuss Prince of Wales and the impacts of clearcut logging on the island. Finally, we discuss the potential impacts of Big Thorne to the Prince of Wales populations of Alexander Archipelago wolf and Queen Charlotte goshawk.

### The Tongass National Forest

Coastal temperate rainforests of the world occur in only a "handful" of areas and account for less than 3% of all the world's temperate forests. "Judged on taxonomic uniqueness, unusual ecological or evolutionary phenomena, and global rarity, coastal temperate rainforests are globally important ecoregions of the world." (Orians et al. 2013a). The northwest coast of the United States and Canada accounts for approximately half of the world's coastal temperate rainforest (Orians et al. 2013a). While the southern half of the North American coastal temperate rainforest has been heavily modified by human activities, the northern half remains relatively intact (Orians et al., 2013a). The bulk of this intact, "old growth" ecosystem is contained in the Tongass National Forest.

The heart of the Tongass ecosystem is old growth, particularly large-tree old growth, "which is especially important as habitat for fish and wildlife. For example, during periods of deep snow, Sitka-black-tailed deer move into large-tree stands where the massive canopy structure intercepts and holds large amounts of snow, providing for winter foraging opportunities below the canopy. Trees that grow along streams, particularly larger trees, provide an important source of long-lasting woody debris that provides stream structure and enhances habitat for salmon." (Audubon Alaska 2013)(citations omitted). According to the scientists who conducted a peer review of the 1997 Tongass Land Management Plan, "Those habitats that have the highest value for wildlife, and also are the most rare, were associated with the highest volume classes in the timber classification system . . . ." (Peer Review Committee 1997).

Made up of a mainland coastline and hundreds of islands, and isolated by ocean, mountains, and ice fields, the Tongass is home to a rich variety of endemic wildlife that is dependent on the old-growth ecosystem. For example, the Alexander Archipelago wolf and Queen Charlotte goshawk are genetically distinct subspecies found only in the coastal rainforest in Canada and Alaska. The Prince of Wales flying

squirrel, Pacific Coast martin, and Haida ermine have also diverged from their counterparts in other regions of North America (USDA Forest Service 2006).

In addition to the Queen Charlotte goshawk, Southeast Alaska is home to 34 other avian species associated with old-growth and mature-forest habitats (USDA Forest Service 2006). Nearly a third of the world's red-breasted sapsucker population breeds in Southeast Alaska, as do at least 20% of the global populations of pacific-slope flycatchers and varied thrushes. Western screech owls, northern saw-whet owls, and marbled murrelets are all old-growth-dependent birds that are threatened in other parts of their range (USDA Forest Service 2006).

The Forest Service has recognized the important role old growth plays in the Tongass, and the potential vulnerability of species that depend on it. One of the Service's goals for the Tongass is to "Maintain a Forest-wide system of old-growth and other Forest habitats . . . to sustain old-growth associated species and resources." (USDA Forest Service 2008).

Unfortunately, large-tree old growth tends to be the most economically desirable timber in the Forest, and it is cut in a vastly disproportionate manner. High-grading has already eliminated half or more of the very large-tree stands on the Tongass (Myers et al. 2011). Very large-tree old growth stands now account for only .55% (82,000 acres) of the 16.8 million-acre Tongass National Forest (Myers et al. 2011). In general, since commercial logging began in Southeast Alaska in 1954, the distribution of contiguous forest, larger trees, and higher volume stands has shifted toward forests that are more fragmented, with smaller trees and lower volume (Albert and Schoen 2013). There is danger in this for wildlife. "Cumulative effects become especially important when they cause a system-changing threshold to be reached . . . . A forest in which the frequency of major disturbances has greatly increased may at a certain point lose species that depend on the structural and functional characteristics of old-growth stands." (Orians et al. 2013b).

### Prince of Wales Island

Prince of Wales Island is roughly 2,500 square miles. It is the fourth-largest island in America and is larger than the states of Rhode Island and Delaware. The Tongass National Forest covers a significant majority of the island. Under the terms of the Alaska Native Claims Settlement Act, more than 74,000 acres of Prince of Wales forest land may be conveyed to Native corporations within the next decade (Person and Brinkman 2013). A current legislative proposal to change the allocation to encompass more areas of large-tree old growth and high ecological value is currently making its way through Congress (Audubon Alaska 2013).

Prince of Wales was gifted with a particularly rich natural heritage. Because there is little to no species connectivity between the Prince of Wales island complex and the rest of the Tongass, the complex is considered a likely endemic hotspot (USDA Forest Service 2006). Also, 31% of the Tongass' rare, landscape-scale, high-volume contiguous forests once occurred on north Prince of Wales. Unfortunately, those forest blocks have been disproportionately logged, and reduced by 94% to less than 5,000 acres remaining (Albert and Schoen 2013). In general, of 22 biogeographic provinces in Southeast Alaska, North Prince of Wales has been most heavily impacted by logging. About 32% of the

original productive old growth (POG) and 40% of the big-tree old growth has been harvested (Albert and Schoen 2007), and over 4,000 kilometers of roads have been built (Person and Brinkman 2013).

#### The Alexander Archipelago Wolf Population on Prince of Wales

The Alexander Archipelago wolf is smaller and darker than other wolf populations in Alaska and is considered a distinct subspecies of wolf (Albert and Schoen 2007). “Recent genetic analyses of Southeast wolves suggest they have undergone a distinct evolutionary history and have been isolated from continental wolf populations.” (Albert and Schoen 2007). “The Southeast archipelago wolf appears to represent a significant component of wolf diversity in North America, suggesting this unique endemism should be considered in any population and habitat management plans for this area of Southeast.” (Albert and Schoen 2007 citing Weckworth et al. 2005).

Prince of Wales and adjacent islands likely represent a third of the Southeast wolf population (Person 2001). The population is insular, “probably derived from a few founders that reached the island before it was isolated from other islands and the mainland by postglacial rise in sealevel.” (Weckworth et al. 2005). “As a result of the isolated and naturally fragmented geography of Southeast, the Alexander Archipelago wolf is potentially more sensitive to human activity and habitat disturbance than elsewhere in the state. This greater sensitivity is particularly a concern in the southern archipelago where deer populations are strongly influenced by the loss and fragmentation of old-growth forest habitat.” (Albert and Schoen 2007). If Prince of Wales wolves “are extirpated or reduced to a small population, rescue or recolonization by dispersing wolves from the mainland is unlikely.” (Person and Brinkman 2013).

The 2008 Tongass Land Management Plan sets a goal for the Forest Service to “[m]aintain ecosystems capable of supporting the full range of native and desired non-native species and ecological processes.” (USDA Forest Service 2008). An objective of the plan is to “[provide sufficient habitat to preclude the need for listing species under the Endangered Species Act, or from becoming listed as Sensitive due to National Forest habitat conditions.” (USDA Forest Service 2008).

Research in the last five years suggests that the Forest Service is not meeting its ecosystem goal, and that the Prince of Wales wolf population is quite vulnerable to dramatic reduction or even extirpation. First and most simply, in the late 90’s, the fall wolf population on the island was estimated to be between 250 and 300 wolves (Albert and Schoen 2007). As the FEIS notes, recent scat surveys and anecdotal evidence now suggest that the population is closer to 150 wolves (USDA Forest Service 2013a), a sharp reduction and an indicator that the Forest Service Conservation Plan in the 2008 TLMP is failing to protect the Prince of Wales wolf population.

Second, illegal (and possibly legal) take of wolves is likely to increase. Currently, hunting and trapping accounts for 87% of wolf mortality on Prince of Wales. The illegal take of wolves on the Forest is common and “may at times equal the legal harvest.” (Person and Brinkman 2013). That illegal take is expected to rise this decade as clear-cuts age, deer hunting success is reduced, and the public perceives wolves as competitors for limited prey (Person and Brinkman 2013). This increase in mortality will be difficult to control (Person and Brinkman 2013).

Finally, in 2013, Person and Brinkman developed a wolf/deer, predator/prey model for Prince of Wales and Kosciusko islands that represents past and future conditions on Prince of Wales. The model included the hypothetical curtailment of wolf harvest in 1996 as if the wolf had been listed as threatened under the Endangered Species Act. Even with that listing included in the model, Person and Brinkman found that “wolf and deer populations will decline substantially by 2045.” (Person and Brinkman 2013).

The Big Thorne will add to the population dynamic Person and Brinkman describe. There is no dispute that the Big Thorne project will reduce the project area habitat’s already limited ability to sustain the deer population that wolves rely on. The Forest Service notes that “none of the project area WAAs alone provide a habitat capability of 18 deer per square mile, generally considered under the Forest Plan to be sufficient to maintain sustainable wolf populations and taking into account hunting.” (USDA Forest Service 2013b). “Additional, project-related effects to deer habitat capability under the action alternatives, and reductions due to forest succession in previously harvested stands, have the potential to reduce the prey base for wolves.” (USDA Forest Service 2013b). “Accordingly, there will be some reduction in the ability of project area WAAs to maintain a sustainable wolf population, based on deer habitat capability alone.” (USDA Forest Service 2013b). Perhaps more significantly, the reduction in deer habitat will also result in increased legal and illegal hunting and trapping pressure on wolves.

In addition to reducing wolves’ prey base and increasing hunting and trapping pressure, Big Thorne will also increase the vulnerability of wolves in the sale area to hunting and trapping. Road densities in the area generally already exceed the number found by Person and Russell (2008) to lead to unsustainable harvest. As the FEIS notes, “wolves are more easily observed in open habitats such as muskegs, meadows, and young clearcuts; therefore, use of these habitats, particularly in areas accessible to humans (i.e., the beach and roaded areas) increases the risk of harvest-related mortality.” USDA Forest Service 2013a).<sup>1</sup>

Given Person’s model, the peer-reviewed predictions of increased illegal take, and the likely decrease in population of Prince of Wales wolves over the past fifteen years, it is reasonable to assume that the Prince of Wales wolf population is in significant danger of significant reductions or even extirpation. The Big Thorne sale will further reduce wolf viability in four WAAs, which is likely to exacerbate the population decline. While the 2008 TLMP found that wolves were likely to remain viable in Game Management Unit 2, the new information available to the Forest Service about the Prince of Wales wolf population mandates a different conclusion.

#### The Queen Charlotte Goshawk Population on Prince of Wales

The Queen Charlotte goshawk is a subspecies of the northern goshawk endemic to coastal rainforests from Vancouver Island to northern Southeast (Iverson, et. al 1996). According to Audubon Alaska’s

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<sup>1</sup> There is no evidence that Honker Divide and other population wells on Prince of Wales can indefinitely provide enough wolves to repopulate areas where deer habitat is declining and the likelihood of mortality from hunters and trappers is increasing. The study the Forest Service cites for this proposition explicitly states that “[t]he risks of high rates of harvest and pack depletion with groups of WAAs to demographic viability and genetic diversity are unknown.” Logan and Person, p. 26.

WatchList (Kirchhoff 2010), the global population of Queen Charlotte Goshawk is 1,400 individuals (300–700 pairs with an unknown number of breeders), of which 61% are estimated to live in Southeast Alaska. The population trend is not known.

The southern half of the Queen Charlotte Goshawks' range has been heavily impacted (49% of POG harvested on Vancouver Island with 16% more likely to be cut, and 27% harvested on Queen Charlotte Islands with 37% more open to logging) (US Fish and Wildlife Service 2007). Pearson found that 59% of productive valley bottom forests have already been logged on the Central Coast of British Columbia. In their status review of the Queen Charlotte Goshawk, the USFWS (2007) found that, currently, Southeast Alaska contains 61% of the habitat value for this species and will become increasingly important to the species over time as productive old growth becomes less extensive on Vancouver and Queen Charlotte Islands.

Several aspects of goshawk life history suggest that the species may be vulnerable to habitat changes—they are long-lived, have a low reproductive rate, occur in low densities, and do not migrate from Southeast Alaska in the winter (Iverson et al. 1996). Clearcuts are among the least used habitats by goshawk and habitat changes that affect prey availability could decrease adult survival, which in turn would decrease population persistence (Iverson et al. 1996).

Audubon is concerned that the goshawk is particularly vulnerable to population-level declines on Prince of Wales. As noted previously in these comments, since commercial logging began in Southeast Alaska in 1954, the distribution of contiguous forest, larger trees, and higher volume stands has shifted toward forests that are more fragmented, with smaller trees and lower volume (Albert and Schoen 2013). And of 22 biogeographic provinces in Southeast Alaska, North Prince of Wales has been most heavily impacted. About 32% of the original productive old growth (POG) and 40% of the big-tree old growth has been harvested (Albert and Schoen 2007). Iverson et al. (1996) conclude that goshawk population persistence may be in immediate peril in highly modified landscapes, and that gaps in distribution jeopardize population interaction and long-term persistence. Importantly, the North Prince of Wales province as a whole is already below the 33% minimum POG recommendation for goshawk management in the Conservation Assessment for the Northern Goshawk in Southeast Alaska (Iverson et al. 1996).

Researchers have expressed concern over the sustainability of goshawk populations in the modified Tongass. Smith (2013) found that there is uncertainty about the ability of conservation measures in the Forest Plan to contribute sufficient habitat to sustain well-distributed, viable populations of northern goshawks throughout Southeast Alaska (USDA Forest Service 2013). Similarly, Titus et al. (2006) concluded that “Current standards and guidelines that conserve known goshawk nest areas have merit, but these alone will not ensure conservation of the species in the absence of a landscape approach.”

There is no dispute that the sale will degrade goshawk habitat within the sale area. Key parameters of goshawk habitat on the Tongass are POG in volume classes 4–7 below 800 ft elevation. In the Conservation Assessment for the Northern Goshawk in Southeast Alaska, Iverson et al. (1996) recommended that no more than 33% of the POG in a watershed should be in stands less than 100 years

old. Within the Big Thorne project area, three VCUs (5790 Gravelly Creek, 5810 Luck Lake, and 5850 Slide Creek) are already at or below this standard. After harvest of POG in the final units, five VCUs will be below this recommended standard (the addition of 5830 Ratz Harbor and 5950 Control Lake). The Big Thorne EIS states “Research from the Queen Charlotte Islands and elsewhere in western North America suggests that landscapes consisting of 40–60% mature or old forest (e.g. POG and mature young-growth) are favored by goshawks for foraging and nesting” (USDA Forest Service 2013a). Currently, 6 of 16 watersheds in the project area are below 40% mature cover. After harvest of POG in this sale, three more will be below 40% and habitat quality in the others further degraded. The project area is currently 43% mature forest and will average 39% mature forest after the sale. See Table 1 below.<sup>2</sup>

VCU	Total VCU Acres	Total Historic POG (% of VCU)	Total Current POG (% of VCU)	POG in Harvest Units	Total POG After Harvest (% of VCU)
5740 N. Honker Divide	27,900	18,572 67%	14,898 53%	0	14,898 53%
5750 S. Honker Divide	18,342	11,532 63%	11,149 61%	315	10,834 59%
5760 Center Peak	15,319	7,518 49%	6,988 46%	11	6,977 46%
5780 Thorne River Falls	6,537	4,883 75%	3,612 55%	777	2,835 43%
5790 Gravelly Creek	10,709	7,087 66%	2,770 26%	527	2,243 21%
5800 NE Thorne River	15,390	9,949 65%	6,977 45%	1,185	5,792 38%
5810 Luck Lake	20,236	13,500 67%	6,675 33%	1,044	5,631 28%
5820 Baird Peak	4,104	2,466 60%	2,450 60%	15	2,435 59%
5830 Ratz Harbor	12,496	8,603 69%	4,801 38%	790	4,011 32%
5840 Sal Creek	13,915	9,874 71%	5,743 41%	778	4,965 36%
5850 Slide Creek	10,577	7,479 71%	2,966 28%	563	2,403 23%
5860 Thorne Bay	15,962	12,145 76%	6,750 42%	463	6,287 39%
5950 Control Lake	20,584	11,520 56%	6,980 34%	1,181	5,799 28%

<sup>2</sup> Table 1 values were derived using USFS spatial data layers representing POG, YG, VCUs, and the Big Thorne project boundary. The FEIS has a similar table at 3-134. The FEIS table includes two VCUs that are not within the project boundaries provided to Audubon by the Forest Service, and numbers that are inconsistent with the data layers provided to Audubon by the Forest Service.

5960 Control Lake / Upper Thorne	13,091	5,790	44%	5,624	43%	72	5,552	42%
5971 Lower Thorne River	3,245	1,794	55%	1,501	46%	30	1,471	45%
5972 Rush Peak	21,714	12,979	60%	8,497	<b>39%</b>	1,138	7,359	<b>34%</b>
<b>Total</b>	<b>230,121</b>	<b>145,691</b>	<b>63%</b>	<b>98,381</b>	<b>43%</b>	<b>8,889</b>	<b>89,492</b>	<b>39%</b>

In the context of researcher concerns over the Prince of Wales goshawk population and the already significantly degraded goshawk habitat of the biogeographic province, Big Thorne's cumulative impacts to individual VCUs and the project area as a whole are significant and suggest the project should not go forward as formulated.

### Conclusion

Researchers have raised significant concerns about Prince of Wales populations of Alexander Archipelago wolf, Queen Charlotte goshawk, and other endemics. As highlighted in this appeal, the habitat in North Prince of Wales biogeographic province where Big Thorne is located does not, as a whole, meet the 2008 TLMP standards and guidelines for wolves or goshawks, and the Big Thorne project will further degrade that habitat at a VCU and WAA scale.

Audubon Alaska believes the Forest Service has failed to confront the potential population-level impacts of timber harvest on various Prince of Wales wildlife and bird populations. Big Thorne reduces the chances those populations, and perhaps ultimately those species, will survive and thrive without offering any signal that the Forest Service is committed to the long-term ecological health of the island. Audubon urges the Forest Service to reconsider the project.

Sincerely,

Jim Adams  
Policy Director  
Audubon Alaska

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