

# Evaluation of Timber Suitability on the Chugach National Forest

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## Summary

Few of the 5.4 million acres within the Chugach National Forest are suitable for timber production. The primary reasons for this are: 1) less than 20 percent (1,080,500 acres) of the national forest is classified as forest and 2) about 98 percent of this forested vegetation is located within inventoried roadless areas (IRAs) where timber production is prohibited. Other exclusions apply as described, and the result is that 6,060 acres are estimated as tentatively suitable for timber production.

## Background

Federal regulations<sup>1</sup> require that land management plan revisions identify lands not suitable for timber production<sup>2</sup>. Analyses done for the 2002 Revised Forest Plan identified 282,610 acres as tentatively suitable for timber production (USDA 2002a). However, the selected alternative allocated all of those lands for uses other than commercial timber production (USDA 2002b). To meet National Forest Management Act requirements, a 10-year review of changes in timber suitability was completed in 2012 (DeVelice 2012a). Using the 2012 process, 156,380 acres of tentatively suitable timberland were identified across the national forest. The main difference between this estimate and the estimate from 2002 is the exclusion of productive forest acreage in the Nellie Juan-College Fjord Wilderness Study Area and in research natural areas. In a 2014 assessment (USDA 2014), acreage within IRAs was further excluded since timber production is prohibited, leaving an estimated 3,260 acres of tentatively suitable timberland. The following summary of current work (2015) estimates about 6,060 acres to be tentatively suitable for timber production within the Chugach National Forest, all within the Kenai Peninsula geographic area.

## Methods

36 CFR § 219.11(a)(1) lists the following six factors to be used to identify lands in the plan area as not suited for timber production:

- i. Statute, Executive order, or regulation prohibits timber production on the land;*

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<sup>1</sup> 36 CFR § 219.7 (c)(2)(viii)

<sup>2</sup> Timber production is defined as the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 CFR § 219.19).

*ii. The Secretary of Agriculture or the Chief of the Forest Service has withdrawn the land from timber production;*

*iii. Timber production would not be compatible with the achievement of desired conditions and objectives established by the plan for those lands;*

*iv. The technology is not currently available for conducting timber harvest without causing irreversible damage to soil, slope, or other watershed conditions;*

*v. There is no reasonable assurance that such lands can be adequately restocked within 5 years after final regeneration harvest; or*

*vi. The land is not forest land.*

The first step in the evaluation was to identify forested lands (item *vi*). The National Land Cover Database (NLCD) was used and is based on satellite imagery representing 2001 conditions (Selkowitz and Stehman 2011). Of four national forest land cover maps evaluated, DeVelice (2012b) found NLCD to be the most accurate. The acreage for the three NLCD forested classes (deciduous, evergreen, and mixed) was summed. NLCD forests are defined as having at least 20 percent tree cover whereas 36 CFR § 219.19 defines forested land as at least 10 percent occupied by trees. Because of this difference, use of NLCD may slightly underestimate forested acreage.

The second step was to identify forested lands where timber production is prohibited or withdrawn (items *i* and *ii*). The 2001 Roadless Area Conservation Rule (36 CFR § 294) prohibits timber harvest in IRAs on National Forest System lands. IRAs comprise about 99 percent of the total area of the Chugach National Forest (USDA 2002a) and 98 percent of the forested area and, as such, contain the most acreage not suited for timber production of any designation.

The third step was to exclude lands from timber production if there is a high likelihood of damage to soil productivity or watershed conditions (item *iv*). Forests on slopes greater than 72 percent were classified as unsuitable for timber production due to the likelihood of resource damage on such lands.

The fourth step was to exclude lands where restocking within five years of harvest is not assured (item *v*). Consistent with the final environmental impact statement for the 2002 forest plan (USDA 2002a), it is assumed that the timber type database in the Chugach National Forest GIS database provides adequate vegetation composition and structural information to estimate if restocking could be accomplished within five years. The acreage of the NLCD deciduous forest class was subtracted from the suitable acreage as were unproductive forests (areas not coded in the timber type database as capable of producing at least 15 cubic feet per acre per year).

## Results and Discussion<sup>3</sup>

A summary of the evaluation of timber suitability is provided in table 1.

### Forested Land

About 1,080,500 acres (roughly 20 percent) of the Chugach National Forest are forested (see figure 1).

### Land Withdrawn from Timber Production

Only 23,530 acres of forest occur outside of IRAs within the Chugach National Forest (see figure 2). Of that total, 22,200 acres are within the Kenai Peninsula geographic area and 1,330 acres are within the Copper River Delta geographic area.

Section 501(b) of the Alaska National Interest Lands Conservation Act (ANILCA) states, "...the conservation of fish and wildlife and their habitat shall be the primary purpose for the management" of the Copper, Bering, and Rude rivers area. Since timber production is not a primary purpose of the 501(b) area, then the 1,330 acres of forest in the road corridor on the Copper River Delta would not be suitable for timber production (see figures 2 and 3).

The Kenai Mountains-Turnagain Arm National Heritage Area (KMTA NHA) was established by Congress in 2009 (S.3045), and most of the area is within the Chugach National Forest (see figure 3). All of the 22,200 forested acres identified within the Kenai Peninsula geographic area that occur outside IRAs are within the KMTA NHA. The KMTA NHA management plan<sup>4</sup> states the "...objectives are aimed to preserve, protect, and promote the cultural, natural, historic, scenic and recreational resources of the area." However, Section 8 of S.3045 states, "Nothing in this Act... obstructs or limits... resource development activities".

Since timber production within the KMTA NHA is not limited by S.3045, the timber suitability of the remaining 22,200 acres of forest in the road corridor was further evaluated. Given the uncertain status of lands still under selection by the State of Alaska, they were excluded from further consideration in this analysis leaving 20,580 acres.

### Land Where Irreversible Damage Might Occur With Timber Harvest

Of the 20,580 acres remaining at this step, 790 occur on slopes greater than 72 percent and were excluded from the tentatively suitable base.

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<sup>3</sup> All acreage estimates from GIS are based on a 10-acre point grid.

<sup>4</sup> <http://www.kmtacorridor.org/management-plan-2/>

## Land Where Restocking within Five Years of Harvest is not Assured

Of the 19,790 acres remaining at this step, 3,100 are deciduous forest and 10,630 are estimated as being unproductive. After excluding these areas, 6,060 acres remain as tentatively suitable for timber production (see figure 4).

### **Conclusions**

A total of 6,060 acres is estimated as tentatively suitable for timber production within the Chugach National Forest, all within the Kenai Peninsula geographic area. This does not preclude the potential use of timber harvest for purposes other than timber production as provided by 36 CFR § 219.11(c) as follows:

*...the plan may include plan components to allow for timber harvest for purposes other than timber production throughout the plan area, or portions of the plan area, as a tool to assist in achieving or maintaining one or more applicable desired conditions or objectives of the plan in order to protect other multiple-use values, and for salvage, sanitation, or public health or safety. Examples of using timber harvest to protect other multiple use values may include improving wildlife or fish habitat, thinning to reduce fire risk, or restoring meadow or savanna ecosystems where trees have invaded.*

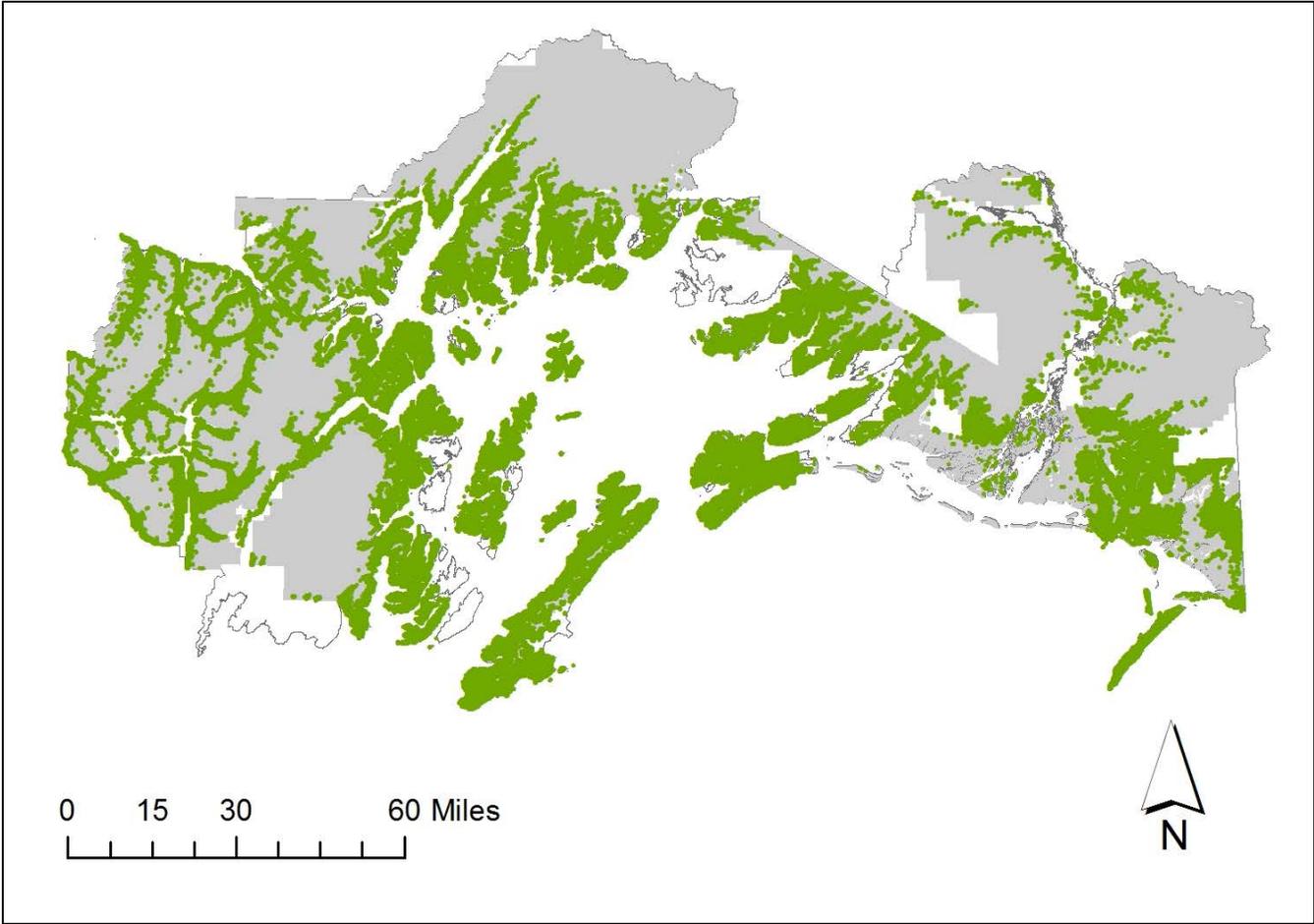
Also, the determination of whether or not timber production is compatible with the achievement of desired conditions and objectives established by the forest plan (item *iii*) is to take place during the evaluation of alternatives and will be disclosed in the proposed revised plan environmental impact statement (see FSH 1909.12, Chapter 60, section 61.2).

## Literature Cited

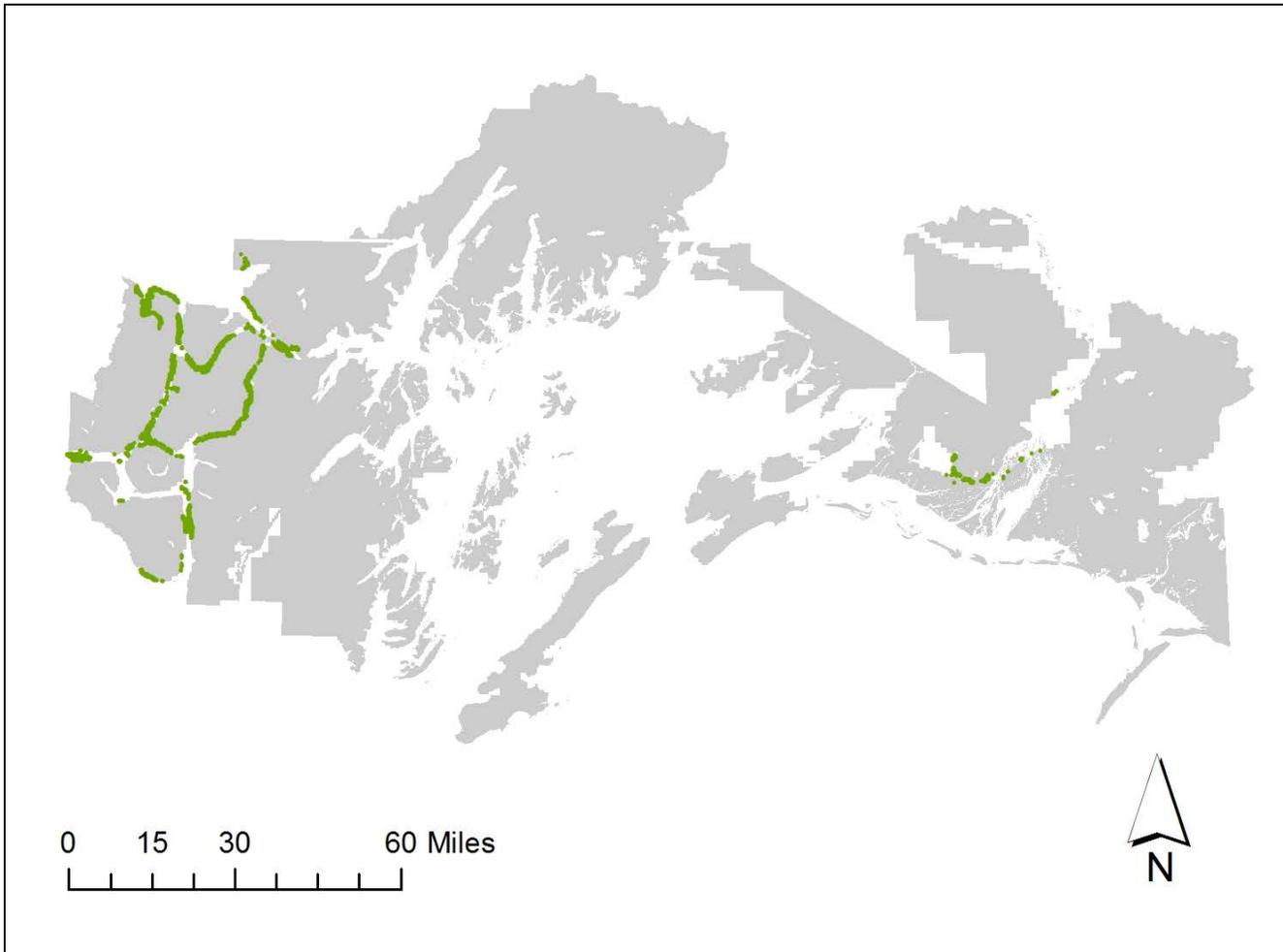
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**Table 1.** Summarized evaluation of timber suitability within the Chugach National Forest

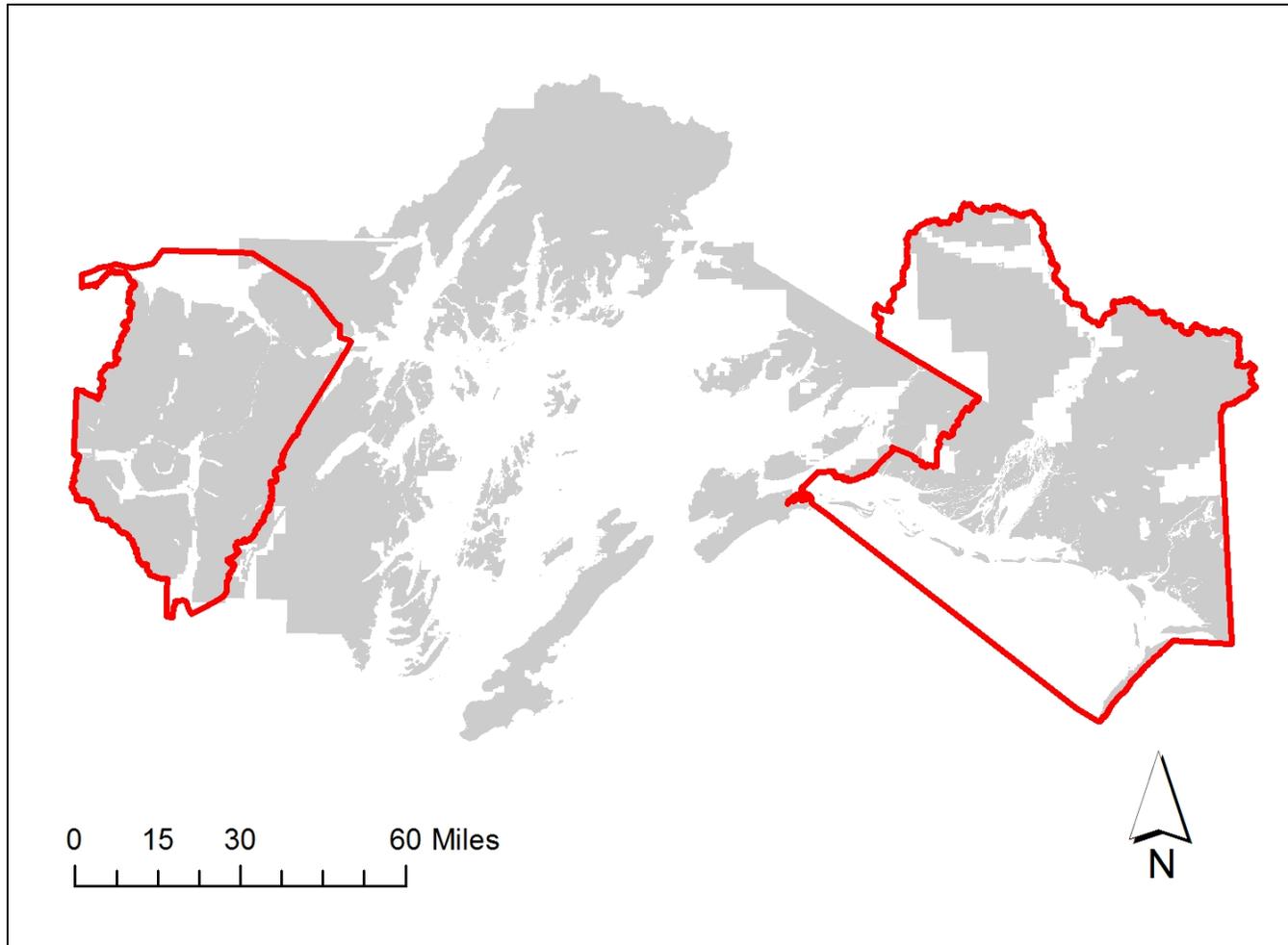
<b>Variable</b>	<b>acres</b>
A. Forested Land	1,080,470
B. Forested Land Withdrawn from Timber Production	
<i>Inventoried Roadless Areas</i>	1,056,940
<i>ANILCA 501(b) area within the road corridor on the Copper River Delta</i>	1,330
<i>Lands under selection by the State of Alaska within the road corridor on the Kenai Peninsula</i>	1,620
Subtotal	1,059,890
C. Remaining Land Where Irreversible Damage Might Occur with Timber Harvest	790
D. Remaining Land Where Restocking within Five Years of Harvest is not Assured	
<i>Deciduous forest</i>	3,100
<i>Unproductive forest</i>	10,630
Subtotal	13,730
<b>Lands Tentatively Suitable for Timber Production (A minus Subtotal B minus C minus Subtotal D)</b>	<b>6,060</b>



**Figure 1.** Forested land (in green) totaling 1,080,470 acres within the Chugach National Forest based on NLCD



**Figure 2.** Forested land (in green) outside IRAs within the Chugach National Forest (totaling 23,530 acres)



**Figure 3.** The Kenai Mountains-Turnagain Arm National Heritage Area (left hand red polygon) and the ANILCA 501(b) area (right hand red polygon) on the Chugach National Forest



**Figure 4.** Forested land (in green; totaling 6,060 acres) within the Chugach National Forest that is tentatively suitable for timber production after excluding lands not suitable based on legal and technical factors