



United States Department of Agriculture

Tongass Land and Resource Management Plan Final Environmental Impact Statement

Plan Amendment

Volume I



Forest Service
Alaska Region

Tongass National Forest

R10-MB-769e

June 2016

Tongass Land and Resource Management Plan Amendment

Final Environmental Impact Statement

June 2016

Lead Agency: USDA Forest Service

Cooperating Agency: US Fish and Wildlife Service

Responsible Official: M. Earl Stewart, Forest Supervisor
USDA Forest Service, Alaska Region,
Tongass National Forest

For Further Information: Visit the Forest Web site at: www.fs.fed.us/r10/tongass
or Contact:
Susan Howle
Project Team Leader
648 Mission Street
Ketchikan, AK 99901
(907) 228-6340

Abstract

Secretary's Memorandum 1044-009, Addressing Sustainable Forestry in Southeast Alaska (issued July 2, 2013), and the 5-Year Forest Plan Review (completed in September 2013) indicated that conditions on the land and demands of the public require the Tongass to modify the 2008 Forest Plan. In the Memorandum, the Secretary of Agriculture, Thomas Vilsack, asked the Forest Service to "Strongly consider whether to pursue an amendment to the Tongass Forest Plan. Such an amendment would evaluate which lands will be available for timber harvest, especially young growth timber stands, which lands should be excluded, and additional opportunities to promote and speed transition to young growth management..." and to "...continue to seek input from and work with stakeholders in the region towards this transition." The Tongass Advisory Committee (TAC) was established under the Federal Advisory Committee Act and was approved by the Secretary to "...provide advice to the Forest Service on how to expedite the transition to young growth management." The 5-Year Forest Plan Review also highlighted a need to make the development of renewable energy resources more permissible.

This Final Environmental Impact Statement (FEIS) responds to the Secretary's Memo and the 5-Year Forest Plan Review by analyzing five alternatives for amending the Plan, including the No-Action alternative. A separate document, called the Land and Resource Management Plan (Forest Plan), has been published with this FEIS to represent the Forest Plan under the preferred alternative (Alternative 5). Alternative 5 is based on the Tongass Advisory Committee's underlying principles, general approach, and recommendations. Appendix F displays a side-by-side comparison of the alternatives to show how they differ from the preferred alternative. Four key issues are identified: 1) transitioning to young-growth-based timber management in 10 to 15 years in an ecologically, socially, and economically sustainable manner; 2) promoting the development of renewable energy projects where it is compatible with National Forest purposes; 3) the effects of potential timber harvest activities in roadless areas; and 4) the effects of forest management on wildlife habitat and the Conservation Strategy. The five alternatives provide a range of options for addressing the issues. Direct, indirect, and cumulative effects of the alternatives are compared and disclosed in Chapters 2 and 3, based on inventory data and modeling.

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at http://www.ascr.usda.gov/complaint_filing_cust.html and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

Federal Recycling Program
Printed on Recycled Paper

CONTENTS

| | |
|--|------------|
| CHAPTER 1 PURPOSE AND NEED | 1-1 |
| Introduction..... | 1-1 |
| Forest Planning History on the Tongass National Forest | 1-2 |
| Factors That Led to the Need for Change | 1-4 |
| Roadless area conservation | 1-5 |
| Litigation..... | 1-5 |
| Collaboration..... | 1-5 |
| 2012 Planning Rule..... | 1-6 |
| Five-Year Review of the 2008 Forest Plan | 1-7 |
| Secretary of Agriculture Memorandum 1044-009..... | 1-7 |
| Congressional Action | 1-8 |
| Change Determination | 1-8 |
| Purpose and Need | 1-8 |
| Purpose..... | 1-8 |
| Need..... | 1-8 |
| Forest Location and Description | 1-9 |
| Public Issues | 1-11 |
| Public Participation..... | 1-11 |
| Significant Issues | 1-13 |
| The Four Significant Issues | 1-13 |
| Issue 1 –Young Growth Transition | 1-14 |
| Issue 2 – Renewable Energy | 1-14 |
| Issue 3 –Inventoried Roadless Areas..... | 1-14 |
| Issue 4 – Wildlife Habitat and the Conservation Strategy | 1-15 |
| Changes between the Draft EIS and Final EIS..... | 1-15 |
| Changes between Proposed Forest Plan and Forest Plan..... | 1-16 |
| Chapter 1 – Introduction | 1-16 |
| Purpose | 1-16 |
| Relationship to Other Documents | 1-16 |
| Plan Organization | 1-16 |
| Forest Plan Management Direction..... | 1-16 |
| Priority of Direction | 1-16 |
| Forest Location and Description..... | 1-17 |
| Chapter 2 – Goals and Objectives | 1-17 |
| Introduction..... | 1-17 |
| Forest Desired Conditions | 1-17 |
| Ecosystem Services | 1-17 |
| Forest-wide Multiple Use Goals and Objectives..... | 1-17 |
| Chapter 3 – Management Prescriptions | 1-17 |
| Land Use Designations | 1-17 |
| Chapter 4 – Standards and Guidelines..... | 1-18 |
| Chapter 5 – Plan Content Developed Under the 2012 Planning Rule..... | 1-18 |
| Introduction..... | 1-18 |
| Chapter 6 – Implementation..... | 1-20 |
| Chapter 7 – Glossary | 1-20 |
| Appendices | 1-20 |
| Appendix A –Timber Resource Land Suitability..... | 1-20 |
| Appendix B – Tongass Advisory Committee Recommendations..... | 1-20 |
| Appendix C – Watershed Analysis | 1-20 |
| Appendix E – Communication Sites | 1-20 |
| Appendix F – Visual Priority Routes and Use Areas | 1-20 |

Contents

| | |
|--|------------|
| Appendix G – Log Transfer Facility Guidelines | 1-21 |
| Appendix H – Karst and Cave Resources..... | 1-21 |
| Appendix I – ROS Class Standards and Guidelines | 1-21 |
| Appendix J – Special Land Designations or Classifications..... | 1-21 |
| Appendix K – Old-growth Habitat Reserve Modification Procedures..... | 1-21 |
| Appendix L – Special Interest Areas and Experimental Forests | 1-21 |
| Organization of the Document | 1-21 |
| Organization of EIS and Associated Documents | 1-21 |
| CHAPTER 2 ALTERNATIVES | 2-1 |
| Introduction..... | 2-1 |
| Alternative Development Process..... | 2-1 |
| What a Forest Plan Includes..... | 2-1 |
| How Alternatives are Described..... | 2-2 |
| Land Use Designations..... | 2-2 |
| How the 2012 Planning Rule applies..... | 2-2 |
| Future Project Consistency with the Amended Plan..... | 2-3 |
| Alternative Development..... | 2-4 |
| Alternatives Eliminated from Detailed Study..... | 2-5 |
| Develop an Amendment using the 1982 Planning Rule Provisions | 2-5 |
| Alaska Mental Health Trust Land Exchange..... | 2-5 |
| State of Alaska Alternative..... | 2-5 |
| Immediate End to Old-growth Logging | 2-6 |
| Transition to Limited Young-Growth Logging in Five Years | 2-7 |
| Alternatives Considered in Detail..... | 2-8 |
| Alternative 1 (No Action) | 2-10 |
| Framework and Expected Outputs..... | 2-10 |
| Land Use Designations | 2-12 |
| Management Prescriptions..... | 2-12 |
| Selected Outputs | 2-13 |
| Alternative 2 (Proposed Action) | 2-15 |
| Framework and Expected Outputs..... | 2-15 |
| Land Use Designations | 2-16 |
| Management Prescriptions..... | 2-17 |
| Selected Outputs | 2-17 |
| Alternative 3 | 2-21 |
| Framework and Expected Outcomes | 2-21 |
| Land Use Designations | 2-22 |
| Management Prescriptions..... | 2-23 |
| Selected Outputs | 2-23 |
| Alternative 4 | 2-27 |
| Framework and Expected Outcomes | 2-27 |
| Land Use Designations | 2-28 |
| Management Prescriptions..... | 2-29 |
| Selected Outputs | 2-29 |
| Alternative 5 (Preferred Alternative)..... | 2-33 |
| Framework and Expected Outcomes | 2-33 |
| Land Use Designations | 2-35 |
| Management Prescriptions..... | 2-35 |
| Selected Outputs | 2-35 |
| Comparison of the Alternatives | 2-39 |
| Issue 1 – Young-growth Transition..... | 2-39 |
| Issue 2 – Renewable Energy | 2-40 |

| | |
|--|------------|
| Issue 3 – Inventoried Roadless Areas..... | 2-41 |
| Issue 4 – Wildlife Habitat and the Conservation Strategy | 2-41 |
| CHAPTER 3 ENVIRONMENT AND EFFECTS..... | 3-1 |
| Introduction..... | 3-1 |
| Analyzing Effects..... | 3-1 |
| Cumulative Effects..... | 3-3 |
| Geographic Information System Database and Quantification for this EIS | 3-5 |
| Land Use Designation Groupings | 3-6 |
| Land Divisions | 3-6 |
| Watershed..... | 3-7 |
| Geographic Provinces | 3-7 |
| Biogeographic Provinces..... | 3-7 |
| Ecological Sections and Subsections..... | 3-7 |
| Value Comparison Units..... | 3-7 |
| Wildlife Analysis Areas | 3-7 |
| General Forest Description | 3-7 |
| Physical Setting | 3-7 |
| Biological Setting..... | 3-8 |
| Socioeconomic Setting..... | 3-9 |
| Organization of Chapter 3..... | 3-10 |
| Physical and Biological Environment | 3-11 |
| Climate and Air..... | 3-11 |
| Affected Environment | 3-11 |
| Climate..... | 3-11 |
| Climate Change | 3-11 |
| Air Quality | 3-16 |
| Environmental Consequences | 3-19 |
| Direct and Indirect Effects..... | 3-19 |
| Cumulative Effects..... | 3-22 |
| Geology, Karst, and Caves | 3-27 |
| Affected Environment | 3-27 |
| Geology..... | 3-27 |
| Karst and Caves | 3-28 |
| Environmental Consequences | 3-33 |
| Direct and Indirect Effects..... | 3-33 |
| Cumulative Effects..... | 3-35 |
| Soils | 3-37 |
| Affected Environment | 3-37 |
| Environmental Consequences | 3-41 |
| Direct and Indirect Effects..... | 3-41 |
| Cumulative Effects..... | 3-48 |
| Mitigation..... | 3-49 |
| Water..... | 3-51 |
| Affected Environment | 3-51 |
| Water Quantity..... | 3-51 |
| Water Quality | 3-54 |
| Watershed Condition | 3-60 |
| Water Use..... | 3-64 |
| Environmental Consequences | 3-65 |
| Direct and Indirect Effects..... | 3-65 |
| Cumulative Effects..... | 3-83 |
| Wetlands | 3-89 |
| Affected Environment | 3-89 |
| Definition and Regulatory Aspects | 3-89 |

Contents

| | |
|--|-------|
| Wetland Mapping, Classification, and Distribution | 3-89 |
| Past Wetland Impacts..... | 3-91 |
| Environmental Consequences | 3-92 |
| Direct and Indirect Effects..... | 3-92 |
| Cumulative Effects..... | 3-99 |
| Fish | 3-103 |
| Affected Environment | 3-103 |
| Fish Habitat..... | 3-108 |
| Special Status and Invasive Species..... | 3-118 |
| Environmental Consequences | 3-122 |
| Direct and Indirect Effects..... | 3-122 |
| Cumulative Effects..... | 3-137 |
| Plants | 3-143 |
| Affected Environment | 3-143 |
| Plant Communities..... | 3-143 |
| Vegetation Classification | 3-144 |
| Threatened, Endangered, Sensitive, and Rare Plants | 3-146 |
| Invasive Plants..... | 3-149 |
| Environmental Consequences | 3-154 |
| Direct and Indirect Effects..... | 3-154 |
| Cumulative Effects..... | 3-169 |
| Forest Health..... | 3-175 |
| Affected Environment | 3-175 |
| Current Situation..... | 3-175 |
| Monitoring and Pest Management..... | 3-178 |
| Environmental Consequences | 3-179 |
| Direct and Indirect Effects..... | 3-179 |
| Cumulative Effects..... | 3-180 |
| Biodiversity..... | 3-183 |
| Affected Environment | 3-183 |
| Ecosystem Classification | 3-183 |
| Cover Types | 3-187 |
| Overview of Existing Levels of POG Forest on NFS Lands | 3-195 |
| Landscape Connectivity and Fragmentation | 3-198 |
| Tongass Forest Plan Conservation Strategy..... | 3-200 |
| Environmental Consequences | 3-203 |
| Direct and Indirect Effects Common to All Alternatives..... | 3-203 |
| Direct and Indirect Effects Specific to Each Alternative | 3-208 |
| Cumulative Effects..... | 3-216 |
| Wildlife..... | 3-221 |
| Affected Environment | 3-221 |
| Old-Growth Habitat and the Conservation Strategy | 3-221 |
| Landscape Connectivity and Fragmentation | 3-222 |
| Wildlife Species | 3-222 |
| Endemism..... | 3-247 |
| Invasive Species..... | 3-250 |
| Environmental Consequences | 3-252 |
| Direct and Indirect Effects..... | 3-252 |
| Cumulative Effects..... | 3-286 |
| Human Uses and Land Management | 3-297 |
| Lands Uses, Ownership, and Adjustments..... | 3-297 |
| Affected Environment | 3-297 |
| Land Ownership Adjustment..... | 3-297 |
| Land Use Authorizations..... | 3-302 |
| Environmental Consequences | 3-304 |

Contents

| | |
|--|-------|
| Direct and Indirect Effects..... | 3-304 |
| Cumulative Effects..... | 3-304 |
| Transportation..... | 3-307 |
| Affected Environment..... | 3-307 |
| Regional Transportation System..... | 3-307 |
| National Forest System Roads..... | 3-309 |
| Log Transfer Facilities..... | 3-310 |
| Transportation and Utility Systems in the Current Forest Plan..... | 3-310 |
| Environmental Consequences..... | 3-311 |
| Direct, Indirect, Effects..... | 3-311 |
| Cumulative Effects..... | 3-314 |
| Renewable Energy..... | 3-315 |
| Affected Environment..... | 3-315 |
| Tongass National Forest Land and Resource Management Plan..... | 3-317 |
| Current Trends..... | 3-319 |
| Renewable Energy Resources..... | 3-321 |
| Environmental Consequences..... | 3-324 |
| Direct and Indirect Effects..... | 3-324 |
| Cumulative Effects..... | 3-326 |
| Timber..... | 3-327 |
| Affected Environment..... | 3-327 |
| Introduction..... | 3-327 |
| Current Condition of the Forest Land Base..... | 3-327 |
| Current Condition of the Timber Resource..... | 3-329 |
| Current Practices..... | 3-333 |
| Tongass Timber Sale Program..... | 3-340 |
| Environmental Consequences..... | 3-341 |
| Suitable Timber Lands..... | 3-342 |
| Silvicultural Systems and Practices..... | 3-343 |
| Projected Timber Sale Quantity..... | 3-345 |
| Future Conditions..... | 3-348 |
| Cumulative Effects..... | 3-349 |
| Minerals..... | 3-351 |
| Affected Environment..... | 3-351 |
| Locatable Minerals..... | 3-351 |
| Leasable Minerals..... | 3-352 |
| Salable Minerals..... | 3-353 |
| Mineral Resource Inventory and Development Potential..... | 3-353 |
| Tongass Land Management for Minerals..... | 3-354 |
| Environmental Consequences..... | 3-354 |
| Direct and Indirect Effects..... | 3-355 |
| Cumulative Effects..... | 3-356 |
| Recreation and Tourism..... | 3-357 |
| Affected Environment..... | 3-357 |
| Supply of Recreation Opportunities..... | 3-359 |
| Existing Use Levels and Trends..... | 3-364 |
| Environmental Consequences..... | 3-374 |
| Direct and Indirect Effects..... | 3-374 |
| Cumulative Effects..... | 3-384 |
| Risk and Uncertainty..... | 3-385 |
| Scenery..... | 3-387 |
| Affected Environment..... | 3-387 |
| Existing Scenic Integrity..... | 3-388 |
| Environmental Consequences..... | 3-390 |
| Direct, Indirect, and Cumulative Forest-wide Effects..... | 3-391 |
| Cumulative Effects..... | 3-415 |

Contents

| | |
|--|-------|
| Subsistence..... | 3-417 |
| Affected Environment | 3-417 |
| The Legal Context for Subsistence Use | 3-418 |
| Subsistence Users..... | 3-419 |
| Economy..... | 3-420 |
| Subsistence Use Areas | 3-424 |
| Environmental Consequences | 3-425 |
| Direct and Indirect Effects..... | 3-426 |
| Cumulative Effects..... | 3-430 |
| ANILCA Determination | 3-431 |
| Heritage Resources and Sacred Sites..... | 3-433 |
| Affected Environment | 3-433 |
| Heritage Resources | 3-433 |
| Sacred Sites | 3-435 |
| Environmental Consequences | 3-436 |
| Direct and Indirect Effects..... | 3-436 |
| Cumulative Effects..... | 3-438 |
| Inventoried Roadless Areas..... | 3-441 |
| Affected Environment | 3-441 |
| Current Situation..... | 3-441 |
| Environmental Consequences | 3-445 |
| Direct, Indirect, and Cumulative Effects | 3-445 |
| Cumulative Effects..... | 3-447 |
| Wilderness | 3-449 |
| Affected Environment | 3-449 |
| Introduction | 3-449 |
| Wilderness Overview | 3-449 |
| Wilderness in Alaska and the Tongass | 3-451 |
| Relative Contribution of Tongass Wilderness..... | 3-452 |
| Wilderness Management in Alaska | 3-457 |
| Environmental Consequences | 3-460 |
| Direct and Indirect Effects..... | 3-460 |
| Cumulative Effects..... | 3-461 |
| Other Special Land Use Designations..... | 3-463 |
| Affected Environment | 3-463 |
| Land Use Designation II Management Areas..... | 3-463 |
| Experimental Forests..... | 3-464 |
| Research Natural Areas | 3-465 |
| Special Interest Areas..... | 3-467 |
| Wild and Scenic Rivers..... | 3-470 |
| Environmental Effects..... | 3-473 |
| Direct and Indirect Effects..... | 3-473 |
| Cumulative Effects..... | 3-476 |
| Economic and Social Environment | 3-477 |
| Introduction | 3-477 |
| Regional and National Economy..... | 3-478 |
| Affected Environment | 3-478 |
| Regional Economic Overview..... | 3-478 |
| Natural Resource-Based Industries..... | 3-481 |
| Environmental Consequences | 3-506 |
| Direct and Indirect Effects..... | 3-506 |
| Cumulative Effects..... | 3-523 |
| Subregional Overview and Communities..... | 3-525 |
| Introduction | 3-525 |
| Subregional Overview | 3-525 |
| Population..... | 3-526 |

Contents

| | |
|---|------------|
| Age | 3-527 |
| Employment..... | 3-528 |
| Income and Poverty..... | 3-532 |
| Communities | 3-537 |
| Community Assessments..... | 3-538 |
| Analyzing Impacts to Communities | 3-541 |
| Population and School Enrollment | 3-541 |
| Energy Generation and Use..... | 3-543 |
| Potential Effects by Resource Area..... | 3-545 |
| Wood Products | 3-545 |
| Renewable Energy | 3-545 |
| Recreation and Tourism..... | 3-545 |
| Subsistence | 3-545 |
| Individual Community Assessments..... | 3-546 |
| Angoon..... | 3-546 |
| Coffman Cove..... | 3-551 |
| Craig | 3-556 |
| Edna Bay | 3-561 |
| Elfin Cove..... | 3-566 |
| Gustavus..... | 3-570 |
| Haines..... | 3-575 |
| Hollis | 3-581 |
| Hoonah | 3-585 |
| Hydaburg | 3-590 |
| Hyder | 3-595 |
| Juneau and Vicinity..... | 3-598 |
| Kake..... | 3-602 |
| Kasaan..... | 3-607 |
| Ketchikan | 3-612 |
| Klawock..... | 3-616 |
| Metlakatla..... | 3-621 |
| Meyers Chuck..... | 3-626 |
| Naukatik Bay | 3-628 |
| Pelican | 3-633 |
| Petersburg and Kupreanof..... | 3-637 |
| Point Baker | 3-643 |
| Port Alexander | 3-648 |
| Port Protection | 3-651 |
| Saxman..... | 3-655 |
| Sitka | 3-659 |
| Skagway | 3-664 |
| Tenakee Springs..... | 3-668 |
| Thorne Bay | 3-673 |
| Whale Pass..... | 3-678 |
| Wrangell..... | 3-683 |
| Yakutat..... | 3-688 |
| Environmental Justice | 3-693 |
| CHAPTER 4 LIST OF PREPARERS | 4-1 |
| CHAPTER 5 LIST OF DOCUMENT RECIPIENTS AND THOSE NOTIFIED | 5-1 |
| Federal Agencies | 5-1 |
| Federal Advisory Committee..... | 5-2 |
| State and Federal Congressional Representatives | 5-3 |
| Alaska Native Tribes and Corporations | 5-3 |
| State Agencies | 5-4 |
| City and Borough Agencies, Libraries, and Schools..... | 5-4 |

Contents

| | |
|-----------------------------------|------------|
| Other Organizations | 5-6 |
| Individuals | 5-8 |
| CHAPTER 6 REFERENCES | 6-1 |
| CHAPTER 7 GLOSSARY | 7-1 |
| CHAPTER 8 INDEX..... | 8-1 |

VOLUME II

| | |
|------------|---|
| APPENDIX A | SCOPING AND COMMENT SUMMARY REPORT |
| APPENDIX B | MODELING AND ANALYSIS |
| APPENDIX C | CUMULATIVE EFFECTS |
| APPENDIX D | EVALUATING INTEGRITY OF THE TONGASS NATIONAL FOREST OLD-GROWTH HABITAT CONSERVATION STRATEGY |
| APPENDIX E | INTERAGENCY OLD GROWTH RESERVE REVIEW |
| APPENDIX F | COMPARISON OF DIRECTION BY ALTERNATIVE |
| APPENDIX G | TIMBER DEMAND AND SUPPLY |
| APPENDIX H | ALASKA LIMITED EXPORT |
| APPENDIX I | DEIS COMMENTS AND RESPONSES |

LIST OF TABLES

| | | |
|-------------|--|------|
| Table 2-1 | Projected Timber Harvest on the Tongass under the Baseline Model and Scenarios 1, 2, and 3 (MMBF) | 2-8 |
| Table 2-2 | Key Elements of Alternative 1 | 2-12 |
| Table 2-3 | Land Use Designation, Suitable, and Projected Harvest Acres for Alternative 1 | 2-13 |
| Table 2-4 | Selected Outputs and Measures Associated with Alternative 1 | 2-15 |
| Table 2-5 | Key Elements of Alternative 2 | 2-18 |
| Table 2-6 | Land Use Designation, Suitable, and Projected Harvest Acres for Alternative 2 | 2-19 |
| Table 2-7 | Selected Outputs and Measures Associated with Alternative 2 | 2-21 |
| Table 2-8 | Key Elements of Alternative 3 | 2-24 |
| Table 2-9 | Land Use Designation, Suitable, and Projected Harvest Acres for Alternative 3 | 2-25 |
| Table 2-10 | Selected Outputs and Measures Associated with Alternative 3 | 2-27 |
| Table 2-11 | Key Elements of Alternative 4 | 2-30 |
| Table 2-12 | Land Use Designation, Suitable, and Projected Harvest Acres for Alternative 4 | 2-31 |
| Table 2-13 | Selected Outputs and Measures Associated with Alternative 4 | 2-33 |
| Table 2-14 | Key Elements of Alternative 5 | 2-36 |
| Table 2-15 | Land Use Designation, Suitable, and Projected Harvest Acres for Alternative 5 | 2-37 |
| Table 2-16 | Selected Outputs and Measures Associated with Alternative 5 | 2-39 |
| Table 2-17 | Comparison of Key Elements of the Alternatives | 2-44 |
| Table 2-18 | Comparison of Alternatives | 2-45 |
| Table 3-1 | Land Use Designation Groupings Used to Discuss Effects | 3-6 |
| Table 3.1-1 | Criteria Pollutants, National Ambient Air Quality Standards | 3-17 |
| Table 3.2-1 | Estimated Maximum Future Tongass Harvest (acres) on Karst Lands under the Alternatives after 100 Years | 3-34 |
| Table 3.3-1 | Estimated Percent of the Productive Forestland on the Tongass by Site Index Category | 3-38 |
| Table 3.3-2 | Estimated Percent of the Tongass National Forest, POG, and Young Growth by Slope Category | 3-40 |
| Table 3.3-3 | Estimated Maximum Cumulative Acreage Covered by Road Surfaces on NFS Lands after the first 25 Years and after 100 Years by Alternative | 3-44 |
| Table 3.3-4 | Estimated Maximum Road Miles to be Constructed or Reconstructed over 25 Years by Alternative | 3-44 |
| Table 3.3-5 | Estimated Maximum Increase in Landslide Frequency over the First 25 Years of Forest Plan Implementation | 3-45 |
| Table 3.3-6 | Estimated Maximum Road Density on NFS Lands and Non-NFS Lands after 100 Years under Existing Conditions and by Alternative | 3-49 |
| Table 3.4-1 | Mapped Stream Miles by Process Group and Stream Class for Each Ranger District Group on NFS Lands | 3-53 |
| Table 3.4-2 | Percent of Subwatersheds on the Tongass National Forest with Waterbodies within 300 Feet of Roads | 3-61 |
| Table 3.4-3 | Total Riparian Management Area (RMA), Productive Old Growth (POG) in RMA, and Past Harvested Areas in RMA by Stream Channel Process Group on NFS Lands | 3-62 |
| Table 3.4-4 | Estimated Maximum Acres of Timber Harvest after 100 Years of Full Forest Plan Implementation | 3-68 |
| Table 3.4-5 | Estimated Harvest (acres) of Young-Growth by All Harvest Methods (e.g., even aged, group selection, commercial thin) in Beach Fringe and Riparian Management Area (RMA) after 100 Years by Alternative | 3-68 |

Contents

| | | |
|--------------|--|-------|
| Table 3.4-6 | Estimated Road Miles and Percent of 6 th Field Subwatersheds in Road Density Categories on NFS Lands under Existing Conditions and after 100 Years of Full Implementation | 3-70 |
| Table 3.4-7 | Estimated Road Construction and Reconstruction (miles) in Beach/Estuary Fringe and Riparian Management Area (RMA) after 100 Years by Alternative | 3-71 |
| Table 3.4-8 | Estimated Maximum Road Miles on Potentially Unstable Soils Based on Slopes Greater Than 67 Percent over the Length of the Project (approximately 100 years) | 3-74 |
| Table 3.4-9 | Riparian Management Area (RMA) Acres and Past and Future Young-Growth Harvest (see note) by Process Group by Alternative | 3-80 |
| Table 3.4-10 | Percent of Original POG Remaining on All Lands within the Tongass Forest Boundary and Percent of All Lands inside the Boundary that are Not Directly Disturbed by Timber Harvest after Full Implementation of the Forest Plan (approximately 100+ years) | 3-84 |
| Table 3.4-11 | Estimated Number of Road Miles on All Lands within the Tongass Forest Boundary for Each Alternative after Full Implementation of the Forest Plan for approximately 100 years | 3-85 |
| Table 3.4-12 | Estimated Average Total Road Density on Tongass NFS Lands and Non-NFS Lands within the Tongass National Forest Boundary by Alternative over 100+ years | 3-86 |
| Table 3.4-13 | Estimated Road Miles and Percent of Watersheds in Road Density Categories on NFS Lands and on All Lands Combined within the Tongass National Forest Boundary by Alternative after 100+ years of Full Implementation | 3-86 |
| Table 3.5-1 | Mapped Acres of Wetlands on the Tongass National Forest by Wetland System and Class | 3-91 |
| Table 3.5-2 | Past Acres of Timber Harvest and Existing Miles of Roads in Wetlands on the Tongass | 3-91 |
| Table 3.5-3 | Alternatives that Allow for Harvest in Beach and Estuary Fringe and RMAs | 3-97 |
| Table 3.5-4 | Maximum Harvest Area in Mapped Wetlands by Alternative after 100+ Years of Full Implementation | 3-98 |
| Table 3.5-5 | Maximum Miles of New Roads in Wetlands by Alternative after 100+ Years | 3-98 |
| Table 3.5-6 | Estimated Cumulative Percent of each Wetland Category Harvested on All Ownerships within the Forest Boundary under each Alternative after 100 Years | 3-100 |
| Table 3.5-7 | Existing and Estimated Future Maximum Road Density (miles per square mile) for NFS Lands and for All Ownerships within the Forest Boundary by Alternative after 100+ Years | 3-101 |
| Table 3.6-1 | Mapped Amount of Streams, Lakes and Ponds on the Tongass National Forest Lands | 3-104 |
| Table 3.6-2 | Commonly Caught or Harvested Sport, Subsistence, and Commercial Fish | 3-105 |
| Table 3.6-3 | Tongass National Forest Fish Habitat Enhancement and Restoration Projects Completed During 1996-2014 | 3-114 |
| Table 3.6-4 | Estimated Number of Existing and Maximum New Stream Crossings for New Roads and Reconstructed Roads Stream Crossing by Alternative over the Length of the Project (approximately 100+ years) | 3-124 |
| Table 3.7-1 | 2009 Alaska Region Sensitive Plants Known or Suspected to Occur on the Tongass National Forest | 3-147 |
| Table 3.7-2 | Number of Invasive Plant Species on the Tongass National Forest by District | 3-151 |
| Table 3.7-3 | Invasive Plants on the Tongass: Number of Occurrences and Invasiveness Ranking | 3-151 |
| Table 3.7-4 | Maximum Acres of Harvest and Maximum Miles of Road Construction by Alternative | 3-156 |

| | | |
|--------------|--|-------|
| Table 3.7-5 | Projected Harvest of Young Growth and Old Growth in Beach Buffers, RMAs, Old-Growth Reserves, other Non-Development LUDs, and 2001 Roadless Areas by Alternative | 3-157 |
| Table 3.7-6 | Proportion of Known Occurrences of Sensitive Plant Species with the Potential to be in Old-Growth or Young-Growth Harvest Units after 100 Years | 3-159 |
| Table 3.7-7 | Cumulative Percent of Original POG Remaining on All Ownerships in 2015 and Estimated Minimum Percent Remaining after 100+ Years for All Lands within the Tongass Forest Boundary | 3-170 |
| Table 3.7-8 | Existing and Estimated Future Maximum Road Density (miles per square mile) for NFS Lands and for All Ownerships within the Forest Boundary by Alternative after 100+ Years | 3-171 |
| Table 3.9-1 | Biogeographic Provinces in Southeast Alaska and the Tongass National Forest | 3-184 |
| Table 3.9-2 | Major Cover Types on the Tongass National Forest by Biogeographic Province (NFS Lands Only) | 3-188 |
| Table 3.9-3 | Distribution of Productive Old-Growth Forest on the Tongass National Forest by Biogeographic Province (NFS Lands Only) | 3-191 |
| Table 3.9-4 | Distribution of Old-Growth Forest on the Tongass National Forest by Elevation (NFS Lands Only) | 3-192 |
| Table 3.9-5 | Forest-wide Distribution of Young Growth (NFS Lands Only) | 3-194 |
| Table 3.9-6 | Original and Percent Remaining Total POG, High-Volume POG (SD5S, SD5N, SD67) Total and Below 800 feet, and Large-Tree POG (SD67) Total and Below 800 feet by Biogeographic Province (NFS Lands Only) | 3-196 |
| Table 3.9-7 | Number and Acreage of Existing Intact VCUs, Comparable to Large Watersheds, on the Tongass National Forest by Biogeographic Province (NFS and non-NFS lands) | 3-197 |
| Table 3.9-8 | Distribution of Existing POG and Young Growth within the Reserve System and Matrix Lands (NFS Lands Only) | 3-201 |
| Table 3.9-9 | Existing Productive Old-Growth Forest within Reserves and Matrix Lands (minimum protected vs. maximum harvested) by Alternative | 3-203 |
| Table 3.9-10 | Existing Young Growth in Reserves and in Matrix Lands (minimum protected vs. maximum harvested) by Alternative | 3-205 |
| Table 3.9-11 | Projected Harvest of Young-growth and Old-growth in Beach Buffers, RMAs, Old-Growth Habitat LUD, other Non-Development LUDs, and 2001 Roadless Areas by Alternative | 3-207 |
| Table 3.9-12 | Estimated Percent of Original POG Remaining (Total and in Reserves) after 100 Years by Biogeographic Province and Alternative (NFS lands only) | 3-209 |
| Table 3.9-13 | Estimated Percent of Original High-Volume POG Remaining (Total and in Reserves) after 100 Years by Biogeographic Province and Alternative (NFS lands only) | 3-210 |
| Table 3.9-14 | Estimated Percent of Original Large-Tree POG Remaining (Total and in Reserves) after 100 Years by Biogeographic Province and Alternative (NFS lands only) | 3-211 |
| Table 3.9-15 | Number and Acreage within Intact VCUs, Comparable to Large Watersheds , after 100+ Years by Biogeographic Province and Alternative (NFS and Non-NFS lands) | 3-212 |
| Table 3.9-16 | Cumulative Percent of Original Total POG Remaining on All Landownerships after 100 Years of Forest Plan Implementation by Biogeographic Province and Alternative (NFS and Non-NFS Lands) | 3-217 |
| Table 3.9-17 | Cumulative Percent of Original High-Volume POG Remaining on All Landownerships after 100 Years of Forest Plan Implementation by Biogeographic Province and Alternative (NFS and Non-NFS Lands) | 3-218 |

Contents

| | | |
|---------------|---|-------|
| Table 3.9-18 | Cumulative Percent of Original Large-tree POG Remaining on All Landownerships after 100 Years of Forest Plan Implementation by Biogeographic Province and Alternative (NFS and Non-NFS Lands) | 3-219 |
| Table 3.10-1 | Federally Listed Threatened and Endangered Species, Candidate Species Under the ESA, and Forest Service Alaska Region Sensitive Species and Potential for Occurrence on the Tongass National Forest | 3-224 |
| Table 3.10-2 | Existing Forest-wide Deer Habitat Capability Using the Interagency Deer Model (NFS Lands Only) | 3-231 |
| Table 3.10-3 | Existing Habitat Conditions Using the FRESH Deer Model (NFS Lands Only) | 3-233 |
| Table 3.10-4 | Existing Estimated Average Road Densities and Percentage of WAAs in Road Density Categories on NFS Lands and All Lands Combined for All Roads and Open Roads Only within the Tongass National Forest Boundary (All Elevations) | 3-236 |
| Table 3.10-5 | Modeled Deer Habitat Capability Using the Interagency Deer Model for Comparison to Forest Plan 18 Deer per Square Mile Standard and Guideline (NFS Lands Only) | 3-239 |
| Table 3.10-6 | Migratory and Resident Birds Identified as Species of Concern in Southeast Alaska | 3-244 |
| Table 3.10-7 | Endemic Wildlife Species Documented on the Tongass National Forest | 3-248 |
| Table 3.10-8 | Productive Old-Growth Acreage in Reserves, Protected/Unscheduled in the Matrix, and Scheduled for Timber Harvest over 100 years (NFS lands only) | 3-253 |
| Table 3.10-9 | Young-Growth Acreage in Reserves, Protected/Unscheduled in the Matrix, and Scheduled for Timber Harvest over 100 Years (NFS Lands Only) | 3-253 |
| Table 3.10-10 | Relative Changes in Deer Habitat Capability (DHC) by Biogeographic Province by Alternative in 25 years and 100 years based on the Interagency Deer Habitat Capability Model (NFS Lands Only) | 3-264 |
| Table 3.10-11 | Habitat Conditions Resulting from Each Alternative Using the FRESH Deer Model in 25 years and 100 years (NFS Lands Only) | 3-265 |
| Table 3.10-12 | Estimated Average Road Density and Percent of WAAs in Road Density Categories on NFS Lands and All Lands Combined for All Roads and for Open Roads Only within the Tongass National Forest Boundary by Alternative after 100 Years | 3-269 |
| Table 3.10-13 | Estimated Harvest (acres) of High-Volume (SD5N, SD5S, and SD67) and Large-Tree (SD67) Productive Old-Growth by Elevation Category and Alternative after 100 years (NFS lands only) | 3-271 |
| Table 3.10-14 | Comparison of Alternatives in terms of their Long-term Ability to Meet the Wolf Guideline of Providing Sufficient Habitat to Support 18 Deer per Square Mile after 25 and 100+ Years of Forest Plan Implementation 1 (NFS Lands Only) | 3-275 |
| Table 3.10-15 | Estimated Road Miles and Average Road Density below 1,200 ft. in Elevation on NFS Lands and All Lands Combined for All Roads and for Open Roads by Alternative after 100 Years | 3-277 |
| Table 3.11-1 | Land Ownership Distribution, Tongass National Forest | 3-297 |
| Table 3.12a-1 | Estimated Number of Road Miles (includes Decommissioned Roads) on All Lands within the Tongass Forest Boundary for Each Alternative after Full Implementation of the Forest Plan for 100 Years | 3-311 |
| Table 3.12a-2 | Estimated Miles of Road Construction and Reconstruction by Alternative after 100 Years | 3-312 |
| Table 3.12b-1 | Existing Renewable Energy Projects | 3-316 |
| Table 3.12b-2 | Transportation and Utility System Window and Avoidance Areas by LUD (acres) | 3-318 |
| Table 3.12b-3 | Active Proposed and Unconstructed Renewable Energy Projects on or likely to affect National Forest System Lands | 3-323 |
| Table 3.13-1 | Land Classification of Suitable Lands | 3-328 |

Contents

| | | |
|---------------|---|-------|
| Table 3.13-2 | Estimated Age Class Distribution of All Productive Forest Land and Suitable Productive Forest Land (acres) | 3-329 |
| Table 3.13-3 | Estimated Age Class Distribution of Even-aged Young-Growth Stands (acres) | 3-330 |
| Table 3.13-4 | Tongass National Forest Strata Characteristics–Productive Old-Growth Forest | 3-332 |
| Table 3.13-5 | Timber Harvest and Imports for Southeast Alaska, 1997-2011 (MMBF) | 3-341 |
| Table 3.13-6 | Land Classification, Suitable Lands, Projected Harvest, and PTSQ for Old-Growth and Young-Growth Harvest under Each Alternative | 3-343 |
| Table 3.13-7 | Timber Management Practices as Modeled | 3-345 |
| Table 3.13-8 | Projected Timber Sale Quantity (Decades 1 – 4, Annual) | 3-346 |
| Table 3.13-9 | Projected Timber Sale Quantity and Sustained Yield Limit (MMBF) | 3-348 |
| Table 3.13-10 | Forest-wide Stand Structures Existing and after 100 Years (thousands of acres) | 3-349 |
| Table 3.13-11 | Maximum Estimated Annual Timber Harvest in Southeast Alaska during the First Decade (MMBF) | 3-350 |
| Table 3.15-1 | Tongass Recreation Facilities, 2015 | 3-358 |
| Table 3.15-2 | Comparison of ROS Classes | 3-359 |
| Table 3.15-3 | Forest-wide Recreation Opportunity Spectrum Acres, 2015 | 3-361 |
| Table 3.15-4 | Forest-wide Recreation Opportunity Spectrum Acres by LUD Group, 2015 | 3-362 |
| Table 3.15-5 | Distribution of Recreation Place Acres by Recreation Opportunity Spectrum Class | 3-363 |
| Table 3.15-6 | Distribution of Recreation Places by General Use | 3-363 |
| Table 3.15-7 | Important Recreation Places by Category | 3-364 |
| Table 3.15-8 | Activities Participated in by Visitors to Southeast Alaska, Summer 2011 | 3-367 |
| Table 3.15-9 | Southeast Alaska Visitation, 1990 to 2013 | 3-369 |
| Table 3.15-10 | Alaska Arrivals by Transport Type and Visitor/Resident, Summer 2011 | 3-370 |
| Table 3.15-11 | Juneau Icefield and Mendenhall Glacier Visitation, 2000 to 2014 | 3-371 |
| Table 3.15-12 | Helicopter Tour Locations by Client and Group, 2014 | 3-373 |
| Table 3.15-13 | Outfitter/Guide Use by Ranger District, 2013 | 3-373 |
| Table 3.15-14 | Estimated Maximum Acres Likely to be Harvested after 100 Years by ROS Setting | 3-374 |
| Table 3.15-15 | Approximate Maximum Acres Potentially Harvested after 100 Years by LUD Group and LUD | 3-376 |
| Table 3.15-16 | Estimated Maximum Acres of Harvest in Home Range Recreation Places, by LUD Group | 3-377 |
| Table 3.15-17 | Estimated Maximum Acres of Harvest in Recreation Places Important for Facilities, by LUD Group | 3-378 |
| Table 3.15-18 | Estimated Maximum Acres of Harvest in Recreation Places Important for Marine Recreation, by LUD Group | 3-378 |
| Table 3.15-19 | Estimated Maximum Acres of Harvest in Recreation Places Important for Hunting, by LUD Group | 3-379 |
| Table 3.15-20 | Estimated Maximum Acres of Harvest in Recreation Places Important for Fishing, by LUD Group | 3-379 |
| Table 3.15-21 | Estimated Maximum Acres of Harvest in Recreation Places Important for Tourism, by LUD Group | 3-380 |
| Table 3.15-22 | Number of Developed Recreation Facilities within 0.5-mile of Suitable Old-Growth and Young-Growth Stands, by LUD Group | 3-380 |
| Table 3.16-1 | The Existing Scenic Integrity of the Tongass National Forest (percent) | 3-389 |
| Table 3.16-2 | Adopted Scenic Integrity Objectives for the Tongass (percent) | 3-390 |
| Table 3.16-3 | Scenery Integrity Objectives for Suitable Young Growth by LUD, Distance Zone, and Alternative (percent) | 3-392 |

Contents

| | | |
|---------------|--|-------|
| Table 3.16-4 | SIO Changes in Estimated Suitable Young Growth Forest Land for Each Alternative | 3-394 |
| Table 3.16-5 | SIO Changes and Suitable Young Growth Acres in Selected Viewsheds | 3-399 |
| Table 3.17-1 | Deer Harvest by Game Management Unit and Transportation Type, 2011 | 3-428 |
| Table 3.18-1 | Approximate Suitable Acres Under 100 Feet Elevation Likely to be Harvested over 25 Years | 3-437 |
| Table 3.18-2 | Approximate Maximum Acres Likely to be Harvested and Maximum Road Miles to be Constructed/Reconstructed over 25 Years | 3-438 |
| Table 3.18-3 | Approximate Maximum Acres Likely to be Harvested and Maximum Road Miles to be Constructed/Reconstructed over 100 Years | 3-438 |
| Table 3.19-1 | Roadless Characteristics and Discussion Sections | 3-442 |
| Table 3.19-2 | Tongass National Forest Inventoried Roadless Areas Covered by the 2001 Roadless Area Conservation Rule | 3-443 |
| Table 3.19-3 | Estimated Old-Growth and Young-Growth Harvest After 100 Years within Current Inventoried Roadless Areas by Alternative | 3-446 |
| Table 3.20-1 | Existing Wildernesses on the Tongass National Forest | 3-451 |
| Table 3.20-2 | Percentage of Biogeographic Province in Existing Wilderness or Natural Setting LUDs | 3-457 |
| Table 3.21-1 | National Forest System Land and Non-National Forest System Land within LUD II Areas | 3-463 |
| Table 3.21-2 | Rivers (Segments) Recommended for Inclusion in National Wild and Scenic River Program in miles | 3-471 |
| Table 3.22-1 | Southeast Alaska Economic Overview | 3-479 |
| Table 3.22-2 | Southeast Alaska Employment by Sector, 2001 and 2013 | 3-480 |
| Table 3.22-3 | Natural Resource-Based Employment by Sector, 2013 | 3-481 |
| Table 3.22-4 | Timber Industry Employment in Southeast Alaska, 2002-2014 | 3-485 |
| Table 3.22-5 | Timber Harvest in Southeast Alaska by Ownership, 2002–2014 | 3-486 |
| Table 3.22-6 | Forest Service Mill Survey: Estimated Mill Capacity, Production, and Utilization, 2013 | 3-488 |
| Table 3.22-7 | Additional Sawmills in Southeast Alaska Based on a Review of Business Licenses, 2015 | 3-489 |
| Table 3.22-8 | Projected Baseline Timber Harvest in Southeast Alaska by Product Type (MMBF) all owners | 3-492 |
| Table 3.22-9 | Projected Baseline Timber Harvest in Southeast Alaska by Owner (MMBF) | 3-493 |
| Table 3.22-10 | Projected Timber Harvest on the Tongass under the Baseline Model and Scenarios 1, 2, and 3 (MMBF) | 3-494 |
| Table 3.22-11 | Potential Non-Lumber Applications of Young Growth Timber in Southeast Alaska | 3-497 |
| Table 3.22-12 | Seafood Processing Workforce by Borough, 2012 | 3-503 |
| Table 3.22-13 | Components of Per Capita Income 2013 | 3-504 |
| Table 3.22-14 | Components of Per Capita Transfer Payments, 2013 | 3-506 |
| Table 3.22-15 | Estimated Maximum Timber Harvest on the Tongass by Alternative, Year 1 to 100 | 3-508 |
| Table 3.22-16 | Discounted Net Revenues by Alternative for 15, 25, and 100 Years | 3-516 |
| Table 3.22-17 | Discounted Net Revenues by Alternative for 5-Year Increments (Years 1 to 25) | 3-517 |
| Table 3.22-19 | Estimated Timber Industry Employment and Income by Alternative (First Decade, Annual Average) | 3-519 |
| Table 3.23-1 | Borough/Census Area Population, 2000, 2010, and 2014 | 3-526 |
| Table 3.23-2 | Age by Borough | 3-528 |

Contents

| | | |
|---------------|--|-------|
| Table 3.23-3 | Employment by Sector by Borough 2013 | 3-529 |
| Table 3.23-4 | Annual Unemployment Rates, 2005 to 2014 (Percent) | 3-530 |
| Table 3.23-5 | Components of Per Capita Income, 2013 | 3-533 |
| Table 3.23-6 | Median Household Income and Poverty, 2013 | 3-534 |
| Table 3.23-7 | School Enrollment and Number of Students Eligible for Free and Reduced-Price Lunch by Borough, 2015 | 3-535 |
| Table 3.23-8 | Southeast Alaska Community Statistics | 3-540 |
| Table 3.23-9 | School Enrollment by Community, 1990, 2000, 2010, and 2014 | 3-542 |
| Table 3.23-10 | Estimated Maximum Harvest (acres) over 100 Years in Angoon's Community Use Area by Alternative | 3-549 |
| Table 3.23-11 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Angoon Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-551 |
| Table 3.23-12 | Estimated Maximum Harvest (acres) over 100 Years in Coffman Cove's Community Use Area by Alternative | 3-554 |
| Table 3.23-13 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Coffman Cove Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-556 |
| Table 3.23-14 | Estimated Maximum Harvest (acres) over 100 Years in Craig's Community Use Area by Alternative | 3-560 |
| Table 3.23-15 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Craig Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-561 |
| Table 3.23-16 | Estimated Maximum Harvest (acres) over 100 Years in Edna Bay's Community Use Area by Alternative | 3-565 |
| Table 3.23-17 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Edna Bay Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-565 |
| Table 3.23-18 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Elfin Cove Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-570 |
| Table 3.23-19 | Estimated Maximum Harvest (acres) over 100 Years in Gustavus' Community Use Area by Alternative | 3-573 |
| Table 3.23-20 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Gustavus Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-574 |
| Table 3.23-21 | Estimated Maximum Harvest (acres) over 100 Years in Haines' Community Use Area by Alternative | 3-578 |
| Table 3.23-22 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Haines Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-580 |

Contents

| | | |
|---------------|--|-------|
| Table 3.23-23 | Estimated Maximum Harvest (acres) over 100 Years in Hollis' Community Use Area by Alternative | 3-583 |
| Table 3.23-24 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Hollis Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-584 |
| Table 3.23-25 | Estimated Maximum Harvest (acres) over 100 Years in Hoonah's Community Use Area by Alternative | 3-589 |
| Table 3.23-26 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Hoonah Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-589 |
| Table 3.23-27 | Estimated Maximum Harvest (acres) over 100 Years in Hydaburg's Community Use Area by Alternative | 3-593 |
| Table 3.23-28 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Hydaburg Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-594 |
| Table 3.23-29 | Estimated Maximum Harvest (acres) over 100 Years in Hyder's Community Use Area by Alternative | 3-597 |
| Table 3.23-30 | Estimated Maximum Harvest (acres) over 100 Years in Juneau's Community Use Area by Alternative | 3-601 |
| Table 3.23-31 | Estimated Maximum Harvest (acres) over 100 Years in Kake's Community Use Area by Alternative | 3-605 |
| Table 3.23-32 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Kake Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-606 |
| Table 3.23-33 | Estimated Maximum Harvest (acres) over 100 Years in Kasaan's Community Use Area by Alternative | 3-610 |
| Table 3.23-34 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Kasaan Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-611 |
| Table 3.23-35 | Estimated Maximum Harvest (acres) over 100 Years in Ketchikan's Community Use Area by Alternative | 3-615 |
| Table 3.23-36 | Estimated Maximum Harvest (acres) over 100 Years in Klawock's Community Use Area by Alternative | 3-619 |
| Table 3.23-37 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Klawock Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-621 |
| Table 3.23-38 | Estimated Maximum Harvest (acres) over 100 Years in Metlakatla's Community Use Area by Alternative | 3-624 |
| Table 3.23-39 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Metlakatla Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-626 |

Contents

| | | |
|---------------|---|-------|
| Table 3.23-40 | Estimated Maximum Harvest (acres) over 100 Years in Meyers Chuck's Community Use Area by Alternative | 3-628 |
| Table 3.23-41 | Estimated Maximum Harvest (acres) over 100 Years in Naukati Bay's Community Use Area by Alternative | 3-631 |
| Table 3.23-42 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Naukati Bay Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-632 |
| Table 3.23-43 | Estimated Maximum Harvest (acres) over 100 Years in Pelican's Community Use Area by Alternative | 3-636 |
| Table 3.23-44 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Pelican Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-637 |
| Table 3.23-45 | Estimated Maximum Harvest (acres) over 100 Years in Petersburg's Community Use Area by Alternative | 3-641 |
| Table 3.23-46 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Petersburg Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-643 |
| Table 3.23-47 | Estimated Maximum Harvest (acres) over 100 Years in Point Baker's Community Use Area by Alternative | 3-646 |
| Table 3.23-48 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Point Baker Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-647 |
| Table 3.23-49 | Estimated Maximum Harvest (acres) over 100 Years in Port Alexander's Community Use Area by Alternative | 3-651 |
| Table 3.23-50 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Port Alexander Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-651 |
| Table 3.23-51 | Estimated Maximum Harvest (acres) over 100 Years in Port Protection's Community Use Area by Alternative | 3-654 |
| Table 3.23-52 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Port Protection Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-655 |
| Table 3.23-53 | Estimated Maximum Harvest (acres) over 100 Years in Saxman's Community Use Area by Alternative | 3-658 |
| Table 3.23-54 | Estimated Maximum Harvest (acres) over 100 Years in Sitka's Community Use Area by Alternative | 3-663 |
| Table 3.23-55 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Sitka Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-664 |
| Table 3.23-56 | Estimated Maximum Harvest (acres) over 100 Years in Skagway's Community Use Area by Alternative | 3-667 |

Contents

| | | |
|---------------|---|-------|
| Table 3.23-57 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Skagway Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-668 |
| Table 3.23-58 | Estimated Maximum Harvest (acres) over 100 Years in Tenakee Spring's Community Use Area by Alternative | 3-671 |
| Table 3.23-59 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Tenakee Springs Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-672 |
| Table 3.23-60 | Estimated Maximum Harvest (acres) over 100 Years in Thorne Bay's Community Use Area by Alternative | 3-676 |
| Table 3.23-61 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Thorne Bay Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-677 |
| Table 3.23-62 | Estimated Maximum Harvest (acres) over 100 Years in Whale Pass' Community Use Area by Alternative | 3-681 |
| Table 3.23-63 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Whale Pass Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-682 |
| Table 3.23-64 | Estimated Maximum Harvest (acres) over 100 Years in Wrangell's Community Use Area by Alternative | 3-686 |
| Table 3.23-65 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Wrangell Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-687 |
| Table 3.23-66 | Estimated Maximum Harvest (acres) over 100 Years in Yakutat's Community Use Area by Alternative | 3-692 |
| Table 3.23-67 | Deer Harvest (2004 to 2013) and Deer Habitat Capability on NFS Lands in 2014 and After 100 Years of Full Implementation under Each Alternative, Expressed as a Percent of 1954 Habitat Capability, for the WAAs where Yakutat Residents Obtain Approximately 75% of their Average Annual Deer Harvest | 3-692 |
| Table 3.23-68 | Race/Ethnicity by Borough/Census Area, 2010 | 3-694 |

LIST OF FIGURES

| | | |
|---------------|---|-------|
| Figure 1-1 | Tongass National Forest Vicinity Map | 1-10 |
| Figure 2-1 | Projected Timber Sale Quantity (average annual harvest) over 100 Years in 5-Year Periods under Alternative 1 showing Volume (MMBF) contributed by Old-Growth (OG) and Young-Growth (YG) | 2-12 |
| Figure 2-2 | Wilderness, Natural Setting (with and without Young-growth Harvest), and Development LUDs on the Tongass National Forest under Alternative 1 | 2-14 |
| Figure 2-3 | Projected Timber Sale Quantity (average annual harvest) over 100 Years in 5-Year Periods under Alternative 2 showing Volume (MMBF) contributed by Old-Growth (OG) and Young-Growth (YG) | 2-17 |
| Figure 2-4 | Wilderness, Natural Setting (with and without Young-growth Harvest), and Development LUDs on the Tongass National Forest under Alternative 2 | 2-20 |
| Figure 2-5 | Projected Timber Sale Quantity (average annual harvest) over 100 Years in 5-Year Periods under Alternative 3 showing Volume (MMBF) contributed by Old Growth (OG) and Young Growth (YG) | 2-23 |
| Figure 2-6 | Wilderness, Natural Setting (with and without Young-Growth Harvest), and Development LUDs on the Tongass National Forest under Alternative 3 | 2-26 |
| Figure 2-7 | Projected Timber Sale Quantity (average annual harvest) over 100 Years in 5-Year Periods under Alternative 4 showing Volume (MMBF) contributed by Old Growth (OG) and Young Growth (YG) | 2-29 |
| Figure 2-8 | Wilderness, Natural Setting (with and without Young Growth Harvest), and Development LUDs on the Tongass National Forest under Alternative 4 | 2-32 |
| Figure 2-9 | Projected Timber Sale Quantity (average annual harvest) over 100 Years in 5-Year Periods under Alternative 5 showing Volume (MMBF) contributed by Old-Growth (OG) and Young-Growth (YG) | 2-35 |
| Figure 2-10 | Wilderness, Natural Setting (with and without Young Growth Harvest), and Development LUDs on the Tongass National Forest under Alternative 5 | 2-38 |
| Figure 3.6-1 | Commercial Harvest of Chinook, Sockeye and Coho Salmon in Southeast Alaska 1960–2013 | 3-105 |
| Figure 3.6-2 | Commercial Harvest of Pink, Chum, and Total Salmon in Southeast Alaska 1960-2013 | 3-106 |
| Figure 3.6-3 | Commercial Harvest and Wholesale (Ex-vessel) CPI Adjusted Value of Salmon Produced from the Tongass National Forest, Southeast Alaska (1984-2013) | 3-107 |
| Figure 3.9-1 | Map of Biogeographic Provinces of Southeast Alaska | 3-186 |
| Figure 3.9-2 | Tree Size and Density Model used to Describe Forested Conditions across the Tongass National Forest | 3-190 |
| Figure 3.15-1 | Southeast Alaska Cruise Passengers, 2000-2014 | 3-368 |
| Figure 3.15-2 | Southeast Alaska Visitation, 2000 to 2014 | 3-370 |
| Figure 3.17-1 | Native/Non-Native Components of Southeast Communities, 2010 | 3-421 |
| Figure 3.17-2 | Per Capita Subsistence Harvest by Community and Resource Type | 3-423 |
| Figure 3.20-1 | Acres of Wilderness by State | 3-453 |
| Figure 3.20-2 | Percent of Total Acres in the National Wilderness Preservation System by State | 3-454 |
| Figure 3.20-3 | Percentage of Land Area in Wilderness by State | 3-455 |
| Figure 3.22-1 | Natural Resource-Based Employment by Sector, 2013 | 3-482 |
| Figure 3.22-2 | 2013 Nonresident Share of Direct Employment in Southeast Alaska. | 3-483 |
| Figure 3.22-3 | Average Annual Seasonal Variation in Employment 2013 (percent) | 3-484 |
| Figure 3.22-4 | Timber Industry Employment in Southeast Alaska, 2002-2014 | 3-486 |
| Figure 3.22-5 | Timber Harvest in Southeast Alaska by Ownership, 2002-2014 | 3-487 |

Contents

| | | |
|----------------|--|-------|
| Figure 3.22-6 | Volume under Contract by Owner, 2016 | 3-490 |
| Figure 3.22-7 | Projected Timber Harvest in Southeast Alaska by Ownership, 2015-2030 | 3-493 |
| Figure 3.22-8 | Projected Timber Harvest on the Tongass under the Baseline Model and Scenarios 1, 2, and 3 | 3-495 |
| Figure 3.22-9 | Seafood Harvesting and Fish Processing Employment in Southeast Alaska, 2000 to 2013 | 3-502 |
| Figure 3.22-10 | Components of Per Capita Income 2013 | 3-505 |
| Figure 3.22-11 | Estimated Maximum Young-Growth Timber Supply on the Tongass by Alternative, Year 1 to 100 | 3-509 |
| Figure 3.22-12 | Estimated Maximum Harvest under Alternative 1 | 3-512 |
| Figure 3.22-13 | Estimated Maximum Harvest under Alternative 2 | 3-513 |
| Figure 3.22-14 | Estimated Maximum Harvest under Alternative 3 | 3-514 |
| Figure 3.22-15 | Estimated Maximum Harvest under Alternative 4 | 3-515 |
| Figure 3.22-16 | Estimated Maximum Harvest under Alternative 5 | 3-515 |
| Figure 3.22-17 | Net Revenues for Old Growth by Alternative for 5-Year Increments (Years 1 to 25) | 3-517 |
| Figure 3.22-18 | Net Revenues for Young Growth by Alternative for 5-Year Increments (Years 1 to 25) | 3-518 |
| Figure 3.23-1 | Southeast Alaska Population, 1970, 1980, 1990, and 2000 through 2014 | 3-526 |
| Figure 3.23-2 | Annual Unemployment Rates in Southeast Alaska, Alaska, and the United States, 2005 to 2014 (Percent) | 3-531 |
| Figure 3.23-3 | Annual Unemployment Rates in the Northern Boroughs of Southeast Alaska, 2005 to 2014 (Percent) | 3-531 |
| Figure 3.23-4 | Annual Unemployment Rates in the Southern Boroughs of Southeast Alaska, 2005 to 2014 (Percent) | 3-532 |
| Figure 3.23-5 | Components of Per Capita Income, 2013 | 3-533 |
| Figure 3.23-6 | Angoon Population 1970 to 2014 | 3-547 |
| Figure 3.23-7 | Angoon's Community Use Area | 3-549 |
| Figure 3.23-8 | Coffman Cove Population 1980 to 2014 | 3-552 |
| Figure 3.23-9 | Coffman Cove's Community Use Area | 3-554 |
| Figure 3.23-10 | Craig Population 1970 to 2014 | 3-557 |
| Figure 3.23-11 | Craig's Community Use Area | 3-559 |
| Figure 3.23-12 | Edna Bay Population 1970 to 2014 | 3-562 |
| Figure 3.23-13 | Edna Bay's Community Use Area | 3-564 |
| Figure 3.23-14 | Elfin Cove Population 1970 to 2014 | 3-566 |
| Figure 3.23-15 | Elfin Cove's Community Use Area | 3-569 |
| Figure 3.23-16 | Gustavus Population 1970 to 2014 | 3-571 |
| Figure 3.23-17 | Gustavus' Community Use Area | 3-573 |
| Figure 3.23-18 | Haines Population 1970 to 2014 | 3-576 |
| Figure 3.23-19 | Haines' Community Use Area | 3-578 |
| Figure 3.23-20 | Hollis Population 1990 to 2014 | 3-581 |
| Figure 3.23-21 | Hollis' Community Use Area | 3-583 |
| Figure 3.23-22 | Hoonah Population 1970 to 2014 | 3-586 |
| Figure 3.23-23 | Hoonah's Community Use Area | 3-588 |
| Figure 3.23-24 | Hydaburg Population 1970 to 2014 | 3-591 |
| Figure 3.23-25 | Hydaburg's Community Use Area | 3-593 |
| Figure 3.23-26 | Hyder Population 1970 to 2014 | 3-595 |
| Figure 3.23-27 | Hyder's Community Use Area | 3-597 |

Contents

| | | |
|----------------|---|-------|
| Figure 3.23-28 | Juneau Population 1970 to 2014 | 3-599 |
| Figure 3.23-29 | Juneau's Community Use Area | 3-601 |
| Figure 3.23-30 | Kake Population 1970 to 2014 | 3-603 |
| Figure 3.23-31 | Kake's Community Use Area | 3-605 |
| Figure 3.23-32 | Kasaan Population 1970 to 2014 | 3-608 |
| Figure 3.23-33 | Kasaan's Community Use Area | 3-610 |
| Figure 3.23-34 | Ketchikan Population 1970 to 2014 | 3-613 |
| Figure 3.23-35 | Ketchikan's Community Use Area | 3-615 |
| Figure 3.23-36 | Klawock Population 1970 to 2014 | 3-617 |
| Figure 3.23-37 | Klawock's Community Use Area | 3-619 |
| Figure 3.23-38 | Metlakatla Population 1970 to 2014 | 3-622 |
| Figure 3.23-39 | Metlakatla's Community Use Area | 3-624 |
| Figure 3.23-40 | Meyers Chuck's Community Use Area | 3-627 |
| Figure 3.23-41 | Naukati Bay Population 1990 to 2014 | 3-629 |
| Figure 3.23-42 | Naukati Bay's Community Use Area | 3-631 |
| Figure 3.23-43 | Pelican Population 1970 to 2014 | 3-634 |
| Figure 3.23-44 | Pelican's Community Use Area | 3-636 |
| Figure 3.23-45 | Petersburg Population 1970 to 2014 | 3-638 |
| Figure 3.23-46 | Petersburg's Community Use Area | 3-641 |
| Figure 3.23-47 | Point Baker Population 1970 to 2014 | 3-644 |
| Figure 3.23-48 | Point Baker's Community Use Area | 3-646 |
| Figure 3.23-49 | Port Alexander Population 1970 to 2014 | 3-648 |
| Figure 3.23-50 | Port Alexander's Community Use Area | 3-650 |
| Figure 3.23-51 | Port Protection Population 1980 to 2014 | 3-652 |
| Figure 3.23-52 | Port Protection's Community Use Area | 3-653 |
| Figure 3.23-53 | Saxman Population 1970 to 2014 | 3-656 |
| Figure 3.23-54 | Saxman's Community Use Area | 3-658 |
| Figure 3.23-55 | Sitka Population 1970 to 2014 | 3-660 |
| Figure 3.23-56 | Sitka's Community Use Area | 3-662 |
| Figure 3.23-57 | Skagway Population 1970 to 2014 | 3-665 |
| Figure 3.23-58 | Skagway's Community Use Area | 3-667 |
| Figure 3.23-59 | Tenakee Springs Population 1970 to 2014 | 3-669 |
| Figure 3.23-60 | Tenakee Springs' Community Use Area | 3-671 |
| Figure 3.23-61 | Thorne Bay Population 1970 to 2014 | 3-674 |
| Figure 3.23-62 | Thorne Bay's Community Use Area | 3-676 |
| Figure 3.23-63 | Whale Pass Population 1970 to 2014 | 3-679 |
| Figure 3.23-64 | Whale Pass' Community Use Area | 3-681 |
| Figure 3.23-65 | Wrangell Population 1970 to 2014 | 3-684 |
| Figure 3.23-66 | Wrangell's Community Use Area | 3-686 |
| Figure 3.23-67 | Yakutat Population 1970 to 2014 | 3-689 |
| Figure 3.23-68 | Yakutat's Community Use Area | 3-691 |

ACRONYMS AND ABBREVIATIONS

| | |
|-------------|---|
| AAC | Alaska Administrative Code |
| ABC Islands | Admiralty, Baranof, and Chicagof Islands |
| ACHP | Advisory Council on Historic Preservation |
| ACS | American Community Survey |
| ADEC | Alaska Department of Environmental Conservation |
| ADED | Alaska Department of Economic Development |
| ADF&G | Alaska Department of Fish and Game |
| ADNR | Alaska Department of Natural Resources |
| ADOT&PF | Alaska Department of Transportation & Public Facilities |
| AEA | Alaska Energy Authority |
| AEL&P | Alaska Electric Light & Power |
| AF | Alluvial Fan |
| AFHA | Anadromous Fisheries Habitat Assessment |
| AKEPIC | Alaska Exotic Plants Information Clearinghouse |
| Alaska DCRA | Alaska Department of Community and Regional Affairs |
| AMHS | Alaska Marine Highway System |
| AMS | Analysis of the Management Situation |
| ANCSA | Alaska Native Claims Settlement Act of 1971 |
| ANHP | Alaska Natural Heritage Program |
| ANILCA | Alaska National Interest Lands Conservation Act of 1980 |
| AP&T | Alaska Power & Telephone |
| APLIC | Avian Power Line Interaction Committee |
| ASQ | allowable sale quantity |
| ATM | access and travel management |
| AVSP | Alaska Visitor Statistics Program |
| BBER | Bureau of Business and Economic Research |
| BCR | Bird Conservation Region |
| BE | biological evaluation |
| BGEPA | Bald and Golden Eagle Protection Act |
| BLM | Bureau of Land Management |
| BMP | Best Management Practice |
| BP | before present |
| °C | degrees Celsius |
| CA | Census Area |
| CDP | Census Designated Places |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| CMAI | culmination of mean annual increment |
| CO | carbon monoxide |
| Corps | U.S. Army Corps of Engineers |
| CUA | Community Use Area |
| DBH | diameter at breast height |
| DCCED | Department of Commerce, Community, and Economic Development |
| DEIS | Draft Environmental Impact Statement |

| | |
|-------------|---|
| DEM | Digital Elevation Model |
| DOL | Department of Labor |
| DPS | distinct population segment |
| EA | environmental assessment |
| EFH | essential fish habitat |
| EIA | U.S. Energy Information Administration |
| EIS | Environmental Impact Statement |
| EPA | U.S. Environmental Protection Agency |
| EPAct | Energy Policy Act |
| ESA | Endangered Species Act |
| ESI | Existing Scenic Integrity |
| ESU | Evolutionarily Significant Unit |
| °F | degrees Fahrenheit |
| FACA | Federal Advisory Committee Act |
| FCRPA | Federal Cave Resources Protection Act |
| FERC | Federal Energy Regulatory Commission |
| FHWA | Federal Highway Administration |
| FEIS | Final Environmental Impact Statement |
| FIA FHM | Forest Inventory and Analysis-Forest Health Monitoring |
| FLPMA | Federal Land Policy and Management Act |
| FORPlan | Previous Forest Planning Model |
| Forest Plan | Tongass National Forest Land and Resource Management Plan |
| FP | Flood Plain |
| FPA | Federal Power Act |
| FRESH | Forest Resource Evaluation System for Habitat |
| FR | Federal Register |
| FRPL | free and reduced-price lunch |
| FSM | Forest Service Manual |
| FY | fiscal year |
| GCRP | (U.S.) Global Change Research Program |
| GIS | geographic information system |
| GMU | Game Management Unit |
| GSA | General Services Administration |
| HC | High Gradient Contained |
| HCA | Habitat Conservation Area |
| HSI | Habitat Suitability Index |
| IDT | Interdisciplinary Team |
| IFA | Inter-Island Ferry Authority |
| IPCC | Intergovernmental Panel on Climate Change |
| IPEC | Inside Passage Electric Cooperative |
| IRA | Inventoried Roadless Area |
| IRP | Integrated Resource Plan |
| km | kilometer |
| kW | kilowatt |
| kWh | kilowatt hour |
| LiDAR | Light Detection and Ranging |

Contents

| | |
|-------------------|---|
| LSTA | Logging System and Transportation Analysis |
| LTF | log transfer facility |
| LTSP | Long-Term Soil Productivity |
| LTSY | long-term sustained yield |
| LUD | Land Use Designation |
| LWD | large woody debris |
| MAP | mean annual precipitation |
| MBTA | Migratory Bird Treaty Act |
| MBF | thousand board feet |
| MIS | Management Indicator Species |
| MM | Moderate Gradient Mixed Control |
| MMBF | million board feet |
| MMI | Mass Movement Index |
| MMPA | Marine Mammal Protection Act |
| MOU | Memorandum of Understanding |
| MVUM | Motor Vehicle Use Map |
| MW | megawatt |
| MWh | megawatt hour |
| NAAQS | National Ambient Air Quality Standards |
| National Register | National Register of Historic Places |
| NEPA | National Environmental Policy Act |
| NFMA | National Forest Management Act of 1976 |
| NFS | National Forest System |
| NHPA | National Historic Preservation Act |
| NMFS | National Marine Fisheries Service |
| NO ₂ | nitrogen dioxide |
| NOA | notice of availability |
| NOI | Notice of Intent |
| NPS | National Park Service |
| NRDC | Natural Resources Defense Council |
| NRIS | Natural Resource Information System |
| NSLP | National School Lunch Program |
| NTU | nephelometric turbidity unit |
| NVCS | National Vegetation Classification Standard |
| NVUM | National Visitor Use Monitoring |
| NWI | National Wetland Inventory |
| OGR | old-growth reserve |
| OHV | off-highway vehicle |
| P | Primitive |
| PCE | Power Cost Equalization |
| PDO | Pacific Decadal Oscillation |
| PEIS | Programmatic Environmental Impact Statement |
| PM ₁₀ | particulate matter with a diameter of less than 10 microns in size |
| PM _{2.5} | particulate matter with a diameter of less than 2.5 microns in size |
| PNW | Pacific Northwest |
| POG | productive old growth |

| | |
|-----------------|---|
| ppm | parts per million |
| PTSQ | projected timber sale quantity |
| PWSQ | projected wood sale quantity |
| R | Rural |
| RARE | Roadless Area Review and Evaluation |
| RAW | reasonable assurance of windfirmness |
| RM | Roaded Modified |
| RMA | Riparian Management Area |
| RN | Roaded Natural |
| RNA | Research Natural Area |
| Roadless Rule | Roadless Area Conservation Rule |
| ROD | Record of Decision |
| ROS | Recreation Opportunity Spectrum |
| SAFETEA-LU | Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users |
| SATP | Southeast Alaska Transportation Plan |
| SDEIS | Supplemental Draft Environmental Impact Statement |
| SDM | Size-Density Model |
| SEACC | Southeast Alaska Conservation Council |
| SEAPA | Southeast Alaska Power Agency |
| SEIS | Supplemental Environmental Impact Statement |
| SHPO | State Historic Preservation Office |
| SIO | Scenic Integrity Objective |
| SMS | Scenery Management System |
| SNAP | Scenarios Network for Alaska & Arctic Planning |
| SO ₂ | sulfur dioxide |
| SOC | Statement of Concern |
| SPM | Semi-Primitive Motorized |
| SPNM | Semi-Primitive Non-Motorized |
| SPTH | site potential tree height |
| SYL | sustained yield limit |
| T77 | Tongass 77 |
| TAC | Tongass Advisory Committee |
| TRUCS | Tongass Resource Use Cooperative Survey |
| TSC | Transportation Systems Corridor |
| TTRA | Tongass Timber Reform Act of 1990 |
| TUS | Transportation and Utility System |
| TWYGS | Tongass-wide Young-Growth Studies |
| U | Urban |
| USDA | United States Department of Agriculture |
| USDI | United States Department of the Interior |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VCU | Value Comparison Unit |
| VMS | Visual Management System |
| VPR | Visual Priority Route |

Contents

| | |
|------|---------------------------------|
| WAA | Wildlife Analysis Area |
| WCF | Watershed Condition Framework |
| WRCC | Western Regional Climate Center |

EXECUTIVE SUMMARY

Executive Summary

Introduction

Forest land and resource management planning is a process for developing, amending, and revising land and resource management plans for each of the National Forests in the National Forest System (NFS). Forest plans are required by the National Forest Management Act of 1976 (NFMA) (16 United States Code [U.S.C.] parts 1600-1687). The 16.7-million-acre Tongass National Forest was the first forest to complete a Land and Resource Management Plan (Forest Plan) under the NFMA in 1979. That Forest Plan was amended in 1986 and 1991 and revised in 1997. A final Supplemental Environmental Impact Statement (SEIS) was completed in 2003, which further evaluated roadless areas for their wilderness potential. The Forest Plan was amended again in 2008 in response to a Ninth Circuit Court ruling and a 5-Year Plan Review completed in 2005. The revised Plan was amended 24 times between the 1997 revision and the 2008 amendment, primarily to adjust small old-growth habitat reserve boundaries and for electronic/communication site designations. Since the 2008 amendment, the plan has been amended to establish the Héen Latinee Experimental Forest, disestablish the Young Bay Experimental Forest, add communication sites to the list in Appendix E, modify small old-growth habitat reserves, and make minor corrections to the plan.

On July 2, 2013, Secretary of Agriculture, Thomas Vilsack, issued Memorandum 1044-009, *Addressing Sustainable Forestry in Southeast Alaska* (U.S. Department of Agriculture [USDA] 2013), which expressed the Secretary's intent to transition the Tongass National Forest to a young growth-based timber program in 10 to 15 years, more rapidly than considered in the 2008 Forest Plan. The Secretary asked that the Forest Service "[s]trongly consider whether to pursue an amendment to the Tongass Forest Plan. Such an amendment would evaluate which lands will be available for timber harvest, especially young growth timber stands, which lands should be excluded, and additional opportunities to promote and speed transition to young-growth management." Recognizing the importance of retaining expertise and infrastructure, the Secretary also stated that the Forest Service "will continue to offer a supply of old growth timber while increasing the supply of young growth to provide industry in Alaska the opportunity to develop new markets, learn new skills, and acquire new equipment." The Secretary also asked that a determination of whether to initiate an amendment be completed by September 30, 2013.

The Forest Service completed a Five-Year Review of the Forest Plan in September 2013. The results of the Five-Year Review and the Secretary's Memorandum led to the Tongass Forest Supervisor making a determination that "...conditions on the land and demands of the public require the Tongass to modify the 2008 Forest Plan" (USDA Forest Service 2013a). A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register on May 27, 2014 (79 Federal Register [FR] 30074) initiating a 30-day scoping period. Among the comments from the Five-Year Review and from scoping were those that

Executive Summary

requested a transition to young-growth timber harvesting, ways to make renewable energy projects easier to implement, and a review of the 2001 Roadless Area Conservation Rule (Roadless Rule) inventoried roadless areas (IRAs). All comments were taken into consideration in identifying the scope of this Forest Plan amendment.

This Final Environmental Impact Statement (FEIS) is a programmatic analysis prepared by the Forest Service that describes and analyzes changes to the Forest Plan to accomplish the transition to young-growth management as provided in the Secretary's Memorandum. This FEIS evaluates which lands will be suitable for timber production, especially young-growth timber stands, and any changes or additions to management direction needed to promote and speed the transition to young-growth management while maintaining a viable timber industry in Southeast Alaska. This FEIS also describes and analyzes changes related to renewable energy development. The scope of the analysis is limited to these changes.

This FEIS analyzes in detail four action alternatives for amending the Plan, in addition to a No Action Alternative (Alternative 1). The analysis is published in two volumes. Volume 1 contains the FEIS, and Volume 2 contains the FEIS appendices. A complete Forest Plan Land Use Designation (LUD) map is provided for each of the alternatives in the Map Packet which accompanies the FEIS.

A separate document titled Tongass Land and Resource Management Plan (i.e., the Forest Plan) is published along with the FEIS and represents the selected alternative (Alternative 5). Chapter 2 and Appendix F in the FEIS describe how the other alternatives compare to Alternative 5. Instead of repeating all of the changes in management direction common to Alternatives 1-4 and Alternative 5, management direction of the alternatives is displayed in a side-by-side comparative format to demonstrate how and where direction differs from Alternative 5.

This FEIS describes and analyzes changes to the 2008 Forest Plan and tiers to and incorporates by reference the 1997 Tongass Land Management Plan Revision FEIS (1997 FEIS), the 2003 Final Supplemental EIS (SEIS) for Roadless Area Evaluation for Wilderness Recommendations (2003 FSEIS), and the 2008 Tongass Land and Resource Management Plan Amendment FEIS (2008 FEIS), and the 2008 Record of Decision (2008 ROD). Where appropriate, information in these documents that is relevant to analysis in this FEIS is cited and incorporated by reference.

Purpose and Need

The Forest Service determined that it is necessary to amend the 2008 Forest Plan. Amending the Forest Plan originates from the July 2013 memo from the Secretary of Agriculture directing the Tongass National Forest to transition its forest management program to be more ecologically, socially, and economically sustainable, while also being responsive to comments from the Five-Year Review of the Forest Plan. The purpose of this plan amendment is to:

- Review lands within the plan area to determine suitability for timber production, especially young-growth timber stands.
- Identify the projected timber sale quantity (PTSQ) and the sustained yield limit (i.e., the ecological yield of timber that can be removed annually on a sustained yield basis).

- Establish plan components (e.g., standards and guidelines) for young-growth forest management and renewable energy development to guide future project decision-making.
- Consolidate modifications made to the Forest Plan since its approval.

An amendment is necessary for responding to the July 2013 direction from USDA Secretary Tom Vilsack outlined in the Secretary's Memorandum 1044-009. The memorandum directs management of the Tongass National Forest to expedite the transition away from old-growth timber harvesting and towards a forest products industry that uses predominantly second-growth – or young-growth – forests. Secretary Vilsack's memorandum also directs that the transition must be implemented in a manner that preserves a viable timber industry that provides jobs and opportunities for Southeast Alaska residents. USDA's goal is to effectuate this transition, over the next 10 to 15 years, so that at the end of this period the vast majority of timber sold by the Tongass will be young growth. This timeframe will conserve old-growth forests while allowing the forest industry time to adapt. The 2008 Forest Plan provides for a transition to young growth over time, but there are challenges in establishing an economically viable young-growth forest management program due to the relatively young age of the available stands, market conditions, and other factors. Secretary Vilsack's direction requires Forest Plan amendments to guide future management of NFS lands and allocation of resources on the Tongass National Forest under the multiple-use and sustained yield mandate.

The need to amend the plan is further corroborated by the Five-Year Review of the Forest Plan, completed in 2013, which concluded that conditions on the land and demands of the public necessitate the Tongass National Forest to make changes to the Forest Plan. Concerns were consistently expressed during the Five-Year Review regarding the impact of rising fossil fuel prices and increasing climate change on the quality of life in Southeast Alaska. Changes to the Forest Plan are needed to make the development of renewable energy resources more permissible, including considering access and utility corridors to stimulate economic development in Southeast Alaska communities, and provide low-carbon energy alternatives, thereby displacing the use of fossil fuel.

Significant issues

The Forest Service used the scoping process to determine the scope of issues to be addressed and identify the significant issues related to a proposed action.

The Forest Service identified the following significant issues during scoping.

Issue 1 –Young Growth Transition

The Secretary of Agriculture asked the Forest Service to transition to a young-growth-based timber management program on the Tongass National Forest in 10 to 15 years, which is more rapid than planned. This transition is intended to support the Tongass managing its forest for an ecologically, socially, and economically sustainable forest management program and reduce old-growth harvest while still providing economic timber to support the local forest products industry.

The issue concerns financial efficiency, salability, and volume of future timber sales. It also relates to the potential local employment and revenues generated for communities in the local area. Young-growth stand growth rates, sustainable harvest rates, the amount of old-growth harvest needed during transition to sustain the timber industry, also known as "bridge timber," and the locations

Executive Summary

where young-growth harvest would take place are some of the factors to be considered.

Issue 2 – Renewable Energy

The development of renewable energy projects on the Tongass would help Southeast Alaska communities reduce fossil fuel dependence, stimulate economic development, and lower carbon emissions in the Region.

This issue relates to comments received during the Five-Year Review of the Forest Plan. The Forest Service should promote the development of renewable energy projects to help Southeast Alaska communities reduce fossil energy dependence, where it is compatible with National Forest purposes and to ensure that the planning, construction, and operation of projects protect and effectively use NFS lands and resources.

Issue 3 –Inventoried Roadless Areas

Timber harvest and road building that occurred in roadless areas before the 2001 Roadless Area Conservation Rule (Roadless Rule) was enacted and during the Tongass exemption period changed the values or features that often characterize inventoried roadless areas in some locations.

Issues and concerns received during scoping as well as during the Five-Year Review process expressed concerns about roadless areas on the Tongass; both in favor of protections afforded under the 2001 Roadless Rule as well as requesting that the forest plan be amended to address the significant changes brought about by its re-instatement on the Tongass.

Some people believe roadless areas on the Tongass should be allowed to evolve naturally through their own dynamic processes and should be afforded protection that ensures this will occur. Others believe that limiting road construction and reconstruction or other management actions in roadless areas might restrict the delivery of goods, services, and activities that these areas might otherwise provide.

Roadless areas are considered important because they support a diversity of aquatic and terrestrial habitats, species, and communities, and play an important role in helping to conserve native plant and animal communities and biological diversity. They also provide people with unique recreation opportunities.

During the Tongass exemption period and before the 2001 Roadless Rule was enacted, road construction, reconstruction, and the cutting, and sale of timber in some IRAs occurred. As a result, these activities in some IRAs may have altered the roadless characteristics.

Issue 4 – Wildlife Habitat and the Conservation Strategy

Old-growth timber harvest has changed the composition and spatial patterns of terrestrial wildlife habitats. How the resulting young-growth is managed may influence the future ecological integrity of the landscape at various scales. Changes made to suitable lands designated for development, and to plan components (e.g., standards and guidelines) may affect old-growth habitat for wildlife and the Tongass Old-growth Habitat Conservation Strategy and contributing elements to old-growth reserves (e.g., riparian, beach and estuary habitats).

The Tongass National Forest supports an important assemblage of wildlife many of which are associated with or at least partially dependent on old-growth forest including one of the largest populations of brown bears in the world, high densities of breeding bald eagles, the Alexander Archipelago wolf, species of high importance for subsistence (e.g., Sitka black-tailed deer), an extensive array of endemic mammals, and other species that are dependent on old-growth habitats (e.g., marten and goshawk). The Tongass Old-growth Habitat Conservation Strategy is considered important for the continued health of old-growth associated wildlife populations in Southeast Alaska.

Timber harvest, minerals and renewable energy development, and road development can have effects on the habitat and populations of many of these species and the diversity and integrity of Southeast Alaska ecosystems. Less than 10 percent of the productive old-growth habitat on the Tongass has been converted to young growth, the percentage is much higher for certain types of old growth, such as lowland and large-tree old growth. In addition, non-NFS old growth has generally been harvested at a much higher rate. Therefore, the consideration of harvest and road building on wildlife in Southeast Alaska are greater than the effects for the Tongass by itself.

Alternatives

Forest Plan

The current 2008 Forest Plan is associated with the No- Action alternative (Alternative 1). However, a number of changes to the Forest Plan text are being proposed. These changes are incorporated into a Forest Plan (Land and Resource Management Plan), which accompanies the EIS. The Forest Plan was developed based on the Preferred Alternative (Alternative 5). The individual alternative descriptions on the following pages identify the major changes in the Forest Plan.

Timber Demand

In past Forest Plan revisions and amendments, varying demand scenarios were used to develop alternatives, including scenarios that allowed for growth and expansion of the current industry. In this amendment, the purpose and need identifies the need to expedite the transition away from old-growth timber harvesting and towards a forest products industry that uses predominantly second-growth – or young-growth – forests. Therefore, examination of alternatives at levels above projected demand is not warranted because these would require expansion of old-growth harvest levels, at least during the next 10 to 15 years. However, over the longer term, expansion of the timber industry is an option as more and more young growth becomes economic to harvest.

Therefore, Alternatives 1 through 5 were designed to correspond with current demand projections and produce a projected timber sale quantity (PTSQ)¹ of about 46 MMBF per year during the next 15 years, with old growth making up a decreasing percentage of the total. Old-growth volume would continue to decrease until it reaches about 5 MMBF per year and it would remain at that level, to support limited small timber operators. As more young growth becomes economic to harvest, the PTSQ would be allowed to increase. In no case, would

¹ PTSQ is a new term defined in FSH 1909.12, Chapter 60. The term allowable sale quantity (ASQ) is not used with the 2012 planning rule.

Executive Summary

the harvest level be allowed to exceed the sustained yield limit (SYL) (see Glossary and the *Timber* section of this EIS).

Even though Alternative 1 (no action) represents current management, it is modeled to follow the same volume production pattern. The July 2013 Secretary's memo identified a need to change direction in the 2008 Forest Plan (see Purpose and Need in Chapter 1) and without this amendment, the Tongass would be transitioning toward young-growth and away from old-growth harvest.

Provisions Common to all Alternatives

Under all alternatives, there is flexibility in terms of when young-growth stands may be harvested. Under Public Law 113-291, up to 15,000 acres of young growth may be harvested from 2016 through 2025, in stands less than 95 percent of CMAI. This CMAI flexibility may continue after 2025 (with annual maximums); however, the total acreage harvested at less than 95 percent of CMAI cannot exceed 50,000. In addition, young-growth sales under this provision may not be offered unless they represent non-deficit sales.² There is flexibility in NFMA to allow a continuation of harvesting at younger ages beyond 2025.

LUD Changes Common to the Action Alternatives

The LUD allocations for each alternative are described in the following alternative-specific descriptions. The LUDs for Alternative 1 (no action) are the same as the LUDs of the current Forest Plan. The LUDs of the action alternatives are different from Alternative 1 LUDs because of Old-growth Habitat LUD changes. Under Public Law 113-291, approximately 70,000 acres of NFS land were conveyed to Sealaska Corporation and an additional 152,000 acres were converted to LUD II. As a result of the land conveyance, old-growth reserves (OGRs) in 16 VCUs were affected. Beginning in February 2015, an interagency review team of biologists worked to develop a biologically preferred option for modifying these OGRs that meets Forest Plan Appendix K criteria and to document why other proposals are not recommended. In September 2015, the interagency review team produced a biologically preferred option (see Appendix E), which was incorporated into each of the action alternatives. Therefore, the Old-growth Habitat LUD acres vary between Alternative 1 and the action alternatives (Alternatives 2, 3, 4, and 5).

In addition, the Transportation and Utility Systems LUD would be removed under Alternatives 2, 3, 4, and 5. The LUD management prescription would be replaced by plan components under Alternatives 2, 3, 4, and 5 and would provide management direction for renewable energy and transportation systems corridors (see Chapter 5 in the proposed Forest Plan).

Alternative 1 (No Action)

The no action alternative represents current management direction (2008 Forest Plan) and includes the application of the Roadless Area Conservation Rule (2001 Roadless Rule) (36 CFR 294 Subpart B). As noted above, it also follows the direction provided in the July 2013 Secretary's memo, which identified a need to

²Any sale of trees pursuant to the authority granted under subparagraph (A) shall not— (iii) be advertised if the indicated rate is deficit (defined as the value of the timber is not sufficient to cover all logging and stumpage costs and provide a normal profit and risk allowance under the appraisal process of the Forest Service) when appraised using a residual value appraisal.

transition away from old-growth harvest. Under this alternative, timber harvest would follow the existing timber sale program adaptive management strategy (USDA Forest Service 2008c). A color map showing the phases in this strategy is provided along with the FEIS. Timber harvest is currently restricted to areas within Phase 1 of the strategy and timber harvest would have to reach 100 MMBF for two years before harvest could occur in Phase 2 areas. Timber management would be restricted to the development LUDs and would remain outside of inventoried roadless areas. No commercial harvest would be allowed in beach and estuary fringe or RMAs. All other 2008 Forest Plan management direction would be followed.

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young-growth. However, beyond that, the minimum harvest age would return to 95 percent of CMAI except under exemptions provided by the NFMA.

Alternative 1 would result in the most old-growth harvest among the alternatives over both 25-year and 100-year periods. Table 2-2 summarizes the key elements of Alternative 1 and Table 2-3 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1). It would emphasize young growth and minimize old growth while maintaining 46 MMBF per year. As such, it is expected to produce about 8 MMBF of young growth and 38 MMBF of old growth per year during the first 10 years (Figure 2-1). From Year 10 through Year 25, it is projected to produce about 15 MMBF of young growth and 31 MMBF of old growth per year. At about Year 32, the young-growth harvest is expected to increase to about 41 MMBF and the old-growth harvest would decrease to 5 MMBF per year. The young-growth harvest is expected to continue to increase at a rapid rate after Year 32 and is expected to reach an upper limit of about 133 MMBF in about Year 38. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

Alternative 2 (Proposed Action)

As in Alternative 1, this alternative would follow the existing timber sale program adaptive management strategy for old-growth harvest (USDA Forest Service 2008c) (see color map accompanying the FEIS); as a result, all old-growth harvest would come from Phase 1, at least during the first 15 years or so. After harvest volume exceeds 100 MMBF for two years, it is possible that limited old-growth harvest could occur in Phase 2 areas. Young-growth harvest could come from any phase of the strategy at any time. The portions of inventoried roadless areas (IRAs) that were roaded before the 2001 Roadless Rule and during the 2001 Roadless Rule exemption period for the Tongass would be available for young-growth and old-growth harvest. This would require rulemaking to modify 36 CFR 294.13(b)(4). If selected, no harvest could occur in IRAs until rulemaking is completed. No Roadless Area harvest outside of these roaded areas would be allowed.

Alternative 2 would differ substantially from Alternative 1 in terms of lands identified as suitable for young-growth timber production. Young-growth management would be allowed in both development and natural setting LUDs (except for Congressionally designated and administratively withdrawn areas, such as Wilderness, and islands less than 1,000 acres in size), in beach and

Executive Summary

estuary fringe, RMAs outside of Tongass Timber Reform Act (TTRA) buffers, and high-vulnerability karst.

Young-growth management may include clearcutting in all areas, except in RMAs and on high-vulnerability karst, where only commercial thinning (up to 33 percent basal area removal) would be allowed. After 15 years, clearcutting would no longer be allowed in the beach and estuary fringe and only commercial thinning would be allowed. In addition, in beach and estuary fringe, the intent is to maintain an approximate 1,000-ft wide protected corridor adjacent and inland of any even-aged harvest unit to function as an alternate, low elevation, natural habitat corridor.

Scenery standards for young-growth management would be relaxed. The SIOs would be designated as Very Low for all LUDs and distance zones.

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young-growth. Beyond that, the minimum harvest age would continue to be flexible under exceptions allowed by NFMA.

The Forest Plan would include new management direction that improves flexibility in renewable energy development under this alternative. Scenery standards for renewable energy development would be relaxed to Very Low for all LUDs and distance zones.

Among the action alternatives, Alternative 2 would provide the largest amount of timber volume (old growth and young growth combined), including the largest amount of young-growth volume from lands suitable for timber production. It would result in the smallest amount of old growth timber volume over both 25-year and 100-year periods. Table 2-5 summarizes the key elements of Alternative 2 and Table 2-6 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1), emphasizing young growth and minimizing old growth. As such, it is expected to produce an average of about 22 MMBF of young growth and 24 MMBF of old growth per year during the first 10 years (Figure 2-3). From Years 11 through 15, Alternative 2 is projected to produce an average of 61 MMBF of young growth and 5 MMBF of old growth per year. Alternative 2 would likely reach a full transition harvest of 41 MMBF of young growth about Year 12. Young-growth harvest is expected to continue to increase at a rapid rate after Year 12 and is expected to reach an upper limit of about 120 MMBF in Year 17. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

Alternative 3

Alternative 3 would allow old-growth harvest only in Phase 1 of the existing timber sale program adaptive management strategy (USDA Forest Service 2008c) (see color map accompanying this FEIS) but would allow young-growth harvest in all phases. This alternative would allow young-growth and old-growth harvest in 2001 Roadless Rule IRAs. If this alternative were selected, harvest in IRAs would be deferred until agency rulemaking modifies 36 CFR 294.13(b)(4) (2001).

Alternative 3 is similar to Alternative 2 in that it identifies lands as suitable for young-growth timber production in both development and natural setting LUDs

(except for Congressionally designated areas such as Wilderness, administratively withdrawn areas, and islands less than 1,000 acres in size), as well as in beach and estuary fringe and high-vulnerability karst, but not in RMAs. Young-growth management may include clearcutting in all areas, except in beach and estuary fringe and on high-vulnerability karst, where only commercial thinning is allowed.

In addition, for young-growth harvest units larger than 20 acres in VCUs that have had concentrated past timber harvest, it is intended that 30 percent of the young growth stand acres should be left. This legacy provision would be described as a Management Approach in the Forest Plan.

Scenery standards for young growth management would be reduced by one level relative to the 2008 Forest Plan. SIOs would be reduced as follows: High would be reduced to Moderate, Moderate would be reduced to Low, and Low and Very Low would become Very Low.

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young growth. Beyond that, the minimum harvest age would continue to be flexible under exceptions allowed by NFMA.

The Forest Plan would include new management direction that improves flexibility in renewable energy development under this alternative. The SIO (scenery standard) for renewable energy development would Low for all LUDs and distance zones.

Alternative 3 would provide the second largest amount of timber volume (old growth and young growth combined). It would result in the second lowest harvest of old growth over both the 25-year and 100-year periods. Table 2-8 summarizes the key elements of Alternative 3 and Table 2-9 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1). It would emphasize young growth and minimize old growth while maintaining 46 MMBF per year. As such, it is expected to produce an average of about 20 MMBF of young growth and 26 MMBF of old growth per year during the first 10 years (Figure 2-5). From Year 11 through Year 15, it is projected to produce an average of 50 MMBF of young growth and about 5 MMBF of old growth per year. Alternative 3 would likely reach a full transition harvest of 41 MMBF of young growth at about Year 13. Young-growth harvest is expected to continue to increase at a rapid rate after Year 13 and is expected to reach an upper limit of about 117 MMBF in Year 17. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

Alternative 4

Like Alternative 3, this alternative would allow old-growth harvest only in Phase 1 of the existing timber sale program adaptive management strategy (see color map accompanying this FEIS), but in contrast with Alternative 3, it would also limit young-growth harvest to only Phase 1. Similar to Alternative 1, this alternative includes the application of the 2001 Roadless Rule.

Alternative 4 would allow young-growth management only in the development LUDs. Harvest is allowed in beach and estuary fringe and on high-vulnerability

Executive Summary

karst, but only commercial thinning is allowed. No harvest is allowed in RMAs. Young growth management may include clearcutting in other areas.

In addition, for young-growth harvest units larger than 20 acres in VCUs that have had concentrated past timber harvest, it is intended that 30 percent of the young growth stand acres should be left. This legacy provision would be described as a Management Approach in the Forest Plan.

No change would occur in scenery standards relative to the 2008 Forest Plan.

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young-growth. Beyond that, the minimum harvest age would continue to be flexible under exceptions allowed by NFMA.

The Forest Plan would include new management direction that improves flexibility in renewable energy development under this alternative. The SIO (scenery standard) for renewable energy development would be Low for all LUDs and distance zones.

Alternative 4 would provide the smallest amount of timber volume (old growth and young growth combined) and the smallest amounts of young-growth volume. It would result in the second highest harvest of old growth during both the 25-year and 100-year periods. Table 2-11 summarizes the key elements of Alternative 4, and Table 2-12 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1). It would emphasize young growth and minimize old growth while maintaining 46 MMBF per year. As such, it is expected to produce an average of about 11 MMBF of young growth and 35 MMBF of old growth per year during the first 10 years (Figure 2-7). From Year 11 through Year 15, it is projected to produce an average of 26 MMBF of young growth and about 20 MMBF of old growth per year. Alternative 4 would likely reach a full transition harvest of 41 MMBF of young growth about Year 16. Young-growth harvest is expected to continue to increase at a rapid rate after Year 16 and is expected to reach an upper limit of 87 MMBF about Year 18. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

Alternative 5 (Preferred Alternative)

Alternative 5 is the Preferred Alternative. This alternative is based on the recommendations from the Tongass Advisory Committee (TAC), a formally established Federal Advisory Committee (see Appendix B of the Forest Plan). The establishment of the TAC represents a turning point in Tongass management seeking new approaches, practices, and responses. The TAC offers a regionally focused, collaborative path toward an innovative opportunity for a viable young growth timber industry while honoring the suite of values – economic, ecological, social, and cultural – inherent in the Forest.

Like Alternatives 3 and 4, this alternative would allow old-growth harvest only within Phase 1 of the timber sale program adaptive management strategy (see color map accompanying this FEIS). As in Alternatives 1 and 4, the 2001 Roadless Rule would apply and no old-growth or young-growth harvest would occur in roadless areas. In addition, old-growth harvest is excluded from all

Tongass 77 (T77)³ watersheds and TNC/Audubon Conservation Priority Areas (Albert and Schoen 2007). These old-growth harvest exclusion areas are shown on the large color map for Alternative 5 that accompanies this FEIS.

As in Alternatives 2, 3, and 4, Alternative 5 would allow young-growth harvest in all three phases of the timber sale program adaptive management strategy. It would allow young-growth management in development LUDs and in the Old-growth Habitat LUD including harvest in beach and estuary fringe and RMAs outside of TTRA buffers within these same LUDs. However, young-growth harvest in the Old-growth Habitat LUD, beach and estuary fringe, and RMAs outside of TTRA buffers would be allowed only during the first 15 years after Plan approval, and created openings for commercial harvest (up to 10 acres and a maximum removal of up to 35 percent of the acres of the original harvested stand) or commercial thinning would be allowed. In beach and estuary fringe, a 200-foot no-commercial harvest buffer adjacent to the shoreline would be required. Along lake shorelines, a 100-foot no-cut commercial harvest buffer would be established. Scenery standards (SIOs) for young growth management would be reduced to Very Low for all distance zones in the development LUDs only. This standard would also apply when young-growth and old-growth harvests are planned in the same Viewshed.

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young-growth. Beyond that, the minimum harvest age would continue to be flexible under exceptions allowed by NFMA.

The Forest Plan would include new management direction that improves flexibility in renewable energy development under this alternative. The SIO (scenery standard) for renewable energy development would Low for all LUDs and distance zones.

Alternative 5 would provide the second smallest amount of timber volume (old growth and young growth combined) among the alternatives, but the second largest amount of old-growth volume among the action alternatives. Table 2-14 summarizes the key elements of Alternative 5 and Table 2-15 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1). It would emphasize young growth and minimize old growth while maintaining 46 MMBF per year. As such, it is expected to produce an average of about 12 MMBF of young growth and 34 MMBF of old growth per year during the first 10 years (Figure 2-9). From Year 11 through Year 15, it is projected to produce an average of 28 MMBF of young growth and about 18 MMBF of old growth per year. Alternative 5 would likely reach a full transition harvest of 41 MMBF of young growth about Year 16. Young-growth harvest is expected to continue to increase at a rapid rate after Year 16 and is expected to reach an upper limit of

³ The Tongass 77 (T77) refers to value comparison units (VCUs), which approximate major watersheds located on National Forest System lands that Trout Unlimited, Alaska Program identified as priority salmon watersheds. As a result of the Sealaska Land Entitlement Finalization in the Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291), there was a net reduction in the T77 watersheds from 77 to 73. To provide clarity and consistency, the T77 nomenclature will continue to be used in this document when referring to these priority watersheds.

Executive Summary

98 MMBF about Year 18. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

Comparison of the Alternatives

This section briefly compares the environmental consequences of the five alternatives with respect to the significant issues described in Chapter 1. This comparison is based on the effects analyses presented in Chapter 3.

Issue 1 – Young-growth Transition

The purpose and need for this project is primarily based on a memorandum from the Secretary of Agriculture (see Chapter 1) that directs management of the Tongass National Forest to expedite the transition away from old-growth timber harvesting and towards a forest products industry that utilizes predominantly second-growth – or young-growth – forests. Secretary Vilsack’s memorandum also guides that the transition should be implemented in a manner that preserves a viable timber industry that provides jobs and opportunities for Southeast Alaska residents. USDA’s goal is to effectuate this transition, over the next 10 to 15 years, so that at the end of this period the vast majority of timber sold by the Tongass will be young growth. This timeframe will conserve old growth forests while allowing the forest industry time to adapt.

Because of the Secretary’s memorandum, the existing condition emphasizes a transition to young growth and minimizes old-growth harvest, but does this within the constraints of the 2008 Forest Plan. Alternative 1 (no action) would result in full transition to a predominantly young-growth-based industry in about 32 years, well beyond the 15 year goal presented in the Secretary’s memorandum. In contrast, all of the action alternatives would result in a full transition in about 12 to 16 years. Because these timeframes represent full transition, the period in which the “vast majority of timber sold by the Tongass will be young growth” is expected to be about 10 to 15 years for the action alternatives. Of the action alternatives, the fastest transition (12 years) would occur with Alternative 2 and the slowest transition (16 years) would occur with Alternatives 4 and 5.

All of the alternatives are expected to support from 184 to 231 annualized direct jobs during the first decade, depending on the portion of total harvest that is exported. Total estimated jobs are very similar across the alternatives, with the highest number of direct jobs supported by Alternative 2 and the lowest number of direct jobs supported by Alternative 1. In addition, each alternative is expected to meet the projected demand for Tongass timber. Therefore, each alternative is expected to meet the criterion of maintaining a viable industry. However, it is unclear how quickly industry will be able to “retool” mills and harvesting equipment and how markets will react to changing from old-growth to young-growth forest products; thus, this criterion is associated with a relatively high degree of uncertainty.

Under all alternatives, the harvest of old growth would diminish over time and the harvest of young growth would increase. Therefore, all of the alternatives would “conserve old-growth forests.” The largest old-growth harvest in the first 25 years would be about 39,000 acres with Alternative 1. Each of the action alternatives would harvest less old growth, ranging from 15,000 acres with Alternative 2 to 24,000 acres with Alternative 5. The same pattern among the alternatives occurs with the 100-year harvest as well.

Issue 2 – Renewable Energy

Another important part of the purpose and need for this project is the purpose of establishing new direction in the Forest Plan so that renewable energy development is more permissible. There is a need to stimulate economic development in Southeast Alaska communities, and provide low-carbon energy alternatives, thereby displacing the use of fossil fuel. Under the 2008 Forest Plan, siting of energy projects is limited in certain LUDs, and it would remain that way under Alternative 1. Under each of the action alternatives (Alternatives 2, 3, 4, and 5), changes would be made to the Forest Plan that would result in improved flexibility in siting and development of renewable energy projects.

Issue 3 – Inventoried Roadless Areas

Under Alternatives 1, 4, and 5 IRAs are withdrawn from timber production and not suitable for timber production (FSH 1909.12, chapter 60, section 61.11). In Alternative 2, IRAs that were previously roaded would be available for road construction and timber harvest and in Alternative 3, all IRAs would be available for road construction and timber harvest. In both Alternatives 2 and 3, entry into IRAs would not be permitted without rulemaking or, in the case of Alternative 3, if the 2003 Tongass Exemption (68 FR 75136) is reinstated. Estimated acres of timber harvest in IRAs over 100 years would range from 0 acres for Alternatives 1, 4, and 5, to 11,000 acres for Alternative 2, to 29,000 acres for Alternative 3. The protection of roadless characteristics would be directly proportional to the projected acres of timber harvest with Alternatives 1, 4, and 5 providing the most protection, Alternative 2 providing the second most protection, and Alternative 3 providing the least protection.

Issue 4 – Wildlife Habitat and the Conservation Strategy

Relative to old-growth habitat conservation, Alternative 1 would have the highest harvest (1.3 percent of existing POG), followed by Alternative 4 (0.9 percent of existing POG), followed by Alternative 5 (0.8 percent of existing POG), followed by Alternatives 2 and 3 (0.7 percent of existing POG). The change in the percent of original POG remaining after 100 years would follow the same pattern. Currently, 92 percent of original POG is remaining; under all alternatives this percentage would drop by about 1 percent after 100 years. Alternative 1 would result in about 90 percent remaining and the action alternatives would each result in about 91 percent remaining. This same pattern would continue for the percent reduction in high-volume POG. The existing 86 percent of original high-volume POG remaining would be reduced to about 85 percent for all alternatives after 100 years. For large-tree POG, about 79 percent of the original acres exist. Alternative 1 would result in about 78 percent remaining after 100 years, while the action alternatives would maintain about 79 percent.

Young-growth harvest in the beach and estuary fringe would be lowest under Alternative 1 (no harvest). Under the action alternatives, no harvest of POG would occur, but impacts resulting from young growth harvest would be highest under Alternative 2, which would include the second highest amount of young-growth acres and would allow clearcutting. Under Alternatives 3 and 4, considerable young-growth acreage would be harvested, but using commercial thinning, which would result in less effects than clearcutting. Alternative 5 would have the lowest effect on beach and estuary fringe among the action alternatives because young-growth acreage would be lowest and only patch cutting (with created openings up to 10 acres and a maximum removal of up to 35 percent of the acres of the original harvested stand) or commercial thinning would be

Executive Summary

allowed and only during the first 15 years after Forest Plan approval with a one-time entry restriction.

For RMAs, the lowest effects would be associated with Alternatives 1, 3, and 4, which would permit no harvest in RMAs. Alternative 2 would have the greatest harvest impacts in RMAs because it would include the highest amount of acreage and would allow clearcutting during the first 15 years of Forest Plan approval and commercial thinning thereafter. Effects to RMAs would be lower under Alternative 5 due to a lower amount of acres harvested and only patch cutting or commercial thinning would be permitted and only during the first 15 years after Forest Plan approval with a one-time entry restriction.

In the Old-growth Habitat LUD, Alternatives 1 and 4 would allow no young-growth harvest. The greatest amount of young-growth harvest in the Old-growth Habitat LUD would occur under Alternative 2, followed by Alternatives 3 and 5. Effects would be greatest under Alternative 2 because it would allow clearcutting and have the largest harvest acreage, and less under Alternative 3 because only commercial thinning would be allowed, followed by Alternative 5 which would allow only patch cutting or thinning and only during the first 15 years after Forest Plan approval and with a one-time entry restriction.

Average total road density across the Forest (NFS lands only) under all alternatives would be approximately 0.23 mile per square mile after 100 years, an increase of 0.03 to 0.04 mile per square mile above existing levels. Approximately 83 percent of WAAs would have total road densities ranging between 0.0 and 0.7 mile per square mile under all alternatives. Total roads are conservatively defined to include open roads, closed roads, and decommissioned roads. Average open road density across the Forest (NFS lands only) would be approximately 0.09 mile per square mile, an increase of approximately 0.005 mile per square mile under all alternatives. Approximately 96 percent of WAAs would have open road densities ranging between 0.0 and 0.7 mile per square mile under all alternatives. Therefore, any potential increase in hunter access or risk of overharvest for wildlife species would be minor and localized, and would not be measurable at the forest-wide scale under any of the alternatives.

The transition to young-growth management would slow the long-term decrease in deer habitat capability due to the reduction in POG harvest. Based on Interagency Deer Habitat Capability model outputs, deer habitat capability under all of the alternatives would decline about 1 percent over 100 years. Forest-wide all alternatives would maintain about 99 percent of the existing deer habitat capability. Results based on the Forage Resource Evaluation System for Deer (or FRESH deer model) are very similar; Forest-wide, the existing level of habitat quality would decline about 1 percent after 100 years under all alternatives.

Cumulative POG harvest on all landownerships would be greatest under Alternative 1, followed by Alternatives 4, 5, 3, and 2 (in that order). Cumulative effects would be least under the alternatives that propose the shortest young-growth transition time. After 100 years of Forest Plan implementation and non-NFS harvests, approximately 83 percent of the original (1954) total POG forest, about 76 percent of the original high-volume POG, and 63 to 64 percent of the original large-tree POG would be maintained on all landownerships under all of the alternatives.

Cumulative road densities (all land ownerships) would be similar among alternatives (about 0.45 mile per square mile), representing an increase of about 0.11 to 0.12 miles per square mile above current conditions. Open road densities for all land ownerships would increase from about 0.22 mile per square mile to about 0.24 mile per square mile after 100 years under all alternatives.

CHAPTER 1
PURPOSE AND NEED

Purpose and Need

Introduction

Forest land and resource management planning is a process for developing, amending, and revising land and resource management plans for each of the National Forests in the National Forest System (NFS). Forest plans are required by the National Forest Management Act of 1976 (NFMA) (16 United States Code [U.S.C.] parts 1600-1687). The 16.7-million-acre Tongass National Forest was the first forest to complete a Land and Resource Management Plan (Forest Plan) under the NFMA in 1979. That Forest Plan was amended in 1986 and 1991 and revised in 1997. A final Supplemental Environmental Impact Statement (SEIS) was completed in 2003, which further evaluated roadless areas for their wilderness potential. The Forest Plan was amended again in 2008 in response to a Ninth Circuit Court ruling and a 5-Year Plan Review completed in 2005. The revised Plan was amended 24 times between the 1997 revision and the 2008 amendment, primarily to adjust small old-growth habitat reserve boundaries and for electronic/communication site designations. Since the 2008 amendment, the plan has been amended to establish the Héen Latinee Experimental Forest, disestablish the Young Bay Experimental Forest, add communication sites to the list in Appendix E, modify small old-growth habitat reserves, and make minor corrections to the plan.

On July 2, 2013, Secretary of Agriculture, Thomas Vilsack, issued Memorandum 1044-009, *Addressing Sustainable Forestry in Southeast Alaska* (U.S. Department of Agriculture [USDA] 2013), which expressed the Secretary's intent to transition the Tongass National Forest to a young growth-based timber program in 10 to 15 years, more rapidly than considered in the 2008 Forest Plan. The Secretary asked that the Forest Service "[s]trongly consider whether to pursue an amendment to the Tongass Forest Plan. Such an amendment would evaluate which lands will be available for timber harvest, especially young growth timber stands, which lands should be excluded, and additional opportunities to promote and speed transition to young-growth management." Recognizing the importance of retaining expertise and infrastructure, the Secretary also stated that the Forest Service "will continue to offer a supply of old growth timber while increasing the supply of young growth to provide industry in Alaska the opportunity to develop new markets, learn new skills, and acquire new equipment." The Secretary also asked that a determination of whether to initiate an amendment be completed by September 30, 2013.

The Forest Service completed a Five-Year Review of the Forest Plan in September 2013. The results of the Five-Year Review and the Secretary's Memorandum led to the Tongass Forest Supervisor making a determination that "...conditions on the land and demands of the public require the Tongass to modify the 2008 Forest Plan" (USDA Forest Service 2013a). A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register on May 27, 2014 (79 Federal Register [FR] 30074) initiating a 30-day scoping period. Among the comments from the Five-Year Review and from scoping were those that

1 Purpose and Need

requested a transition to young-growth timber harvesting, ways to make renewable energy projects easier to implement, and a review of the 2001 Roadless Area Conservation Rule (Roadless Rule) inventoried roadless areas (IRAs). All comments were taken into consideration in identifying the scope of this Forest Plan amendment.

This Final Environmental Impact Statement (FEIS) is a programmatic analysis prepared by the Forest Service that describes and analyzes changes to the Forest Plan to accomplish the transition to young-growth management as provided in the Secretary's Memorandum. This FEIS evaluates which lands will be suitable for timber production, especially young-growth timber stands, and any changes or additions to management direction needed to promote and speed the transition to young-growth management while maintaining a viable timber industry in Southeast Alaska. This FEIS also describes and analyzes changes related to renewable energy development. The scope of the analysis is limited to these changes.

This FEIS analyzes in detail four action alternatives for amending the Plan, in addition to a No Action Alternative (Alternative 1). The analysis is published in two volumes. Volume 1 contains the FEIS, and Volume 2 contains the FEIS appendices. A complete Forest Plan Land Use Designation (LUD) map is provided for each of the alternatives in the Map Packet which accompanies the FEIS.

A separate document titled Tongass Land and Resource Management Plan (i.e., the Forest Plan) is published along with the FEIS and represents the selected alternative (Alternative 5). Chapter 2 and Appendix F in the FEIS describe how the other alternatives compare to Alternative 5. Instead of repeating all of the changes in management direction common to Alternatives 1-4 and Alternative 5, management direction of the alternatives is displayed in a side-by-side comparative format to demonstrate how and where direction differs from Alternative 5.

This FEIS describes and analyzes changes to the 2008 Forest Plan and tiers to and incorporates by reference the 1997 Tongass Land Management Plan Revision FEIS (1997 FEIS), the 2003 Final Supplemental EIS (SEIS) for Roadless Area Evaluation for Wilderness Recommendations (2003 FSEIS), and the 2008 Tongass Land and Resource Management Plan Amendment FEIS (2008 FEIS), and the 2008 Record of Decision (2008 ROD). Where appropriate, information in these documents that is relevant to analysis in this FEIS is cited and incorporated by reference.

Forest Planning History on the Tongass National Forest

The NFMA, enacted in 1976, requires each national forest to develop a land and resource management plan and revise its plan every 10 to 15 years. The Tongass became the first National Forest to complete a Forest Plan under NFMA in April 1979. The Alaska National Interest Lands Conservation Act (ANILCA) was signed into law December 2, 1980 (Public Law 96-187) and provided varying degrees of protection to over 157,000,000 acres of public lands in Alaska, including NFS lands. The 1979 Forest Plan was amended in 1986, reflecting changes mandated by ANILCA. The Forest Plan revision process began in 1987 and a Draft Environmental Impact Statement (DEIS) was published in June 1990. On November 28, 1990, the Tongass Timber Reform Act (TTRA) (Public Law 101-626) was enacted. The TTRA amended ANILCA to protect certain lands in

the Tongass National Forest in perpetuity, to modify certain long-term timber contracts, to provide for protection of riparian habitat, and for other purposes. The 1979 Forest Plan was amended in February 1991 to incorporate the TTRA changes. The Forest Plan revision process continued with a Supplement to the DEIS published in September 1991, which incorporated all changes required by TTRA and evaluated new alternatives. Following completion of the June 1990 DEIS, TTRA designated five new wilderness areas and incorporated additional acres into an existing wilderness area. Therefore, the Forest Service did not reconsider roadless areas for potential wilderness recommendation. The Forest Service prepared an FEIS in the fall of 1992, but did not publish an associated ROD. The Regional Forester found there was new information that should be collected to respond to the 1982 National Forest Planning Regulations (36 Code of Federal Regulations [CFR] 219.19 (1982)). That process led to the 1997 FEIS and the Forest Plan Revision ROD (1997 ROD).

The 1997 Forest Plan was the subject of 33 appeals by organizations and individuals. In 1999, the Under Secretary of Agriculture affirmed the Regional Forester's decision regarding all 33 appeals, based on the 1997 Tongass Forest Plan Revision FEIS and planning record. The Under Secretary issued a new ROD (1999 ROD) for the 1997 Tongass Land Management Plan Revision.

Two lawsuits challenged the 1997 and 1999 RODs in the U.S. District Court for the District of Alaska. The Alaska Forest Association and some Southeast Alaska communities challenged many aspects of the 1997 Plan and the process by which the 1999 ROD was issued. The Sierra Club and other conservation groups challenged the lack of wilderness area consideration and potential recommendations in the 1997 Plan Revision FEIS and ROD. The Court issued a single opinion for both cases in March 2001.

In the Alaska Forest Association case (*Alaska Forest Association v. United States Department of Agriculture* No. J99-0013 CV [JKS] [D. Alaska]), the U.S. District Court upheld the 1997 ROD against all challenges, but held that the 1999 ROD was not properly adopted. The Court vacated the 1999 ROD and enjoined the Forest Service from implementation. The Court further directed the Forest Service to prepare a SEIS addressing the changes from the 1997 Tongass Forest Plan. Because of the extensive public involvement and scientific review in the 1997 ROD, and its thorough policy and legal review of the administrative appeal process and by the District Court, the Forest Service did not propose changes to the 1997 ROD similar to those enjoined by the District Court.

In the Sierra Club challenge of the 1997 Tongass Forest Plan Revision FEIS (*Sierra Club v. Lyons*, No. J00-0009 CV [JKS] [D. Alaska]), the Ninth Circuit Court found the 1997 Tongass Forest Plan should have considered making wilderness recommendations in the FEIS. The Court ordered the Forest Service to prepare a SEIS evaluating wilderness recommendations for roadless areas on the Tongass and provide the relative contribution to the National Wilderness Preservation System in its Analysis of the Management Situation. The Forest Service issued a Final SEIS and ROD for Roadless Area Evaluation for Wilderness Recommendations in February 2003, and no new wilderness areas were recommended in the ROD.

The Natural Resources Defense Council (NRDC) filed a lawsuit (referred to as NRDC I) in the U.S. District Court of Alaska in December 2003 challenging the 1997 Forest Plan and six timber sales. In January 2004, the NRDC filed a separate lawsuit on a seventh timber sale (referred to as NRDC II) and another lawsuit challenging an eighth sale in March 2004 (referred to as NRDC III). The District Court upheld the 1997 Forest Plan ROD and related National

1 Purpose and Need

Environmental Policy Act (NEPA) documents on all claims in September 2004. NRDC appealed this ruling to the Ninth Circuit Court of Appeals. The Ninth Circuit Court issued a ruling on NRDC I and NRDC II in August 2005 (*Natural Resources Defense Council, et al., v. United States Forest Service, et al.*, 421 F.3d 797 [9th Cir.2005]). The Court found inadequacies primarily relating to the NEPA process for the 1997 Forest Plan. These inadequacies dealt with the timber demand estimates, the range of alternatives related to timber demand, and the cumulative effects analysis related to activities on non-NFS lands. While this process was taking place, the Forest completed a Five-Year Review of the Forest Plan. This review identified a number of items that could lead to adjustments to the Plan.

The 2008 Forest Plan was the subject of 15 appeals by organizations and individuals; however, one of those appeals was subsequently dismissed because its content did not meet the requirements of appeals (36 CFR 217.9). In August 2008, the Chief of the Forest Service affirmed the Regional Forester's decision regarding all appeals.

On May 24, 2011, the Alaska District Court vacated the Tongass exemption¹ and reinstated the 2001 Roadless Rule on the Tongass National Forest (*Organized Village of Kake, et al. v. USDA, et al.*). As a result, the Tongass National Forest was subject to the provisions of the 2001 Roadless Rule. The State of Alaska subsequently appealed the District Court's decision and the Ninth Circuit Court of Appeals reversed the district court's decision and remanded the case to the lower court for further consideration. On July 29, 2015, the Ninth Circuit Court of Appeals issued its en banc decision in *Organized Village of Kake v. U.S. Dept. of Agriculture*, 11-35517, upholding the Alaska District Court's reinstatement of the Roadless Rule. Thus, the Tongass has been subject to the Roadless Rule since 2011 and remains so today.

The 2012 planning rule for land management planning for the National Forest System was published in the Federal Register on April 9, 2012 (77 FR 21162), and it became effective on May 9, 2012. It was developed through the most collaborative rulemaking effort in Agency history to ensure an adaptive land management planning process that is inclusive, efficient, collaborative and science-based to promote healthy, resilient, diverse and productive National Forests and Grasslands. In January 2015, the Forest Service published the final planning directives, the key set of agency guidance documents that direct implementation of the 2012 planning rule.

This proposed plan amendment was developed under the provisions in the 2012 Rule and changes made to the 2008 Forest Plan are presented in Chapter 5 of the proposed Forest Plan. Only those changes that were made to the 2008 Forest Plan are described and analyzed in this FEIS.

Factors That Led to the Need for Change

Since approval of the Forest Plan in January 2008, management of the Tongass National Forest has been very challenging due to a number of factors, including administrative and judicial proceedings. Many of these factors were highlighted as concerns in the Five-Year Review of the Forest Plan (36 CFR 219.10(g))

¹ The Roadless Rule was promulgated by the Department of Agriculture in 2001, limiting road construction and timber harvest in Inventoried Roadless Areas. In 2003, the Department exempted the Tongass from the rule (68 FR 75136).

(1982)) that was conducted in 2013 (USDA Forest Service 2013h). Based on the Five-Year Review of the 2008 Forest Plan and challenges in carrying out projects since 2008, the Tongass Forest Supervisor determined that conditions on the land and demands of the public require the Tongass to change the 2008 Forest Plan (USDA 2013i). He also determined that stakeholder input would be used for making changes to forest management on the Tongass. This section provides the context for the factors that led to a need for change.

Roadless area conservation

In January 2001, USDA published the Roadless Area Conservation Rule (36 CFR 294 Subpart B), which generally prohibits cutting trees and building roads in inventoried roadless areas on NFS lands. Since its adoption in 2001, the Roadless Rule has been the subject of litigation concerning how it is to be applied to the Tongass. Stakeholders with an interest in these lands, such as utility companies, timber and mining interests, and local communities, have raised questions about how the Roadless Rule will affect permits, contracts and other special uses involving access, road construction and road maintenance in inventoried roadless areas within Alaska's National Forests. The State of Alaska in 2001 filed a complaint in the United States District Court, District of Alaska, challenging the application of the Roadless Rule to the Chugach and Tongass National Forests. The Forest Service and the State of Alaska reached a settlement in 2003, and the Forest Service then published a rule temporarily exempting the Tongass National Forest from the Roadless Rule (68 FR 75136). In May 2011, the Alaska District Court vacated the Tongass exemption and reinstated the 2001 Roadless Rule on the Tongass National Forest (*Organized Village of Kake, et al. v. USDA, et al.*). After additional judicial proceedings, the Ninth Circuit Court issued an en banc decision in *Organized Village of Kake v. U.S. Dept. of Agriculture, 11-35517*, upholding the Alaska District Court's reinstatement of the Roadless Rule. In another court case, the State of Alaska has challenged the Roadless Rule in the U.S. District Court for the District of Columbia. Briefing in that case is currently being adjudicated. Thus, the Tongass has been subject to the Roadless Rule since 2011 and remains so today.

Litigation

Timber harvesting is one of the many uses of the Tongass, and the timber resource is managed to produce sawtimber and other wood products on lands identified as suitable for timber production on an even-flow, long-term sustained yield basis and in an economically efficient manner. Harvest of old-growth trees has become increasingly controversial. Since 2008, litigation filed on individual Tongass timber sales is hindering the ability of the Forest to accomplish the objective of providing a reliable Federal timber supply. The decline in timber sale volume between 2008 and 2012 is based on a variety of factors including demand, economic conditions, harvest costs, policy changes and litigation. Annual harvest volumes averaged 36 MMBF between 2002 and 2014 (USDA Forest Service 2015a).

Collaboration

The Forest Service prepared the 2008 Tongass Forest Plan Amendment and the associated EIS in response to the Ninth Circuit court's decision (*Natural Resources Defense Council, et al. v. United States*, Case No. 04-35868) and in response to the Five-Year Review of the 1997 Forest Plan that was completed in early 2005, which recommended several updates to the Plan. In the fall of 2006, while work was underway on the 2008 Tongass Forest Plan Amendment, The

1 Purpose and Need

Nature Conservancy formed the Tongass Futures Roundtable in an effort to bring stakeholders together to find practical solutions for industry, the Forest Service, communities, and conservation. The Roundtable brought together a diverse group of people and organizations long active in Tongass policy matters with the ultimate goal of developing consensus recommendations regarding where timber harvest should be allowed on the Tongass, and where timber harvest should be prohibited. The Roundtable also supported more diversified and sustainable local economies in communities across Southeast Alaska, including efforts to reduce the high energy costs that impede economic diversification by promoting development of renewable energy in communities that currently depend on diesel generators to provide electrical power. Although the Roundtable dissolved in 2011, several important relationships were established that laid the groundwork for the “Transition Framework” discussed below. Building on the efforts of the Roundtable, including supporting more diversified and sustainable economies in the communities of Southeast Alaska, representatives of the Forest Service, USDA Rural Development, and the Economic Development Administration conducted a series of listening sessions in the fall of 2009 in all 32 communities in Southeast Alaska to solicit ways to stimulate job creation and economic diversification throughout the region.

The 2008 Forest Plan decision acknowledged the “...expected increase in young-growth management over the next few planning cycles...and the increasing public interest in this conversion, which will ultimately reduce the need for old-growth timber resources and the associated need for development in roadless areas” (USDA 2008a). In 2010, the Forest Service, in partnership with other agencies within the USDA, announced a “Transition Framework” for Southeast Alaska (Alexander et al. 2010). The Transition Framework was developed as a strategy for developing economic opportunities in renewable energy, forest restoration, fisheries and mariculture, tourism and recreation, and subsistence. The goal of the Transition Framework is to conserve the Tongass National Forest while providing economic opportunity and stability to Southeast Alaska communities. The high cost of energy was soon identified as a major barrier to sustainable economic development in the region. As the Transition Framework continued to progress in 2011, the USDA agencies, working with the Juneau Economic Development Council, collaborated with over 120 business and community leaders to develop economic diversification initiatives through the creation of business clusters that, by 2013, included clusters for Ocean Products, Visitor Products, Renewable Energy, Mining Services and Supply, and Research and Development, as well as the Working Forest Group to address timber management issues.

2012 Planning Rule

While these collaborative efforts were underway in Southeast Alaska, the USDA was also pursuing similar approaches for planning across the National Forest System. These efforts resulted in publishing the 2012 planning rule for land management planning on April 9, 2012 (77 FR 21162). The 2012 Planning Rule was developed through the most collaborative rulemaking effort in Agency history to ensure an adaptive land management planning process that is inclusive and science-based to promote healthy, National Forests and Grasslands. In addition, the Secretary of Agriculture established an advisory committee under the Federal Advisory Committee Act (FACA) to provide recommendations on how to carry out the Planning Rule.

Five-Year Review of the 2008 Forest Plan

In 2013, the Tongass conducted a Five-Year Review of the 2008 Forest Plan to provide the Forest Supervisor with insight into views about the Forest Plan and projects carried out under the plan to assist in determining whether any actions are needed to change the plan. As part of this review, the results from and data evaluated in the Monitoring and Evaluation Reports (2008 to 2012) was considered. The Tongass staff engaged internal and external stakeholders and the public to obtain feedback on how the plan is working since 2008 (i.e., what is working well, what is not working, what is not addressed in the plan, whether changes are needed), and held public meetings in seven communities in Southeast Alaska (USDA Forest Service, 2013h). There were 152,182 comments submitted by individual citizens, Federal and state agencies, tribal governments, local governments, businesses, special interest groups, and non-governmental organizations. The comment period generated 3,104 coded comments, which were grouped into 24 Statement of Concern (SOC) Topics. The five SOC Topics with the most comments received were: 1) Tongass National Forest Management issues (644); 2) Timber (323); 3) Land Use Designations (285); 4) Socio-economics (281); and 5) Energy (239).

Secretary of Agriculture Memorandum 1044-009

It was in the context of sustained collaborative efforts to promote more sustainable economic diversification and a more sustainable timber management program on the Tongass National Forest that the Secretary of Agriculture issued Memorandum 1044-009, Addressing Sustainable Forestry in Southeast Alaska, on July 2, 2013. The memorandum focused on speeding the transition to management of second-growth (previously harvested) forests. In addition to speeding the transition to management of second-growth, the memorandum references the increased support USDA had provided over the previous three years under the Transition Framework to support “alternative economic development opportunities for communities across the region in the recreation, tourism, fishing and renewable energy sectors,” and directs such collaborative efforts to continue “to help strengthen and diversify local economies.”

An outgrowth of the Transition Framework, the Secretary’s memorandum directs management of the Tongass National Forest to “expedite the transition away from old-growth timber harvesting and towards a forest products industry that uses predominantly second-growth – or young-growth – forests.” It also affirmed that “this transition to a more ecologically, socially, and economically sustainable forest management is a high priority for USDA, the Forest Service, and the Tongass National Forest.” The memorandum directs the transition to be carried out in a manner that preserves a viable timber industry that provides jobs and opportunities for Southeast Alaska residents, with the goal of carrying out the transition over the next 10 to 15 years, so that at the end of this period the vast majority of timber sold by the Tongass will be young growth. It also directed the Forest Service to continue working with Congress to provide some flexibility with regard to culmination of mean annual increment (CMAI) requirements, which is essential to permit the development of economically viable young growth projects within the timeframe set as a goal for the transition. The Secretary’s memorandum also announced that USDA would establish an advisory committee under the FACA to provide recommendations to the Forest Service on ways to expedite the young-growth transition. In February 2014, this committee was designated as the Tongass Advisory Committee (TAC).

1 Purpose and Need

Congressional Action

In December 2014, Congress passed legislation – Carl Levin and Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 – that authorizes the Secretary of Agriculture to allow the harvest of trees before the culmination of mean annual increment of growth to facilitate the transition from timber harvest of old growth stands.

Change Determination

After completion of the Five-Year Review of the 2008 Forest Plan, the Tongass Forest Supervisor concluded that conditions on the land and demands of the public had changed and therefore the Tongass National Forest should make changes to the Forest Plan (USDA 2013). Concerns were consistently expressed during the Five-Year Review about the impact of high fossil fuel prices; the adverse effect of high energy costs on economic diversification and sustainable economic development; and increasing climate change on the quality of life in Southeast Alaska. Concerns were also expressed that the 2008 Plan’s direction regarding transportation and utility systems (TUS), including the TUS overlay LUD, were overly complex, confusing, and difficult to implement, creating an impediment to development of hydropower, other types of renewable energy, and transmission lines needed to connect communities to sources of electric power. Based on this review, the Forest Supervisor determined to propose changes to the Forest Plan to make the development of renewable energy resources more permissible – including allowing greater project-level consideration of transportation and utility corridors and removing the TUS LUD – to stimulate renewable energy development in Southeast Alaska communities, provide low-carbon energy alternatives, and reduce the use of fossil fuels.

Purpose and Need

Purpose

The Forest Service determined that it is necessary to amend the 2008 Forest Plan. Amending the Forest Plan originates from the July 2013 memo from the Secretary of Agriculture directing the Tongass National Forest to transition its forest management program to be more ecologically, socially, and economically sustainable, while also being responsive to comments from the Five-Year Review of the Forest Plan. The purpose of this plan amendment is to:

- Review lands within the plan area to determine suitability for timber production, especially young-growth timber stands.
- Identify the projected timber sale quantity (PTSQ) and the sustained yield limit (i.e., the ecological yield of timber that can be removed annually on a sustained yield basis).
- Establish plan components (e.g., standards and guidelines) for young-growth forest management and renewable energy development to guide future project decision-making.
- Consolidate modifications made to the Forest Plan since its approval.

Need

An amendment is necessary for responding to the July 2013 direction from USDA Secretary Tom Vilsack outlined in the Secretary’s Memorandum 1044-

009. The memorandum directs management of the Tongass National Forest to expedite the transition away from old-growth timber harvesting and towards a forest products industry that uses predominantly second-growth – or young-growth – forests. Secretary Vilsack’s memorandum also directs that the transition must be implemented in a manner that preserves a viable timber industry that provides jobs and opportunities for Southeast Alaska residents. USDA’s goal is to effectuate this transition, over the next 10 to 15 years, so that at the end of this period the vast majority of timber sold by the Tongass will be young growth. This timeframe will conserve old-growth forests while allowing the forest industry time to adapt. The 2008 Forest Plan provides for a transition to young growth over time, but there are challenges in establishing an economically viable young-growth forest management program due to the relatively young age of the available stands, market conditions, and other factors. Secretary Vilsack’s direction requires Forest Plan amendments to guide future management of NFS lands and allocation of resources on the Tongass National Forest under the multiple-use and sustained yield mandate.

The need to amend the plan is further corroborated by the Five-Year Review of the Forest Plan, completed in 2013, which concluded that conditions on the land and demands of the public necessitate the Tongass National Forest to make changes to the Forest Plan. Concerns were consistently expressed during the Five-Year Review regarding the impact of rising fossil fuel prices and increasing climate change on the quality of life in Southeast Alaska. Changes to the Forest Plan are needed to make the development of renewable energy resources more permissible, including considering access and utility corridors to stimulate economic development in Southeast Alaska communities, and provide low-carbon energy alternatives, thereby displacing the use of fossil fuel.

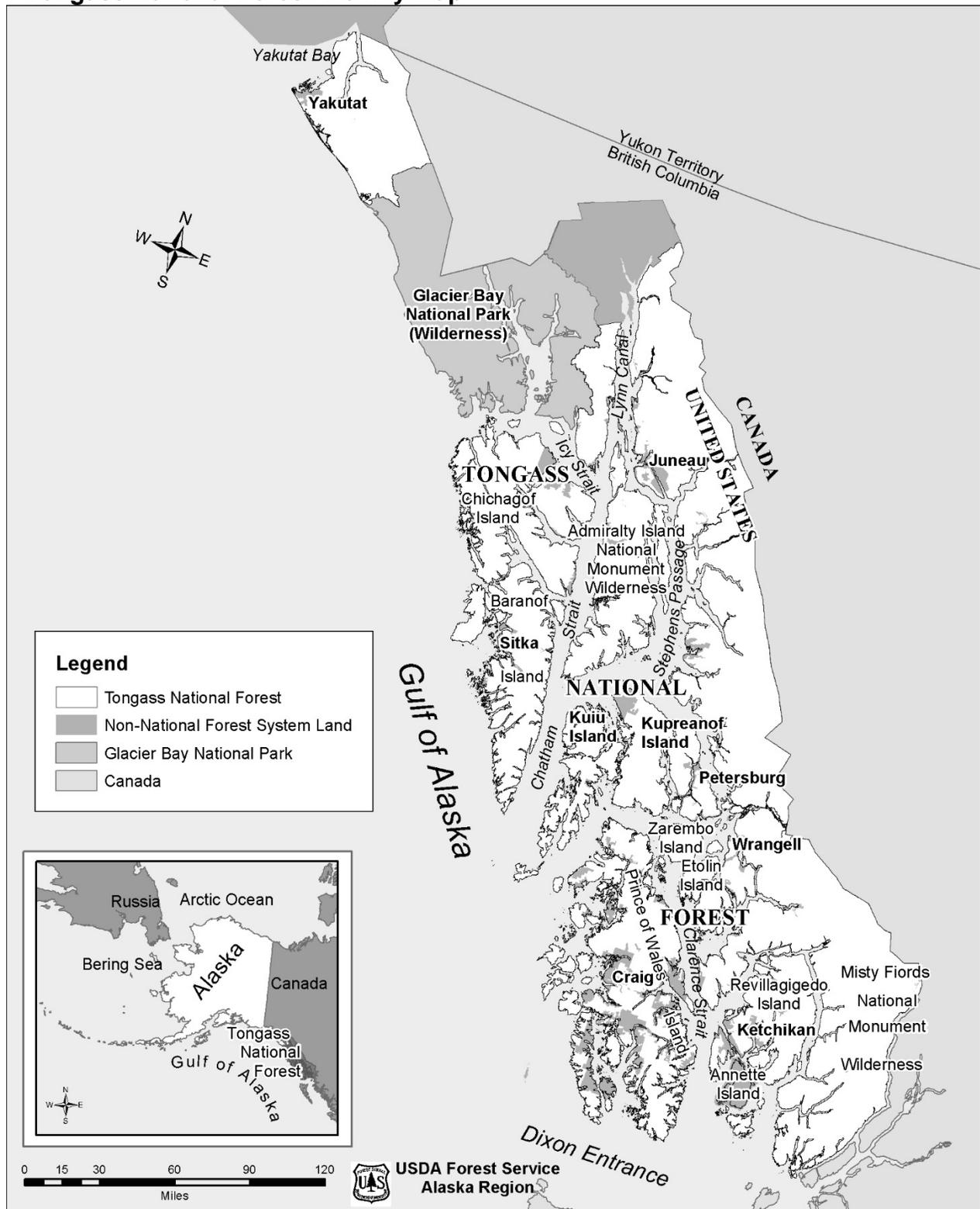
Forest Location and Description

The 16.7-million-acre Tongass National Forest (Tongass or Forest) occupies about 7 percent of the area of Alaska. The Tongass is located in the southeastern portion of the state (the area commonly called the panhandle of Alaska or Southeast Alaska) and extends from Dixon Entrance in the south to Yakutat Bay in the north, and is bordered on the east by Canada and on the west by the Gulf of Alaska. The Tongass extends approximately 500 miles north to south and approximately 120 miles east to west at its widest point. Figure 1-1 is a vicinity map of the Forest.

The Tongass includes a narrow mainland strip of steep, rugged mountains and icefields and more than 1,000 offshore islands known as the Alexander Archipelago. Together, the islands and mainland have nearly 11,000 miles of meandering shoreline, with numerous bays and coves. A system of seaways separates the many islands and provides a protected waterway called the Inside Passage. Federal lands comprise about 95 percent of Southeast Alaska, with about 80 percent in the Tongass National Forest and most of the rest in Glacier Bay National Park and Preserve. The remaining land is held in state, Native corporations, and other private ownerships.

1 Purpose and Need

**Figure 1-1.
Tongass National Forest Vicinity Map**



Most of the area of the Tongass is undeveloped. Approximately 74,000 people inhabit Southeast Alaska, primarily in 32 communities located on islands or mainland coastal areas. Only eight of the communities have populations greater than 1,000 persons. Most of these communities are surrounded by, or adjacent to, NFS land. Only three communities are connected to other parts of the mainland by road: Haines and Skagway in the north and Hyder in the southeast.

In December 2014, the President signed into law the Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291). Title XXX, subtitle A, sec. 3002 of this law contains provisions to convey nearly 70,000 acres of NFS land in the Tongass to Sealaska, a regional Native corporation; change the land allocation of over 150,000 acres to "conservation areas" or LUD II; and allow for the harvest of trees prior to the culmination of mean annual increment of growth to facilitate the transition away from commercial timber harvest of old-growth stands among other provisions.

Public Issues

The economies of Southeast Alaska's communities rely on the Tongass National Forest to provide natural resources for uses such as fishing, timber harvesting, recreation, tourism, mining, and subsistence. Maintaining the abundant natural resources of the Forest, while providing opportunities for their use, is a major concern of Southeast Alaska residents.

Ranger District offices on the Tongass National Forest are located in Yakutat, Juneau, Hoonah, Sitka, Petersburg, Wrangell, Thorne Bay, Craig, and Ketchikan. There are also two National Monuments; Admiralty Island is managed by a Monument Ranger who shares an office in Juneau with the Juneau District Ranger and Misty Fiords managed by the Ketchikan District Ranger in Ketchikan (Figure 1-1).

Public Participation

As explained in the *Factors That Led to the Need for Change* section above, the Tongass has been encouraging meaningful public input and involvement in development of the Forest Plan. After completion of the Five-Year Review of the 2008 Forest Plan in 2013, the Tongass Forest Supervisor determined that conditions on the land and demands of the public had changed and therefore the Tongass National Forest should make changes to the Forest Plan (USDA Forest Service 2013h).

In February 2014, the USDA established the charter for a Federal Advisory Committee under the Federal Advisory Committee Act (FACA) to advise the Secretary and Chief on transitioning the Tongass to young-growth forest management. This committee, known as the TAC, included members representing federally recognized Indian Tribes, Alaska Native corporations, conservation organizations, timber industry, state and local governments, and other interests.

An NOI to prepare an environmental impact statement was published in the Federal Register on May 27, 2014 (79 FR 30074) initiating a 30-day public scoping period. The Forest Service requested public comments concerning the scope of the analysis until June 26, 2014. The Forest Service received approximately 124,000 letters and of these, 250 letters were unique. Comments and information from a wide variety of commenters including Forest Service personnel, public, other federal, state and local agencies, and non-governmental organizations were considered.

1 Purpose and Need

Identification of issues helps define or predict the resources or uses that could be most affected by the management of NFS lands. These issues are used as a basis to formulate management alternatives or to measure differences between alternatives.

Public involvement activities that have taken place since May 2014 include the following:

- An NOI to prepare an EIS was published in the Federal Register on May 27, 2014 (79 FR 30074) initiating a 30-day public scoping period. The Forest Service requested public comments concerning the scope of the analysis until June 26, 2014. The Forest Service received approximately 124,000 letters and of these, 250 letters were unique. Comments and information from a wide variety of commenters including Forest Service personnel, public, other federal, state and local agencies, and non-governmental organizations were considered. These comments are included in the Planning Record.
- The responsible official encouraged federal and state agencies and local governments to participate in the forest planning effort as cooperating agencies. On September 9, 2014, the Forest Service invited the U.S. Fish and Wildlife Service (USFWS), Environmental Protection Agency, State of Alaska, and all federally recognized Indian Tribes in Southeast Alaska. Of those invited, the USFWS accepted cooperating status with respect to the Forest Plan Amendment and entered into a Memorandum of Understanding (MOU) with the Forest Service in February 2015.
- A Forest Plan Amendment Web site was developed in September 2014 and has been maintained to inform and engage the public since then. It is updated as new information is developed or published and provides a mechanism for public input. This site can be accessed at: <http://www.fs.usda.gov/goto/R10/Tongass/PlanAmend>
- The responsible official encouraged participation from youth. Since December 2014, members from the plan amendment interdisciplinary team (IDT) have been engaging a youth advisory council comprised of high school students from the Ketchikan High School. The Forest Service wanted to expose young people to natural resource management on the Tongass, as well as engaging them in the public involvement process so their voices can be heard. The youth advisory council provided written comments on the Proposed Forest Plan and DEIS.
- On November 13, 2015, the responsible official provided to the Alaska Native Tribes and Alaska Native Corporations the opportunity to consult on a Government-to-Government and Government-to-Corporation level and inviting them provide input on the Proposed Forest Plan and associated DEIS and they were provided document access prior to the publication of the notice of availability (NOA) of the DEIS in the Federal Register on November 20, 2015 (80 FR 72719). Consultation has been conducted throughout the planning process, and is ongoing.
- In January and February 2015, public open house were held in Juneau, Sitka, and Ketchikan to engage the public in the planning process and share information about the progress being made on the Proposed Forest Plan and DEIS. All of the open house materials were posted on the Forest Plan Amendment Web site.

- In May of 2015, the TAC provided the Secretary with a comprehensive package of draft recommendations for the Forest Plan Amendment. The plan amendment IDT incorporated the draft recommendations that were applicable to amending the Forest Plan. These recommendations provided specific constraints related to transitioning the Tongass to young-growth forest management.
- On November 20, 2015, an NOA of the DEIS was published in the Federal Register (80 FR 72719), which started the 90-day public comment period.
- After reviewing the DEIS and Proposed Forest Plan, the TAC provided its final recommendations to the Secretary for the Forest Plan Amendment in December 2015.
- In January and February 2016, the Forest Service hosted nine public open house meetings, each followed by a subsistence hearing. These public open house meetings were held in the following Southeast Alaska communities: Klawock, Ketchikan, Wrangell, Petersburg, Juneau, Sitka, Hoonah, Yakutat, and Kake. Participants had the opportunity to review the contents of the Proposed Forest Plan, including the five alternatives analyzed in the DEIS. Forest Service staff provided an overview, listened to public concerns, and was available to answer questions. The public was also invited to submit written comments during the open house. Although an ANILCA Section 810 evaluation and determination was not required for approval of a Forest Plan amendment (see Subsistence section in Chapter 3 of FEIS), subsistence hearings were held after each open house meeting, which gave the public an opportunity to provide oral testimony regarding concerns about the Proposed Forest Plan Amendment on subsistence uses.
- More than 165,000 comments were received during the DEIS comment period. These comments are summarized and addressed in Appendix H, DEIS Comments and Responses. All comments received during the DEIS comment period are included in the Planning Record.

Significant Issues

The Forest Service used the scoping process to determine the scope of issues to be addressed and identify the significant issues related to a proposed action. When identifying issues to be analyzed in the environmental analysis, it is helpful to ask, “Is there disagreement about the best way to use a resource, or resolve an unwanted resource condition, or potentially significant effects of a proposed action or alternative?” If the answer is yes, the Forest Service may benefit from subjecting the issue to analysis. This is called a significant issue. Entire resources cannot be issues by themselves, but concerns over how a resource may be affected by the proposal can be issues.

Significant issues are those related to significant or potentially significant effects and are defined as those directly or indirectly caused by implementing the proposed action or alternative. These issues drive the range of alternatives and effects analysis.

The Four Significant Issues

The Forest Service identified the following significant issues during scoping.

1 Purpose and Need

Issue 1 –Young Growth Transition

The Secretary of Agriculture asked the Forest Service to transition to a young-growth-based timber management program on the Tongass National Forest in 10 to 15 years, which is more rapid than planned. This transition is intended to support the Tongass managing its forest for an ecologically, socially, and economically sustainable forest management program and reduce old-growth harvest while still providing economic timber to support the local forest products industry.

The issue concerns financial efficiency, salability, and volume of future timber sales. It also relates to the potential local employment and revenues generated for communities in the local area. Young-growth stand growth rates, sustainable harvest rates, the amount of old-growth harvest needed during transition to sustain the timber industry, also known as “bridge timber,” and the locations where young-growth harvest would take place are some of the factors to be considered.

Issue 2 – Renewable Energy

The development of renewable energy projects on the Tongass would help Southeast Alaska communities reduce fossil fuel dependence, stimulate economic development, and lower carbon emissions in the Region.

This issue relates to comments received during the Five-Year Review of the Forest Plan. The Forest Service should promote the development of renewable energy projects to help Southeast Alaska communities reduce fossil energy dependence, where it is compatible with National Forest purposes and to ensure that the planning, construction, and operation of projects protect and effectively use NFS lands and resources.

Issue 3 –Inventoried Roadless Areas

Timber harvest and road building that occurred in roadless areas before the 2001 Roadless Area Conservation Rule (Roadless Rule) was enacted and during the Tongass exemption period changed the values or features that often characterize inventoried roadless areas in some locations.

Issues and concerns received during scoping as well as during the Five-Year Review process expressed concerns about roadless areas on the Tongass; both in favor of protections afforded under the 2001 Roadless Rule as well as requesting that the forest plan be amended to address the significant changes brought about by its re-instatement on the Tongass.

Some people believe roadless areas on the Tongass should be allowed to evolve naturally through their own dynamic processes and should be afforded protection that ensures this will occur. Others believe that limiting road construction and reconstruction or other management actions in roadless areas might restrict the delivery of goods, services, and activities that these areas might otherwise provide.

Roadless areas are considered important because they support a diversity of aquatic and terrestrial habitats, species, and communities, and play an important role in helping to conserve native plant and animal communities and biological diversity. They also provide people with unique recreation opportunities.

During the Tongass exemption period and before the 2001 Roadless Rule was enacted, road construction, reconstruction, and the cutting, and sale of timber in

some IRAs occurred. As a result, these activities in some IRAs may have altered the roadless characteristics.

Issue 4 – Wildlife Habitat and the Conservation Strategy

Old-growth timber harvest has changed the composition and spatial patterns of terrestrial wildlife habitats. How the resulting young-growth is managed may influence the future ecological integrity of the landscape at various scales. Changes made to suitable lands designated for development, and to plan components (e.g., standards and guidelines) may affect old-growth habitat for wildlife and the Tongass Old-growth Habitat Conservation Strategy and contributing elements to old-growth reserves (e.g., riparian, beach and estuary habitats).

The Tongass National Forest supports an important assemblage of wildlife many of which are associated with or at least partially dependent on old-growth forest including one of the largest populations of brown bears in the world, high densities of breeding bald eagles, the Alexander Archipelago wolf, species of high importance for subsistence (e.g., Sitka black-tailed deer), an extensive array of endemic mammals, and other species that are dependent on old-growth habitats (e.g., marten and goshawk). The Tongass Old-growth Habitat Conservation Strategy is considered important for the continued health of old-growth associated wildlife populations in Southeast Alaska.

Timber harvest, minerals and renewable energy development, and road development can have effects on the habitat and populations of many of these species and the diversity and integrity of Southeast Alaska ecosystems. Less than 10 percent of the productive old-growth habitat on the Tongass has been converted to young growth, the percentage is much higher for certain types of old growth, such as lowland and large-tree old growth. In addition, non-NFS old growth has generally been harvested at a much higher rate. Therefore, the consideration of harvest and road building on wildlife in Southeast Alaska are greater than the effects for the Tongass by itself.

Changes between the Draft EIS and Final EIS

A number of updates and changes were made in the FEIS and Forest Plan in response to new information and to comments received on the DEIS and Proposed Forest Plan. The main areas of change to the EIS are described below. Changes to the Forest Plan are described in the next section.

1. Refinements were made to base Geographic Information System (GIS) coverages such as ownership, streams, cover type, roads, and LUDs to reflect updates due to changes in the existing condition and refinement of inventory data (e.g., updated young-growth inventory).
2. Because of refinements made to the base GIS coverages, the acreages and mileages associated with the existing condition and the alternatives changed, in many cases, and were updated throughout the document. Input data for the Woodstock model was also updated based on GIS refinements. Sometimes analysis methods were also refined, which resulted in changes to the quantification of effects.
3. The method of calculating suitable forest land was refined, including the model for calculating the riparian management area.

1 Purpose and Need

4. Alternative 5 was revised to add a 100-foot buffer around anadromous lakes in order to provide similar protection afforded by the Tongass Timber Reform Act.
5. Alternative descriptions in Chapter 2 were revised to call out additional differences between the alternatives, including the anadromous lake buffer and The Nature Conservancy/Audubon conservation priority areas, and Tongass 77 watersheds under Alternative 5.
6. Cost assumptions used in the Woodstock model were updated and additional cost factors were included as inputs. The model was rerun for each alternative. The FEIS was updated to reflect the revised model outputs.
7. Expanded discussion and analysis and incorporation of additional scientific references and studies were included in many sections of the FEIS.
8. FEIS Appendix B was updated and additional information on modeling and analysis techniques was added.
9. FEIS Appendix D was updated and additional analysis and information was incorporated.
10. FEIS Appendix H was added to provide information on the Alaska Limited Timber Export Policy.
11. FEIS Appendix I was developed, which summarizes the comments received on the DEIS and the Forest Service responses to these comments. Copies of the letters received from agencies and elected officials, including tribal governments, are also included.

Changes between Proposed Forest Plan and Forest Plan

Chapter 1 – Introduction

Purpose

Content was edited to correct clerical errors.

Relationship to Other Documents

Content was edited to correct clerical errors. A footnote was also added to clarify the definition for plan content.

Plan Organization

Plan content regarding the plan monitoring program was updated.

Forest Plan Management Direction

Content was edited to correct clerical errors.

Priority of Direction

Additional content was added to clarify that the direction in Chapter 5 assumes all laws, regulations, and policy pertaining to management of National Forest resources will be followed.

Forest Location and Description

Content was edited to correct clerical errors.

Chapter 2 – Goals and Objectives

Introduction

Content was edited to correct clerical errors.

Forest Desired Conditions

The following was removed from the fifth desired condition: "...considered threatened or endangered in the lower 48 states..." This statement was removed because it does not add any meaning, and the USFWS found wolves to not be warranted for listing under the endangered species act. Other edits to desired conditions included removing the underlining.

Ecosystem Services

No content was edited in this appendix.

Forest-wide Multiple Use Goals and Objectives

Clarifications were made regarding references to Forest-wide goals or objectives in Chapter 5. The goal or objective codes were included.

Clarifications were made to Transportation goals to ensure that access to Southeast Alaska communities is primarily achieved through Federal Highway Administration highways and roads in easements to the State of Alaska. The Forest Service will consider adding access points to facilitate implementation the State of Alaska's Southeast Transportation Plan (SATP) to tie the objective to the transportation plan.

Chapter 3 – Management Prescriptions

Land Use Designations

Land Use Designation Allocations were updated due to the refinements that were made to base GIS coverages in the FEIS.

Some wording that was deleted in the Proposed Forest Plan was restored. In the Proposed Forest Plan, some LUD Standards and Guidelines that repeated Forest Service Directive System wording (Forest Service Handbook [FSH] or Manual [FSM]) or repeated existing direction was deleted because it was not necessary. FSH 1909.12, chapter 20, section 22.1, paragraph 2f states that plan components should not should not repeat existing direction from laws, regulations, or directives. However, public comments expressed concerns about the "breadth" or expansiveness of these changes, giving the appearance of a broad-based amendment. (See FEIS Appendix H, Purpose and Need, Planning Rule sections.) Although these changes are administrative, for clarity's sake, the changes have been restored to the original language in the following LUDs: Wilderness, Research Natural Area, Municipal Watershed, Old-growth Habitat, Remote Recreation, Land Use Designation II, Wild River, Experimental Forest, Modified Landscape, Timber Production, and Minerals Overlay.

1 Purpose and Need

Tables that cross-reference, by resource, the Forest-wide Standards and Guidelines (Chapter 4) were edited based on the restored original language in Chapter 4 (explained below), as well as internally identified corrections that were needed in the section and subsection columns. The titles of the tables that cross-reference, by resource, the plan components (Chapter 5), were edited to reflect the title of Chapter 5 (i.e., plan content). Chapter 5 identifies “direction” for young-growth, renewable energy, and transportation systems corridors, and this word was added for clarity when cross referencing.

Chapter 4 – Standards and Guidelines

The corrections that were made to remove Forest-wide Standards and Guidelines that referenced directives (FSH or FSM), or repeated existing direction have been restored to original language for reasons as described above for Chapter 3 - Management Prescriptions. Although these changes are administrative, for clarity’s sake, the changes have been restored to the original language in the following resource sections: Air, Fish, Lands, Plants, Recreation and Tourism, Soil and Water, Subsistence, Timber, Trails, Transportation, and Wildlife.

Chapter 5 – Plan Content Developed Under the 2012 Planning Rule

Introduction

Content was edited for clarity. A footnote was also added to clarify the definition for plan content. Under the Plan Components section, the definition for a standard was added for clarity.

Changes Made in the 2008 Forest Plan

This section was removed from Chapter 5 and placed in Chapter 1 of the FEIS.

Young Growth Direction

Several clarifications were made to the young-growth plan components based on final TAC recommendations (Forest Plan Appendix B), response to public comments (FEIS Appendix I), as well as internally identified clarifications. The management approach for young growth regarding the internal scientific review on young-growth timber projects that intersect with high value fish watersheds was updated based on final TAC recommendations (Forest Plan Appendix B, and public comments (see Appendix H, Specific Comments). The Scenery standard S-YG-SCENE-02 was removed based on IDT discussions with the TAC in December 2015, and the removal of this recommendation in their final recommendations. (Consult Forest Plan Appendix B.) The management approach for wildlife regarding young-growth harvest in the Old-Growth Habitat LUD to determine if Appendix K criteria could be met, was clarified in response to internal comments.

Renewable Energy Direction

Several clarifications were made to the renewable energy plan components based on public comments (FEIS Appendix H, Fish, Transportation and Utility System LUD , Renewable Energy), as well as internally identified clarifications. A management approach for renewable energy was added based on public comments that expressed concerns that renewable energy plan components

may take priority over environmental protective measures. The fish standard S-RE-FISH-01 was clarified in response to public comments that expressed concerns about potential impacts of renewable energy development on fish.

Transportation Systems Corridors Direction

Clarifications were made to the transportation systems corridors plan components in response to public comments (FEIS Appendix H, Purpose and Need, Planning Rule, Road Density, Transportation and Utility System LUD , Specific Comments), as well as internally identified clarifications. In the introduction to this section, the following sentences was added for clarification and to be similar to what was stated in the renewable energy direction: Timber cut incidental to transportation systems corridors should be managed according to FSH 2409.18, chapter 80, section 84, Timber Settlement. This also helped to clarify management approach for timber. Lands standard S-TSC-LAND-02 was added in response to public comments (FEIS Appendix H, Transportation and Utility System LUD , Specific Comments), and this was also an internally identified oversight/correction, and was added to be similar to renewable energy standard S-RE-TRAN-01. Soil and Water standard S-TSC-SW-01 was changed to guideline G-TSC-SW-01 based on an internally identified correction. As a standard, this constraint would have required measuring percent of vegetation cover required to maintain soil cover. More flexibility is desired when implementing this as a guideline.

Forest-wide Plan Components

Forest Desired Conditions (Chapter 2)

The following sentence was removed from desired condition DC-04 based on an internally identified clarification: “Other management activities should not conflict with transportation operations.” Although the intent of this sentence was written to ensure that if a transportation systems corridor was likely, the Forest Service should not authorize other activities that would conflict, it was interpreted as if nothing should get in the way of a road. For this reason it was removed.

Forest-wide Multiple-use Goals and Objectives (Chapter 2)

Clarifications were made to timber objective O-TIM-01 in response to public comments (FEIS Appendix H, Purpose and Need, Specific Comments), as well as internally identified clarifications. Timber objective O-TIM-02 was rewritten in response to public comments (FEIS Appendix H, Specific Comments).

Forest-wide Standards and Guidelines (Chapter 4)

Beach and Estuary Fringe (BEACH)

The forest-wide standard S-BEACH-01 was clarified in response to public comment (FEIS Appendix H, Specific Comments), as well as internally identified clarifications.

Timber (TIM)

A forest-wide timber standard S-TIM-01 was added based on an internally identified comment. A plan for a national forest that intends to sell timber must identify the sustained yield limit (SYL) as directed by FSH 1909.12, chapter 60, section 64.31.

1 Purpose and Need

Chapter 6 – Implementation

Content in this chapter was edited to remove references to Appendix J and to the Tongass Strategic Plan (*Strategy for Management and Priority Setting – FY 2013 thru FY 2017*). This was an oversight in the Proposed Forest Plan. The Tongass National Forest has not updated its strategic plan. Therefore, language was added stating that the Forest Plan was consistent with several of the goals and objectives in the USDA Forest Service Strategic Plan: FY 2015-2020. The Decision Document section was removed because it repeated requirements of the following documents: 36 CFR 219.14 and FSH 1909.12, chapter 20, section 21.4. Both of these documents may change over time. It would be better for employees to check the CFR and Agency directives rather than refer to the plan content that may become out-of-date.

Chapter 7 – Glossary

This chapter was updated to remove glossary terms that had “strike throughs” in the Proposed Forest Plan. Some terms were further clarified. Additional terms were added for clarity.

Appendices

Appendix A – Timber Resource Land Suitability

Table A-1 was updated based on GIS refinements. Content was also updated based on final TAC recommendations (Forest Plan Appendix B) and in response to public comments (FEIS Appendix I, Specific Comments). Two tables were added to represent the following: 1) Estimated Vegetation Management Practices (Annual Average per Decade), and 2) Average volume outputs for the 1st and 2nd decades for Tongass National Forest planned timber sale program.

Appendix B – Tongass Advisory Committee Recommendations

Content in this appendix was replaced in its entirety by the TAC Final Recommendations (December 2015) as reflected in the Forest Plan.

Appendix C – Watershed Analysis

Content in this appendix was edited to correct clerical errors.

Appendix D – Riparian Management Area Standards and Guidelines

Content in this appendix was edited to correct clerical errors.

Appendix E – Communication Sites

Content in this appendix was edited to correct clerical errors.

Appendix F – Visual Priority Routes and Use Areas

Content in this appendix was edited to correct clerical errors.

Appendix G – Log Transfer Facility Guidelines

No content was edited in this appendix.

Appendix H – Karst and Cave Resources

No content was edited in this appendix.

Appendix I – ROS Class Standards and Guidelines

Content in this appendix was edited to correct clerical errors.

Appendix J – Special Land Designations or Classifications

Content in this appendix was edited to correct clerical errors. The Red River Research Natural Area was added as this was an oversight in the Proposed Forest Plan.

Appendix K – Old-growth Habitat Reserve Modification Procedures

No changes were made to this appendix.

Appendix L – Special Interest Areas and Experimental Forests

This appendix is now Appendix J. Additionally, the contents in this appendix were updated to reflect changes made to special interest areas and experimental forests. Land descriptions previously found in Chapter 3 were moved to this appendix to consolidate similar content and eliminate redundancy.

Organization of the Document

Organization of EIS and Associated Documents

This FEIS is organized into several chapters (Volume I) and a number of appendices (Volume II). Chapter 1, “Purpose and Need,” describes the reasons for proposing and completing a plan amendment. Chapter 2, “Alternatives,” describes the process used to develop alternatives, discusses alternatives not considered in detail, and describes the alternatives considered in detail. Finally, a comparison of these alternatives based on the key elements of the alternatives, and the significant issues is presented.

The discussions of the “Affected Environment” and the “Environmental Consequences” are combined in Chapter 3, “Environment and Effects.” This is done so the environmental consequences (effects or impacts) of the alternatives on forest resources, and the background information needed to understand these consequences, are discussed together for each resource. The focus is on effects that are related to the significant issues. Chapter 3 also includes a brief description of the physical, biological and socioeconomic settings of the Tongass National Forest.

1 Purpose and Need

The FEIS also includes a list of preparers; a list of agencies, organizations, and persons receiving copies of the document; a bibliography; a glossary; and an index (Chapters 4 through 8). A complete Forest Plan suitability map is provided for each of the alternatives in the Map Packet that accompanies the FEIS hard copy and CD.

Appendices to the FEIS are contained in a separate volume (FEIS Volume II). They provide more background on planning actions, certain resources and analyses, modeling and analysis techniques, and past and reasonably foreseeable projects.

In addition to the FEIS, a separate document, called the Tongass Land and Resource Management Plan (Forest Plan), has been published with this FEIS, to represent the Forest Plan under the Preferred Alternative (Alternative 5).

Additional information, maps, and published documents for the Tongass Forest Plan Amendment are contained in the Planning Record. Key documents and records are also available on the Forest Plan Amendment Web site (<http://www.fs.usda.gov/goto/R10/Tongass/PlanAmend>). These can also be accessed through the main Tongass Web site (www.fs.fed.us/r10/tongass). The complete Planning Record is on file at the Supervisor's Office in Ketchikan, Alaska.

CHAPTER 2
ALTERNATIVES

Alternatives

Introduction

This chapter describes and compares the alternatives considered for amending the 2008 Tongass Land and Resource Management Plan (Forest Plan). The Forest Service developed five alternatives for detailed analysis, including the no action and proposed action alternatives, in response to the significant issues. Alternatives are presented in comparative form, sharply defining the differences between each alternative and providing a basis for the rationale for eventual selection of an alternative in a decision. Chapter 2 is divided into four parts:

1. A discussion of how alternatives were developed and what constitutes an alternative;
2. A discussion of alternatives considered but eliminated from detailed study;
3. A full description of the alternatives that are considered in detail; and
4. A comparison of the alternatives considered in detail.

Color maps showing Land Use Designations (LUDs) and lands suitable for timber production are included in the *Map Folder* of the CD version of the Final Environmental Impact Statement (FEIS) and in the *Map Packet* accompanying the hard copy version. These maps are also available on the Tongass Planning Web site at www.fs.usda.gov/main/tongass/landmanagement/planning.

Alternative Development Process

What a Forest Plan Includes

Land management planning may be compared to city, county, or borough zoning. Just as areas in a community are zoned as commercial (allowing business uses), industrial (allowing factories), or residential (allowing only homes, schools, etc.), a National Forest is zoned to allow, or not allow, various uses and activities. Land management (forest plan) zoning is done through the use of land use designations (LUDs) that are applied only to National Forest System (NFS) lands on that NFS unit.

Land Use Designations specify ways of managing an area of land and the resources it contains. LUDs may emphasize certain resources (such as remote recreation or old-growth wildlife habitat) or combinations of resources (such as providing for scenic quality in combination with timber harvesting). Each LUD has a detailed *management prescription*, which includes the following elements of Forest Plan management direction: Land Use Designation Standards and Guidelines, Forest-wide Standards and Guidelines, and Plan Components¹.

Each management prescription specifies what is to be considered for site-specific project proposals, and under what conditions. Management prescriptions apply to NFS lands.

LUDs are assigned, or allocated, to specified areas of land. Under any one alternative, a given area of land will generally have only one LUD assigned to it. However, the Minerals LUD is an overlapping land allocation and can apply to a

¹ Plan components are desired conditions, goals, objectives, suitability of lands, standards, and guidelines as defined in the 2012 Planning Rule.

2 Alternatives

given piece of ground when and if a minerals Plan of Operation is approved on that piece of ground. In some other cases, two LUDs may apply to the same area, such as a Wild River LUD within a Wilderness LUD. In these cases, the more restrictive management prescription always applies. Some LUDs, such as Wilderness and LUD II, are congressionally designated and represent permanent allocations.

Forest resource use opportunities, such as timber harvesting or recreation, can be made available in different amounts. What lands to make available for timber harvest or how much of a particular kind of recreation opportunity to provide are questions that land management planning must also address. It is not always possible to provide all resource use opportunities in the amounts desired by everyone. The National Forest Management Act mandates the Forest Service to provide for multiple use and the sustained yield of the products and services obtained from the Forest.

The alternatives themselves are designed around a framework that establishes how much emphasis is placed on each of the significant issues or other issues. The FEIS alternatives are directly related to the issues described in Chapter 1. How alternatives were developed to address the issues is discussed below. The *Comparison of Alternatives* section at the end of this chapter also discusses ways in which the alternatives address the issues.

How Alternatives are Described

Each alternative for this FEIS is presented in the same format. This includes the following components:

- **Framework and Expected Outputs.** The basis for alternative design and outputs that are expected in the future under each alternative.
- **Land Use Designations.** The acreages allocated to each Land Use Designation.
- **Management Prescriptions.** Changes to the Forest Plan management direction.
- **Selected Outputs and Measures.** A summary of predicted outputs and measures associated with each alternative.

Land Use Designations

The alternatives are developed using the LUD allocations defined in the 2008 Tongass Forest Plan as the base. This base represents the current Tongass Forest Plan based on decisions made in the 2008 Record of Decision (ROD) and subsequent Forest Plan Amendments made for projects since 2008, as well as land adjustments in the National Defense Authorization Act for Fiscal Year 2015.²

The LUD allocations of the 2008 Tongass Forest Plan define the no action alternative (Alternative 1). The LUD allocations for the action alternatives are similar to the no action, but incorporate some adjustments. The management prescriptions for each specific LUD under the Alternative 1 are the same as under the 2008 Forest Plan (see Chapter 3 of the current Forest Plan, USDA Forest Service 2008a).

How the 2012 Planning Rule applies

The proposed plan amendment adds provisions to and modifies provisions of the 2008 Forest Plan. As explained in Chapter 6 of the amended plan, the 2012

² Public law No. 113-291, December 19, 2014, 128 Stat. 3729, section 3720(e)(4).

Planning Rule requirements for project consistency with plan components apply only to additions and modifications (36 Code of Federal Regulations [CFR] 219.15(d)).

This proposed amendment has met the applicable procedural requirements of the 2012 Planning Rule. That is, the amendment meets section 219.2(b)(3), to consider the best scientific information (219.3), to provide opportunities for public participation and give public notice (219.4, 219.16), to set out direction in the form of plan components (219.7(e)), to amend plans in accordance with a specific process (219.13), to include specific information in a decision document (219.14), to state whether or not projects authorized at the time of amendment may continue without change (219.15), and to provide an objection opportunity (parts 219.50-219.62).

The responsible official has determined that for this amendment only a part of the substantive provisions of 36 CFR 219.11 apply. The proposed plan amendment:

1. Identifies specific young-growth stands as suitable for timber production using the provisions of 36 CFR 219.11(a). Such stands include young growth in the beach and estuary fringe, riparian management areas, and in the Old-Growth Habitat LUD.
2. Includes plan components specific to guide young-growth harvest for timber production and other multiple-use purposes using the provision of 36 CFR 219.11(b).
3. Includes plan components specific to guide young-growth harvest for purposes other than timber production including improving or maintaining fish and wildlife habitat using the provision of 36 CFR 219.11(c).
4. Includes plan components specific to guide young-growth harvest to constrain timber harvest consistent with protection of soils, watershed, fish, wildlife, and scenic resources using the provisions of 36 CFR 219.11(d). The plan amendment does not change the plan direction for old-growth timber harvest.
5. Includes a standard for young-growth harvest before the culmination of mean annual increment to recognize the acreage limitation of subsection (e)(4)(B) of Public Law 113–291, Sec. 3002, subsection (e)(4)(A).

Some people may question this determination of limiting the substantial applicable requirements to section 219.11. However, the responsible official has the discretion to determine whether and how to amend the plan. The responsible official also has discretion to determine the specific changes to propose and approve. The rule provides that “[p]lan amendments may be broad or narrow, depending on the need for change,” and that “[t]he responsible official has the discretion to determine whether and how to amend the plan” (36 CFR 219.13(a)). The rule reinforces the principle by providing that the rule “does not compel a change to any existing plan” (36 CFR 219.17 (c)).

Note that the first paragraph of 36 CFR 219.11 states that a plan must meet timber-related requirements “while meeting the requirements of §§ 219.8 through 219.10,” and it has been argued that an amendment applying either of these sections would require a transformation of a plan to meet all the substantive requirements of the rule. Clearly, this phrase is intended for new or revised plans; otherwise, a simple, narrow proposal to change a plan developed under the 1982 rule would be impossible.

Future Project Consistency with the Amended Plan

Project consistency with the amended plan is complex. Plan direction that is unchanged by this amendment must be consistent in a different way than new plan direction added by this amendment.

2 Alternatives

Plan direction in the 2008 Forest Plan (e.g., standards and guidelines) was developed under the 1982 Planning Rule (47 Federal Register [FR] 43026). The 1982 Planning Rule did not provide specific criteria to evaluate consistency of projects or activities with the plan. Forest Service policy was that consistency could only be determined with respect to standards and guidelines, or just standards because an individual project alone could almost never achieve objectives and desired conditions (77 FR 21241, April 9, 2012)

The 2008 Forest Plan defines a guideline as “a preferred or advisable course of action or level of attainment designed to promote achievement of goals and objectives.” Standards are mandatory and guidelines are discretionary in the 2008 Forest Plan.

The 2012 Planning Rule includes specific requirements for plan components (36 CFR 219 parts 219.8–219.11) and definitions for plan components are rigid. The 2012 Planning Rule defines a guideline as a constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Under the 2012 Planning Rule, standards and guidelines are both mandatory constraints and projects and activities must be consistent with the applicable standards and guidelines. The 2012 Planning Rule also includes consistency provisions at 36 CFR 219.15(d) that apply only to plan components developed under the 2012 Planning Rule. Therefore, any substantial changes to plan direction must be consistent with the 2012 Planning Rule.

To avoid confusion, most changes to plan direction are based on the 2012 Planning Rule and are written as plan components and are found in Chapter 5 of the Forest Plan. The plan direction in the 2008 Forest Plan that is not changed, for example Wilderness standards and guidelines, will retain standards (*mandatory*) and guidelines (*optional*) as defined by the 1982 Planning Rule.

Alternative Development

The proposed action (Alternative 2) was developed to maximize or emphasize the percentage of the volume coming from young growth as early as possible, while minimizing any potential effects on the old-growth conservation strategy and other resources, and to make the development of renewable energy resources more permissible in the plan area (see Chapter 1 Purpose and Need). Alternatives to the proposed action were developed in response to the significant issues (see Chapter 1, Issues). Ten alternatives were considered as part of the alternative development process. These include alternatives recommended in scoping comments, other comments, and developed internally by the plan amendment interdisciplinary team (IDT). Of these, five alternatives were eliminated from detailed study and are discussed in the following section (*Alternatives Eliminated from Detailed Study*). Five alternatives (including the proposed action) are considered in detail in this FEIS. They are designed to provide a range of reasonable ways to address the Purpose and Need.

Basic tools used in the development of the alternatives include recent timber demand projections (Pacific Northwest Research Station 2016), Tongass GIS databases, and the existing inventory of roadless lands (based on the 2001 Roadless Rule). Maintaining the integrity of the old-growth conservation strategy was also a major consideration in alternative development. Alternative proposals from other agencies or non-governmental organizations were considered along with alternatives developed internally by the plan amendment IDT.

Alternatives Eliminated from Detailed Study

Develop an Amendment using the 1982 Planning Rule Provisions

The 2012 Planning Rule gave the discretion to the Agency to initiate a plan amendment using the 1982 Planning Rule provisions for 3 years after May 9, 2012 (36 CFR 219.17(b)(2)). The Forest Service decided to use the 2012 Planning Rule provisions to amend the Forest Plan since that will best segue into the next revision of the plan. Since the scope of this amendment is narrow, it is less complicated to address and compare alternatives in a plan amendment under one set of regulations. Having one or more alternatives that used the 1982 Planning Rule provisions would make comparing these alternatives to the alternatives under the 2012 Planning Rule provisions more difficult since the definitions of plan components and their intent have changed from the 1982 Planning Rule. Most notably how standards and guidelines are defined and used (see discussion above in Future Project Consistency with the Amended Plan section). Therefore, any alternative that proposed using the 1982 Planning Rule provisions was removed from detailed consideration. Alternative 1 (no action) represents current management which follows the 1982 Planning Rule provisions in their entirety.

Alaska Mental Health Trust Land Exchange

Comments suggested that the proposed Alaska Mental Health Trust Land Exchange be included as an action common to all alternatives in the plan amendment. In determining whether the proposed land exchange fits within the scope of the EIS, the Forest Service considered three types of actions: connected, similar, and cumulative actions (40 CFR 1508.25).

The proposed land exchange is not a connected action (i.e., an action that is “closely related” to the proposal and alternatives, and provides a basis for evaluating their environmental consequences together). Connected actions automatically trigger other actions, they cannot or will not proceed unless other actions have been taken previously or simultaneously, or they are interdependent parts of a larger action and depend on the larger action for their justification.

The proposed land exchange is not similar to the action being proposed in this plan amendment. For these reasons, the proposed Alaska Mental Health Trust Land Exchange is not analyzed in detail in an alternative.

In terms of being a cumulative action, when viewed with the proposed actions for the plan amendment, the proposed Alaska Mental Health Trust Land Exchange is considered a reasonably foreseeable action and, therefore, is discussed and considered in this EIS.

State of Alaska Alternative

The State of Alaska proposed an alternative which was modeled and analyzed intensively before removing it from detailed consideration. Similar to Alternative 1 (no action), no commercial harvest would be allowed in non-development LUDs, Beach and Estuary Fringe, Riparian Management Areas (RMAs), or high-vulnerability karst. In addition, this alternative would follow the timber sale program adaptive management strategy.

2 Alternatives

This alternative differs from Alternative 1 in that the Timber Production, Modified Landscape, and Scenic Viewshed LUDs would be consolidated into a single LUD and labeled “Development LUD.” Additionally, timber harvest and road construction would be allowed in 2001 Roadless Rule inventoried roadless areas.

Forest Plan direction for scenery (scenic integrity objectives [SIOs]) would not be established for areas within the Development LUD so that harvest could occur without specific constraints (e.g., standards and guidelines) to minimize scenery and wildlife. However, this alternative would include a mitigating factor for scenery and wildlife. The factor limits the amount of area in a large watershed that can be young-growth forest; the total acreage in even-aged stands younger than 150 years would be limited to one-third of the total acreage of forest land within each Value Comparison Unit (VCU). The elimination of the requirement to harvest no earlier than at 95 percent of culmination of mean annual increment (CMAI) (see Alternative 1 description) would not be incorporated into this alternative.

This alternative was modeled using Woodstock (Walters 1993), a forest management linear programming modeling system that accommodates binary search and Monte Carlo simulation, in order to determine how quickly this alternative could transition to a harvest level dominated by young growth (see Appendix B). Modeling results indicated that transitioning to a point where about 41 million board feet (MMBF) of young growth and 5 MMBF of old growth could be harvested each year would require just over 30 years. The amount of young-growth timber on lands suitable for timber production in this alternative would be slightly less than in Alternative 1. Removal of the scenery standards would increase young-growth harvest in the early years. Not eliminating the CMAI requirement would decrease young-growth harvest, relative to Alternative 1, which would allow elimination of the CMAI requirement.

This alternative does not meet the purpose and need because it would not transition in 10 or 15 years and, in fact, would not increase the transition speed, relative to Alternative 1. Therefore, this alternative was not carried forward for detailed analysis in the EIS.

Immediate End to Old-growth Logging

Several scoping comments suggested an alternative that transitions away from old-growth management and into young-growth management immediately. Such an abrupt change would result in substantial adverse effects on the timber industry of Southeast Alaska for two reasons:

1. the abrupt change would make it difficult or impossible for mills to quickly re-tool so they could process young growth; and
2. the availability of economically viable young growth is currently limited and, as a result, the Forest Service would likely offer substantially less timber volume than the projected demand (Table 2-1).

Therefore, this alternative was eliminated from detailed analysis because it does not meet the purpose and need. Specifically, ending old-growth logging immediately would not meet the need for maintaining a viable timber industry that provides jobs and opportunities for Southeast Alaska residents.

Transition to Limited Young-Growth Logging in Five Years

Some comments requested a 5-year transition. In a detailed proposal, a constraint was added that the total initial volume would be 35 MMBF per year and the old-growth portion of that would steadily decrease over five years to a final volume of 3.5 MMBF or less per year. The goal is to increase young-growth volume during this 5-year period to maintain the total volume at 35 MMBF per year. Total volume is not to exceed 35 MMBF per year after the transition and is expected to be made up of 31.5 MMBF of young growth and 3.5 MMBF of old growth. This alternative was modeled using Woodstock (Walters 1993), a forest management linear programming modeling system that accommodates binary search and Monte Carlo simulation, and extensively analyzed (Appendix B).

To obtain this volume, the alternative would allow old-growth harvest only in Timber Sale Program Adaptive Management Strategy Phase I lands of the 2008 Forest Plan and outside of inventoried roadless areas. Similarly, young-growth harvest would also be allowed only in Phase I lands and only in Development LUDs outside of inventoried roadless areas; no harvest would be permitted in Beach and Estuary Fringe, RMAs, or in any lands identified as low, medium, or high vulnerability karst. This alternative would allow harvest of stands at ages younger than 95 percent of CMAI. In order to obtain sufficient young-growth volume to transition in five years, this alternative harvests stands as young as 55 years of age. As a result, a large number of trees in these stands produce only one log per tree, resulting in higher logging costs and smaller wood producing less revenue. This alternative also prioritizes the young-growth stands that may be harvested to achieve sufficient volume to maintain 35 MMBF per year.

This alternative does not meet the purpose and need for these reasons:

- The phase-down of old growth would result in too rapid of a transition to allow the timber industry time to retool. The purpose and need for this amendment, which relies on the Secretary's July 2013 memo, identifies a 10- to 15-year period for industry to adapt.
- Further, this alternative would not allow the Forest Service sufficient time to offer enough economic old-growth and young-growth volume during the next 10 or more years to maintain the current timber industry (Table 2-1), even if it could adapt that rapidly.
- This alternative is the most restrictive of the alternatives considered in terms of which young-growth stands may be harvested, and even without these restrictions, there is insufficient economic young-growth volume available to produce 31.5 MMBF per year by the end of Year 5.
- Harvesting 55-year-old trees does not appear to be practical or economic in Southeast Alaska. The market for large volumes of young-growth logs has not yet been demonstrated and this is especially true for small logs from 55-year-old stands.
- Recent experience and modeling indicates that the majority of trees in 55-year-old stands will produce only one log per tree. This results in higher logging costs and substantially lower revenues per acre (smaller diameter logs and fewer logs per acre).
- Stands producing only one log per tree, would result in much higher levels of slash (due to the fact that there would be many logs left behind that are almost long enough, but not quite). These slash levels may produce dense slash on

2 Alternatives

the forest floor with negative effects on regeneration, wildlife movement and forage, and/or recreation and scenery.

- Based on current demand projections, a total of 35 MMBF is insufficient to maintain the current industry (Table 2-1).

Therefore, this alternative was eliminated from detailed analysis because it does not meet the purpose and need.

In an attempt to modify this alternative so that it would be economic and meet the purpose and need, the interdisciplinary team changed its volume requirements to be the same as the alternatives analyzed in detail (i.e., 46 MMBF per year total volume, emphasizing young growth as much as possible, with old growth declining to a maximum of 5 MMBF per year). In addition, the minimum stand ages for harvest were changed to 65 years for high site and 75 years for lower site stands.

After modeling, it was observed that the volumes produced by this modified alternative were similar to the volumes produced by Alternative 4 (see Alternatives Considered in Detail section). Alternative 4 is very similar to this modified alternative in terms of its framework; the primary difference is that Alternative 4 allows commercial thinning in the Beach and Estuary Fringe. This small difference was judged to be insufficient to justify inclusion of an additional alternative so the alternative was eliminated from detailed evaluation.

Alternatives Considered in Detail

Table 2-1 displays the projected timber harvest under a baseline and three additional demand scenarios developed for the Tongass National Forest by Daniels et al. (2016). Under these demand scenarios the harvest projection would be 42 MMBF in 2016 and would increase under all scenarios to maximums ranging from 46 to 76 by 2030. The scenarios are described in detail in the Economic and Social Environment section of this EIS (see Tables 3.22-8 to 3.22-10 and Figures 3.22-7 and 3.22-8 and associated text).

Table 2-1
Projected Timber Harvest on the Tongass under the Baseline Model and Scenarios 1, 2, and 3 (MMBF)

| Year | Baseline | Scenario One | Scenario Two | Scenario Three |
|------|----------|--------------|--------------|----------------|
| 2015 | 40.9 | 40.9 | 40.9 | 40.8 |
| 2016 | 41.6 | 41.6 | 41.6 | 41.6 |
| 2017 | 42.3 | 42.3 | 43.4 | 42.5 |
| 2018 | 43.1 | 43.1 | 46.3 | 43.3 |
| 2019 | 43.8 | 43.8 | 49.2 | 44.1 |
| 2020 | 44.5 | 44.5 | 52.1 | 45.0 |
| 2021 | 45.3 | 45.3 | 55.1 | 45.8 |
| 2022 | 46.0 | 46.0 | 58.0 | 46.7 |
| 2023 | 46.7 | 46.7 | 60.9 | 47.5 |
| 2024 | 47.5 | 47.5 | 63.8 | 48.4 |
| 2025 | 48.2 | 44.0 | 63.0 | 45.0 |
| 2026 | 48.9 | 44.5 | 65.7 | 45.6 |
| 2027 | 49.7 | 45.0 | 68.4 | 46.2 |
| 2028 | 50.4 | 45.5 | 71.0 | 46.8 |
| 2029 | 51.1 | 45.9 | 73.7 | 47.4 |
| 2030 | 51.9 | 46.4 | 76.4 | 47.9 |

In past Forest Plan revisions and amendments, varying demand scenarios were used to develop alternatives, including scenarios that allowed for growth and expansion of the current industry. In this amendment, the purpose and need identifies the need to expedite the transition away from old-growth timber harvesting and towards a forest products industry that uses predominantly second-growth – or young-growth – forests. Therefore, examination of alternatives at levels above projected demand is not warranted because these would require expansion of old-growth harvest levels, at least during the next 10 to 15 years. However, over the longer term, expansion of the timber industry is an option as more and more young growth becomes economic to harvest.

Therefore, Alternatives 1 through 5 were designed to correspond with current demand projections and produce a projected timber sale quantity (PTSQ)³ of about 46 MMBF per year during the next 15 years, with old growth making up a decreasing percentage of the total. Old-growth volume would continue to decrease until it reaches about 5 MMBF per year and it would remain at that level, to support limited small timber operators. As more young growth becomes economic to harvest, the PTSQ would be allowed to increase. In no case, would the harvest level be allowed to exceed the sustained yield limit (SYL) (see Glossary and the *Timber* section of this EIS).

Even though Alternative 1 (no action) represents current management, it is modeled to follow the same volume production pattern. The July 2013 Secretary's memo identified a need to change direction in the 2008 Forest Plan (see Purpose and Need in Chapter 1) and without this amendment, the Tongass would be transitioning toward young-growth and away from old-growth harvest.

Provisions Common to all Alternatives

Under all alternatives, there is flexibility in terms of when young-growth stands may be harvested. Under Public Law 113-291, up to 15,000 acres of young growth may be harvested from 2016 through 2025, in stands less than 95 percent of CMAI. This CMAI flexibility may continue after 2025 (with annual maximums); however, the total acreage harvested at less than 95 percent of CMAI cannot exceed 50,000. In addition, young-growth sales under this provision may not be offered unless they represent non-deficit sales.⁴ There is flexibility in NFMA to allow a continuation of harvesting at younger ages beyond 2025.

LUD Changes Common to the Action Alternatives

The LUD allocations for each alternative are described in the following alternative-specific descriptions. The LUDs for Alternative 1 (no action) are the same as the LUDs of the current Forest Plan. The LUDs of the action alternatives are different from Alternative 1 LUDs because of Old-growth Habitat LUD changes. Under Public Law 113-291, approximately 70,000 acres of NFS land were conveyed to Sealaska Corporation and an additional 152,000 acres were converted to LUD II. As a result of the land conveyance, old-growth reserves (OGRs) in 16 VCUs were affected. Beginning in February 2015, an interagency review team of biologists worked to develop a biologically preferred option for modifying these OGRs that meets Forest Plan Appendix K criteria and to document why other proposals are not recommended. In September 2015, the interagency review team produced a biologically preferred option (see Appendix E), which was incorporated into each of

³ PTSQ is a new term defined in FSH 1909.12, Chapter 60. The term allowable sale quantity (ASQ) is not used with the 2012 planning rule.

⁴ Any sale of trees pursuant to the authority granted under subparagraph (A) shall not— (iii) be advertised if the indicated rate is deficit (defined as the value of the timber is not sufficient to cover all logging and stumpage costs and provide a normal profit and risk allowance under the appraisal process of the Forest Service) when appraised using a residual value appraisal.

2 Alternatives

the action alternatives. Therefore, the Old-growth Habitat LUD acres vary between Alternative 1 and the action alternatives (Alternatives 2, 3, 4, and 5).

In addition, the Transportation and Utility Systems LUD would be removed under Alternatives 2, 3, 4, and 5. The LUD management prescription would be replaced by plan components under Alternatives 2, 3, 4, and 5 and would provide management direction for renewable energy and transportation systems corridors (see Chapter 5 in the proposed Forest Plan).

Forest Plan Direction Common to the Action Alternatives

Under Alternatives 2, 3, 4, and 5, Forest Plan direction in Chapter 5 that is common is presented in Appendix F and includes:

Young-growth Direction

(Desired Conditions) DC-YG-01, DC-YG-02, DC-YG-03, DC-YG-05; DC-YG-KC-01, DC-YG-RIP-01, DC-YG-SW-01

(Suitability of Lands) SUIT-YG-BEACH-01

(Objectives) O-YG-01, O-YG-02, O-YG-03

(Goals) GL-YG-02, GL-YG-03, GL-YG-04, GL-YG-05

(Standards) S-YG-FAC-01, S-YG-LAND-01, S-YG-REC-01, S-YG-SW-01

Management Approaches for Karst and Cave Resources, Recreation and Tourism, Soil and Water, and Timber

Renewable Energy Direction

All plan direction, except S-RE-SCENE-01 would not apply to Alternative 2. Under Alternative 2, the following standard would be applied:

S-RE-SCENE-01: Apply the forest-wide standards and guidelines of the Very Low Scenic Integrity Objective (SIO) to renewable energy sites.

All Management Approaches - Renewable Energy, Scenery, and Wildlife

Transportation Systems Corridors Direction

All plan direction.

All Management Approaches - Fish, Forest Health, Recreation and Tourism, Scenery, Timber, and Wildlife

Forest-wide Direction

All plan direction.

Alternative 1 (No Action)

Framework and Expected Outputs

The no action alternative represents current management direction (2008 Forest Plan) and includes the application of the Roadless Area Conservation Rule (2001 Roadless Rule) (36 CFR 294 Subpart B). As noted above, it also follows the direction provided in the July 2013 Secretary's memo, which identified a need to transition away from old-growth harvest. Under this alternative, timber harvest would follow the existing timber sale program adaptive management strategy (USDA Forest Service 2008c). A color map showing the phases in this strategy is provided

along with the FEIS. Timber harvest is currently restricted to areas within Phase 1 of the strategy and timber harvest would have to reach 100 MMBF for two years before harvest could occur in Phase 2 areas. Timber management would be restricted to the development LUDs and would remain outside of inventoried roadless areas. No commercial harvest would be allowed in beach and estuary fringe or RMAs. All other 2008 Forest Plan management direction would be followed.

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young-growth. However, beyond that, the minimum harvest age would return to 95 percent of CMAI except under exemptions provided by the NFMA.

Alternative 1 would result in the most old-growth harvest among the alternatives over both 25-year and 100-year periods. Table 2-2 summarizes the key elements of Alternative 1 and Table 2-3 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1). It would emphasize young growth and minimize old growth while maintaining 46 MMBF per year. As such, it is expected to produce about 8 MMBF of young growth and 38 MMBF of old growth per year during the first 10 years (Figure 2-1). From Year 10 through Year 25, it is projected to produce about 15 MMBF of young growth and 31 MMBF of old growth per year. At about Year 32, the young-growth harvest is expected to increase to about 41 MMBF and the old-growth harvest would decrease to 5 MMBF per year. The young-growth harvest is expected to continue to increase at a rapid rate after Year 32 and is expected to reach an upper limit of about 133 MMBF in about Year 38. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

Over 80 percent of the Forest would remain in a natural state including inventoried roadless areas. Old-growth conditions would prevail on lands within these roadless areas. Old-growth harvest would continue at a declining rate, compared with current conditions, while young growth harvest would increase as young-growth stands mature and become increasingly economic. A predictable and sustainable supply of forest products would contribute to a limited integrated timber industry in Southeast Alaska for the foreseeable future. A mixture of old growth, recently harvested areas, and various ages of young growth occurs within roaded areas. Recreation, tourism, and subsistence opportunities emphasize natural setting types, although roaded opportunities expand slightly from current conditions due to construction of additional roads outside of inventoried roadless areas.

2 Alternatives

**Table 2-2
Key Elements of Alternative 1**

| |
|---|
| Old-growth Harvest |
| <ul style="list-style-type: none"> Follows 2008 Forest Plan Timber Sale Program Adaptive Management Strategy for Phases 1, 2, and 3 No harvest allowed in Inventoried Roadless Areas |
| Young-growth Harvest |
| <ul style="list-style-type: none"> Allows harvest in Development LUDs, including Clearcutting Allows no harvest in Natural Setting LUDs Allows no harvest in Inventoried Roadless Areas Allows no commercial harvest in Beach and Estuary Fringe or in RMAs There is flexibility to harvest 50,000 acres at a younger age than 95% of CMAI per Public Law 113-291 Scenery standards (SIOs) would not be modified for young growth |
| LUD Changes |
| <ul style="list-style-type: none"> None |
| Other New Plan Direction (Forest Plan Chapter 5) |
| <ul style="list-style-type: none"> None |

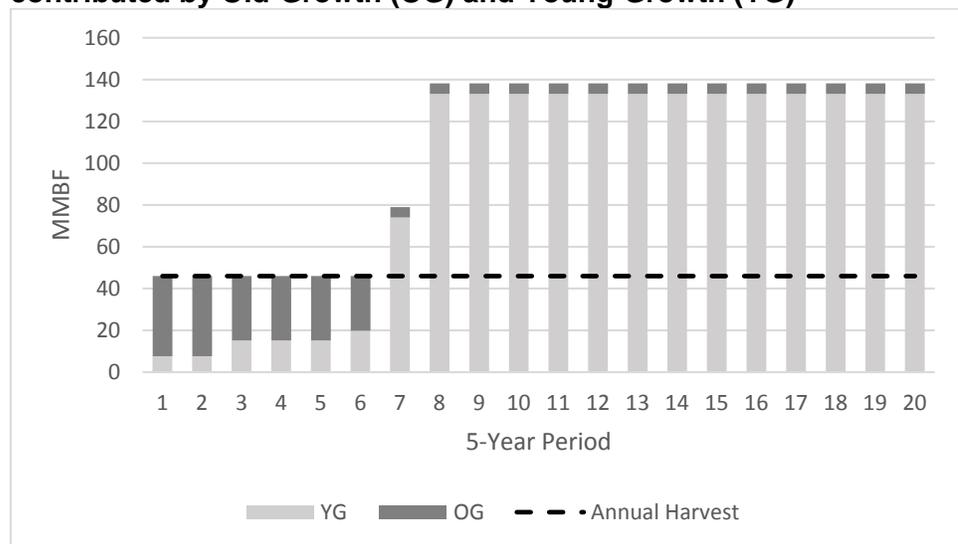
Land Use Designations

If Alternative 1 is selected, the LUD allocation acres and the suitable acres shown in Table 2-3 would result. Figure 2-2 shows the distribution of LUDs across the Tongass under Alternative 1 according to four LUD groups (see Table 2-3 for definitions of the LUD groups). Color maps showing LUDs, the Timber Sale Program Adaptive Management Strategy, and lands suitable for timber production under Alternative 1 are included in the *Map Folder* of the CD version of the FEIS and in the *Map Packet* accompanying the FEIS hard copy.

Management Prescriptions

Under Alternative 1, the management prescriptions identified in the 2008 Forest Plan would continue to be in effect. These represent the 2008 Land and Resource Management Plan (USDA Forest Service 2008a).

**Figure 2-1
Projected Timber Sale Quantity (average annual harvest) over 100 Years in 5-Year Periods under Alternative 1 showing Volume (MMBF) contributed by Old-Growth (OG) and Young-Growth (YG)**



Selected Outputs

Table 2-4 displays selected outputs and other measures associated with this alternative.

**Table 2-3
Land Use Designation, Suitable, and Projected Harvest Acres for Alternative 1¹**

| Land Use Designation Group | Acres Allocated |
|--|-------------------------|
| Wilderness LUD Group ² | 5,922,131 |
| Natural Setting LUD Group – No YG Harvest ³ | 7,464,989 |
| Natural Setting LUD Group – With YG Harvest ⁴ | 0 |
| Development LUD Group ⁵ | 3,367,736 |
| Total National Forest System lands | 16,755,685 ⁶ |
| Suitable Acres | Acres Allocated |
| Suitable Acres-Old Growth | 329,615 |
| Suitable Acres-Young Growth | 263,904 |
| Projected Harvest | Acres Allocated |
| Projected Harvest Acres during first 25 Years | |
| Old Growth | 38,527 |
| Young Growth | 9,669 |
| Projected Harvest Acres during first 100 Years | |
| Old Growth | 62,851 |
| Young Growth | 209,882 |

¹ When more than one LUD is applied to the same area, such as a Special Interest Area within Wilderness, only the acreage of the more restrictive LUD is included. The acreage for the Minerals LUD would be 249,570; these acres are not included in the table because the Minerals LUD is an overlay. No acreages have been calculated for the Transportation and Utility Systems LUD because it is a series of corridors with undefined width and imprecise locations. Totals may not exactly equal the sum of individual entries due to rounding.

² Includes Wilderness and National Monument LUDs.

³ Includes all Natural Setting LUDs: LUD II, Research Natural Area, Municipal Watershed, Wild, Scenic, and Recreational River, Old Growth Habitat, Special Interest Area, Remote Recreation, and Semi-Remote Recreation LUDs.

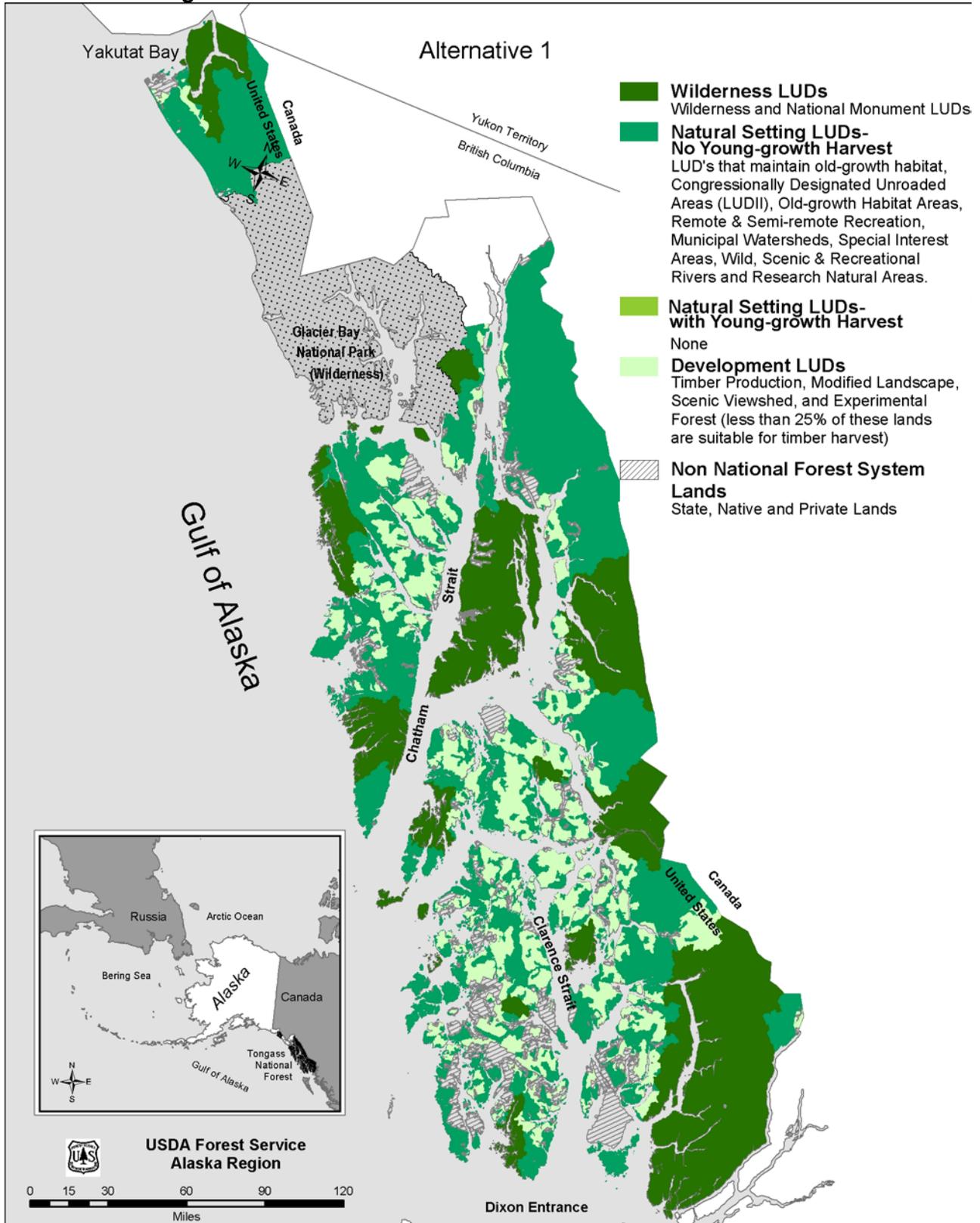
⁴ No LUDs meet these criteria.

⁵ Includes Timber Production, Modified Landscape and Scenic Viewshed LUDs. Experimental Forest is also included, even though lands are not suitable for timber production.

⁶ Includes 829 acres of unlabeled GIS slivers.

2 Alternatives

**Figure 2-2
Wilderness, Natural Setting (with and without Young-growth Harvest), and Development LUDs on the Tongass National Forest under Alternative 1**



**Table 2-4
Selected Outputs and Measures Associated with Alternative 1¹**

| Resource/Category | Output/Measure |
|---|----------------|
| Percent in Wilderness LUD Group | 35% |
| Percent in Natural Setting LUD Group with No YG Harvest | 45% |
| Percent in Natural Setting LUD Group with YG Harvest | 0% |
| Percent in Development LUD Group | 20% |
| Estimated Harvest Area (acres) after 100 years in Inventoried Roadless Areas – Old growth and Young Growth combined | 0 |
| Percent of Existing Productive Old Growth Harvested after 100 years | 1.3% |
| Percent of Original (1954) Productive Old Growth remaining after 100 Years (92% in 2016) | 90% |
| Estimated Forest Land Suitable for Timber Production–Old Growth (acres) | 328,615 |
| Estimated Forest Land Suitable for Timber Production–Young Growth (acres) | 263,904 |
| Long-term Projected Timber Sale Quantity (PTSQ) ² in MMBF | 138 |
| Estimated Years until maximum PTSQ is achieved | 38 |
| Estimated Years until full transition is achieved (i.e., 41 MMBF of Young Growth is harvested) | 32 |
| Maximum New Road Construction after 25 Years/100 Years (miles) | 281/944 |
| Maximum Road Construction on Decommissioned Road Grades after 25 Years/100 Years (miles) | 64/428 |
| Maximum New Road Reconstruction after 25 Years/100 Years (miles) | 160/887 |

¹ Totals may not add exactly due to rounding.

² PTSQ volumes expressed as annual averages volumes.

Alternative 2 (Proposed Action)

Framework and Expected Outputs

As in Alternative 1, this alternative would follow the existing timber sale program adaptive management strategy for old-growth harvest (USDA Forest Service 2008c) (see color map accompanying the FEIS); as a result, all old-growth harvest would come from Phase 1, at least during the first 15 years or so. After harvest volume exceeds 100 MMBF for two years, it is possible that limited old-growth harvest could occur in Phase 2 areas. Young-growth harvest could come from any phase of the strategy at any time. The portions of inventoried roadless areas (IRAs) that were roaded before the 2001 Roadless Rule and during the 2001 Roadless Rule exemption period for the Tongass would be available for young-growth and old-growth harvest. This would require rulemaking to modify 36 CFR 294.13(b)(4). If selected, no harvest could occur in IRAs until rulemaking is completed. No Roadless Area harvest outside of these roaded areas would be allowed.

Alternative 2 would differ substantially from Alternative 1 in terms of lands identified as suitable for young-growth timber production. Young-growth management would be allowed in both development and natural setting LUDs (except for Congressionally designated and administratively withdrawn areas, such as Wilderness, and islands less than 1,000 acres in size), in beach and estuary fringe, RMAs outside of Tongass Timber Reform Act (TTRA) buffers, and high-vulnerability karst.

Young-growth management may include clearcutting in all areas, except in RMAs and on high-vulnerability karst, where only commercial thinning (up to 33 percent basal area removal) would be allowed. After 15 years, clearcutting would no longer be allowed in the beach and estuary fringe and only commercial thinning would be allowed. In addition, in beach and estuary fringe, the intent is to maintain an

2 Alternatives

approximate 1,000-ft wide protected corridor adjacent and inland of any even-aged harvest unit to function as an alternate, low elevation, natural habitat corridor.

Scenery standards for young-growth management would be relaxed. The SIOs would be designated as Very Low for all LUDs and distance zones.

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young-growth. Beyond that, the minimum harvest age would continue to be flexible under exceptions allowed by NFMA.

The Forest Plan would include new management direction that improves flexibility in renewable energy development under this alternative. Scenery standards for renewable energy development would be relaxed to Very Low for all LUDs and distance zones.

Among the action alternatives, Alternative 2 would provide the largest amount of timber volume (old growth and young growth combined), including the largest amount of young-growth volume from lands suitable for timber production. It would result in the smallest amount of old growth timber volume over both 25-year and 100-year periods. Table 2-5 summarizes the key elements of Alternative 2 and Table 2-6 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1), emphasizing young growth and minimizing old growth. As such, it is expected to produce an average of about 22 MMBF of young growth and 24 MMBF of old growth per year during the first 10 years (Figure 2-3). From Years 11 through 15, Alternative 2 is projected to produce an average of 61 MMBF of young growth and 5 MMBF of old growth per year. Alternative 2 would likely reach a full transition harvest of 41 MMBF of young growth about Year 12. Young-growth harvest is expected to continue to increase at a rapid rate after Year 12 and is expected to reach an upper limit of about 120 MMBF in Year 17. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

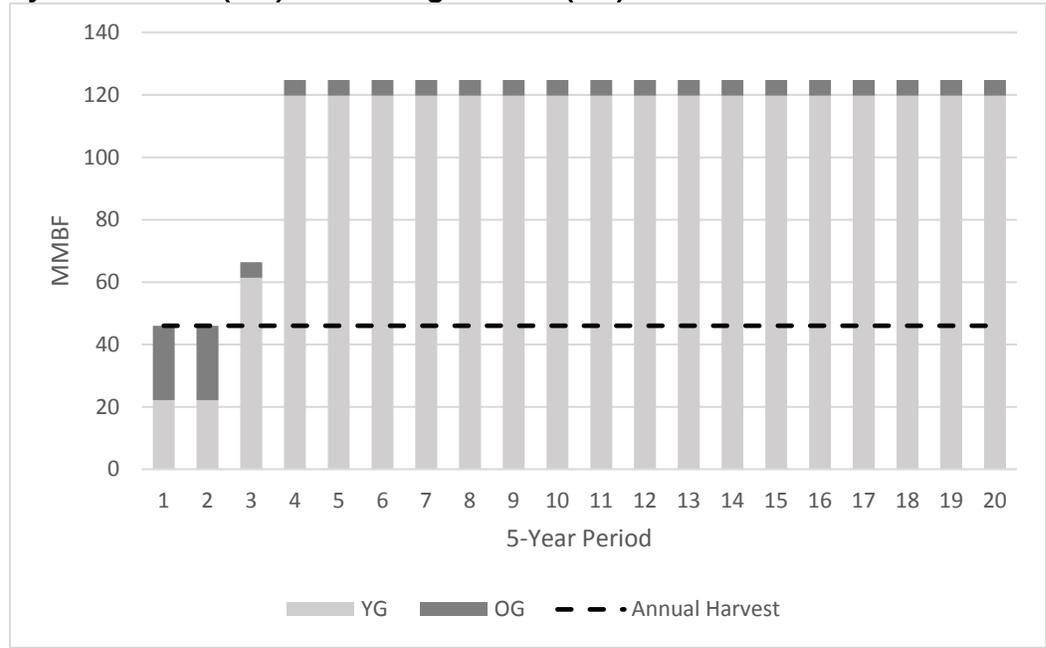
Over 80 percent of the Forest would remain in a natural state. The portions of the IRAs that were roaded before the 2001 Roadless Rule and during the 2001 Roadless Rule exemption period for the Tongass would be available for harvest after rulemaking. Old-growth conditions would prevail on forest lands within IRAs that have not been roaded. Following the transition period, the young-growth based timber industry would have the potential for substantial growth as more young-growth stands become economic to harvest. Young growth may be harvested by clearcutting and other prescriptions in natural setting LUDs and beach and estuary fringe, but only commercial thinning (33 percent basal area removal) would occur in RMAs outside of TTRA buffers. A small old-growth based industry would continue after transition with an annual volume of about 5 MMBF being offered through the small and micro sale programs. A mixture of old growth, recently harvested areas, and various ages of young growth would occur within the roaded IRAs. Recreation, tourism, and subsistence opportunities would continue to emphasize natural setting types, although some additional roaded opportunities would be developed. Scenery impacts would occur in some visually sensitive areas because scenery standards for young growth harvest would be Very Low.

Land Use Designations

If Alternative 2 is selected, the LUD allocation acres and the suitable acres shown in Table 2-6 would result. Figure 2-4 shows the distribution of LUDs across the Tongass under Alternative 2 according to four LUD groups (see Table 2-6 for

definitions of the LUD groups). Color maps showing both LUDs and lands suitable for timber production for Alternative 2 are included in the *Map Folder* of the CD version of the FEIS and in the *Map Packet* accompanying the FEIS hard copy.

Figure 2-3
Projected Timber Sale Quantity (average annual harvest) over 100 Years in 5-Year Periods under Alternative 2 showing Volume (MMBF) contributed by Old-Growth (OG) and Young-Growth (YG)



Management Prescriptions

The proposed Forest Plan that accompanies this EIS represents the Forest Plan if Alternative 5 (Preferred Alternative) were to be selected. Many of the changes reflected in the Forest Plan are consistent with Alternative 2, but some are not. The similarities and differences among the alternatives, with respect to the Forest Plan, are detailed in Appendix F to this EIS.

Selected Outputs

Table 2-7 displays selected outputs and other measures associated with this alternative.

2 Alternatives

Table 2-5
Key Elements of Alternative 2

Old-growth Harvest

- Allows harvest only within Phase 1 of the 2008 Timber Sale Program Adaptive Management Strategy.
- The portions of IRAs that were previously roaded would be available for harvest after rulemaking.

Young-growth Harvest

- Allows harvest in Development LUDs, including clearcutting, and entry into all phases of the Timber Sale Program Adaptive Management Strategy without regard to harvest volumes.
- Allows harvest in natural setting LUDs, except for Congressionally designated and administratively withdrawn areas and islands smaller than 1,000 acres.
- The portions of IRAs that were previously roaded would be available for harvest after rulemaking.
- Commercial harvest is allowed in beach and estuary fringe, in high-vulnerability karst, and in RMAs outside of TTRA buffers (details below).
- Clearcutting is allowed on all lands suitable for timber production (including natural setting LUDs), except RMAs and high-vulnerability karst where only commercial thinning is allowed. The maximum removal in RMAs outside of TTRA buffers is 33 percent (basal area). Clearcutting in beach and estuary fringe is not allowed after 15 years.
- In beach and estuary fringe, the intent is to maintain an approximate 1,000-ft wide protected corridor adjacent and inland of any even-aged harvest unit.
- There is flexibility to harvest at a younger age than 95 percent of CMAI throughout the life of the Plan.
- Scenery standards would be relaxed to Very Low SIO for young-growth harvest

LUD Changes

- Old-growth Habitat LUDs are modified to correspond with the biologically preferred option in areas where they were adversely affected by land conveyances and other changes resulting from Public Law 113-291.
- The Transportation and Utility Systems LUD is removed.

New Plan Direction (Forest Plan Chapter 5)

- Young-growth plan components added to Forest Plan.
 - Renewable Energy plan components added to Forest Plan (including relaxation of SIO to Very Low for renewable energy development).
 - Transportation Systems Corridors plan components added to Forest Plan.
 - Forest-wide plan direction added to Forest Plan.
-

**Table 2-6
Land Use Designation, Suitable, and Projected Harvest Acres for
Alternative 2¹**

| Land Use Designation Group | Acres Allocated |
|--|-------------------------|
| Wilderness LUD Group ² | 5,922,131 |
| Natural Setting LUD Group – No YG Harvest ³ | 1,005,922 |
| Natural Setting LUD Group – With YG Harvest ⁴ | 6,467,437 |
| Development LUD Group ⁵ | 3,359,367 |
| Total National Forest System lands | 16,755,685 ⁶ |
| Suitable Acres | Acres Allocated |
| Suitable Acres-Old Growth | 349,380 |
| Suitable Acres-Young Growth | 374,714 |
| Projected Harvest | Acres Allocated |
| Projected Harvest Acres after 25 Years | |
| Old Growth | 15,027 |
| Young Growth | 63,787 |
| Projected Harvest Acres after 100 Years | |
| Old Growth | 32,609 |
| Young Growth | 335,344 |

¹ When more than one LUD is applied to the same area, such as a Special Interest Area within Wilderness, only the acreage of the more restrictive LUD is included. The acreage for the Minerals LUD would be 249,570; these acres are not included in the table because the Minerals LUD is an overlay. No acreages have been calculated for Renewable Energy and Transportation Systems Corridors because the projects are an undefined width and imprecise locations and not all renewable energy sites are known. Totals may not exactly equal the sum of individual entries due to rounding.

² Includes Wilderness and National Monument LUDs.

³ Includes the following Natural Setting LUDs: LUD II, Research Natural Area, Enacted Municipal Watershed, and Wild River

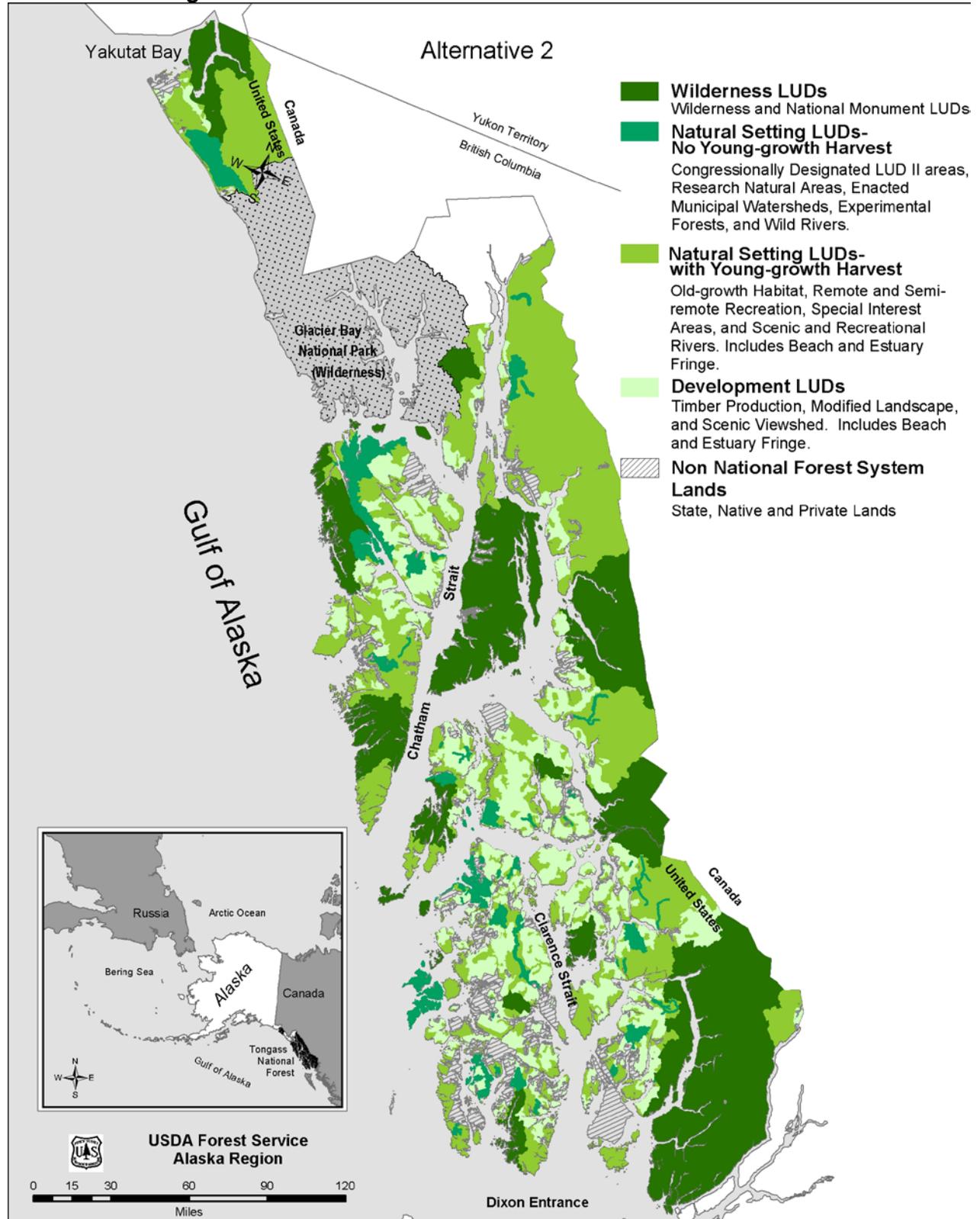
⁴ Includes the following Natural Setting LUDs: Scenic, and Recreational River, Old Growth Habitat, Special Interest Area, Remote Recreation, and Semi-Remote Recreation LUDs.

⁵ Includes Timber Production, Modified Landscape, and Scenic Viewshed LUDs. Experimental Forest is also included, even though it is technically not a Development LUD.

⁶ Includes 829 acres of unlabeled GIS slivers.

2 Alternatives

**Figure 2-4
Wilderness, Natural Setting (with and without Young-growth Harvest), and Development LUDs on the Tongass National Forest under Alternative 2**



**Table 2-7
Selected Outputs and Measures Associated with Alternative 2¹**

| Resource/Category | Output/Measure |
|---|----------------|
| Percent in Wilderness LUD Group | 35% |
| Percent in Natural Setting LUD Group with No YG Harvest | 6% |
| Percent in Natural Setting LUD Group with YG Harvest | 39% |
| Percent in Development LUD Group | 20% |
| Estimated Harvest Area (acres) after 100 years in Inventoried Roadless Areas – Old growth and Young Growth combined | 11,289 |
| Percent of Productive Old Growth Harvested after 100 years | 0.7% |
| Percent of Original Productive Old Growth remaining after 100 Years (92% in 2016) | 91% |
| Estimated Forest Land Suitable for Timber Production–Old Growth (acres) | 349,380 |
| Estimated Forest Land Suitable for Timber Production–Young Growth (acres) | 374,714 |
| Long-term Projected Timber Sale Quantity (PTSQ) ² in MMBF | 125 |
| Estimated Years until maximum PTSQ is achieved | 17 |
| Estimated Years until full transition is achieved (i.e., 41 MMBF of Young Growth is harvested) | 12 |
| Maximum New Road Construction after 25 Years/100 Years (miles) | 260/1,056 |
| Maximum Road Construction on Decommissioned Road Grades after 25 Years/100 Years (miles) | 125/600 |
| Maximum New Road Reconstruction after 25 Years/100 Years (miles) | 256/1,191 |

¹ Totals may not add exactly due to rounding.

² PTSQ volumes expressed as annual averages and include sawlog plus utility.

Alternative 3

Framework and Expected Outcomes

Alternative 3 would allow old-growth harvest only in Phase 1 of the existing timber sale program adaptive management strategy (USDA Forest Service 2008c) (see color map accompanying this FEIS) but would allow young-growth harvest in all phases. This alternative would allow young-growth and old-growth harvest in 2001 Roadless Rule IRAs. If this alternative were selected, harvest in IRAs would be deferred until agency rulemaking modifies 36 CFR 294.13(b)(4) (2001).

Alternative 3 is similar to Alternative 2 in that it identifies lands as suitable for young-growth timber production in both development and natural setting LUDs (except for Congressionally designated areas such as Wilderness, administratively withdrawn areas, and islands less than 1,000 acres in size), as well as in beach and estuary fringe and high-vulnerability karst, but not in RMAs. Young-growth management may include clearcutting in all areas, except in beach and estuary fringe and on high-vulnerability karst, where only commercial thinning is allowed.

In addition, for young-growth harvest units larger than 20 acres in VCUs that have had concentrated past timber harvest, it is intended that 30 percent of the young growth stand acres should be left. This legacy provision would be described as a Management Approach in the Forest Plan.

Scenery standards for young growth management would be reduced by one level relative to the 2008 Forest Plan. SIOs would be reduced as follows: High would be reduced to Moderate, Moderate would be reduced to Low, and Low and Very Low would become Very Low.

2 Alternatives

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young growth. Beyond that, the minimum harvest age would continue to be flexible under exceptions allowed by NFMA.

The Forest Plan would include new management direction that improves flexibility in renewable energy development under this alternative. The SIO (scenery standard) for renewable energy development would be Low for all LUDs and distance zones.

Alternative 3 would provide the second largest amount of timber volume (old growth and young growth combined). It would result in the second lowest harvest of old growth over both the 25-year and 100-year periods. Table 2-8 summarizes the key elements of Alternative 3 and Table 2-9 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

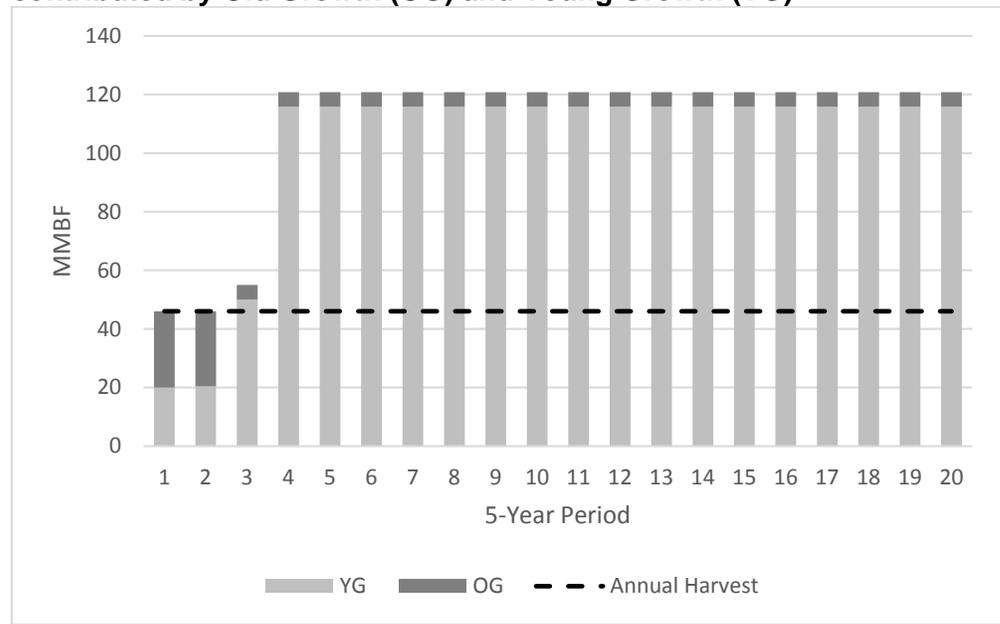
This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1). It would emphasize young growth and minimize old growth while maintaining 46 MMBF per year. As such, it is expected to produce an average of about 20 MMBF of young growth and 26 MMBF of old growth per year during the first 10 years (Figure 2-5). From Year 11 through Year 15, it is projected to produce an average of 50 MMBF of young growth and about 5 MMBF of old growth per year. Alternative 3 would likely reach a full transition harvest of 41 MMBF of young growth at about Year 13. Young-growth harvest is expected to continue to increase at a rapid rate after Year 13 and is expected to reach an upper limit of about 117 MMBF in Year 17. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

Over 80 percent of the Forest would remain in a natural state. Old-growth conditions would prevail on forest lands within the IRAs. Young-growth harvest would be increasingly emphasized during a transition period and the existing timber industry maintained and given the opportunity to transition to a dominantly young-growth based industry over the next 10 to 15 years. Following the transition period, the young-growth based timber industry would have the potential for substantial growth as more young-growth stands become economic to harvest. Young growth would be harvested by clearcutting and other prescriptions in natural setting LUDs, but only commercial thinning would occur in beach and estuary fringe. A small old-growth based industry would continue after transition with an annual volume of about 5 MMBF being offered through the small and micro sale programs. A mixture of old growth, recently harvested areas, and various ages of young growth would occur within roaded areas. Recreation, tourism, and subsistence opportunities would continue to emphasize natural setting types, although some additional roaded opportunities would be developed. Limited scenery impacts would occur in some visually sensitive areas because scenery standards for young growth harvest would be reduced by one level compared with the current Forest Plan.

Land Use Designations

If Alternative 3 is selected, the LUD allocation acres and the suitable acres shown in Table 2-9 would result. Figure 2-6 shows the distribution of LUDs across the Tongass under Alternative 3 according to four LUD groups (see Table 2-9 for definitions of the LUD groups). Color maps showing both LUDs and lands suitable for timber production for Alternative 3 are included in the *Map Folder* of the CD version of the FEIS and in the *Map Packet* accompanying the FEIS hard copy.

Figure 2-5
Projected Timber Sale Quantity (average annual harvest) over 100
Years in 5-Year Periods under Alternative 3 showing Volume (MMBF)
contributed by Old Growth (OG) and Young Growth (YG)



Management Prescriptions

The Forest Plan that accompanies this EIS represents the Forest Plan if Alternative 5 (Preferred Alternative) were to be selected. Many of the changes reflected in the proposed Forest Plan are consistent with Alternative 3, but some are not. The similarities and differences among the alternatives, with respect to the Forest Plan, are detailed in Appendix F to this EIS.

Selected Outputs

Table 2-10 displays selected outputs and other measures associated with this alternative.

2 Alternatives

Table 2-8
Key Elements of Alternative 3

Old-growth Harvest

- Allows harvest only within Phase 1 of the 2008 Timber Sale Program Adaptive Management Strategy.
- Inventoried Roadless Areas (IRAs) would be available for harvest after rulemaking.

Young-growth Harvest

- Allows harvest in Development LUDs, including clearcutting, and entry into all phases of the Timber Sale Program Adaptive Management Strategy without regard to harvest volumes.
- Allows harvest in natural setting LUDs, except for congressionally designated and administratively withdrawn areas and islands smaller than 1,000 acres.
- IRAs would be available for harvest after rulemaking.
- Commercial harvest is allowed in beach and estuary fringe but not in RMAs.
- Clearcutting is allowed in all areas except beach and estuary fringe and high-vulnerability karst, where only Commercial Thinning is allowed.
- Management Approach to provide legacy in young-growth harvest units larger than 20 acres in certain VCUs.
- There is flexibility to harvest at a younger age than 95 percent of CMAI throughout the life of the Plan.
- Scenery standards for young growth management would be relaxed; SIOs would be reduced by one level relative to the 2008 Forest Plan (i.e., High is reduced to Moderate, Moderate is reduced to Low, and Low and Very Low become Very Low).

LUD Changes

- Old-growth Habitat LUDs are modified to correspond with the biologically preferred option in areas where they were adversely affected by land conveyances and other changes resulting from Public Law 113-291.
- The Transportation and Utility Systems LUD is removed.

New Plan Direction (Forest Plan Chapter 5)

- Young-growth plan components added to Forest Plan.
 - Renewable Energy plan components added to Forest Plan.
 - Transportation Systems Corridors plan components added to Forest Plan.
 - Forest-wide plan direction added to Forest Plan.
-

**Table 2-9
Land Use Designation, Suitable, and Projected Harvest Acres for
Alternative 3¹**

| Land Use Designation Group | Acres Allocated |
|--|-------------------------|
| Wilderness LUD Group ² | 5,922,131 |
| Natural Setting LUD Group – No YG Harvest ³ | 1,005,922 |
| Natural Setting LUD Group – With YG Harvest ⁴ | 6,467,437 |
| Development LUD Group ⁵ | 3,359,367 |
| Total National Forest System lands | 16,755,685 ⁶ |
| Suitable Acres | Acres Allocated |
| Suitable Acres-Old Growth | 516,566 |
| Suitable Acres-Young Growth | 349,872 |
| Projected Harvest | Acres Allocated |
| Projected Harvest Acres after 25 Years | |
| Old Growth | 16,599 |
| Young Growth | 53,734 |
| Projected Harvest Acres after 100 Years | |
| Old Growth | 35,568 |
| Young Growth | 313,216 |

¹ When more than one LUD is applied to the same area, such as a Special Interest Area within Wilderness, only the acreage of the more restrictive LUD is included. The acreage for the Minerals LUD would be 249,570; these acres are not included in the table because the Minerals LUD is an overlay. No acreages have been calculated for Renewable Energy and Transportation Systems because transportation projects are a series of corridors with undefined width and imprecise locations and not all renewable energy sites are known. Totals may not exactly equal the sum of individual entries due to rounding.

² Includes Wilderness and National Monument LUDs.

³ Includes the following Natural Setting LUDs: LUD II, Research Natural Area, Enacted Municipal Watershed, and Wild River

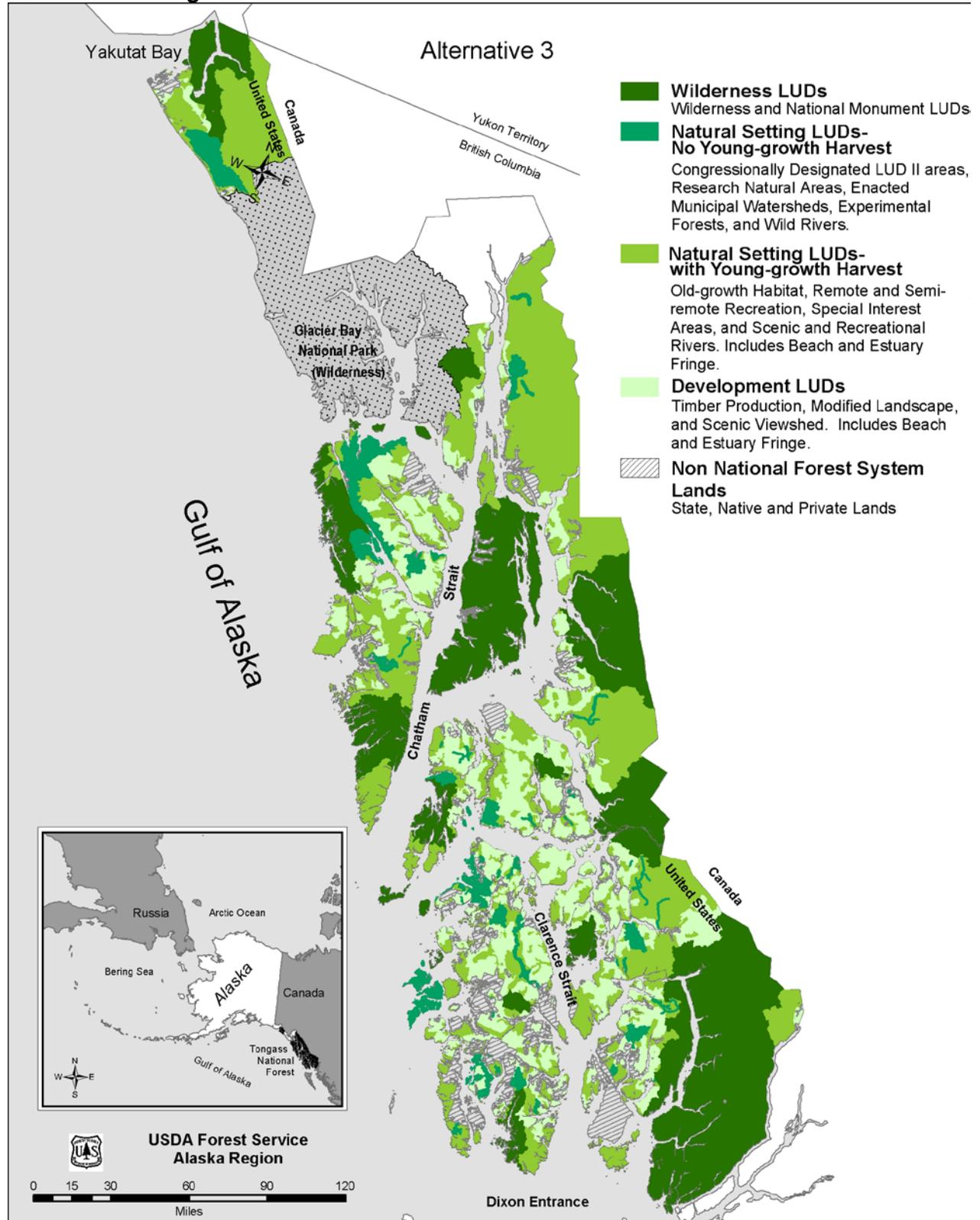
⁴ Includes the following Natural Setting LUDs: Scenic, and Recreational River, Old Growth Habitat, Special Interest Area, Remote Recreation, and Semi-Remote Recreation LUDs.

⁵ Includes Timber Production, Modified Landscape, and Scenic Viewshed LUDs. Experimental Forest is also included, even though it is technically not a Development LUD.

⁶ Includes 829 acres of unlabeled GIS slivers.

2 Alternatives

**Figure 2-6
Wilderness, Natural Setting (with and without Young-Growth Harvest), and Development LUDs on the Tongass National Forest under Alternative 3**



**Table 2-10
Selected Outputs and Measures Associated with Alternative 3¹**

| Resource/Category | Output/Measure |
|---|----------------|
| Percent in Wilderness LUD Group | 35% |
| Percent in Natural Setting LUD Group with No YG Harvest | 6% |
| Percent in Natural Setting LUD Group with YG Harvest | 39% |
| Percent in Development LUD Group | 20% |
| Estimated Harvest Area (acres) after 100 years in Inventoried Roadless Areas – Old growth and Young Growth combined | 28,847 |
| Percent of Existing Productive Old Growth Harvested after 100 years | 0.7% |
| Percent of Original Productive Old Growth remaining after 100 Years (92% in 2016) | 91% |
| Estimated Forest Land Suitable for Timber Production–Old Growth (acres) | 516,566 |
| Estimated Forest Land Suitable for Timber Production–Young Growth (acres) | 349,872 |
| Long-term Projected Timber Sale Quantity (PTSQ) ² in MMBF | 121 |
| Estimated Years until maximum PTSQ is achieved | 17 |
| Estimated Years until full transition is achieved (i.e., 41 MMBF of Young Growth is harvested) | 13 |
| Maximum New Road Construction after 25 Years/100 Years (miles) | 245/1,020 |
| Maximum Road Construction on Decommissioned Road Grades after 25 Years/100 Years (miles) | 110/566 |
| Maximum New Road Reconstruction after 25 Years/100 Years (miles) | 229/1,129 |

¹ Totals may not add exactly due to rounding.

² PTSQ volumes expressed as annual averages volumes.

Alternative 4

Framework and Expected Outcomes

Like Alternative 3, this alternative would allow old-growth harvest only in Phase 1 of the existing timber sale program adaptive management strategy (see color map accompanying this FEIS), but in contrast with Alternative 3, it would also limit young-growth harvest to only Phase 1. Similar to Alternative 1, this alternative includes the application of the 2001 Roadless Rule.

Alternative 4 would allow young-growth management only in the development LUDs. Harvest is allowed in beach and estuary fringe and on high-vulnerability karst, but only commercial thinning is allowed. No harvest is allowed in RMAs. Young growth management may include clearcutting in other areas.

In addition, for young-growth harvest units larger than 20 acres in VCUs that have had concentrated past timber harvest, it is intended that 30 percent of the young growth stand acres should be left. This legacy provision would be described as a Management Approach in the Forest Plan.

No change would occur in scenery standards relative to the 2008 Forest Plan.

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young-growth. Beyond that, the minimum harvest age would continue to be flexible under exceptions allowed by NFMA.

The Forest Plan would include new management direction that improves flexibility in renewable energy development under this alternative. The SIO (scenery standard) for renewable energy development would Low for all LUDs and distance zones.

2 Alternatives

Alternative 4 would provide the smallest amount of timber volume (old growth and young growth combined) and the smallest amounts of young-growth volume. It would result in the second highest harvest of old growth during both the 25-year and 100-year periods. Table 2-11 summarizes the key elements of Alternative 4, and Table 2-12 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

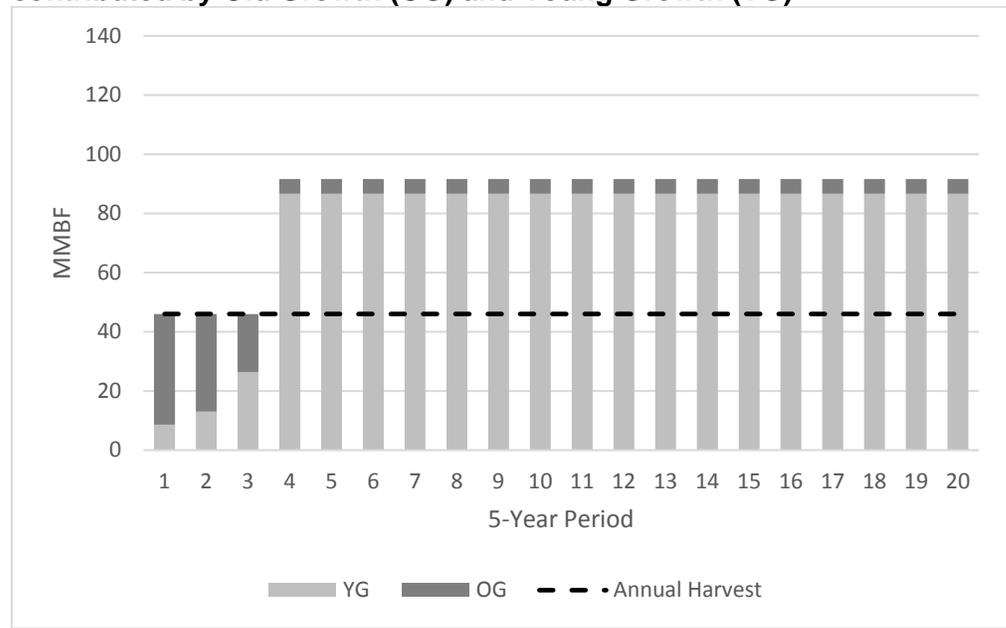
This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1). It would emphasize young growth and minimize old growth while maintaining 46 MMBF per year. As such, it is expected to produce an average of about 11 MMBF of young growth and 35 MMBF of old growth per year during the first 10 years (Figure 2-7). From Year 11 through Year 15, it is projected to produce an average of 26 MMBF of young growth and about 20 MMBF of old growth per year. Alternative 4 would likely reach a full transition harvest of 41 MMBF of young growth about Year 16. Young-growth harvest is expected to continue to increase at a rapid rate after Year 16 and is expected to reach an upper limit of 87 MMBF about Year 18. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

Over 80 percent of the Forest would remain in a natural state, including the 2001 Roadless Rule IRAs. Old-growth conditions would prevail on forest lands within the IRAs. Young-growth harvest would be increasingly emphasized during a transition period as the existing timber industry is maintained and given the opportunity to transition to a predominantly young-growth based industry over the next 10 to 15 years. Following the transition period, the young-growth based timber industry would have the potential for substantial growth as more young-growth stands become economic to harvest. Young growth would be harvested only by commercial thinning in beach and estuary fringe and on high-vulnerability karst. A small old-growth based industry would continue after transition with an annual volume of about 5 MMBF being offered through the small and micro sale programs. A mixture of old growth, recently harvested areas, and various ages of young growth would occur within IRAs. Recreation, tourism, and subsistence opportunities would continue to emphasize natural setting types, although some additional roaded opportunities would be developed. Effects on scenery would be similar to those permitted by the current Forest Plan.

Land Use Designations

If Alternative 4 is selected, the LUD allocation acres and the suitable acres shown in Table 2-12 would result. Figure 2-8 shows the distribution of LUDs across the Tongass under Alternative 4 according to four LUD groups (see Table 2-12 for definitions of the LUD groups). Color maps showing both LUDs and lands suitable for timber production for Alternative 4 are included in the *Map Folder* of the CD version of the FEIS and in the *Map Packet* accompanying the FEIS hard copy.

Figure 2-7
Projected Timber Sale Quantity (average annual harvest) over 100
Years in 5-Year Periods under Alternative 4 showing Volume (MMBF)
contributed by Old Growth (OG) and Young Growth (YG)



Management Prescriptions

The Forest Plan that accompanies this FEIS represents the Forest Plan if Alternative 5 (Preferred Alternative) were to be selected. Many of the changes reflected in the proposed Forest Plan are consistent with Alternative 4, but some are not. The similarities and differences among the alternatives, with respect to the Forest Plan, are detailed in Appendix F to this FEIS.

Selected Outputs

Table 2-13 displays selected outputs and other measures associated with this alternative.

2 Alternatives

Table 2-11
Key Elements of Alternative 4

Old-growth Harvest

- Allows harvest only within Phase 1 of the 2008 Timber Sale Program Adaptive Management Strategy.
- No harvest is allowed in IRAs.

Young-growth Harvest

- Allows harvest in development LUDs, including clearcutting, but allows entry only in Phase 1 of the Timber Sale Program Adaptive Management Strategy.
- Allows no harvest in natural setting LUDs.
- Allows no harvest in IRAs.
- Commercial harvest is allowed in beach and estuary fringe and in high-vulnerability karst within development LUDs, but no harvest is allowed in RMAs.
- Clearcutting is not allowed in beach and estuary fringe and high-vulnerability karst; only commercial thinning is allowed.
- Management Approach to provide legacy in young-growth harvest units larger than 20 acres in certain VCUs.
- There is flexibility to harvest before 95 percent of CMAI throughout the life of the Plan.
- No changes would occur in scenery standards relative to the 2008 Forest Plan.

LUD Changes

- Old-Growth Habitat LUDs are modified to correspond with the biologically preferred option in areas where they were adversely affected by land conveyances and other changes resulting from Public Law 113-291.
- The Transportation and Utility Systems LUD is removed.

New Plan Direction (Forest Plan Chapter 5)

- Young-growth plan components added to Forest Plan.
 - Renewable Energy plan components added to Forest Plan.
 - Transportation Systems Corridors plan components added to Forest Plan.
 - Forest-wide plan direction added to Forest Plan.
-

**Table 2-12
Land Use Designation, Suitable, and Projected Harvest Acres for
Alternative 4¹**

| Land Use Designation Group | Acres Allocated |
|--|-------------------------|
| Wilderness LUD Group ² | 5,922,131 |
| Natural Setting LUD Group – No YG Harvest ³ | 7,473,359 |
| Natural Setting LUD Group – With YG Harvest ⁴ | 0 |
| Development LUD Group ⁵ | 3,359,367 |
| Total National Forest System lands | 16,755,685 ⁶ |
| Suitable Acres | Acres Allocated |
| Suitable Acres-Old Growth | 269,135 |
| Suitable Acres-Young Growth | 263,710 |
| Projected Harvest | Acres Allocated |
| Projected Harvest Acres after 25 Years | |
| Old Growth | 23,255 |
| Young Growth | 40,760 |
| Projected Harvest Acres after 100 Years | |
| Old Growth | 42,597 |
| Young Growth | 234,885 |

¹ When more than one LUD is applied to the same area, such as a Special Interest Area within Wilderness, only the acreage of the more restrictive LUD is included. The acreage for the Minerals LUD would be 249,570; these acres are not included in the table because the Minerals LUD is an overlay. No acreages have been calculated for Renewable Energy and Transportation Systems Corridors because the transportation projects are a series of corridors with undefined width and imprecise locations and not all renewable energy site locations are known. Totals may not exactly equal the sum of individual entries due to rounding.

² Includes Wilderness and National Monument LUDs.

³ Includes all Natural Setting LUDs: LUD II, Research Natural Area, Municipal Watershed, Wild, Scenic, and Recreational River, Old Growth Habitat, Special Interest Area, Remote Recreation, and Semi-Remote Recreation LUDs.

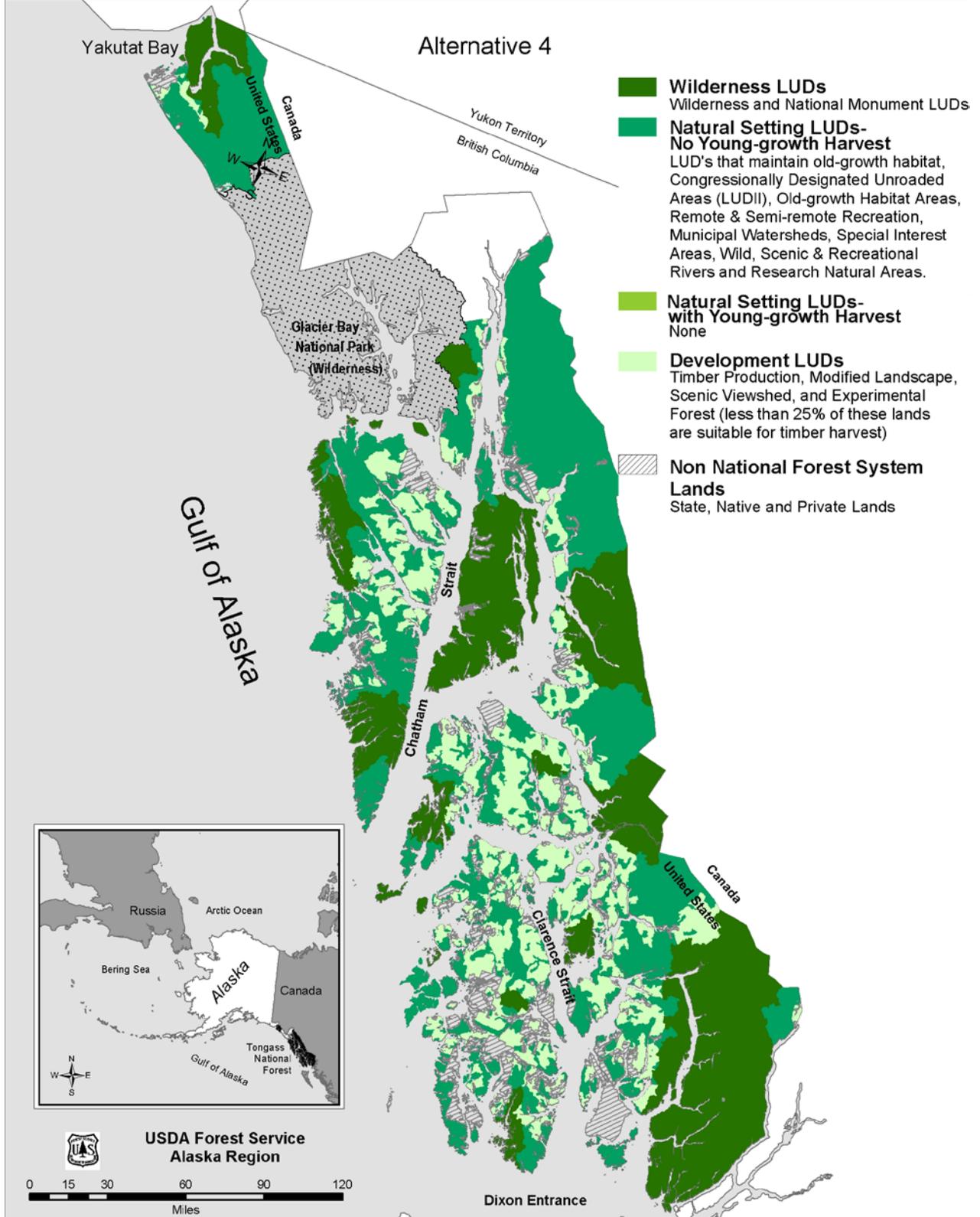
⁴ Includes no LUDs that are suitable for YG harvest.

⁵ Includes Timber Production, Modified Landscape, and Scenic Viewshed LUDs. Experimental Forest is also included, even though it is technically not a Development LUD.

⁶ Includes 829 acres of unlabeled GIS slivers.

2 Alternatives

**Figure 2-8
Wilderness, Natural Setting (with and without Young Growth Harvest), and Development LUDs on the Tongass National Forest under Alternative 4**



**Table 2-13
Selected Outputs and Measures Associated with Alternative 4¹**

| Resource/Category | Output/Measure |
|---|----------------|
| Percent in Wilderness LUD Group | 35% |
| Percent in Natural Setting LUD Group with No YG Harvest | 45% |
| Percent in Natural Setting LUD Group with YG Harvest | 0% |
| Percent in Development LUD Group | 20% |
| Estimated Harvest Area (acres) after 100 years in Inventoried Roadless Areas – Old growth and Young Growth combined | 0 |
| Percent of Existing Productive Old Growth Harvested after 100 years | 0.9% |
| Percent of Original Productive Old Growth remaining after 100 Years (92% in 2016) | 91% |
| Estimated Forest Land Suitable for Timber Production–Old Growth (acres) | 269,135 |
| Estimated Forest Land Suitable for Timber Production–Young Growth (acres) | 263,710 |
| Long-term Projected Timber Sale Quantity (PTSQ) ³ in MMBF | 92 |
| Estimated Years until maximum PTSQ is achieved | 18 |
| Estimated Years until full transition is achieved (i.e., 41 MMBF of Young Growth is harvested) | 16 |
| Maximum New Road Construction after 25 Years/100 Years (miles) | 257/871 |
| Maximum Road Construction on Decommissioned Road Grades after 25 Years/100 Years (miles) | 97/445 |
| Maximum New Road Reconstruction after 25 Years/100 Years (miles) | 209/900 |

¹ Totals may not add exactly due to rounding.

² PTSQ volumes expressed as annual averages volumes.

Alternative 5 (Preferred Alternative)

Framework and Expected Outcomes

Alternative 5 is the Preferred Alternative. This alternative is based on the recommendations from the Tongass Advisory Committee (TAC), a formally established Federal Advisory Committee (see Appendix B of the Forest Plan). The establishment of the TAC represents a turning point in Tongass management seeking new approaches, practices, and responses. The TAC offers a regionally focused, collaborative path toward an innovative opportunity for a viable young growth timber industry while honoring the suite of values – economic, ecological, social, and cultural – inherent in the Forest.

Like Alternatives 3 and 4, this alternative would allow old-growth harvest only within Phase 1 of the timber sale program adaptive management strategy (see color map accompanying this FEIS). As in Alternatives 1 and 4, the 2001 Roadless Rule would apply and no old-growth or young-growth harvest would occur in roadless areas. In addition, old-growth harvest is excluded from all Tongass 77 (T77)⁵ watersheds and TNC/Audubon Conservation Priority Areas (Albert and Schoen 2007). These old-growth harvest exclusion areas are shown on the large color map for Alternative 5 that accompanies this FEIS.

As in Alternatives 2, 3, and 4, Alternative 5 would allow young-growth harvest in all three phases of the timber sale program adaptive management strategy. It would allow young-growth management in development LUDs and in the Old-growth

⁵ The Tongass 77 (T77) refers to value comparison units (VCUs), which approximate major watersheds located on National Forest System lands that Trout Unlimited, Alaska Program identified as priority salmon watersheds. As a result of the Sealaska Land Entitlement Finalization in the Carl Levin and Howard P. ‘Buck’ McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291), there was a net reduction in the T77 watersheds from 77 to 73. To provide clarity and consistency, the T77 nomenclature will continue to be used in this document when referring to these priority watersheds.

2 Alternatives

Habitat LUD including harvest in beach and estuary fringe and RMAs outside of TTRA buffers within these same LUDs. However, young-growth harvest in the Old-growth Habitat LUD, beach and estuary fringe, and RMAs outside of TTRA buffers would be allowed only during the first 15 years after Plan approval, and created openings for commercial harvest (up to 10 acres and a maximum removal of up to 35 percent of the acres of the original harvested stand) or commercial thinning would be allowed. In beach and estuary fringe, a 200-foot no-commercial harvest buffer adjacent to the shoreline would be required. Along lake shorelines, a 100-foot no-cut commercial harvest buffer would be established. Scenery standards (SIOs) for young growth management would be reduced to Very Low for all distance zones in the development LUDs only. This standard would also apply when young-growth and old-growth harvests are planned in the same Viewshed.

As noted previously, due to Public Law 113-291, CMAI requirements for determining the youngest age for harvest would be eliminated on up to 50,000 acres of young-growth. Beyond that, the minimum harvest age would continue to be flexible under exceptions allowed by NFMA.

The Forest Plan would include new management direction that improves flexibility in renewable energy development under this alternative. The SIO (scenery standard) for renewable energy development would Low for all LUDs and distance zones.

Alternative 5 would provide the second smallest amount of timber volume (old growth and young growth combined) among the alternatives, but the second largest amount of old-growth volume among the action alternatives. Table 2-14 summarizes the key elements of Alternative 5 and Table 2-15 summarizes the LUD acres, mapped suitable acres, and projected harvest acres under this alternative for young growth and old growth.

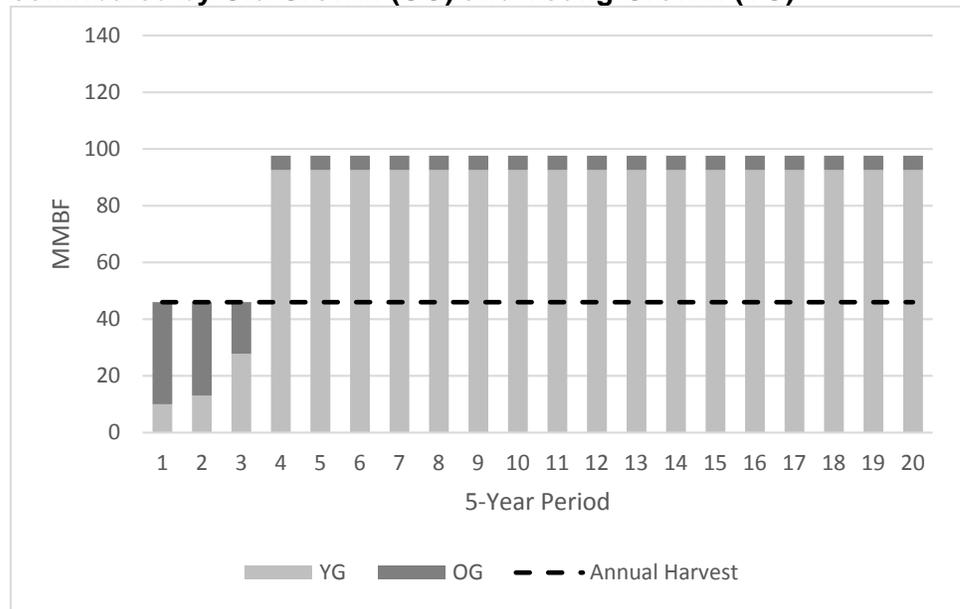
This alternative would harvest timber at a rate of 46 MMBF per year (equivalent to the harvest needed to meet the projected timber demand, see Table 2-1). It would emphasize young growth and minimize old growth while maintaining 46 MMBF per year. As such, it is expected to produce an average of about 12 MMBF of young growth and 34 MMBF of old growth per year during the first 10 years (Figure 2-9). From Year 11 through Year 15, it is projected to produce an average of 28 MMBF of young growth and about 18 MMBF of old growth per year. Alternative 5 would likely reach a full transition harvest of 41 MMBF of young growth about Year 16. Young-growth harvest is expected to continue to increase at a rapid rate after Year 16 and is expected to reach an upper limit of 98 MMBF about Year 18. The old-growth harvest rate would be held at 5 MMBF per year to support small and micro sales.

The majority (over 80 percent) of the Forest would remain in a natural state including IRAs. Old-growth conditions would prevail on forest lands within the IRAs. Young-growth harvest would be increasingly emphasized during a transition period and the existing timber industry is maintained and given the opportunity to transition to a dominantly young-growth based industry over the next 10 to 15 years. Following the transition period, the young-growth based timber industry has the potential for growth as more young-growth stands become economic to harvest. Young growth is harvested only by patch cutting or commercial thinning in non-development LUDs, beach and estuary fringe, and RMAs outside of TTRA buffers. An old-growth based industry would continue after transition with an annual volume of about 5 MMBF being offered through the small and micro sale programs. A mixture of old growth, recently harvested areas, and various ages of young growth would occur within roaded areas. Recreation, tourism, and subsistence opportunities would continue to emphasize natural setting types, although some additional roaded opportunities would be developed. Scenery impacts would occur in some visually sensitive areas because scenery standards for young growth harvest would be very low.

Land Use Designations

If Alternative 5 is selected, the LUD allocation acres and the suitable acres shown in Table 2-11 would result. Figure 2-10 shows the distribution of LUDs across the Tongass under Alternative 5 according to four LUD groups (see Table 2-15 for definitions of the LUD groups). Color maps showing both LUDs and lands suitable for timber production for Alternative 5 are included in the *Map Folder* of the CD version of the FEIS and in the *Map Packet* accompanying the FEIS hard copy.

Figure 2-9
Projected Timber Sale Quantity (average annual harvest) over 100 Years in 5-Year Periods under Alternative 5 showing Volume (MMBF) contributed by Old-Growth (OG) and Young-Growth (YG)



Management Prescriptions

Under Alternative 5, the management prescriptions identified in the Forest Plan (accompanying this FEIS) would be adopted. A track changes version of is available online. Clarifications and deletions to the 2008 Forest Plan are shown in Chapters 1, 2, 3, and 4 and additions to the Forest Plan are provided in Chapter 5. The similarities and differences among the alternatives, with respect to the Forest Plan, are detailed in Appendix F to this FEIS.

Selected Outputs

Table 2-16 displays selected outputs and other measures associated with this alternative.

2 Alternatives

Table 2-14
Key Elements of Alternative 5

Old-growth Harvest

- Allows harvest only within Phase 1 of the 2008 Timber Sale Program Adaptive Management Strategy.
- No harvest is allowed in IRAs.
- No harvest is allowed within the T77 watersheds or the TNC/Audubon conservation priority watersheds.

Young-growth Harvest

- Allows harvest in Development LUDs, including clearcutting, and entry into all phases of the Timber Sale Program Adaptive Management Strategy without regard to harvest levels.
- Allows harvest in Old Growth Habitat LUDs, but not in other natural setting LUDs or on islands less than 1,000 acres
- No harvest is allowed in IRAs.
- Commercial harvest is allowed in beach and estuary fringe outside of a 200-foot buffer and in RMAs outside of TTRA buffers.
- A 100-ft. no-cut buffer is established around all lakes.
- In Old Growth Habitat LUDs, Beach Fringe (outside of the 200-foot buffer) and in RMAs outside of TTRA buffers, clearcutting is not allowed, but patch cuts (≤ 10 -acre openings and a maximum of 35% removal) is allowed, along with commercial thinning. Harvest is allowed in these land categories only during the first 15 years after plan approval.
- There is flexibility to harvest at a younger age than 95 percent of CMAI throughout the life of the Plan.
- The scenery standards (SIOs) would be reduced to Very Low in development LUDs only.

LUD Changes

- Old Growth Habitat LUDs are modified to correspond with the biologically preferred option in areas where they were negatively affected by land conveyances and other changes resulting from Public Law 113-291.
- The Transportation and Utility Systems LUD is removed.

New Plan Direction (Chapter 5)

- Young-growth plan components added to Forest Plan.
 - Renewable Energy plan components added to Forest Plan.
 - Transportation Systems Corridors plan components added to Forest Plan.
 - Forest-wide plan direction added to Forest Plan.
-

**Table 2-15
Land Use Designation, Suitable, and Projected Harvest Acres for
Alternative 5¹**

| Land Use Designation Group | Acres Allocated |
|--|-------------------------|
| Wilderness LUD Group ² | 5,922,131 |
| Natural Setting LUD Group – No YG Harvest ³ | 6,270,909 |
| Natural Setting LUD Group – With YG Harvest ⁴ | 1,202,450 |
| Development LUD Group ⁵ | 3,359,367 |
| Total National Forest System lands | 16,755,685 ⁶ |
| Suitable Acres | Acres Allocated |
| Suitable Acres-Old Growth | 229,060 |
| Suitable Acres-Young Growth | 338,973 |
| Projected Harvest | Acres Allocated |
| Projected Harvest Acres after 25 Years | |
| Old Growth | 23,813 |
| Young Growth | 43,316 |
| Projected Harvest Acres after 100 Years | |
| Old Growth | 42,479 |
| Young Growth | 284,144 |

¹ When more than one LUD is applied to the same area, such as a Special Interest Area within Wilderness, only the acreage of the more restrictive LUD is included. The acreage for the Minerals LUD would be 249,570; these acres are not included in the table because the Minerals LUD is an overlay. No acreages have been calculated for Renewable Energy and Transportation Systems Corridors because the transportation projects are a series of corridors with undefined width and imprecise locations and not all renewable energy site locations are known. Totals may not exactly equal the sum of individual entries due to rounding.

² Includes Wilderness and National Monument LUDs.

³ Includes all Natural Setting LUDs except Old Growth Habitat: LUD II, Research Natural Area, Municipal Watershed, Wild, Scenic, and Recreational River, Special Interest Area, Remote Recreation, and Semi-Remote Recreation LUDs.

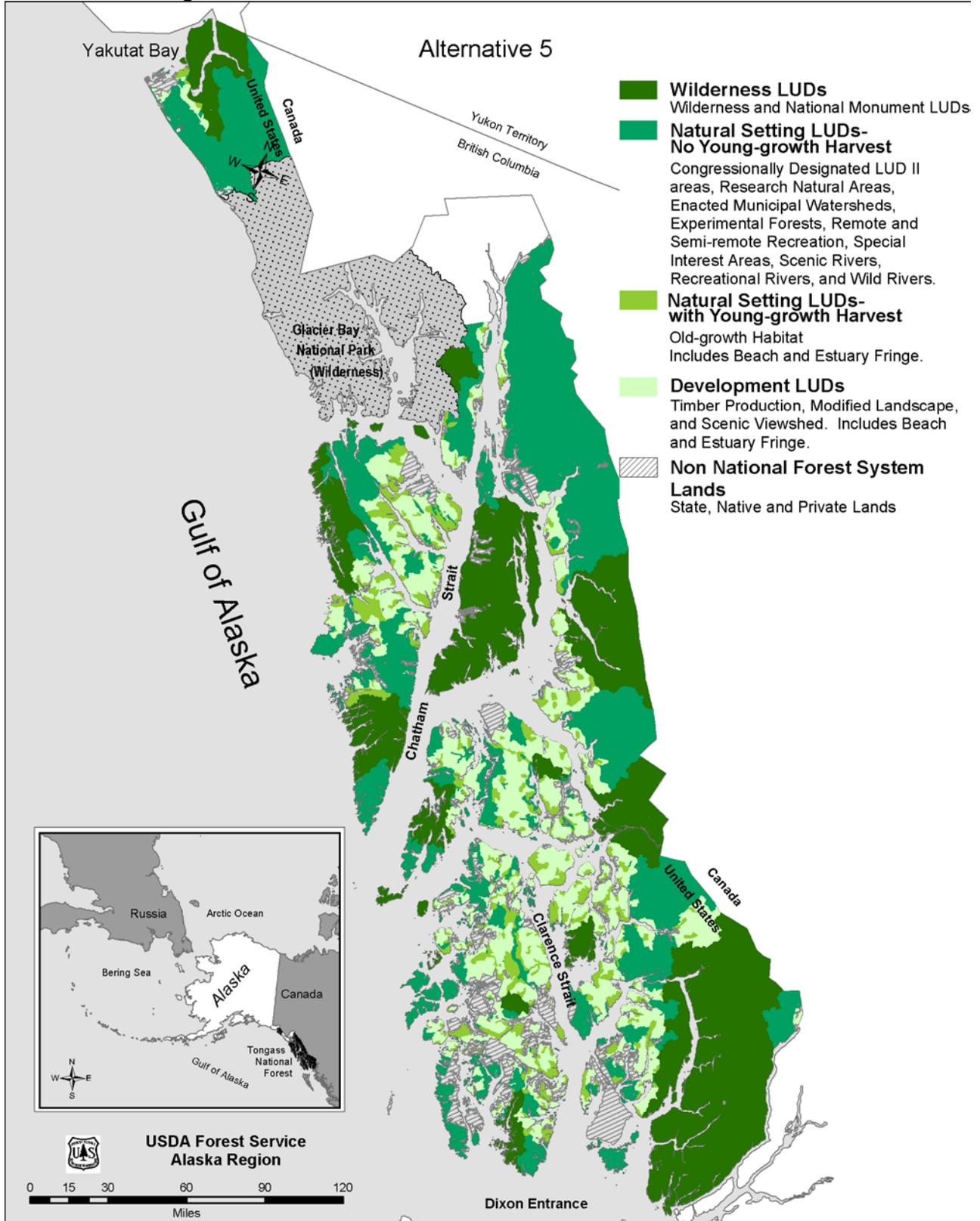
⁴ Includes Old Growth Habitat LUD.

⁵ Includes Timber Production, Modified Landscape, and Scenic Viewshed LUDs. Experimental Forest is also included, even though it is technically not a Development LUD.

⁶ Includes 829 acres of unlabeled GIS slivers.

2 Alternatives

Figure 2-10
Wilderness, Natural Setting (with and without Young Growth Harvest), and Development
LUDs on the Tongass National Forest under Alternative 5



**Table 2-16
Selected Outputs and Measures Associated with Alternative 5¹**

| Resource/Category | Output/Measure |
|---|----------------|
| Percent in Wilderness LUD Group | 35% |
| Percent in Natural Setting LUD Group with No YG Harvest | 37% |
| Percent in Natural Setting LUD Group with YG Harvest | 7% |
| Percent in Development LUD Group | 20% |
| Estimated Harvest Area (acres) after 100 years in Inventoried Roadless Areas – Old growth and Young Growth combined | 0 |
| Percent of Existing Productive Old Growth Harvested after 100 years | 0.8% |
| Percent of Original Productive Old Growth remaining after 100 Years (92% in 2015) | 91% |
| Estimated Forest Land Suitable for Timber Production-Old Growth (acres) | 229,060 |
| Estimated Forest Land Suitable for Timber Production-Young Growth (acres) | 338,973 |
| Long-term Projected Timber Sale Quantity (PTSQ) ² in MMBF | 98 |
| Estimated Years until maximum PTSQ is achieved | 18 |
| Estimated Years until full transition is achieved (i.e., 41 MMBF of Young Growth is harvested) | 16 |
| Maximum New Road Construction after 25 Years/100 Years (miles) | 267/994 |
| Maximum Road Construction on Decommissioned Road Grades after 25 Years/100 Years (miles) | 102/527 |
| Maximum New Road Reconstruction after 25 Years/100 Years (miles) | 219/1,058 |

¹ Totals may not add exactly due to rounding.

² PTSQ volumes expressed as annual averages volumes.

Comparison of the Alternatives

This section briefly compares the environmental consequences of the five alternatives with respect to the significant issues described in Chapter 1. This comparison is based on the effects analyses presented in Chapter 3.

The following subsections provide the issue statement for each of the significant issues described in Chapter 1, and the units of measure used to analyze their effects. Hereafter the term “issues” is synonymous with “significant issues.” Following these subsections, the alternatives are compared with respect to each issue. Important comparison tables are also presented. Table 2-17 (at the end of this section) compares each alternative in terms of the key elements that define the alternatives. Table 2-18 compares each alternative in terms of the quantitative and qualitative measures associated with each alternative. This table allows the reader to compare the effects of the alternatives on all issues simultaneously, so that a cumulative picture of the net effects can be obtained.

Issue 1 – Young-growth Transition

Issue Statement: The Secretary of Agriculture directed the Forest Service to transition to a young-growth-based timber management program on the Tongass National Forest in 10 to 15 years, which is more rapid than planned for in the 2008 Forest Plan. This transition is intended to support the Tongass managing its forest for an ecologically, socially, and economically sustainable forest management program and reduce old-growth harvest while providing economic timber to support the local forest products industry during the transition.

Units of Measure

- Lands suitable for timber production
- Acres of harvest of young growth vs. old growth over time

2 Alternatives

- Time required to fully transition to young-growth harvest
- Financial efficiency (discounted net revenue)
- Number of annualized direct jobs supported

Comparison

The purpose and need for this project is primarily based on a memorandum from the Secretary of Agriculture (see Chapter 1) that directs management of the Tongass National Forest to expedite the transition away from old-growth timber harvesting and towards a forest products industry that utilizes predominantly second-growth – or young-growth – forests. Secretary Vilsack’s memorandum also guides that the transition should be implemented in a manner that preserves a viable timber industry that provides jobs and opportunities for Southeast Alaska residents. USDA’s goal is to effectuate this transition, over the next 10 to 15 years, so that at the end of this period the vast majority of timber sold by the Tongass will be young growth. This timeframe will conserve old growth forests while allowing the forest industry time to adapt.

Because of the Secretary’s memorandum, the existing condition emphasizes a transition to young growth and minimizes old-growth harvest, but does this within the constraints of the 2008 Forest Plan. Alternative 1 (no action) would result in full transition to a predominantly young-growth-based industry in about 32 years, well beyond the 15 year goal presented in the Secretary’s memorandum. In contrast, all of the action alternatives would result in a full transition in about 12 to 16 years. Because these timeframes represent full transition, the period in which the “vast majority of timber sold by the Tongass will be young growth” is expected to be about 10 to 15 years for the action alternatives. Of the action alternatives, the fastest transition (12 years) would occur with Alternative 2 and the slowest transition (16 years) would occur with Alternatives 4 and 5.

All of the alternatives are expected to support from 184 to 231 annualized direct jobs during the first decade, depending on the portion of total harvest that is exported. Total estimated jobs are very similar across the alternatives, with the highest number of direct jobs supported by Alternative 2 and the lowest number of direct jobs supported by Alternative 1. In addition, each alternative is expected to meet the projected demand for Tongass timber. Therefore, each alternative is expected to meet the criterion of maintaining a viable industry. However, it is unclear how quickly industry will be able to “retool” mills and harvesting equipment and how markets will react to changing from old-growth to young-growth forest products; thus, this criterion is associated with a relatively high degree of uncertainty.

Under all alternatives, the harvest of old growth would diminish over time and the harvest of young growth would increase. Therefore, all of the alternatives would “conserve old-growth forests.” The largest old-growth harvest in the first 25 years would be about 39,000 acres with Alternative 1. Each of the action alternatives would harvest less old growth, ranging from 15,000 acres with Alternative 2 to 24,000 acres with Alternative 5. The same pattern among the alternatives occurs with the 100-year harvest as well.

Issue 2 – Renewable Energy

Issue Statement: The development of renewable energy projects on the Tongass would help Southeast Alaska communities reduce fossil fuel dependence, stimulate economic development, and lower carbon emissions in the Region.

Units of Measure

- Improved flexibility in siting and development of renewable energy projects

Comparison

Another important part of the purpose and need for this project is the purpose of establishing new direction in the Forest Plan so that renewable energy development is more permissible. There is a need to stimulate economic development in Southeast Alaska communities, and provide low-carbon energy alternatives, thereby displacing the use of fossil fuel. Under the 2008 Forest Plan, siting of energy projects is limited in certain LUDs, and it would remain that way under Alternative 1. Under each of the action alternatives (Alternatives 2, 3, 4, and 5), changes would be made to the Forest Plan that would result in improved flexibility in siting and development of renewable energy projects.

Issue 3 – Inventoried Roadless Areas

Issue Statement: Timber harvest and road building that occurred in inventoried roadless areas (IRAs) before the 2001 Roadless Area Conservation Rule (2001 Roadless Rule) was enacted and during the 2003 Tongass Exemption (68 FR 75136) changed the values or features that often characterize IRAs in some locations. In addition, whether or not the Tongass would manage the Forest under the 2003 Tongass Exemption or not is the subject of ongoing litigation. Currently, the Tongass does not enter roadless areas for commercial timber harvest or road construction. However, in the future, this could change.

Units of Measure

- Acres of lands suitable for timber production within IRAs under each alternative
- Roadless characteristics protected under each alternative

Comparison

Under Alternatives 1, 4, and 5 IRAs are withdrawn from timber production and not suitable for timber production (FSH 1909.12, chapter 60, section 61.11). In Alternative 2, IRAs that were previously roaded would be available for road construction and timber harvest and in Alternative 3, all IRAs would be available for road construction and timber harvest. In both Alternatives 2 and 3, entry into IRAs would not be permitted without rulemaking or, in the case of Alternative 3, if the 2003 Tongass Exemption (68 FR 75136) is reinstated. Estimated acres of timber harvest in IRAs over 100 years would range from 0 acres for Alternatives 1, 4, and 5, to 11,000 acres for Alternative 2, to 29,000 acres for Alternative 3. The protection of roadless characteristics would be directly proportional to the projected acres of timber harvest with Alternatives 1, 4, and 5 providing the most protection, Alternative 2 providing the second most protection, and Alternative 3 providing the least protection.

Issue 4 – Wildlife Habitat and the Conservation Strategy

Issue Statement: Old-growth timber harvest has changed the composition and spatial patterns of terrestrial wildlife habitats. How the resulting young-growth is managed may influence the future ecological integrity of the landscape at various scales. Changes made to suitable lands designated for development, and to plan components (e.g., standards and guidelines) may affect old-growth habitat for wildlife and the Tongass old-growth conservation strategy and contributing elements to old-growth reserves (e.g., riparian, beach and estuary habitats).

Units of Measure

- Acres of productive old growth (POG) protected under each alternative

2 Alternatives

- Acres of high-volume POG protected under each alternative
- Acres of large-tree POG protected under each alternative
- Acres of young-growth harvest in beach and estuary fringe by alternative
- Acres of young-growth harvest in Riparian Management Areas (RMAs) by alternative
- Acres of young-growth harvest in the Old-growth Habitat LUD and other natural setting LUDs by alternative
- Average total and open road densities and percentage of Wildlife Analysis Areas (WAAs) in road density categories on NFS and all lands
- Indicators of habitat capability using habitat models
- Cumulative harvest and road development on all Southeast Alaska lands

Comparison

Relative to old-growth habitat conservation, Alternative 1 would have the highest harvest (1.3 percent of existing POG), followed by Alternative 4 (0.9 percent of existing POG), followed by Alternative 5 (0.8 percent of existing POG), followed by Alternatives 2 and 3 (0.7 percent of existing POG). The change in the percent of original POG remaining after 100 years would follow the same pattern. Currently, 92 percent of original POG is remaining; under all alternatives this percentage would drop by about 1 percent after 100 years. Alternative 1 would result in about 90 percent remaining and the action alternatives would each result in about 91 percent remaining. This same pattern would continue for the percent reduction in high-volume POG. The existing 86 percent of original high-volume POG remaining would be reduced to about 85 percent for all alternatives after 100 years. For large-tree POG, about 79 percent of the original acres exist. Alternative 1 would result in about 78 percent remaining after 100 years, while the action alternatives would maintain about 79 percent.

Young-growth harvest in the beach and estuary fringe would be lowest under Alternative 1 (no harvest). Under the action alternatives, no harvest of POG would occur, but impacts resulting from young growth harvest would be highest under Alternative 2, which would include the second highest amount of young-growth acres and would allow clearcutting. Under Alternatives 3 and 4, considerable young-growth acreage would be harvested, but using commercial thinning, which would result in less effects than clearcutting. Alternative 5 would have the lowest effect on beach and estuary fringe among the action alternatives because young-growth acreage would be lowest and only patch cutting (with created openings up to 10 acres and a maximum removal of up to 35 percent of the acres of the original harvested stand) or commercial thinning would be allowed and only during the first 15 years after Forest Plan approval with a one-time entry restriction.

For RMAs, the lowest effects would be associated with Alternatives 1, 3, and 4, which would permit no harvest in RMAs. Alternative 2 would have the greatest harvest impacts in RMAs because it would include the highest amount of acreage and would allow clearcutting during the first 15 years of Forest Plan approval and commercial thinning thereafter. Effects to RMAs would be lower under Alternative 5 due to a lower amount of acres harvested and only patch cutting or commercial thinning would be permitted and only during the first 15 years after Forest Plan approval with a one-time entry restriction.

In the Old-growth Habitat LUD, Alternatives 1 and 4 would allow no young-growth harvest. The greatest amount of young-growth harvest in the Old-growth Habitat

LUD would occur under Alternative 2, followed by Alternatives 3 and 5. Effects would be greatest under Alternative 2 because it would allow clearcutting and have the largest harvest acreage, and less under Alternative 3 because only commercial thinning would be allowed, followed by Alternative 5 which would allow only patch cutting or thinning and only during the first 15 years after Forest Plan approval and with a one-time entry restriction.

Average total road density across the Forest (NFS lands only) under all alternatives would be approximately 0.23 mile per square mile after 100 years, an increase of 0.03 to 0.04 mile per square mile above existing levels. Approximately 83 percent of WAAs would have total road densities ranging between 0.0 and 0.7 mile per square mile under all alternatives. Total roads are conservatively defined to include open roads, closed roads, and decommissioned roads. Average open road density across the Forest (NFS lands only) would be approximately 0.09 mile per square mile, an increase of approximately 0.005 mile per square mile under all alternatives. Approximately 96 percent of WAAs would have open road densities ranging between 0.0 and 0.7 mile per square mile under all alternatives. Therefore, any potential increase in hunter access or risk of overharvest for wildlife species would be minor and localized, and would not be measurable at the forest-wide scale under any of the alternatives.

The transition to young-growth management would slow the long-term decrease in deer habitat capability due to the reduction in POG harvest. Based on Interagency Deer Habitat Capability model outputs, deer habitat capability under all of the alternatives would decline about 1 percent over 100 years. Forest-wide all alternatives would maintain about 99 percent of the existing deer habitat capability. Results based on the Forage Resource Evaluation System for Deer (or FRESH deer model) are very similar; Forest-wide, the existing level of habitat quality would be decline about 1 percent after 100 years under all alternatives.

Cumulative POG harvest on all landownerships would be greatest under Alternative 1, followed by Alternatives 4, 5, 3, and 2 (in that order). Cumulative effects would be least under the alternatives that propose the shortest young-growth transition time. After 100 years of Forest Plan implementation and non-NFS harvests, approximately 83 percent of the original (1954) total POG forest, about 76 percent of the original high-volume POG, and 63 to 64 percent of the original large-tree POG would be maintained on all landownerships under all of the alternatives.

Cumulative road densities (all land ownerships) would be similar among alternatives (about 0.45 mile per square mile), representing an increase of about 0.11 to 0.12 miles per square mile above current conditions. Open road densities for all land ownerships would increase from about 0.22 mile per square mile to about 0.24 mile per square mile after 100 years under all alternatives.

2 Alternatives

**Table 2-17
Comparison of Key Elements of the Alternatives**

| Element | Alternative | | | | |
|---|---|--|--|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Timber Sale Program Adaptive Management Strategy Phases (see large color map) | 2008 Forest Plan | 2008 Forest Plan, except can enter Phases 2 and 3 for YG without limitation ¹ | 2008 Forest Plan, except Phase 1 only for OG; can enter Phases 2 and 3 for YG without limitation | 2008 Forest Plan, except Phase 1 only for YG and OG | 2008 Forest Plan, except Phase 1 only for OG; can enter Phases 2 and 3 for YG without limitation |
| Harvest in Roadless ² | No entry | Roadless entry permitted in previously roaded IRAs after rulemaking | Roadless entry permitted (all IRAs with suitable lands) after rulemaking | No entry | No entry |
| Harvest in T77 Watersheds and TNC-Audubon Conservation Priority Areas | Harvest permitted | Harvest permitted | Harvest permitted | Harvest permitted | No OG Harvest permitted |
| Young-growth Harvest in Natural Setting LUDs | No entry | Clearcutting | Clearcutting | No entry | Old Growth Habitat LUD only; Created openings (<10 acres and <35% of stand) or thinning; no harvest after 15 years |
| Young-growth Harvest in Beach and Estuary Fringe | No entry | Clearcutting in Beach Fringe for first 15 years; only Commercial. Thinning thereafter | Commercial Thinning only | Commercial Thinning only | Created openings (<10 acres and <35% of stand) or thinning; no harvest after 15 years |
| Young-growth Harvest in Riparian Management Areas | No entry | Commercial Thinning only outside of TTRA; 33% maximum stand removal | No entry | No entry | Created openings (<10 acres and <35% of stand) or thinning, outside of TTRA; no harvest after 15 years; additional 100-ft buffer on lakes |
| Young-growth Harvest on High Vulnerability Karst | No entry | Commercial Thinning only | Commercial Thinning only | Commercial Thinning only | No entry |
| Beach and Estuary Fringe Buffer | | Maintain 1,000-ft protected corridor inland of even-age harvest units | | | Maintain a 200-ft no-cut buffer adjacent to shoreline |
| Young-growth Legacy | | | For young-growth harvest units >20 ac leave 30% as legacy | For young-growth harvest units >20 ac leave 30% as legacy | |
| CMAI | Flexible for first 50,000 acres of young-growth harvest | Flexible for life of plan | Flexible for life of plan | Flexible for life of plan | Flexible for life of plan |
| Scenery Standards for Young-Growth | 2008 Forest Plan | SIOs relaxed to Very Low | SIOs relaxed by one level from 2008 Forest Plan | 2008 Forest Plan | SIOs relaxed to Very Low for YG in Development LUDs only |
| Scenery Standards for Renewable Energy | 2008 Forest Plan (SIOs = Low for hydro) | SIOs relaxed to Very Low | SIOs = Low for all renewable energy projects | SIOs = Low for all renewable energy projects | SIOs = Low for all renewable energy projects |
| LUD Change | No change | Old-growth Habitat LUD modified | Old-growth Habitat LUD modified | Old-growth Habitat LUD modified | Old-growth Habitat LUD modified |
| Estimated Time to Full Transition | 32 years | 12 years | 13 years | 16 years | 16 years |
| Renewable Energy Development | No change | New management direction that is more permissive | New management direction that is more permissive | New management direction that is more permissive | New management direction that is more permissive |
| Other | No change | New plan direction | New plan direction | New plan direction | New plan direction |

YG = Young Growth, OG = Old Growth, CMAI = culmination of mean annual increment

¹ Under the 2008 Forest Plan, the scheduled timber sale program was generally confined to Phase 1 until such time as the level of timber harvest reached at least 100 MMBF for two consecutive years.

² Timber harvest is currently inconsistent with the 2001 Roadless Rule. Proposed timber harvest in IRAs could not occur until the Roadless Rule is changed as a result of new rulemaking, or the 2003 Tongass Exemption (68 FR 75136) is reinstated.

**Table 2-18
Comparison of Alternatives**

| Resource/Category | Unit of Measure | Alternative | | | | |
|--|-------------------------------------|-------------|-------------|---------|---------|---------|
| | | 1 | 2 | 3 | 4 | 5 |
| Key Issue 1 – Young-Growth Transition | | | | | | |
| Land suitable for timber production | Acres of OG | 328,615 | 349,380 | 516,566 | 269,135 | 229,060 |
| | Acres of YG | 263,904 | 374,714 | 349,872 | 263,710 | 338,973 |
| Harvest after 25 years | Acres of OG | 38,527 | 15,027 | 16,599 | 23,255 | 23,813 |
| | Acres of YG | 9,669 | 63,787 | 53,734 | 40,760 | 43,316 |
| Harvest after 100 years | Acres of OG | 62,851 | 32,609 | 35,568 | 42,597 | 42,479 |
| | Acres of YG | 209,882 | 335,344 | 313,216 | 234,885 | 284,144 |
| Approximate Years to full transition (YG harvest = 41 MMBF) | years | 32 | 12 | 13 | 16 | 16 |
| Total discounted net revenue after 15 years | \$ millions | \$64 | \$12 | \$21 | \$48 | \$46 |
| Total discounted net revenue after 25 years | \$ millions | \$101 | (\$20) | (\$3) | \$41 | \$42 |
| Total discounted net revenue after 100 years | \$ millions | \$205 | \$24 | \$37 | \$84 | \$81 |
| Number of annualized direct jobs supported (first decade) | # jobs | 184-217 | 196-231 | 194-229 | 187-220 | 187-221 |
| Key Issue 2— Renewable Energy | | | | | | |
| More permissive in siting Renewable Energy projects | Yes/No | No | Yes | Yes | Yes | Yes |
| Key Issue 3 – Roadless Areas1 | | | | | | |
| Projected harvest in inventoried roadless areas after 100 years | Acres of OG | 0 | 2,171 | 17,037 | 0 | 0 |
| | Acres of YG | 0 | 9,104 | 11,809 | 0 | 0 |
| Roadless characteristics protected | Qualitative degree of protection | Most | Second most | Least | Most | Most |
| Key Issue 4 – Wildlife Habitat and the Conservation Strategy | | | | | | |
| Percent of existing POG harvested after 100 years | Percent POG | 1.3 | 0.7 | 0.7 | 0.9 | 0.8 |
| Percent of original POG remaining after 100 years (92% in 2015) | Percent POG | 90 | 91 | 91 | 91 | 91 |
| Percent of original high volume POG remaining after 100 years (84% in 2015) | Percent POG | 85 | 85 | 85 | 85 | 85 |
| Percent of original large-tree POG remaining after 100 years (82% in 2015) | Percent POG | 78 | 79 | 79 | 79 | 79 |
| YG Harvest in Beach and Estuary Fringe after 100 years (all prescriptions) | Acres of YG | 0 | 21,871 | 30,769 | 11,114 | 3,903 |
| YG Harvest in Riparian Management Areas after 100 years (all prescriptions) | Acres of YG | 0 | 26,030 | 0 | 0 | 1,089 |

2 Alternatives

**Table 2-18 (continued)
Comparison of Alternatives**

| Resource/Category | Unit of Measure | Alternative | | | | |
|--|-----------------|-------------|--------|--------|--------|--------|
| | | 1 | 2 | 3 | 4 | 5 |
| YG Harvest in Old Growth Habitat LUD after 100 years (all prescriptions) | Acres | 0 | 31,640 | 26,186 | 0 | 1,811 |
| Average road density on NFS lands after 100 years (0.195 miles/square mile in 2016) | Miles/Sq. Mile | 0.231 | 0.235 | 0.233 | 0.228 | 0.232 |
| Average road density on All lands within Tongass boundary after 100 years (0.334 mile/sq.mi.in 2016) | Miles/Sq. Mile | 0.450 | 0.454 | 0.453 | 0.448 | 0.452 |
| Average open road density on NFS lands after 100 years (0.089 miles/square mile in 2016) | Miles/Sq. Mile | 0.094 | 0.095 | 0.095 | 0.094 | 0.094 |
| Average open road density on All lands within Tongass boundary after 100 years (0.218 miles/sq. mile in 2016) | Miles/Sq. Mile | 0.238 | 0.239 | 0.239 | 0.238 | 0.239 |
| Percent of WAAs with road density on NFS lands <0.7 miles/sq. mile (85.3% in 2016) | Percent | 82.7 | 82.7 | 82.7 | 83.8 | 82.8 |
| Percent of WAAs with road density on All lands <0.7 miles/sq. mile (78.6% in 2016) | Percent | 72.3 | 72.3 | 72.3 | 72.8 | 72.3 |
| Species-Specific Effects | | | | | | |
| Goshawks – Harvest of high-volume POG forest after 100 years | Acres | 27,466 | 14,020 | 13,716 | 18,249 | 17,815 |
| Marten – Harvest of deep snow winter habitat (high-volume POG forest <800 feet elevation) after 100 years | Acres | 16,116 | 8,120 | 6,297 | 9,929 | 9,844 |
| Wolf – Percent of 191 WAAs with model-generated habitat capability of at least 18 deer per square mile after 100 years (NFS Lands) | Percent | 34 | 34 | 34 | 34 | 34 |
| Brown Bear and Black Bear – YG harvest in beach and estuary fringe and RMAs after 100 years | Acres | 0 | 47,901 | 30,769 | 11,114 | 4,993 |
| Endemic Mammals – Harvest of POG forest after 100 years | Acres | 62,851 | 32,609 | 35,568 | 42,597 | 42,479 |
| Deer habitat capability on All Lands after 100 years in Terms of Percent of Original (1954) Habitat Capability (78% currently) | Percent | 77 | 78 | 78 | 78 | 78 |

YG = Young Growth, OG = Old Growth, POG = Productive Old Growth, WAA= wildlife analysis area

1 Timber harvest is currently inconsistent with the 2001 Roadless Rule. Proposed timber harvest in IRAs could not occur until the Roadless Rule is changed as a result of new rulemaking, or the Tongass Exemption (68 FR 75136) is reinstated.