



THE BECK GROUP CONSULTING

INTERMOUNTAIN FIBER SUPPLY ASSESSMENT FOR PORTIONS OF IDAHO, UTAH, AND WYOMING

Completed for:
The U.S. Forest Service State, Private, and Tribal Forestry Wood Innovations Program
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CHAPTER 1 – EXECUTIVE SUMMARY

Communities and agencies desire to better understand opportunities for expanding the utilization of wood fiber in eastern Idaho, western Wyoming, and northern Utah. U.S. Forest Service (USFS) lands constitute the majority of the region’s timberland, and they sponsored this assessment. Based upon the current flow of timber to existing forest products manufacturing facilities, The Beck Group, Inc. (BECK) divided the region into four working circles: East Idaho (ID/WY), Cache-Uinta (UT/WY), Ashley (UT), and Sublette (WY).

Table 1.1 illustrates the balance between annual sawlog harvest and annual consumption based on average recent harvest levels. The East Idaho region was determined to have the best opportunity to expand the utilization of sawlogs. This is due to a current annual harvest surplus, stable annual harvest from Idaho trust lands, and the planned harvest levels for the Caribou portion of the Caribou-Targhee National Forest. While there are mills in the area, sawlogs are often transported to other regions in the West. Units for tracking mill harvest and consumption are thousand board feet (MBF).

Table 1.1 – Sawlog Supply & Demand Balance by Working Circle (MBF/Year)

| Working Circle | Consumption (MBF/Year) | Average Harvest (MBF/Year) | Surplus/(Deficit) (MBF/Year) |
|----------------|------------------------|----------------------------|------------------------------|
| East Idaho | 2,700 | 10,143 | 7,443 |
| Cache-Uinta | 12,200 | 16,112 | 3,912 |
| Ashley | 6,000 | 3,586 | (2,414) |
| Sublette | 1,800 | 1,191 | (609) |
| Total | 22,700 | 31,031 | 8,332 |

Table 1.2 shows the estimated biomass available by type. There is a total of more than 40,000 bone dry tons per year with roughly half the total being logging residuals (harvest biomass) and half being non-merchantable biomass derived from harvest operations and forest restoration activities. Harvest-related biomass is estimated assuming one bone dry ton (BDT) generated per MBF of sawtimber harvested. To determine biomass available from forest restoration and fuels reduction projects, BECK referred to the Forest Inventory and Analysis (FIA) Database to determine the average tons per acre growing in each region. It was assumed that treating forest acres would remove half the standing tonnage.

Table 1.2 – Estimated Bone Dry Tons of Biomass Available by Working Circle (BDT/Year)

| Region | Harvest Biomass | Non-Merch Biomass | Total Accessible |
|-------------|-----------------|-------------------|------------------|
| East Idaho | 7,100 | 3,100 | 10,200 |
| Cache-Uinta | 10,800 | 10,000 | 20,800 |
| Ashley | 2,000 | 3,400 | 5,400 |
| Sublette | 500 | 3,200 | 3,700 |
| Total | 20,400 | 19,700 | 40,100 |

The total estimated BDT available by type in each working circle are shown in Table 1.3. FIA data was used to determine there are 3.02 BDT per MBF in the assessment area. Additional biomass may be available if viable outlets are developed for Forest Service volume.

Table 1.3 – Total BDT Available by Source (BDT/Year)

| Region | Sawlog Harvest | Harvest Biomass | Non-Merch Biomass | Total Accessible |
|-------------|----------------|-----------------|-------------------|------------------|
| East Idaho | 40,500 | 7,100 | 3,100 | 50,700 |
| Cache-Uinta | 64,400 | 10,800 | 10,000 | 85,200 |
| Ashley | 14,300 | 2,000 | 3,400 | 19,700 |
| Sublette | 4,800 | 500 | 3,200 | 8,500 |
| Total | 124,000 | 20,400 | 19,700 | 164,100 |

2.1 INTRODUCTION

The U.S. Forest Service (USFS) has requested a wood fiber supply and demand assessment for the areas of northeast Utah, southeast Idaho, and far western Wyoming to characterize the volumes of wood and biomass anticipated to be derived from forest and fuels treatments. The intent is to provide information to inform existing and prospective wood and biomass-based enterprises, local governments, and other interested parties seeking opportunities to add wood processing capacity to provide a sustainable economic outlet for trees and biomass removed from forest and fuels management. The area in the assessment includes the Bridger-Teton, Uinta-Wasatch-Cache, Caribou-Targhee, and Ashley National Forests and adjacent Federal, state, private, Tribal, and county forestlands.

2.2 WORKING CIRCLE DELINEATION

Since the study covers a large area, it was organized into four separate supply-and-demand working circles within the broader three-state region as shown in **Figure 2.1** on the following page. Each working circle is a sub-region that aligns with the current flow of wood in the analysis area. The working circles were determined based on interviews conducted as part of the study with those selling fiber and those consuming it to make products. Each working circle represents an area in which existing wood processing facilities consume most of the locally harvested fiber. In other words, the circles were determined by where fiber most logically and cost-effectively flows from forests to manufacturers. The working circles were organized using counties as the building blocks for each circle, mainly because harvest data and other types of forest inventory data are commonly collected and organized by county.

The four working circles BECK studied are:

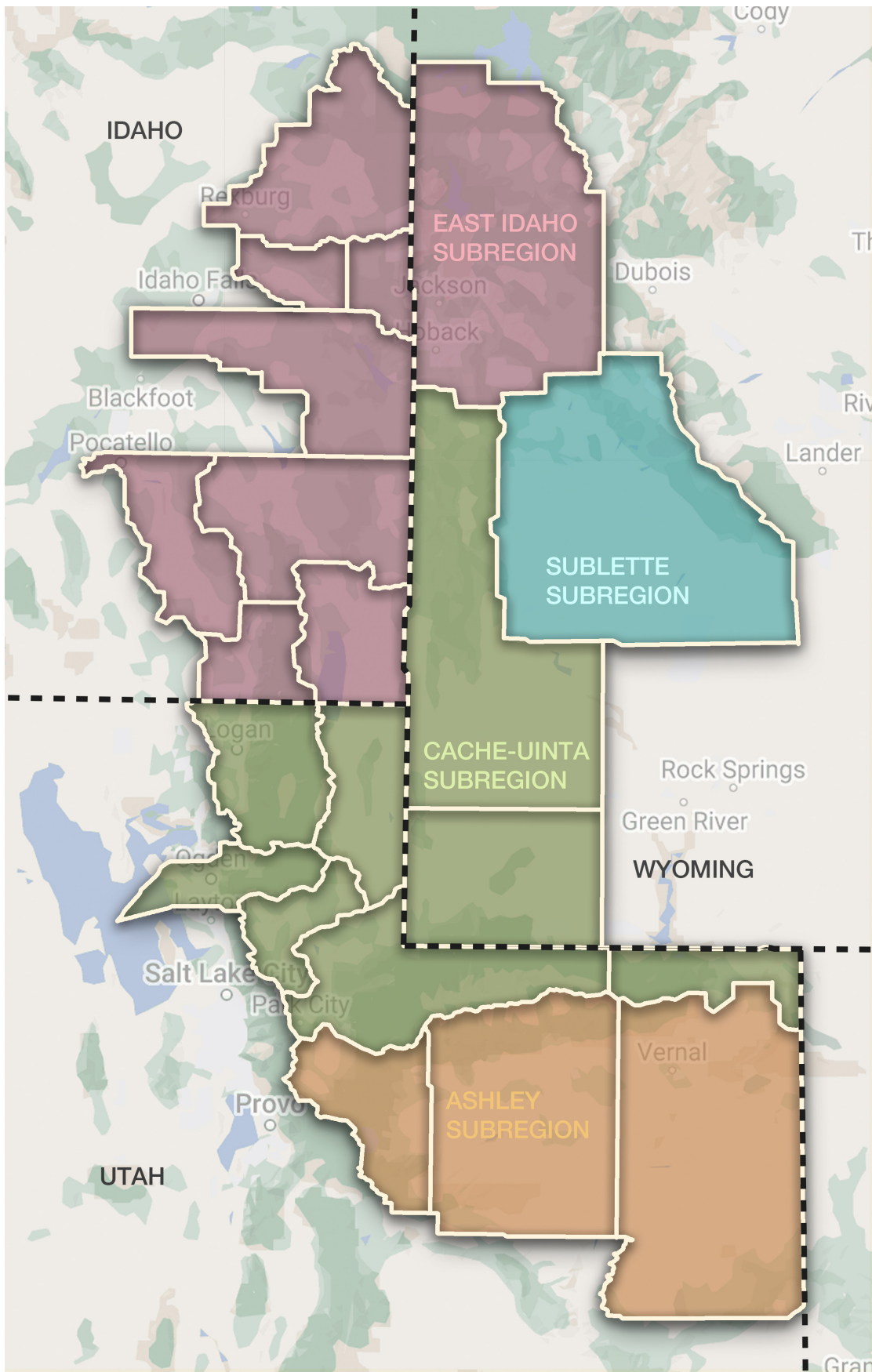
East Idaho – Includes Teton, Bannock, Franklin, Caribou, Fremont, Madison, Bonneville, and Bear Lake Counties in Idaho as well as Teton County in Wyoming. The East Idaho working circle includes the red-shaded counties in Figure 2.1.

Cache-Uinta – Includes Daggett, Summit, Rich, Morgan, Cache, Weber, and Lincoln Counties in Utah along with Lincoln and Uinta Counties in Wyoming. The Cache-Uinta working circle includes the green-shaded counties in Figure 2.1.

Ashley – Contains Duchesne, Uintah, and Wasatch Counties in Utah. The Ashley working circle includes the yellow-shaded areas in Figure 2.1.

Sublette – Sublette County, Wyoming is the only county in this working circle. The Sublette working circle is the light blue-shaded county in Figure 2.1.

Figure 2.1 — ID, WY, & UT Supply Study Area and Four Working Circles



2.3 OWNERSHIP OF TIMBERLAND

Ownership of timberland in each of the supply areas is shown in **Table 2.1** as reported by the US Forest Service’s Forest Inventory and Analysis (FIA) dataset. Importantly, timberland is defined as forestland that is producing or can produce 20 cubic feet of wood fiber per acre annually and is not withdrawn from timber utilization by statute or administrative regulation. In other words, timberland is forested land productive enough to support allowable timber harvesting. These data were last updated in 2019 for all the states in this assessment area. Since the analysis includes timberland only, modest areas of marginally productive forestland might not be included in the analysis. As the table indicates, there is a total of nearly 5 million acres of timberland among the four working circles. This is a significant forested area capable of supporting meaningful annual timber harvests. The East Idaho and Cache-Uinta working circles combined account for more than 70% of the total timberland area among all four working circles. Despite the Sublette working circle including only one county, it still accounts for more than 10% of the total timberland area.

National forests account for the vast majority (83%) of the timberland area in all four working circles. Overall, private ownership accounts for only about 11% of the timberland among the four working circles. In two of the working circles, Cache-Uinta and Ashley, private ownership is slightly higher—accounting for 18% and 16% respectively. The heavy Federal ownership across the study area indicates that the supply of raw material for forest products businesses operating in the region is mainly dependent on the level of forest management harvesting activity.

Also note that BECK queried the FIA database for “timberland” rather than “forestland.” The distinction is important because timberland is defined as forested land that can grow at least 20 cubic feet per acre per year and is not excluded from management. In contrast, forestland includes all acres with forest cover, including some acres where annual growth does not meet the productive capacity threshold and/or where forest management activities are excluded. Thus, timberland acres as reported by FIA are generally lower than the actual forested acres in a given region. More detailed information about ownership by county is provided in the main body of the report.

Table 2.1 – Timberland Ownership in the ID, UT, WY Assessment Area (Acres)

| Region | Landowner Type | | | | Total | % of Total |
|-------------|-----------------|---------------|---------------|---------------|-----------|------------|
| | National Forest | Other Federal | State & Local | NIPF & Tribal | | |
| East Idaho | 1,864,243 | 40,899 | 78,863 | 101,810 | 2,085,814 | 42 |
| Cache-Uinta | 1,141,977 | 77,717 | 19,796 | 268,889 | 1,508,380 | 30 |
| Ashley | 646,817 | 8,711 | 57,379 | 138,842 | 851,749 | 17 |
| Sublette | 471,592 | 44,987 | 0 | 27,415 | 543,993 | 11 |
| Total | 4,124,629 | 172,314 | 156,038 | 536,956 | 4,989,936 | 100 |
| % of Total | 83 | 3 | 3 | 11 | 100 | |

2.4 HISTORICAL ANNUAL TIMBER HARVEST

The volumes shown in **Table 2.2** are the average annual harvests in each working circle based on information published by the University of Montana Bureau of Business and Economic Research (BBER) data or reports developed by BBER about the forest products industry in the respective states. For Idaho, the harvest shown is the average from 2013-2022. In Utah and Wyoming, the data are derived from reports compiled by BBER from 2012-2020. As the data in the table indicate, the total annual harvest among all working circles has averaged 31 million board feet (log scale) per year. Of the total, more than half has been in the Cache-Uinta working circle despite that working circle having accounted for only 30% of the total timberland area. The higher proportion of privately owned timberland in the Cache-Uinta working circle is a contributing factor to that region having the highest annual harvest.

Also, as further discussed in the following log demand section, the Cache-Uinta working circle has the highest annual demand. These two observations are directly related, since a secure supply of raw material is essential to any forest products manufacturing business. History has shown over the last 30 years that annual harvests from national forests and other Federal lands are inconsistent. More detailed information about harvest by county is provided in the main body of the report.

Harvest in recent years has primarily focused on salvaging trees killed by insects and disease throughout the study area. While insects and disease will continue to impact the area's forests, salvage of forests that received significant impact in the last decade is nearly complete. Interviews indicate this will not cause a decline in harvest, but it will change the type of material available. Future harvesting will focus on thinning overstocked forests.

Table 2.2 – Average Annual Harvested Volume by Working Circle (MBF per year)

| Region | Total | % of Total |
|-------------|--------|------------|
| East Idaho | 10,143 | 32 |
| Cache-Uinta | 16,112 | 52 |
| Ashley | 3,586 | 12 |
| Sublette | 1,210 | 4 |
| Total | 31,048 | 100 |

2.5 BIOMASS AVAILABILITY

Biomass from forest operations consists of small diameter portions of the tree stem and logging slash that are generally not considered merchantable. In the assessment area, biomass can be derived from the limbs and tops of trees left after the bole has been used to make other products such as lumber, posts, and/or poles. BECK reviewed data from the FIA database and determined a factor of 1 bone dry ton (BDT)¹ of biomass per MBF of timber harvested was appropriate. The gross result based on this factor was then revised downward for accessibility issues, bearing in mind the limited access of heavy equipment in some timberlands. The biomass available in association with ongoing timber harvest in the region is shown in **Table 2.3**.

¹ A bone dry ton is a unit of weight measurement used for biomass in which the weight of water remaining within the wood fiber is excluded from the weight.

Table 2.3 – Harvest-Related Biomass Volume Estimates by Working Circle (BDT/Year)

| Region | Total Harvest | % Accessible | Total Accessible |
|-------------|---------------|--------------|------------------|
| East Idaho | 10,143 | 70 | 7,100 |
| Cache-Uinta | 16,112 | 67 | 10,800 |
| Ashley | 3,586 | 56 | 2,000 |
| Sublette | 1,210 | 40 | 500 |
| Total | 31,048 | 100 | 20,400 |

In addition to biomass from timber harvesting, forest restoration and wildfire mitigation is an emphasis on public and private land in each working circle. Management activities related to restoration and wildfire mitigation also create woody biomass that is neither traditionally merchantable nor removed. The volume available from these activities is difficult to predict as it depends on stand density and age, terrain, and the prescription for treatment. Historically this volume has been unutilized and is burned or left to decompose on the forest floor.

BECK reviewed the five- and ten-year plans from national forests in the assessment for forest management to estimate acres of thinning and other treatments that may produce traditionally non-merchantable fiber. In areas where there were fuels reduction-related discussions of management on private land, an estimate of those acres was also made. Green tons per acre were obtained from the FIA database and BECK estimated that treatments might remove half of green tons currently standing. The volume in BDT is also shown based on a 50% moisture content. The results of this analysis are shown in **Table 2.4**.

Table 2.4 – Estimated Biomass Available Annually from Forest Restoration

| Region | Annual Green Tons | Annual BDT |
|-------------|-------------------|------------|
| East Idaho | 6,200 | 3,100 |
| Cache-Uinta | 20,000 | 10,000 |
| Ashley | 6,800 | 3,400 |
| Sublette | 6,400 | 3,200 |
| Total | 39,400 | 19,700 |

If prospective consumers would like to utilize the biomass derived from forest restoration activities, users should work with the USFS and other landowners to remove the biomass volume associated with forest restoration and wildfire mitigation management activities. This would require additional effort and contract provisions for the USFS, so they will want to ensure the viability of potential outlets prior to making changes that might go unrewarded.

2.5.1 COST OF BIOMASS

The cost of forest-derived biomass can vary greatly depending on the volume available, the distance it must be hauled to market, and its form. Also, the volume to be removed per planned treatment activity influences the cost; the smaller the volume, the more equipment must be mobilized to utilize it. This increases costs, both in terms of the basic costs of equipment transit and the unproductive time that elapses while moving it. A key distinction in cost is that the limbs and tops of larger trees that are considered biomass are frequently assumed to accumulate at landings for “free” since all of the felling, yarding, and processing costs are assigned to the sawlogs. In contrast, biomass from trees too small for use as sawlogs must bear all of the felling, yarding, and processing costs, which makes this type of biomass considerably more costly.

Biomass can be removed from the forest in its original form, or by first being chipped or ground into fuel. Chipping and grinding reduce the cost of hauling the material as there is more usable product per load hauled. The cost of chipping or grinding biomass varies based on type of fuel, amount of biomass available, and setting where operations will occur, but are generally between \$25-\$35 per BDT. Some road systems might not be suitable for chip vans, so material is hauled by shorter trailers to locations where it is concentrated and chipped or ground. If biomass consists of small tree stems, it can be hauled in trailers suited for log hauling.

Hauling biomass without grinding or chipping requires durable trailers that can be used in the forest environment. End-dump trailers made for hauling rock are common, but other configurations can also be used. The cost of these trucks varies by configuration and region. Current hourly operating rates range from \$110 to \$130 per hour.

In other portions of the western United States, the cost of delivering chipped or ground biomass from harvest operations is in the \$50-60 per BDT range assuming a round-trip haul time of approximately 3 hours. This also assumes the material is available on a landing or otherwise near a road so it can be processed efficiently. BECK did not learn of any companies currently grinding or chipping the wood on landings within the assessment area. Therefore, a new operation would have to be developed which might have a different cost structure than those in other areas.

2.5.2 MILL RESIDUALS

Mill residuals consist of chips, bark, sawdust, and shavings. None of the industry participants interviewed had mill residuals available, as they used their bark, chips, sawdust, and shavings for pellets or sold them to others. It is likely that mill residuals could be available if an opportunity offered a greater return for the long term.

2.6 ANNUAL LOG DEMAND

The forest products industry within the assessment area has adjusted to utilize the available timber volume. This means that there are many small companies which primarily use the available harvest for lumber, posts and poles, house logs, and firewood. Harvest levels are not large enough to support a large, industrial-scale modern mill producing lumber or panels. Rather, the mills that are in the assessment area have been established for years, are typically small, family-run operations, and have found market niches that allow them to be profitable at a scale of operation that matches the available harvest volume. **Table 2.5** lists the entities utilizing the timber harvest within the assessment area. There are other wood consumers that influence the working circle but are located outside of the circle. One example mentioned in several interviews is Yellowstone Log Homes in Rigby, Idaho.

Table 2.5 – Wood Consumers in the Assessment Area by State

| Wood Purchasers- Idaho | City | County |
|----------------------------------|-------------------|---------------|
| Jensen Lumber | Ovid | Bear Lake |
| Kaufman Timber, LLC | Driggs | Teton |
| Somsen Lumber | Wayan | Caribou |
| Windy Point Firewood | Soda Springs | Caribou |
| Mountain Man Timber | St. Anthony | Fremont |
| Willmore Lumber Co | St. Anthony | Fremont |
| Wood Purchasers - Utah | City | County |
| Blizzard Lumber Company | Kamas | Summit |
| Defa Sawmill, Inc. | Tabiona | Duchesne |
| Euclid Timber Frames L.C. | Charleston | Wasatch |
| Fabrizio Sawmill, LLC | Duchesne | Duchesne |
| Firewood Solutions/Ivester Tree | Duchesne | Duchesne |
| Frontier Lumber | LaPoint | Uintah |
| Huberwoods | LaPoint | Uintah |
| John Larson Sawmill | Roosevelt | Duchesne |
| Robinson Sawmill | Morgan | Morgan |
| Thompson Sawmill | Randolph | Rich |
| Wolf Hollow Forest Products | Vernal | Uintah |
| M.Y. Timber Products | Duchesne | Duchesne |
| Perry Logging | Tridell | Uintah |
| Wasatch Timber | Heber City | Wasatch |
| Wood Purchasers - Wyoming | City | County |
| South and Jones Timber | Evanston/Mt. View | Uinta |
| Treasureland Post & Rail | Fort Bridger | Uinta |
| Pickaroon Timber Products Inc. | Pinedale | Sublette |
| Western Wyoming Timber Products | Osmond (Afton) | Lincoln |
| Mark Domek | Cora | Sublette |
| Ross Welding | La Barge | Lincoln |
| Schmid Sand & Gravel | La Barge | Lincoln |
| Dennis Trucking | Boulder | Sublette |
| Koch Construction | Daniel | Sublette |

Figure 2.2 – Map of Wood Consumers in the ID, UT, & WY Assessment Area

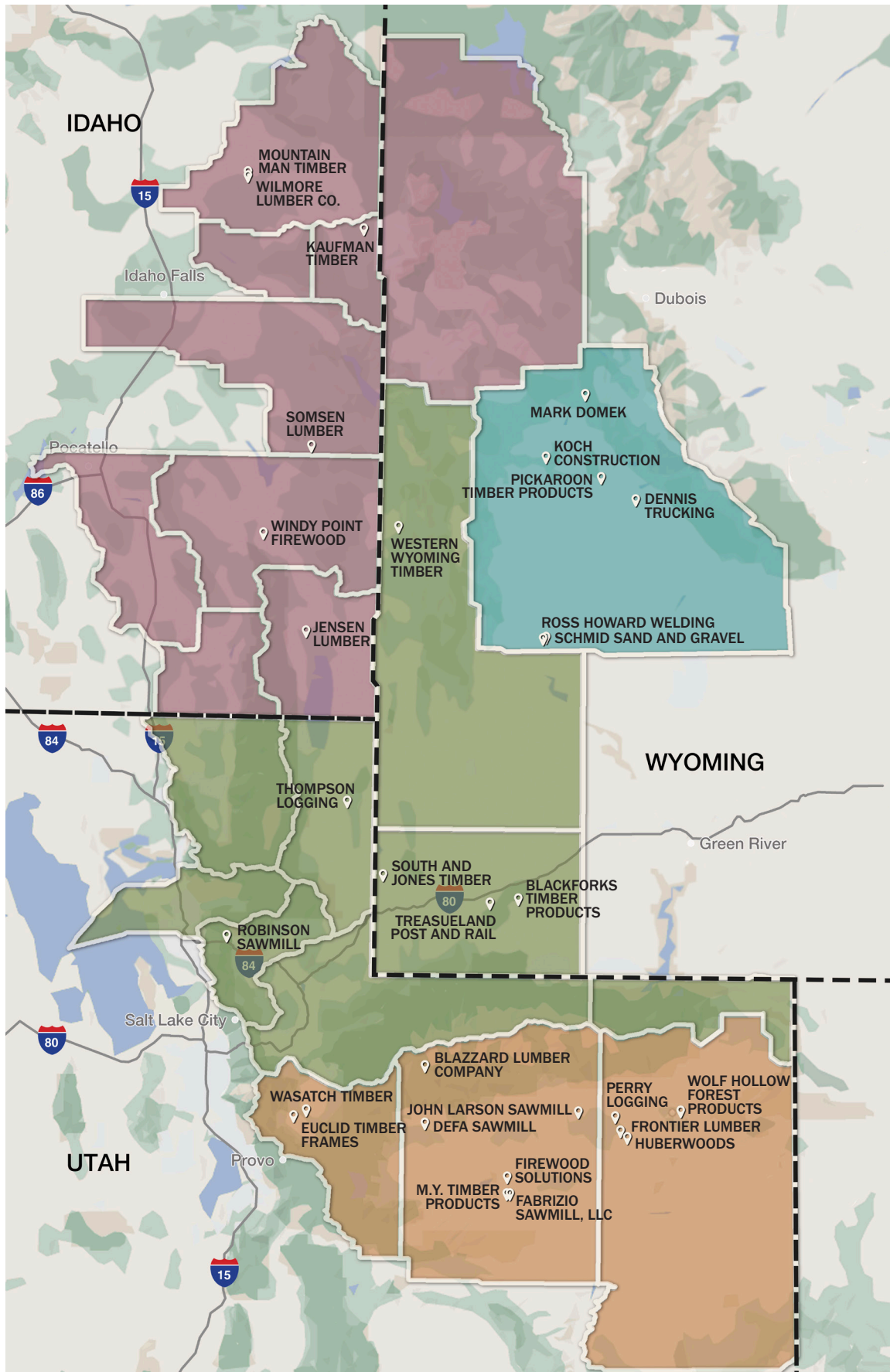


Table 2.6 illustrates the estimated annual demand, harvest, and surplus (or deficit) among the existing mills in each working circle. As the data show, total annual consumption among all regions is estimated at 22.7 MMBF per year. This compares to a total annual harvest of 31.0 MMBF per year, which leaves a net annual surplus of 8.3 MMBF per year. These findings show that fiber has a net outflow to mills in areas outside the supply area. Importantly, these data further reinforce the common observation that secure raw material supply is essential to the existence of mill infrastructure. As the data show, the Cache-Uinta working circle has the largest average annual harvest. This, in turn, translates into a milling infrastructure in the Cache-Uinta working circle that has the largest annual demand. In other words, the region with the most supply also has the most mills. This is a simple but often overlooked concept when assessing milling infrastructure in the forest products industry. More detailed information about log demand by county is provided in the main body of the report.

Table 2.6 – Supply & Demand Balance by Working Circle (MBF/Year)

| Working Circle | Consumption (MBF/Year) | Average Harvest (MBF/Year) | Surplus/(Deficit) (MBF/Year) |
|----------------|------------------------|----------------------------|------------------------------|
| East Idaho | 2,700 | 10,143 | 7,443 |
| Cache-Uinta | 12,200 | 16,112 | 3,912 |
| Ashley | 6,000 | 3,586 | (2,414) |
| Sublette | 1,800 | 1,191 | (609) |
| Total | 22,700 | 31,031 | 8,332 |

2.7 POTENTIAL FOR INDUSTRY EXPANSION IN THE SUPPLY AREA

As demonstrated by the data in **Table 2.7**, the timberland in the study area does not grow timber at a rate comparable to other states in the Western U.S. Across all ownership types and net of timber harvest removals and natural mortality, the counties in the study area have an average annual timber growth of only 10 cubic feet per acre per year. Thus, the region does not have the potential to develop a large and interconnected forest products industry infrastructure as exists in the other states listed in the table. Nevertheless, if more timber becomes available through increased levels of timber harvest, the region's timber industry has modest expansion potential.

Table 2.7 – Comparison of Net Annual Growth in Western U.S. States to the Study Area (annual cubic feet of growth/acre/year, net of annual harvests and natural mortality)

| State | National Forest | Other Federal | State & Local | NIPF & Tribal | Total |
|------------|-----------------|---------------|---------------|---------------|-------|
| Washington | 40 | 100 | 95 | 97 | 78 |
| Oregon | 52 | 122 | 124 | 106 | 83 |
| Idaho | 7 | 11 | 66 | 65 | 20 |
| California | 4 | 39 | 150 | 89 | 42 |
| Study Area | 14 | 22 | -6 | -3 | 10 |

The area with the greatest potential for industry expansion is the East Idaho working circle. This area has an annual surplus of sawlogs that come from a combination of Idaho Department of Lands and USFS timber sales. Currently, sawlogs harvested from this area are commonly transported relatively long distances to mills in Montana, other parts of Idaho, and Utah. Developing a small-scale mill in this region that produces specialty products is a likely option, but no feasibility assessment has been completed related to that concept. Despite the distance to market for some of the sawlogs harvested in the region, the timber sale programs in this area appear stable.

Other opportunities for industry expansion include increasing the ability to utilize small diameter logs. The desire to have an entity utilize small logs was mentioned during interviews with representatives from the Bridger-Teton, Uinta-Wasatch-Cache, and Ashley National Forests. This is because restoration thinning is a significant portion of the vegetation management program on these forests. With current markets largely limited to bulk firewood production for the small diameter material being harvested, the thinned material is often piled on landings. In some cases, those piles can be sold, but often they are left to burn or rot away.

Based on interviews with forest managers, forest restoration treatments will constitute a significant portion of all forest management efforts throughout the study area for the foreseeable future. This is because restoration-related thinning reduces the chance of catastrophic wildfire. Salvaging trees killed by insects and disease, which could provide fuel for wildfires, is another focus area. The Uinta-Wasatch-Cache also has a designated Wildfire Priority Landscape which will focus on removing fuels that might increase wildfire intensity near homes. Forest restoration treatments usually produce a significant portion of small diameter material. Finding a way to utilize this material through expanding current post and pole operations, chipping for use in pellets, or shaving for animal bedding would be welcome.

2.8 DISCUSSION OF OTHER TIMBER SUPPLY & DEMAND CONSIDERATIONS

Each of the following subsections addresses various issues affecting timber supply and demand in the study area.

2.8.1 INSECTS & WILDFIRE

Threats to forest health are a constant concern in the assessment area. Insects have had a significant impact in recent years, focusing much of the harvest on salvage. Insects are endemic to the assessment area, but warmer and drier conditions stress trees and allow insects to thrive. Therefore, insect activity will likely influence harvest in the assessment area for the long term.

Overstocked stands are common throughout the West and are reported in the assessment area. These stands are susceptible to insect attacks due to increased stress on trees searching for resources. Dense stands also provide continuous fuels for wildfires, making them more severe. The USFS is trying to restore these stands to more natural stocking levels throughout the assessment area.

Wildfires are common in the assessment area, as with most forested areas in the West. In recent years these fires have garnered attention as drought conditions and a preponderance of fuels allow them to be larger and more severe. These more intense fires impact communities and threaten lives near forests. This has prompted action from Federal, state, and local agencies to reduce the risk and impact of fires before they occur. The resulting fuel treatment and restoration activities are driving most forest management activities in the assessment area.

A current issue of concern in the assessment area is the spread of the Balsam woolly adelgid (*Adelges piceae*; BWA). Native to Europe, this insect has been slowly spreading through western U.S. forests for over a century. It was detected in Idaho in 1983 and moved to Utah by 2017. As of 2023 it was not yet detected in Wyoming.

BWA's primary host in the assessment area is subalpine fir, which is 16% of the standing volume among the species in the East Idaho and Ashley working circles, 25% of the Sublette working circle and 31% of the species in the Cache-Uinta working circle. The BWA impact to the Cache-Uinta working circle is currently of greatest concern as this area is experiencing significant mortality in subalpine fir.

Research is ongoing regarding the long-term effects of the BWA, but there appears to be a correlation between stand diversity and mortality rates. Less diverse stands suffer greater mortality rates. There is also a correlation between warmer sites and mortality rates. Subalpine fir stands in warmer areas with more freeze-free days are suffering higher mortality rates.

Areas of the Cache-Uinta and Ashley working circles where subalpine fir is prominent are likely to experience significant mortality in the next decade. This mortality may drive timber harvest operations to salvage dead trees. The commercial value of these trees is limited, as not all log consumers favor subalpine fir for their products. Subalpine in this region is often manufactured into dunnage or animal bed shavings.

2.8.2 CONTRACTOR WORKFORCE

Concerns were expressed throughout the assessment area about the limited capacity of the existing contractors to perform the work that the USFS would like to accomplish. These concerns come from the inability of the USFS to complete projects due to a lack of contractor capacity and the generational change that is occurring among the logging and trucking contractor workforce. Many contractors are nearing the ends of their careers without any apparent successors to continue their businesses. From the contractors' perspective, a concern expressed was uncertainty in offerings from the USFS. They are hesitant to invest in new equipment without greater assurance that adequate projects will be offered. Consistent contracting opportunities will encourage investment and bolster contractor capacity.

The types of forest management suggested in future activities will require different types of equipment and personnel than historical management activities. One of these changes might require the removal of chips and forest residuals rather than logs. This will require investment by contractors to purchase chipping equipment and the trailers to haul them, as BECK understands this type of equipment is currently rare in the area. Certainty of future opportunities will be necessary to entice that investment.

2.8.3 POLICY ISSUES & SOCIAL LICENSE

The USFS is the primary timberland owner throughout the assessment area. Being a public entity, management activities are subject to enacted policies and public input. As national leadership and societal desires change, the focus of forest management activities can change as well. Some of these changes are driven through budget allocations which fund priority activities for the USFS. These changes drive inconsistencies in annual timber harvest.

In portions of the assessment area, management is heavily influenced by societal desires. The Teton portion of the Bridger-Teton and the Targhee portion of the Caribou-Targhee were mentioned as specific areas where implementation of forest management projects is difficult due to societal influences. There are collaborative groups trying to bridge the gap between those that support forest management and those that do not. The USFS tries to be time- and resource-efficient, and avoids proposing activities that cause concerns which will likely affect implementation.

2.9 CONCLUSIONS & RECOMMENDATIONS

The combined annual timber harvest among all four working circles is small compared to other regions of the western US where forests are more abundant, where there is more of a mix of private and public timberland, and where there are more robust and diverse forest products manufacturing industries. However, the industry that currently exists within the Idaho, Utah, and Wyoming assessment area has evolved at a scale that matches the available timber volume.

The slight exception is in the Southeast Idaho area where there is an excess of volume desirable for mills. The excess volume is approximately 7 MMBF annually, so any investment will need to be scaled accordingly. Today many logs are hauled from the area to other parts of Idaho or Montana. As previously described, a small-scale specialty mill might be an opportunity in the region.

Mills contacted in the East Idaho working circle indicated that labor, not log supply, is limiting their production. Log supply is sufficient for their current operating posture. This would indicate that there might be volume available for a small forest products facility if labor were available to operate it.

The surplus of volume shown in the Cache-Uinta working circle is small enough that it will be difficult to entice investment. Much of the surplus shown is likely consumed by facilities in neighboring Wasatch County, which shows a deficit. The flow of logs between the Cache-Uinta and Ashley working circles made the delineation of the working circles difficult.

Throughout the assessment area, many operators indicated that they buy a sale, or have an agreement with private owners, which will supply them for multiple years. With few bidders in a working circle, this could limit participation in sales if an operator has supply for the near future.

The forest products industry representatives throughout the assessment area indicated they prefer small sales to be offered by the Forest Service or other entities. Small sales are usually less than 1 MMBF and require a small down payment. They also do not usually require extensive project work such as roads, meaning that the bidder has less cash outlay to perform on the sale.

Existing pellet producers might provide an opportunity for the small diameter timber removed from restoration projects if it is chipped or can be feasibly hauled to a chipper. There are a few pellet facilities throughout the assessment area which use clean chips. One of the largest of these operations is searching a wide area to find supply. In areas where access is available for chip vans, the feasibility of producing clean chips (those without bark or dirt) to be blown directly into chip vans should be reviewed. This would add jobs and reduce fuels piled in the forest.

Other opportunities for forest-derived biomass would include animal bedding, fuel for wood chip boilers, and/or emerging medium-scale biochar production technologies. These technologies are in place in other portions of the West but would need to be vetted for the assessment area. Finally, efforts to increase the supply of timber, via increased levels of forest restoration treatments, should be built around the following:

- **Forest Restoration:** Forest management professionals within the US Forest Service must recognize the importance of forest restoration and consider it critical for mitigating the impacts of wildfires, improving ecosystem health, enhancing biodiversity, and protecting watersheds in the study area.

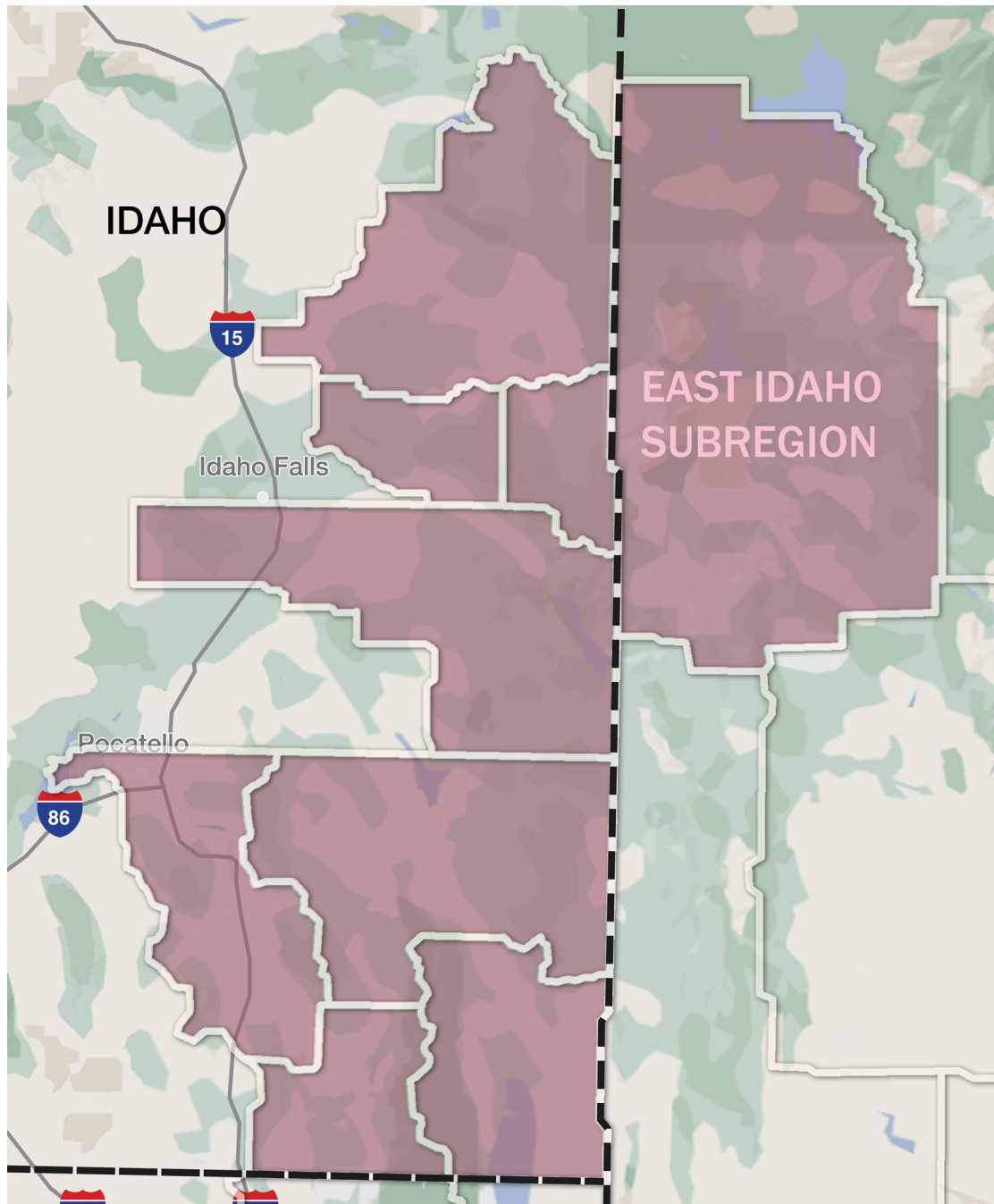
- **Collaboration:** Other regions in the US West with large areas of publicly managed land in need of forest restoration have successfully used collaboration among Federal, state, Tribal, and local governments, non-governmental organizations, private landowners, and industry stakeholders. Effective collaboration can engage local communities in planning treatments and prioritizing those treatments to the highest risk areas.
- **Biomass Utilization:** While policy changes that incentivize forest treatment might help, as might even subsidized funding of forest restoration, the only truly economically sustainable approach to forest restoration is to develop businesses that can convert biomass material into saleable products, which in turn allows that biomass material to “pay its way” out of the forest.
- **Capacity Building:** Increasing harvest levels will involve increasing the productive capacity at all levels of the supply chain. This includes the capacity of government agencies to plan, implement, and administer forest restoration treatments; the contractors to harvest, process, and transport the logs and biomass; and businesses that can convert the harvested material into valuable products. This will likely require long-term commitment and planning from the organizations and businesses involved in forest restoration. It could also be beneficial to develop formal programs that offer training and technical assistance to provide education, allow development of partnerships, and share best practices and lessons learned.



3.1 EAST IDAHO WORKING CIRCLE DELINEATION

The East Idaho working circle is bounded by the Caribou Mountain Range on the eastern portion of the circle. These mountains hamper the flow of logs from east of these mountains to the west into the facilities in Idaho. Teton County, Wyoming is also included in this working circle as interviews indicated logs from this county are transported north of the Caribou Range and into facilities in Idaho. For the southern boundary, the Idaho-Utah state line was used. The western and northern portions of the circle are determined by the assessment boundary. While these boundaries do not prohibit movement of logs, they outline the area in which wood fiber moves most frequently. **Figure 3.1** illustrates the counties of the East Idaho working circle.

Figure 3.1 – East Idaho Working Circle



3.2 TIMBERLAND OWNERSHIP IN THE EAST IDAHO WORKING CIRCLE

Land ownership is important when reviewing the log supply within a given region. Each landowning entity has different forest management objectives. Idaho endowment lands (State) are required to generate revenue for beneficiaries and do so through harvests on state endowment timberlands. Private landowners are also usually more driven to produce revenue from their lands, while Federal managers have many objectives; producing timber volume and the associated revenue are not priorities. BECK reviewed the timberland ownership (as opposed to forestland ownership, since timberland can be managed to produce forest products; forestland can include acres which are not available for management). **Table 3.1** shows the ownership in acres for the East Idaho working circle.

Table 3.1 – Ownership in the East Idaho Working Circle (Acres)

| County | State | National Forest | Other Federal | State and Local | NIPF & Tribal | Total | % of Total |
|------------------|-------|-----------------|---------------|-----------------|---------------|-----------|------------|
| Bannock | ID | 21,143 | 19,158 | 12,772 | 13,024 | 66,097 | 3% |
| Bear Lake | ID | 136,884 | 0 | 0 | 10,389 | 147,272 | 7% |
| Bonneville | ID | 296,504 | 4,088 | 9,892 | 15,395 | 325,879 | 15% |
| Caribou | ID | 229,666 | 11,732 | 26,923 | 37,667 | 305,988 | 15% |
| Franklin | ID | 53,437 | 0 | 1,979 | 0 | 55,416 | 3% |
| Fremont | ID | 500,525 | 0 | 7,095 | 8,868 | 516,487 | 25% |
| Madison | ID | 29,527 | 0 | 20,202 | 0 | 49,729 | 2% |
| Teton | ID | 69,528 | 5,921 | 0 | 14,802 | 90,252 | 4% |
| Teton | WY | 527,029 | 0 | 0 | 1,665 | 528,694 | 25% |
| Total | | 1,864,243 | 40,899 | 78,863 | 101,810 | 2,085,814 | 100% |
| Percent of Total | | 89% | 2% | 4% | 5% | | |

It is also important to understand the volume grown in each ownership group, as that is the inventory available for future harvest. Accordingly, **Table 3.2** shows the standing timber inventory in the East Idaho working circle by ownership and county. As the data in the table show, there is a total of 17.2 billion board feet of standing timber among the nine counties in the East Idaho working circle.

Note that comparing the percentage of total values in **Tables 3.1 and 3s.2** shows that acres and standing volume are roughly comparable. This is as expected since there are no major public or private landowners in the region practicing intensive forest management, which would increase the standing inventory on a given ownership type relative to the accompanying acreage. One minor exception is Fremont County in Idaho, which accounts for 25% of the timberland acres but only 19% of the standing volume.

Table 3.2 — Volume of Standing Timber Inventory by Ownership (MBF)

| County | State | National Forest | Other Federal | State and Local | NIPF & Tribal | Total | % of Total |
|------------------|-------|-----------------|---------------|-----------------|---------------|------------|------------|
| Bannock | ID | 433,733 | 186,920 | 83,266 | 90,193 | 794,113 | 5% |
| Bear Lake | ID | 1,245,260 | 0 | 0 | 99,339 | 1,344,599 | 8% |
| Bonneville | ID | 2,930,882 | 0 | 157,240 | 0 | 3,088,121 | 18% |
| Caribou | ID | 2,042,660 | 146,004 | 226,515 | 143,636 | 2,558,814 | 15% |
| Franklin | ID | 371,793 | 0 | 0 | 0 | 371,793 | 2% |
| Fremont | ID | 3,249,194 | 0 | 27,951 | 98,773 | 3,375,919 | 19% |
| Madison | ID | 173,975 | 0 | 129,488 | 0 | 303,463 | 2% |
| Teton | ID | 591,636 | 25,796 | 0 | 19,080 | 636,511 | 4% |
| Teton | WY | 4,723,292 | 0 | 0 | 50,918 | 4,774,209 | 27% |
| Total | | 15,762,425 | 358,720 | 624,459 | 501,939 | 17,247,542 | 100% |
| Percent of Total | | 91% | 2% | 4% | 3% | 100% | |

Growth-to-drain ratios are a measure of forest growth to removals, with removals including both timber harvest and natural mortality (standing dead trees). A growth-to-drain ratio greater than 1 indicates that a given forest area's growth exceeds removals and natural mortality. Growth-to-drain ratios vary over time on a given area of timberland. However, if the ratio is less than 1 for a prolonged period, it indicates that the inventory of standing timber in the region is declining over time; in other words, the rate of removals and/or natural mortality is unsustainable. A key objective of forest management is to carry out management activities that maintain the growth-to-drain ratio above 1. Unfortunately, the FIA database for this region does not have much information about timber harvest for a number of species, so the ratio cannot be calculated. For the species that do have harvest data, the ratio indicates that growth is far exceeding removals and natural mortality.

3.3 EAST IDAHO WORKING CIRCLE FIBER SUPPLY

Log supply for the East Idaho working circle is determined by the annual harvest in the region. Annual harvest data are available by county in the state of Idaho. For this assessment, data from 2013-2022 were used to determine an average annual harvest. Wyoming (Teton County) harvest information was derived from University of Montana BBER Wyoming's Forest Products Industry and Timber Harvest reports for 2014 and 2018. As the data in **Table 3.3** indicate, total annual harvest averaged 10.1 million board feet over roughly the last decade. Of that total more than three-quarters is from the US Forest Service. This is expected, since the U.S. Forest Service has 89% of the acres and 91% of the standing volume in the East Idaho working circle. The State of Idaho also has a meaningfully sized and consistent harvest volume in the region. It is also worth noting that even though Bear Lake County in Idaho only accounts for 8% of the standing volume in the East Idaho working circle, it has accounted for over a quarter of the annual harvest volume for the last decade. Teton County Wyoming demonstrates the opposite effect, in that it accounts for over a quarter of the standing volume in the East Idaho working circle, but only 1% of the annual harvest over the last decade.

Table 3.3 – Harvest in the East Idaho Working Circle (MBF)

| County | State | Industry | NIPF & Tribal | State | Forest Service | BLM & Other Public | TOTAL (MBF) | % of Total |
|------------|-------|----------|---------------|-------|----------------|--------------------|-------------|------------|
| Bannock | ID | 0 | 52 | 0 | 466 | 50 | 568 | 6% |
| Bear Lake | ID | 0 | 1 | 449 | 2,349 | 0 | 2,799 | 28% |
| Bonneville | ID | 0 | 0 | 0 | 991 | 0 | 991 | 10% |
| Caribou | ID | 0 | 37 | 0 | 1,625 | 121 | 1,783 | 18% |
| Franklin | ID | 0 | 33 | 0 | 0 | 0 | 33 | 0% |
| Fremont | ID | 0 | 283 | 393 | 1,396 | 270 | 2,341 | 23% |
| Madison | ID | 0 | 8 | 423 | 2 | 0 | 433 | 4% |
| Teton | ID | 0 | 379 | 0 | 674 | 0 | 1,052 | 10% |
| Teton | WY | 0 | 0 | 0 | 142 | 0 | 142 | 1% |
| Total | | 0 | 793 | 1,265 | 7,648 | 441 | 10,143 | 100% |
| % of Total | | 0% | 8% | 12% | 76% | 4% | 100% | |

The size of the logs produced from harvest is important to consumers. BECK used data from the FIA database to determine the percentage of harvest by small end diameter. This estimate assumes most logs are 32' or longer as data are provided by diameter at breast height (DBH), so small end diameters must account for log taper. The percentage of logs by diameter is shown in **Table 3.4**.

Table 3.4 – Percentage of Harvest by Small End Diameter

| Small End Diameter | 5"-11" | 12"-17" | 18"-23" | 24"+ |
|------------------------|--------|---------|---------|-------|
| Percentage | 24% | 25% | 34% | 18% |
| Estimated Volume (MBF) | 2,387 | 2,523 | 3,414 | 1,819 |

3.3.1 USFS HARVEST

The U.S. Forest Service harvests the most volume in the East Idaho working circle. Therefore, BECK reviewed the annual Cut and Sold report for National Forests within the working circle area. The Caribou-Targhee is the most prominent forest in the working circle, with fuelwood the most common product sold by the forest. The volume produced by product type for the Caribou-Targhee in the years 2013-2022 is shown in **Table 3.5**. The volumes shown in the table are from the Forest Service and are derived by various methods. BBER information is derived from measurements provided by the state or industry, so the volumes might not be comparable.

Table 3.5 – Harvest on the Caribou-Targhee National Forest 2013-2022 (MBF)

| Product Type | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Average |
|--------------|-------|--------|--------|--------|-------|--------|-------|-------|-------|-------|---------|
| Sawtimber | 2,011 | 2,586 | 2,825 | 3,575 | 385 | 1,497 | 869 | 579 | 1,809 | 2,458 | 1,859 |
| Pulp | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 14 |
| Poles | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| Posts | 24 | 16 | 20 | 27 | 32 | 37 | 26 | 26 | 33 | 33 | 27 |
| Fuelwood | 7,274 | 6,867 | 7,510 | 6,775 | 6,238 | 9,211 | 5,628 | 5,432 | 3,535 | 4,858 | 6,333 |
| Non-saw | 362 | 1,423 | 286 | 316 | 100 | 283 | 168 | 107 | 681 | 541 | 427 |
| Misc. | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Total | 9,796 | 10,892 | 10,642 | 10,693 | 6,756 | 11,030 | 6,692 | 6,145 | 6,058 | 7,905 | 8,661 |

3.3.2 SPECIES IN THE EAST IDAHO WORKING CIRCLE

Species composition of the harvest is important to prospective purchasers of timber in each working circle. BECK heard from mills and suppliers that Douglas-fir is desired, whereas subalpine fir (true fir) is not. Lodgepole pine is utilized by those selling firewood, posts, and poles. Engelmann spruce is also used by firewood producers as well as those making house logs. The estimated percentages of species in the East Idaho working circle are shown in **Table 3.6**.

Table 3.6 – Species Percentages Growing in the East Idaho Working Circle

| Ownership | Douglas-fir | True fir | Engelmann spruces | Lodgepole pine | Other softwoods | Cottonwood and aspen |
|------------------|-------------|----------|-------------------|----------------|-----------------|----------------------|
| National Forest | 41% | 17% | 20% | 19% | 2% | 3% |
| Other Federal | 92% | 0% | 0% | 6% | 0% | 2% |
| State and local | 46% | 22% | 0% | 16% | 0% | 15% |
| Private | 84% | 3% | 10% | 2% | 0% | 2% |
| Weighted Average | 43% | 16% | 18% | 18% | 1% | 3% |

FIA harvest data indicate that not all species are harvested regularly. For instance, the FIA data do not show any Engelmann spruce being harvested, though it constitutes 18% of the species mix. Interviews indicated that Engelmann spruce is a minor part of the harvest. The percentage of harvest by species as indicated by FIA data is shown in **Chart 3.7**.

Chart 3.7 – Softwood Species Percentage of Harvest in the East Idaho Working Circle



In addition to the softwood species harvested, the FIA data indicate that a significant amount of cottonwood is harvested within the working circle. Cottonwood may be cut just to remove it, or can be used in wood products such as fence rails or veneer. None of those interviewed mentioned utilizing cottonwood.

3.4 EAST IDAHO WORKING CIRCLE FIBER DEMAND

BECK interviewed participants in the wood products industries in the East Idaho working circle to determine the demand for timber in the area. Many of those interviewed used wood fiber for multiple purposes such as sawmilling, firewood, pellets, dunnage and house logs. Based on those interviews it appears that most timber purchasers in the region first acquire the standing timber, harvest it, sell whatever is in demand to others (e.g., sawmills, house logs, and post and pole mills) and convert the remainder into firewood.

Table 3.8 compares the estimated volume consumed to the volume harvested in each county of the working circle. As the data in the table indicate, for every county in the East Idaho working circle the average annual harvest is estimated to exceed the annual demand. This is true even in Bear Lake County, where both demand and harvest have the highest levels among all the counties. There are wood consumers in counties neighboring this working circle that produce posts and poles as well as other forest products which source from this working circle. Mills from Montana, Utah, or other portions of Idaho also come to the area to purchase sales opportunistically. Log sellers in this area expressed the desire to have additional bidders for timber sales, as competition is limited and species such as subalpine fir can discourage bidders. The 7.2 MMBF annual surplus could entice an appropriately scaled investment.

Table 3.8 – East Idaho Fiber Demand (MBF/Year)

| County | State | Consumption (MBF/Year) | Average Harvest (MBF/Year) | Surplus/(Deficit) (MBF/Year) |
|------------|-------|---------------------------|-------------------------------|---------------------------------|
| Teton | WY | 0 | 142 | 142 |
| Teton | ID | 200 | 1,052 | 852 |
| Bannock | ID | 0 | 568 | 568 |
| Franklin | ID | 0 | 33 | 33 |
| Caribou | ID | 400 | 1,783 | 1,383 |
| Fremont | ID | 200 | 2,341 | 2,041 |
| Madison | ID | 0 | 433 | 433 |
| Bonneville | ID | 0 | 991 | 991 |
| Bear Lake | ID | 2,000 | 2,799 | 799 |
| Total | | 2,900 | 10,143 | 7,243 |

3.5 FUTURE SUPPLY & DEMAND IN THE EAST IDAHO WORKING CIRCLE

Investments which increase the utilization of harvested timber are usually driven by new technologies or a surplus of supply which invites investment. The major log sellers in the East Idaho working circle indicated there is currently a supply surplus, since a portion of the harvested volume leaves the working circle and since bidders from out of the area continue to buy timber sales. Some of the symptoms of limited demand for timber are demonstrated in the Caribou-Targhee National Forest. In the Caribou portion of the Caribou-Targhee National Forest there have been no bid sales, and the National Forest also has sales that are ready to be offered to purchasers, but which are “on the shelf” so as not to overwhelm the local market.

Estimated at 7.2 MMBF, this excess volume appears to be enough to invite investment in a smaller wood products facility. Douglas-fir is a desirable species for wood products and represents the largest portion of volume in the area. However, ensuring the current surplus volume would remain available on a long-term basis would be a major concern for an entity wanting to invest.

3.6 BIOMASS

According to those interviewed, harvest-derived biomass for the Eastern Idaho working circle is currently unutilized. BECK reviewed the terrain and road systems and estimated that 70% of the timberland in the area would be accessible to grinding or chipping operations. These operations require a chipper or grinder to access the landing where they load chip vans for delivery to market. Steep terrain can limit accessibility for these operations.

Using the conversion of 1 BDT of biomass for each MBF harvested, the total biomass produced is 10,143 BDT. To account for accessibility, the available amount is reduced to a volume of 7,100 BDT. **Table 3.9** shows the estimated harvest-derived biomass available for each county in the East Idaho working circle.

Table 3.9 – Harvest-Related Biomass in the East Idaho Working Circle (BDT/Year)

| County | State | Biomass Accessible | BDT |
|------------|-------|--------------------|-------|
| Bannock | ID | 70% | 398 |
| Bear Lake | ID | 70% | 1,959 |
| Bonneville | ID | 70% | 694 |
| Caribou | ID | 70% | 1,248 |
| Franklin | ID | 80% | 27 |
| Fremont | ID | 70% | 1,639 |
| Madison | ID | 70% | 303 |
| Teton | WY | 80% | 113 |
| Teton | ID | 70% | 737 |
| Total | | 70% | 7,117 |

In addition to harvest-related biomass, BECK reviewed the Caribou-Targhee five-year management plan along with the Bridger-Teton ten-year plan to estimate the number of acres to be treated that will produce biomass. These activities are pre-commercial thinning, fuel breaks, and other activities that might cut trees. The estimated acres and volume are shown in **Table 3.10**.

Table 3.10 – Estimated Biomass from Forest Restoration Activities Annually

| Region | Acres | Green Tons | Bone Dry Tons |
|------------|-------|------------|---------------|
| East Idaho | 400 | 6,200 | 3,100 |

3.7 SITING OPPORTUNITY

A forest products manufacturing facility must have adequate space, power and utilities, and good access to transportation networks for shipping and receiving materials. It is helpful to have ground that is already prepared for construction, or at least with gentle slopes to ease construction. Access to raw material and the market for products is also beneficial to the success of the facility. An adequate workforce is required to make it all work.

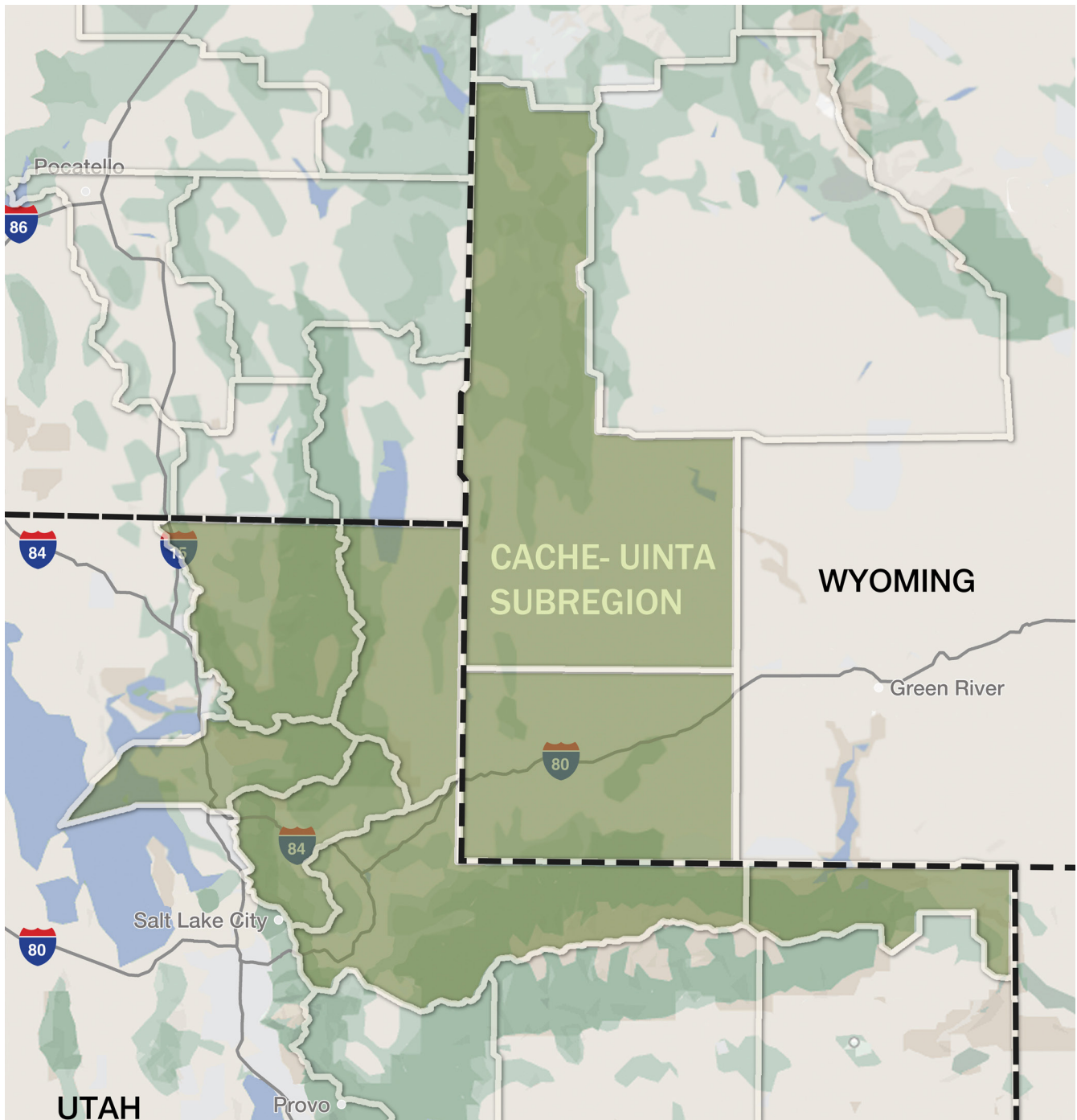
In the East Idaho working circle the municipalities of Montpelier or Soda Springs, Idaho were suggested as possible locations due to their proximity to the area where much of the timber harvest occurs. These communities also have rail access for shipping products to market. Locations for a facility and the necessary workforce would have to be explored further before any investment were to be made.

CHAPTER 4 – CACHE-UINTA WORKING CIRCLE

4.1 CACHE-UINTA WORKING CIRCLE DELINEATION

The Cache-Uinta working circle includes six counties in northern Utah and two counties in southwest Wyoming. Those counties include Cache, Daggett, Morgan, Rich, Summit, and Weber Counties in Utah as well as Lincoln and Uinta in Wyoming. This working circle is in the middle of the assessment area. **Figure 4.1** depicts the counties included in the Cache-Uinta Working Circle.

Figure 4.1 – Cache-Uinta Working Circle



4.2 TIMBERLAND OWNERSHIP IN THE CACHE-UINTA WORKING CIRCLE

Table 4.1 illustrates the acreage of timberland by owner in the counties within the Cache-Uinta working circle. This information is based on FIA data from 2019. As with the other working circles in the assessment, the Cache-Uinta working circle timberland is predominantly owned by the U.S. Forest Service with 76% of the acreage. Private owners have the next largest share at 18%. Lincoln County in Wyoming accounts for over 40% of the total acreage in the working circle. Note that—uniquely among all the counties in the entire study—more than three-quarters of timberland acres in Morgan County, UT are privately owned. None of the other counties have such a high percentage of private ownership.

Table 4.1 – Timberland Ownership in the Cache-Uinta Working Circle

| County | State | National Forest | Other Federal | State and Local | NIPF & Tribal | Total | % of Total |
|------------------|-------|-----------------|---------------|-----------------|---------------|-----------|------------|
| Cache | UT | 123,776 | 0 | 0 | 19,813 | 143,590 | 10% |
| Daggett | UT | 124,180 | 0 | 5,724 | 0 | 129,904 | 9% |
| Morgan | UT | 17,577 | 0 | 0 | 63,650 | 81,227 | 5% |
| Rich | UT | 28,297 | 8,499 | 1,654 | 24,072 | 62,522 | 4% |
| Summit | UT | 265,873 | 0 | 5,362 | 119,955 | 391,191 | 26% |
| Weber | UT | 21,772 | 0 | 0 | 17,984 | 39,756 | 3% |
| Lincoln | WY | 536,713 | 60,068 | 7,056 | 14,112 | 617,948 | 41% |
| Uinta | WY | 23,789 | 9,150 | 0 | 9,303 | 42,242 | 3% |
| Total | | 1,141,977 | 77,717 | 19,796 | 268,889 | 1,508,380 | 100% |
| Percent of Total | | 76% | 5% | 1% | 18% | 100% | |

Table 4.2 shows the standing timber volume by ownership for the counties in the Cache-Uinta working circle. This is the inventory of volume that might be available for harvest. There is a total of 11.4 billion board feet of standing timber in the Cache-Uinta working circle. As expected, based on ownership, the U.S. Forest Service properties have the greatest standing volume in the Cache-Uinta working circle.

However, there are some notable differences between acreage and standing volume among the counties. For example, as previously described, Lincoln County, Wyoming accounts for 41% of the acres of timberland—but when considering standing timber volume, Lincoln County accounts for more than 55% of the standing volume. The opposite effect is seen in Summit County in Utah, which constitutes 26% of the acreage but only 12% of the standing inventory. Note that in all tables in this report, the % of Total columns and rows may not sum to 100 because of rounding.

Table 4.2 – Volume of Standing Timber Inventory by Ownership (MBF)

| County | State | National Forest | Other Federal | State and Local | NIPF & Tribal | Total | % of Total |
|------------------|-------|-----------------|---------------|-----------------|---------------|------------|------------|
| Cache | UT | 1,164,244 | 0 | 0 | 149,006 | 1,313,250 | 12% |
| Daggett | UT | 296,847 | 0 | 6,759 | 0 | 303,606 | 3% |
| Morgan | UT | 261,499 | 0 | 0 | 483,464 | 744,963 | 7% |
| Rich | UT | 434,608 | 60,971 | 0 | 237,935 | 733,514 | 6% |
| Summit | UT | 1,027,782 | 0 | 8,664 | 378,867 | 1,415,312 | 12% |
| Weber | UT | 185,303 | 0 | 0 | 200,168 | 385,472 | 3% |
| Lincoln | WY | 5,713,144 | 254,129 | 24,843 | 284,538 | 6,276,655 | 55% |
| Uinta | WY | 148,543 | 6,272 | 0 | 71,402 | 226,217 | 2% |
| Total | | 9,231,971 | 321,372 | 40,265 | 1,805,380 | 11,398,988 | 100% |
| Percent of Total | | 81% | 3% | 0% | 16% | 100% | |

4.3 CACHE-UINTA WORKING CIRCLE FIBER SUPPLY

The historical harvest for Utah counties was derived from Utah’s Forest Products Industry and Timber Harvest, 2020 authored in 2023 by Dillon et al. For this assessment harvests from 2012, 2016, and 2020 were averaged. Unfortunately, harvest volume by ownership was not available. Wyoming county volumes were derived from similar reports conducted in 2014 and 2018. The average volume from these reports is shown in **Table 4.3**. As the data indicate, total annual harvest has averaged 16.1 million board feet per year.

Table 4.3 – Timber Harvest Volume for the Cache-Uinta Working Circle (average MBF/year 2012, 2016, 2020)

| County | State | Industry | NIPF & Tribal | State | Forest Service | BLM & Other Public | TOTAL (MBF) |
|---------|-------|----------|---------------|-------|----------------|--------------------|-------------|
| Cache | UT | n/a | n/a | n/a | n/a | n/a | 262 |
| Daggett | UT | n/a | n/a | n/a | n/a | n/a | 43 |
| Morgan | UT | n/a | n/a | n/a | n/a | n/a | 83 |
| Rich | UT | n/a | n/a | n/a | n/a | n/a | 769 |
| Summit | UT | n/a | n/a | n/a | n/a | n/a | 7,260 |
| Weber | UT | n/a | n/a | n/a | n/a | n/a | 0 |
| Lincoln | WY | 0 | 1,991 | 0 | 551 | 0 | 2,541 |
| Uinta | WY | 0 | 4,363 | 0 | 615 | 176 | 5,154 |
| Total | | 0 | 6,354 | 0 | 1,166 | 176 | 16,112 |

The estimated size of the timber harvested in the Cache-Uinta Working Circle by small end diameter is shown in **Table 4.4**. These estimates are also based on the assumption that two-segment logs are typical in the area.

Table 4.4 – Percentage of Harvest by Small End Diameter

| Small End Diameter | 5"-11" | 12"-17" | 18"-23" | 24"+ |
|------------------------|--------|---------|---------|------|
| Percentage | 54% | 46% | 0% | 0% |
| Estimated Volume (MBF) | 8,771 | 7,341 | 0 | 0 |

4.3.1 USFS HARVEST

The Cache-Uinta working circle has three national forests that are important timber suppliers: the Ashley, Bridger-Teton (BT), and Uinta-Wasatch-Cache (UWC). The UWC offers the most sawtimber of any forest in the assessment and provides the most volume in the working circle. Fuelwood is significant for both management units. The volume offered by product type is shown in **Tables 4.5 and 4.6**. Data in these tables are Forest Service data derived from different sources which differ from the BBER, thus might not be comparable. Note that for the BT, aside from a 2018 uptick, there has generally been a downward trend in harvest since 2016. Recent harvest in the area has focused on dead and dying trees, mostly spruce, which mills and others have been able to utilize. The species harvested are important to those using them, as strength properties vary by species. Accordingly, **Table 4.7** illustrates the species composition of the harvest volume in the Cache-Uinta working circle.

Table 4.5 – Harvest Volume by Product Type for the Bridger-Teton National Forest in 2013-2022 (MBF/Year)

| Product Type | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Average |
|--------------|-------|-------|--------|--------|-------|--------|-------|-------|-------|-------|---------|
| Sawtimber | 3,666 | 1,157 | 2,212 | 2,506 | 1,013 | 2,279 | 285 | 670 | 290 | 189 | 1,427 |
| Poles | 71 | 10 | 10 | 6 | 5 | 34 | 15 | 8 | 8 | 5 | 17 |
| Posts | 13 | 14 | 9 | 17 | 10 | 34 | 43 | 26 | 23 | 8 | 20 |
| Fuelwood | 6,126 | 6,055 | 8,164 | 7,942 | 6,964 | 10,398 | 6,524 | 6,713 | 5,859 | 5,610 | 7,036 |
| Non-saw | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 172 | 17 |
| Misc. | 0 | 0 | 62 | 72 | 55 | 0 | 0 | 0 | 0 | 0 | 19 |
| Total | 9,876 | 7,236 | 10,457 | 10,543 | 8,047 | 12,745 | 6,867 | 7,417 | 6,180 | 5,984 | 8,535 |

The Bridger-Teton National Forest representatives expressed that it is difficult to produce timber from the forest, as a significant portion of the forest is in wilderness or roadless areas. Additionally, much of the remaining land available for harvest has difficult terrain for harvesting. The forest has also had a difficult time filling timber positions to complete the tasks necessary to offer timber sales. Forest managers also mentioned there are opportunities for products from forest management activities other than sawlogs.

Table 4.6 – Harvest Volume by Product Type—Uinta-Wasatch-Cache National Forest (MBF/Year)

| Product Type | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Average |
|--------------|--------------|--------------|---------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Sawtimber | 4,357 | 4,427 | 6,117 | 8,029 | 4,719 | 4,712 | 5,238 | 7,108 | 8,051 | 17,134 | 6,989 |
| Poles | 4 | 3 | 6 | 7 | 8 | 7 | 6 | 5 | 4 | 3 | 5 |
| Posts | 2 | 6 | 1 | 2 | 1 | 3 | 2 | 2 | 3 | 5 | 3 |
| Fuelwood | 4,017 | 4,605 | 4,220 | 4,592 | 4,265 | 6,654 | 4,312 | 4,646 | 6,252 | 5,621 | 4,918 |
| Non-saw | 2 | 57 | 273 | 206 | 480 | 769 | 641 | 437 | 254 | 239 | 336 |
| Total | 8,382 | 9,098 | 10,617 | 12,836 | 9,473 | 12,145 | 10,199 | 12,198 | 14,564 | 23,002 | 12,251 |

Table 4.7 – Species Composition of the Harvest Volume—Cache-Uinta Working Circle

| | Douglas-fir | Ponderosa pine | True fir | Engelmann spruce | Lodgepole pine | Other softwoods | Cottonwood and aspen |
|-------------------------|-------------|----------------|------------|------------------|----------------|-----------------|----------------------|
| National Forest | 30% | 0% | 29% | 26% | 10% | 1% | 3% |
| Other Federal | 22% | 0% | 54% | 0% | 7% | 4% | 0% |
| State and local | 1% | 16% | 0% | 0% | 0% | 0% | 83% |
| Private | 32% | 0% | 36% | 7% | 10% | 3% | 12% |
| Weighted Average | 30% | 0% | 31% | 22% | 10% | 1% | 4% |

FIA data indicate that the 2019 survey found that not all species were harvested. This is likely a result of plot locations not being where other species were harvested. It is an indicator that lodgepole pine and Engelmann spruce are likely the most harvested species. **Chart 4.8** illustrates the harvest volume by species as indicated by FIA data.

Chart 4.8 – Percentage of Harvest by Species



4.4 CACHE-UINTA WORKING CIRCLE FIBER DEMAND

The fiber demand for the Cache-Uinta working circle was determined by interviews with wood products industry participants in the area. Most participants have small sawmills while others produce posts and poles, house logs, and/or firewood. Pellets are also produced from mill byproducts in the area. **Table 4.9** compares the estimated volume consumed to the volume harvested in each county of the working circle. The information shown in the table indicates there is a surplus in the working circle. This surplus is logical based on interview information which indicated that purchasers from neighboring counties outside the working circle purchase from the area. Some logs from the area have also gone to Idaho. It is also possible that some demand is underestimated, particularly for those selling firewood, which would reduce the surplus.

Table 4.9 – Harvest & Demand in the Cache-Uinta Working Circle (MBF/Year)

| County | State | Consumption (MBF/Year) | Average Harvest (MBF/Year) | Surplus/(Deficit) (MBF/Year) |
|---------|-------|------------------------|----------------------------|------------------------------|
| Dagget | UT | 0 | 43 | 43 |
| Summit | UT | 3,000 | 7,260 | 4,260 |
| Rich | UT | 0 | 769 | 769 |
| Morgan | UT | 300 | 83 | 217 |
| Cache | UT | 0 | 262 | 262 |
| Weber | UT | 0 | 0 | 0 |
| Lincoln | WY | 400 | 2,541 | 2,141 |
| Uinta | WY | 8,500 | 5,154 | (3,347) |
| Total | | 12,200 | 16,112 | 3,912 |

4.5 FUTURE SUPPLY & DEMAND IN THE CACHE-UINTA WORKING CIRCLE

The Ashley, Bridger-Teton, and Uinta-Wasatch-Cache National Forests do not expect significant increases in their respective timber sale programs within the Cache-Uinta working circle. The activity of the Balsam woolly adelgid might influence the timber sale program and harvest in the Ashley and Uinta-Wasatch-Cache, as this insect is active in the area. Insects have significantly influenced the Uinta-Wasatch-Cache timber sale program in recent years, and the combined impacts of insects may impact the Forest's ability to sustain current harvests in the long term.

The Bridger-Teton National Forest has a ten-year vegetation management plan which will maintain historic timber sale outputs. Management designations and terrain limit the land base available for forest management and the ability to increase harvest. The Bridger-Teton is also in need of industry to utilize biomass.

4.6 BIOMASS

Harvest-related biomass in the Cache-Uinta working circle was also determined using the conversion of 1 BDT per MBF harvested. BECK’s review estimated that 67% of the harvest land base would be accessible for biomass removal. Collecting biomass might be an opportunity; at present, due to smoke management restrictions that limit burning, it is piled and left on the landscape. The estimated biomass available in the Cache-Uinta Working Circle is shown in **Table 4.10**.

Table 4.10 – Estimated Harvest-Related Biomass in the Cache-Uinta Working Circle (BDT/Year)

| County | State | Biomass Accessible | BDT |
|---------|-------|--------------------|--------|
| Daggett | UT | 70% | 30 |
| Summit | UT | 70% | 5,082 |
| Rich | UT | 60% | 462 |
| Morgan | UT | 30% | 25 |
| Cache | UT | 40% | 105 |
| Weber | UT | 30% | 0 |
| Lincoln | WY | 60% | 1,525 |
| Uinta | WY | 70% | 3,607 |
| Total | | 67% | 10,835 |

The biomass available from the Cache-Uinta working circle was estimated by reviewing the Uinta-Cache-Wasatch and Ashley five-year management plan. These plans have many acres of forest restoration planned, and interviews indicate that more could be available with sufficient funding. **Table 4.11** shows the estimate of acres and tons of biomass available. Bone dry tons are estimated assuming a 50% moisture content in green biomass.

Table 4.11 – Estimated Annual Tons of Forest Restoration Biomass

| Region | Acres | Green Tons | Bone Dry Tons |
|-------------|-------|------------|---------------|
| Cache-Uinta | 1,500 | 20,000 | 10,000 |

4.7 FACILITY OPPORTUNITIES

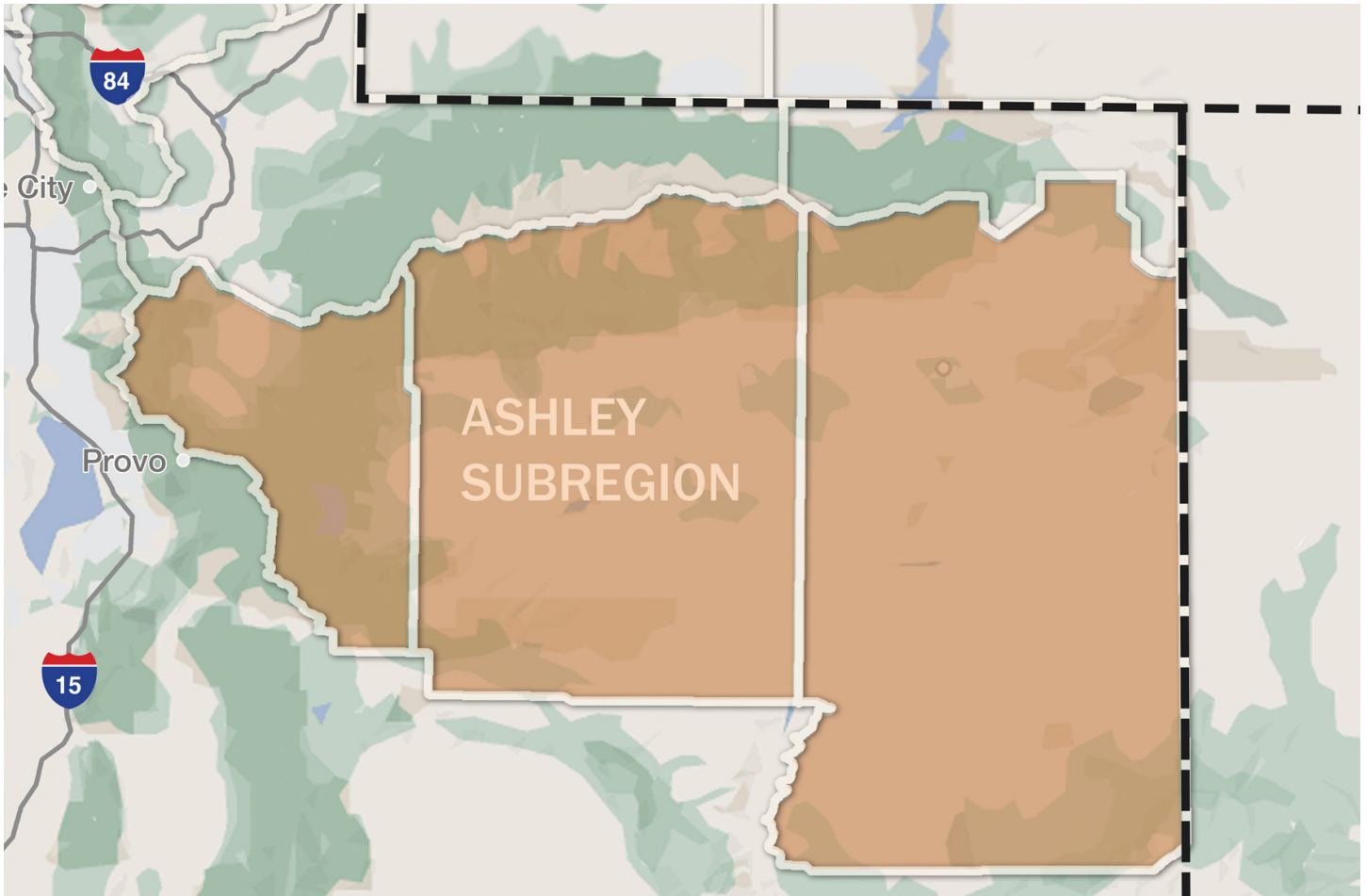
The comparison of timber supply to consumption shows a surplus of timber in the Cache-Uinta working circle, which would suggest there is an opportunity for a wood processing facility in the area. Unfortunately, with the deficit in the neighboring Ashley working circle and the impact that insects might have on long-term supply, BECK does not recommend a new sawlog processing facility in the Cache-Uinta working circle. There are opportunities for facilities to use woody biomass produced by forest restoration activities.

There are businesses within and near the circle that could use biomass if processed to chips or shavings. This would help reduce forest fuels in an area where burning is difficult due to air quality concerns. The greatest opportunity for biomass utilization is in northwestern Utah due to its proximity to markets that might use biomass.

5.1 ASHLEY WORKING CIRCLE DELINEATION

The Ashley working circle includes three Utah counties neighboring the Ashley National Forest: Duchesne, Uintah, and Wasatch. These counties lie south of the Uinta Mountains in northeastern Utah. **Figure 5.1** depicts the counties in the Ashley working circle.

Figure 5.1 – Ashley Working Circle



5.2 – TIMBERLAND OWNERSHIP IN THE ASHLEY WORKING CIRCLE

Table 5.1 illustrates the timberland ownership by county. As the data indicate, there are about 850,000 acres of timberland in the three-county working circle. The U.S. Forest Service owns 76% of the timberland in the Ashley working circle, while private—which also includes Tribal ownership—has the next largest amount with 16%. Duchesne County has about 41% of the total, but acreage is relatively evenly distributed among the three counties. Also, note that about 25% of the total timberland in Duchesne County is privately owned.

Table 5.1 – Timberland Ownership in the Ashley Working Circle (Acres)

| County | State | National Forest | Other Federal | State and Local | NIPF & Tribal | Total | % of Total |
|------------------|-------|-----------------|---------------|-----------------|---------------|---------|------------|
| Duchesne | UT | 241,044 | 0 | 26,357 | 81,303 | 348,704 | 41% |
| Uintah | UT | 156,201 | 8,711 | 6,817 | 20,643 | 192,372 | 23% |
| Wasatch | UT | 249,572 | 0- | 24,205 | 36,896 | 310,673 | 36% |
| Total | | 646,817 | 8,711 | 57,379 | 138,842 | 851,749 | 100% |
| Percent of Total | | 76% | 1% | 7% | 16% | 100% | |

Table 5.2 shows the volume of timber standing on the acres of timberland. There is a total of about 4.1 billion board feet of standing timber in the working circle. Of that, nearly 90% is on National Forest land. This compares to the National Forest accounting for only 76% of the acres in this working circle. This pattern occurs in all the other working circles but is most pronounced here. This pattern suggests that, since its lands contain a higher proportion of the volume relative to the acres, the US Forest Service has been less active in harvesting timber than other types of landowners.

Table 5.2 – Volume of Standing Timber Inventory by Ownership (MBF)

| County | State | National Forest | Other Federal | State and Local | NIPF & Tribal | Total | % of Total |
|------------------|-------|-----------------|---------------|-----------------|---------------|-----------|------------|
| Duchesne | UT | 1,266,853 | 0 | 42,413 | 181,698 | 1,490,964 | 36% |
| Uintah | UT | 1,197,765 | 17,161 | 6,920 | 62,422 | 1,284,268 | 31% |
| Wasatch | UT | 1,202,990 | 0 | 39,065 | 162,456 | 1,404,511 | 34% |
| Total | | 3,667,608 | 17,161 | 88,398 | 406,576 | 4,179,743 | 100% |
| Percent of Total | | 88% | 0% | 2% | 10% | | |

5.3 – ASHLEY WORKING CIRCLE FIBER SUPPLY

The historical harvest for Utah counties was derived from Utah’s Forest Products Industry and Timber Harvest, 2020 authored in 2023 by Dillon et al. For this assessment, harvests from 2012, 2016, and 2020 were averaged. Unfortunately, harvest volume by ownership was not available. Nevertheless, **Table 5.3** shows that, on average, the annual harvest in the three-county working circle has been about 3.5 million board feet during the last 10-15 years.

**Table 5.3 – Average Annual Harvest in the Ashley Working Circle
(Average MBF/Year 2012, 2016, & 2020)**

| County | State | Average Harvest (MBF) |
|----------|-------|-----------------------|
| Wasatch | UT | 1,448 |
| Duchesne | UT | 819 |
| Uintah | UT | 1,319 |
| Total | | 3,586 |

The small end diameter of logs harvested in the Ashley Working Circle was estimated using FIA data. These estimates are shown in **Table 5.4**.

Table 5.4 – Percentage of Harvest Volume (BMF) by Small End Diameter for the Ashley Working Circle

| Small End Diameter | 5"-11" | 12"-17" | 18"-23" | 24"+ |
|------------------------|--------|---------|---------|------|
| Percentage | 41% | 24% | 23% | 12% |
| Estimated Volume (MBF) | 1,480 | 861 | 822 | 424 |

5.3.1 USFS HARVEST IN THE ASHLEY WORKING CIRCLE

The Ashley National Forest is the primary forest in the Ashley working circle. Like many other forests in the assessment, the Ashley provides firewood more than any other products. The Ashley also uses allocated funds to thin and pile logs to treat land where operators are not available. **Table 5.5** shows the harvest from the Ashley by product. The Forest Service has various methods of tracking volume which differ from the sources BBER uses, so these data might not match BBER information.

Table 5.5 – Ashley National Forest Harvest by Product (MBF/Year)

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Average |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Sawtimber | 1,257 | 701 | 848 | 765 | 945 | 563 | 501 | 590 | 490 | 1,009 | 767 |
| Poles | 13 | 11 | 8 | 8 | 8 | 8 | 6 | 4 | 11 | 9 | 9 |
| Posts | 22 | 11 | 4 | 5 | 5 | 6 | 4 | 4 | 9 | 6 | 8 |
| Fuelwood | 2,939 | 3,995 | 3,276 | 3,483 | 3,130 | 3,574 | 2,829 | 2,790 | 3,509 | 3,020 | 3,255 |
| Non-saw | 64 | 58 | 86 | 62 | 33 | 34 | 20 | 22 | 37 | 8 | 42 |
| Misc. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 69 | 90 | 29 |
| Total | 4,295 | 4,776 | 4,222 | 4,323 | 4,121 | 4,185 | 3,360 | 3,540 | 4,125 | 4,142 | 4,109 |

Species composition in the Ashley working circle is more evenly distributed than other working circles, with Engelmann spruce having the largest share at 25%. **Table 5.6** illustrates the species composition in the working circle.

Table 5.6 – Species Composition for the Ashley Working Circle

| | Douglas-fir | Ponderosa pine | True fir | Engelmann spruce | Lodgepole pine | Other softwoods | Cottonwood and aspen |
|------------------|-------------|----------------|----------|------------------|----------------|-----------------|----------------------|
| National Forest | 15% | 4% | 16% | 27% | 17% | 2% | 18% |
| Other Federal | 45% | 49% | 0% | 0% | 0% | 0% | 5% |
| State and local | 60% | 0% | 31% | 0% | 0% | 0% | 9% |
| Private | 47% | 1% | 16% | 13% | 1% | 1% | 20% |
| Weighted Average | 20% | 4% | 16% | 25% | 15% | 2% | 18% |

FIA data indicate that species harvested align with the species composition in the Ashley Working Circle with the exception of true fir. The higher rate of harvest in true fir is likely due to the salvage of insect-damaged trees. **Chart 5.7** illustrates the harvest by species percentage.

Chart 5.7 – Harvest by Species Percentage in the Ashley Working Circle



5.4 ASHLEY WORKING CIRCLE FIBER DEMAND

Demand was determined through interviews with participants in the forest products industry. For the Ashley working circle, most of these are in Duchesne and Wasatch Counties. The industry in the working circle includes small mills making lumber, post and pole facilities, and several that use house logs. **Table 5.8** compares the estimated volume consumed among the existing industry in the region to the average volume harvested in each county of the working circle. This supply and demand balance shows there is a net annual deficit in the working circle. This aligns with information BECK obtained from interviews with industry participants. Mills from this area, particularly Wasatch County, buy logs from the Cache-Uinta working circle. It is also worth noting that it was reported that this working circle has industry members that participate inconsistently, which could vary the surplus/deficit from year to year.

Table 5.8 – Harvest and Demand in the Ashley Working Circle (MBF/Year)

| County | State | Consumption (MBF/Year) | Average Harvest (MBF/Year) | Surplus/(Deficit) (MBF/Year) |
|----------|-------|------------------------|----------------------------|------------------------------|
| Wasatch | UT | 2,800 | 1,448 | (1,352) |
| Duchesne | UT | 2,400 | 819 | (1,581) |
| Uintah | UT | 800 | 1,319 | 519 |
| Total | | 6,000 | 3,586 | (2,414) |

5.5 FUTURE SUPPLY & DEMAND IN THE ASHLEY WORKING CIRCLE

The Ashley National Forest has a five-year management plan which will keep the timber sale program stable. There is capacity to increase forest management, but the type of product produced is of low value and there are few purchasers for it. Therefore, much of the management requires funding to implement. The Forest would like to increase the timber sale program but needs an outlet for smaller trees.

A portion of the future forest management activities in the Ashley Working Circle will occur in the Vernal Municipal Watershed Project which was chosen as part of the Joint Chiefs' Landscape Restoration Partnership in Fiscal Year 2024. Being selected means funding will be provided to conduct forest restoration activities across ownership boundaries within the watershed. Management activities which remove trees are planned to occur on over 12,000 acres over the next three years.

5.6 BIOMASS

Harvest-related biomass in the Ashley working circle was also determined using the conversion of 1 BDT per MBF harvested. BECK's review estimated that 56% of the harvest land base would be available, as accessibility is more difficult in this working circle. The estimated biomass available in the Ashley working circle is shown in **Table 5.9**.

Table 5.9 – Harvest-Related Biomass in the Ashley Working Circle (BDT/Year)

| County | State | Biomass Accessible | BDT |
|----------|-------|--------------------|-------|
| Wasatch | UT | 40% | 579 |
| Duchesne | UT | 60% | 491 |
| Uintah | UT | 70% | 924 |
| Total | | 56% | 1,994 |

The Ashley National Forest has been removing woody biomass from forest restoration activities and selling it when the opportunity is available. In interviews they mentioned they have the capacity to increase vegetation management if funding or markets allow it. Based on those discussions, **Table 5.10** shows the estimate of biomass that would be available.

Table 5.10 – Estimated Annual Tons of Biomass from Forest Restoration

| Region | Acres | Green Tons | Bone Dry Tons |
|---------------|--------------|-------------------|----------------------|
| Ashley | 1000 | 6,800 | 3,400 |

5.7 – OPPORTUNITIES

This working circle currently has a deficit in available timber, yet the Ashley National Forest harvests many trees that are not utilized as they are smaller than most consumers desire. Utilizing these trees is an opportunity for biomass or post-and-pole operations. The communities along Highway 40 could be explored for siting a facility to utilize these smaller trees.

SUBLETTE WORKING CIRCLE

6.1 SUBLETTE WORKING CIRCLE DELINEATION

Figure 6.1 shows that the Sublette working circle consists only of Sublette County, Wyoming. This working circle only has one county due to its isolation between the Wyoming and Wind River mountain ranges. It is also far enough north of other markets that most harvested volume in the area is manufactured locally into wood products.

Figure 6.1 – Sublette Working Circle



6.2 TIMBERLAND OWNERSHIP IN THE SUBLETTE WORKING CIRCLE

Table 6.1 shows that timberland in the Sublette working circle is primarily managed by the U.S. Forest Service, which has 87%. Another 8% is managed by the Bureau of Land Management (BLM) and the remaining 5% is privately owned. The State of Wyoming has land in Sublette County, but none of it is classified as timberland.

Table 6.1 – Sublette Timberland Ownership (Acres)

| County | State | National Forest | Other Federal | State and Local | NIPF & Tribal | Total |
|------------|-------|-----------------|---------------|-----------------|---------------|---------|
| Sublette | WY | 471,592 | 44,987 | 0 | 27,415 | 543,993 |
| % of Total | | 87% | 8% | 0% | 5% | 100% |

The volume of standing timber inventory on these ownerships is shown in **Table 6.2**. Nearly all of the standing timber volume is on lands managed by the USFS, with some BLM-managed and a very small portion on private land.

Table 6.2 – Standing Timber Inventory in Sublette County (MBF)

| County | State | National Forest | Other Federal | State & Local | NIPF & Tribal | Total |
|------------|-------|-----------------|---------------|---------------|---------------|-----------|
| Sublette | WY | 3,980,056 | 159,166 | 0 | 14,993 | 4,154,216 |
| % of Total | | 96% | 3% | 0% | 1% | 100% |

6.3 SUBLETTE WORKING CIRCLE FIBER SUPPLY

The timber harvest volume for the Sublette working circle was derived from BBER’s Wyoming’s Forest Products Industry and Timber Harvest for 2014 and 2018. **Table 6.3** illustrates BECK’s findings. The average of the volume in these reports was used for this assessment. In both years, private lands provided a significant amount of volume despite being a small portion of the timberland acres and standing timber inventory.

Table 6.3 – Sublette Working Circle Timber Harvest (Average MBF/Year 2014 & 2018)

| County | State | Industry | NIPF & Tribal | State | Forest Service | BLM & Other Public | Total (MBF) |
|----------|-------|----------|---------------|-------|----------------|--------------------|-------------|
| Sublette | WY | 0 | 649 | 0 | 543 | 18 | 1,210 |

Harvest data are not available in the FIA database for Sublette County, so the diameter of harvested timber was estimated using the distribution of diameters of standing timber as shown in the FIA database. Estimates shown are for the small ends of logs with two segments. **Table 6.4** shows those estimates.

Table 6.4 – Percentage of Harvest by Small End Diameter for the Sublette Working Circle

| Small End Diameter | 5”-11” | 12”-17” | 18”-23” | 24”+ |
|------------------------|--------|---------|---------|------|
| Percentage | 41% | 29% | 20% | 10% |
| Estimated Volume (MBF) | 497 | 350 | 238 | 125 |

6.3.1 USFS HARVEST IN THE SUBLETTE WORKING CIRCLE

The Sublette working circle shares the Bridger-Teton National Forest with other working circles. Information from the USFS Cut and Sold Report indicates that most of the wood sold from the Forest becomes fuelwood. The USFS data shown in **Table 6.5** are derived from various sources which differ from those BBER uses to collect harvest data. Therefore, the USFS volume might not be comparable to the analysis data.

Table 6.5 – Bridger-Teton National Forest Harvest (MBF)

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Average |
|-----------|-------|-------|--------|--------|-------|--------|-------|-------|-------|-------|---------|
| Sawtimber | 3,666 | 1,157 | 2,212 | 2,506 | 1,013 | 2,279 | 285 | 670 | 290 | 189 | 1,427 |
| Poles | 71 | 10 | 10 | 6 | 5 | 34 | 15 | 8 | 8 | 5 | 17 |
| Posts | 13 | 14 | 9 | 17 | 10 | 34 | 43 | 26 | 23 | 8 | 20 |
| Fuelwood | 6,126 | 6,055 | 8,164 | 7,942 | 6,964 | 10,398 | 6,524 | 6,713 | 5,859 | 5,610 | 7,036 |
| Non-saw | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 172 | 17 |
| Misc. | 0 | 0 | 62 | 72 | 55 | 0 | 0 | 0 | 0 | 0 | 19 |
| Total | 9,876 | 7,236 | 10,457 | 10,543 | 8,047 | 12,745 | 6,867 | 7,417 | 6,180 | 5,984 | 8,535 |

The species composition for the Sublette working circle is shown in **Table 6.6**. Information on harvest was not available to indicate whether species harvested align with the species compositions shown.

Table 6.6 – Species Composition for the Sublette Working Circle

| | Douglas-fir | True fir | Engelmann and other spruces | Lodgepole pine | Other Western softwoods | Cottonwood and aspen |
|------------------|-------------|----------|-----------------------------|----------------|-------------------------|----------------------|
| National Forest | 8% | 25% | 49% | 14% | 1% | 3% |
| Other Federal | 45% | 24% | 2% | 19% | 10% | 0% |
| Private | 58% | 42% | 0% | 0% | 0% | 0% |
| Weighted Average | 9% | 25% | 47% | 14% | 1% | 3% |

6.4 SUBLETTE WORKING CIRCLE FIBER DEMAND

The demand in the Sublette working circle comes from post and pole facilities, firewood sales, and small mills in the area. The estimated volume consumed is compared to the volume harvested in the working circle in **Table 6.7**.

Table 6.7 – Sublette Harvest and Demand (MBF)

| County | State | Consumption (MBF/Year) | Average Harvest (MBF/Year) | Surplus/(Deficit) (MBF/Year) |
|----------|-------|------------------------|----------------------------|------------------------------|
| Sublette | WY | 1,800 | 1,210 | (590) |

These data show a deficit for the working circle. This indicates that estimates for some consumers may be too high, or that they are not operating at capacity. It is also partially explained by some participants stating they have purchased volume from the Shoshone National Forest in the past.

6.5 FUTURE SUPPLY AND DEMAND IN THE SUBLETTE WORKING CIRCLE

The ten-year vegetation management plan for the Bridger-Teton National Forest indicates there are significant timber volumes to be offered in the next ten years in the Sublette region. Most of the scheduled volume is in the Pinedale Ranger District with nearly an estimated 80,000 hundred cubic feet (CCF) (~40,000 MMBF) planned during the period. There is an additional 3,000 CCF (1,500 MBF) planned for the Big Piney Ranger District. Most of the harvest activities in the Bridger-Teton are planned for the Sublette working circle.

6.6 BIOMASS

Review of the terrain and road systems in the Sublette area suggested that most biomass generated by harvest would be accessible. Interviews revealed that the road systems on private land—where most of the harvest occurs—are not well developed. Therefore, BECK estimates that only 40% of the harvest-related biomass is available. The estimated available biomass is shown in **Table 6.8**.

Table 6.8 – Harvest-Related Biomass in the Sublette Working Circle (BDT/Year)

| County | State | Biomass Accessible | BDT |
|----------|-------|--------------------|-----|
| Sublette | WY | 40% | 483 |

In Sublette County, the Bridger-Teton is planning some large projects that are likely to produce biomass from non-harvest-related activities. In addition, Sublette County is planning to treat private lands to reduce the risk of wildfire. Based on discussions of those activities, the estimates of biomass available and the annual acres treated are shown in **Table 6.9**. Bone dry tons are estimated assuming a 50% moisture content.

Table 6.9 – Estimated Annual Tons of Biomass from Forest Restoration

| Region | Acres | Green Tons | Bone Dry Tons |
|----------|-------|------------|---------------|
| Sublette | 400 | 6,400 | 3,400 |

6.7 OPPORTUNITIES

Sublette County has an active group of citizens that are concerned about wildfire risks and would like to see acres treated to reduce that risk. The ten-year vegetation management plan indicates that harvest in the county is likely to increase for the next decade. This will be good for the current consumers of forest products, as the local industry has been in decline. An increase in volume could reinvigorate current industry participants and/or offer opportunities for new participants. Based on planning efforts for the Bridger-Teton, Pinedale is the location nearest where the volume will be produced.

BECK analyzed acres defined as timberland for wood fiber supply assessments, as that is where the most dependable supply of wood fiber will be derived. In Sublette County, there are an additional 255,000 acres of forestland which do not meet the growth requirements of timberland or have been withdrawn from management. Sublette County leaders are concerned about wildfire risk on these acres, as they surround homes and communities. That concern is expressed in the Sublette County Community Wildfire Protection Plan. There is an opportunity to provide treatment in these areas, which could reduce the risk of fire while providing biomass to a facility. Capturing that opportunity will require cooperation from the Bridger-Teton National Forest and Bureau of Land Management.