



United States
Department of
Agriculture

Forest Service
Pacific Northwest
Research Station

General Technical
Report
PNW-GTR-702

February 2007



Market Opportunities for Kitchen Cabinets Made From Alaska Hardwoods: A Synthesis and Review of Recent Research

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Abstract

Nicholls, David L.; Stiefel, Maria C. 2007. Market opportunities for kitchen cabinets made from Alaska hardwoods: a synthesis and review of recent research. Gen. Tech. Rep. PNW-GTR-702. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 28 p.

The kitchen cabinet industry has shown significant growth recently, with expanding residential markets, new cabinet styles, and larger kitchens. This industry represents an opportunity for small Alaska wood producers to create high-value secondary products. In response to recent trends in kitchen cabinet manufacturing and the need to identify opportunities for underutilized species, the Alaska Wood Utilization Research and Development Center has conducted numerous studies evaluating consumer preferences for Alaska's primary hardwoods—Alaska birch (*Betula papyrifera* var. *humilis* (Reg.) Fern & Raup) and red alder (*Alnus rubra* Bong.). These studies explored consumer preferences under a range of marketing parameters, cabinet appearances, and regional market locations. This paper summarizes these studies and offers insights into the potential market for Alaska's hardwoods as secondary wood products such as kitchen cabinets.

Keywords: Alaska, hardwoods, red alder, paper birch, kitchen cabinets, consumer preference studies, willingness to pay.

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Introduction

The kitchen cabinet industry has shown significant growth recently, with expanding residential markets, new cabinet styles, and larger kitchens. From 2004 to 2005, annual kitchen cabinet revenue increased 13.3 percent, and by spring 2006, the kitchen cabinet industry reported its 118th consecutive month of sales growth (Jenkins 2006). These trends are expected to continue, with U.S. demand for kitchen cabinets projected to increase 6 percent per year through 2008, reaching a total of \$16 billion (AKTRIN Wood Information Center 2004). Further, the kitchen remodeling market remains strong even as new home construction has seen recent declines. Adding to this demand for cabinets is the trend for houses having multiple kitchens, including outdoor kitchens, and kitchen-style cabinets integrated into other living areas (Baker 2006).

Kitchen cabinets represent an opportunity for small businesses to create high-value secondary products and are potentially fitting to many Alaska wood producers. In response to recent trends in kitchen cabinet manufacturing and the need to identify opportunities for underutilized species, the Alaska Wood Utilization Research and Development Center (WUC) has conducted numerous studies evaluating consumer preferences for Alaska's two primary hardwoods—Alaska birch (*Betula papyrifera* var. *humilis* (Reg.) Fern & Raup) and red alder (*Alnus rubra* Bong.). These studies have explored consumer preferences under a range of marketing parameters, cabinet appearances, and regional market locations.

In March 2006, a meeting in Anchorage, Alaska, reviewed WUC kitchen cabinet research and identified current opportunities for hardwood lumber producers, cabinet producers, and retailers. The goal of this event was to explore how Alaska hardwoods could be more fully utilized to meet consumer demand for kitchen cabinets within the state. Covered topics included consumer wood preference differences within Alaska, preferences for different wood finishes, information sources used for cabinet purchases, preferences for character-marked Alaska birch products, preferences for red alder versus competing hardwoods, and the importance of species recognition in cabinet purchases.

This synthesis and review focuses on remarks from the Anchorage meeting and a collection of WUC research projects involving consumer preferences for sample cabinets made from Alaska hardwoods. The first of these projects was in spring

2002, when birch cabinets were displayed at home shows within Alaska¹ (see Donovan and Nicholls 2003; Donovan et al. 2003; Nicholls 2001, 2005a; Nicholls and Donovan 2002). In fall 2002, red alder cabinets and other hardwood cabinets were displayed at home shows in Alaska and Washington (see Donovan et al. 2003, 2004; Nicholls 2005b; Nicholls et al. 2003, 2004a; Roos et al. 2005). Finally, in 2005, red alder cabinets stained to different levels (i.e., with different commercial finishes) were displayed at home shows in Alaska and Oregon (Nicholls and Roos 2006b). This paper summarizes these studies and offers insights into the potential market for Alaska hardwoods as secondary wood products. Throughout this synthesis, the research projects described above are referred to as study 1, study 2, and study 3, respectively.

Review of Birch

Within Alaska, there is a substantial birch resource within the interior and south-central regions of the state (fig. 1), including more than 2.5 billion board feet of standing inventory (Wheeler, n.d.). Despite its abundance, only small amounts of birch are harvested in the state. It is estimated that only 19 sawmills in Alaska process birch, combining to produce less than 1 million board feet annually (Parrent 2001). Because these mills are small, and some only operate intermittently, it is difficult to establish precise estimates of lumber production. Almost all the birch lumber produced in Alaska is used within the state (Braden and Nicholls 2004), and is not widely used by woodworking firms outside of Alaska (Nicholls and Roos 2006a, Roos and Nicholls 2006).

Alaska birch is easily machined into secondary products, but it often has a higher proportion of character marks (e.g., knots, bark pockets, naturally occurring stains) compared to birch from other regions of North America. Although this lack of clear cuttings may be a disadvantage when selling lumber under traditional grading rules (Nicholls et al. 2004b), recent research has shown that consumers may prefer lumber with some degree of character for visual applications (Donovan and Nicholls 2003). Use of Alaska birch in products that require clear, defect-free cuttings may be limited, but secondary manufacturers can take advantage of its unique character markings for a variety of niche applications.

¹ Nicholls, D.; Donovan, G. 2004. A comparison of consumer demographics between two Alaska markets. 20 p. Unpublished report. On file with: David Nicholls, USDA Forest Service, Pacific Northwest Research Station, Alaska Wood Utilization Research and Development Center, 204 Siginaka Way, Sitka, AK 99835.

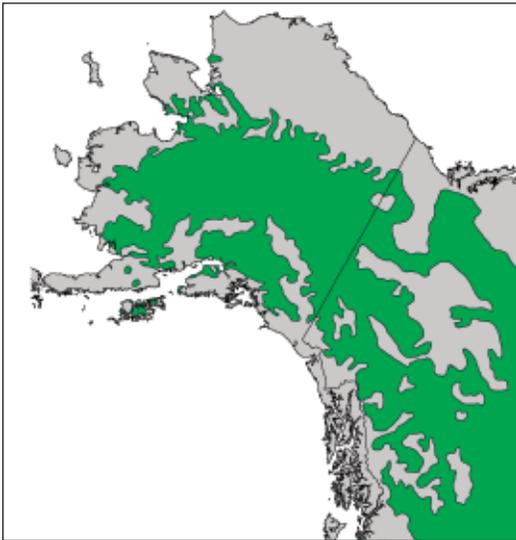


Figure 1—Geographic range of birch in Alaska and western Canada (indicated in green).
Source: Donovan et al. 2003

A small secondary wood products industry has already been established within Alaska. It includes kitchen cabinets, office furniture, custom woodwork, and gifts and crafts (Braden and Nicholls 2004). Increasing amounts of locally produced kiln-dried lumber is helping this industry grow. In recent years, several dehumidification dry kilns, hot water dry kilns, planers, and moulders have become operational owing in part to a federal grant program (Nicholls et al. 2006). In interior and south-central Alaska, increasing amounts of kiln-dried birch lumber enhances the potential for higher valued secondary wood products.

Review of Red Alder

Although other hardwoods like oak (*Quercus* L.), maple (*Acer* L.), and black cherry (*Prunus serotina* Ehrh.) continue to dominate the kitchen cabinet retail market, the popularity of red alder is reportedly growing. For example, one custom cabinetry company owner in Wisconsin reported a marked increase in demand for rustic alder over the past few years (Kaiser 2006). Also, because of red alder's uniform grain, it can easily accept commercial stains over a wide range of colors. As such, alder can be used advantageously to resemble close-grained species that are popular among consumers.

Red alder is already being harvested in the Pacific Northwest, and used to produce furniture, cabinets, and other secondary wood products. Over a decade ago,

In interior and south-central Alaska, increasing amounts of kiln-dried birch lumber enhances the potential for higher valued secondary wood products.

red alder composed almost two-thirds of the hardwood sawtimber and growing-stock volumes in Washington and Oregon. In Washington, 60 percent of the red alder lumber was used in cabinets and high-value furniture in 1991 (Raettig et al. 1995). Current figures are similar in part because Northwest furniture companies now realize they can use local red alder instead of importing eastern hardwoods for their work (Kaiser 2006). In southeast Alaska, red alder is at the northern extreme of its natural range, and is therefore considerably smaller in diameter than similar aged red alder in Oregon and Washington.

Red alder stands are found throughout southeast Alaska (fig. 2), commonly in areas that have been disturbed, such as roadbeds and timber harvested areas. In contrast to much of the timber resource in Alaska, a high proportion of red alder is accessible from existing roadbeds. As red alder stands can become mature in less than 50 years, those established during the region's pulp mill era (1950s-1990s) are beginning to approach maturity. It is estimated that about 49.3 million cubic feet of red alder is currently available in the 6- to 24-inch diameter classes on timberlands within the Tongass National Forest (van Hees 2003). A very small proportion of this growing stock, sustainably harvested, could easily support one or more businesses processing red alder into lumber. Much of the red alder resource in southeast Alaska would be located within the Tongass National Forest.

Currently, there is no established red alder industry in southeast Alaska and, therefore, little sawing and drying of red alder lumber. In Alaska, red alder has been used primarily for niche products such as chips for smoking fish and wood-carvings, but otherwise has seen little commercial use (Donovan et al. 2003). However, market pressures from the Pacific Northwest could lead to opportunities in Alaska.

Recent price increases in red alder have created incentives to find new commercial sources of this species, potentially including smaller diameter stands from southeast Alaska. Rising interest in red alder could lead to a range of new opportunities for Alaska wood products firms, including secondary manufactured products such as kitchen cabinets.

Review of Marketing Studies

Character Markings in Lumber and Wood Products

A frequent concern among birch lumber producers, retailers, and consumers in Alaska is the relatively large proportion of knots, natural discolorations, and other visual defects. The National Hardwood Lumber Association (NHLA) sets standard



Figure 2—Geographic range of red alder (indicated in green) along western coast of North America, including southeast Alaska. Source: Donovan et al. 2003.

rules to grade hardwood lumber (NHHLA 1998), and the presence of character mark features in Alaska birch is a disadvantage when selling lumber under these standards (Nicholls et al. 2004b). However, several studies have shown that consumers may be willing to accept character-marked hardwood lumber for certain applications, and that inclusion of knots can lead to yield improvements and cost savings (Buehlmann et al. 1998, Wiedenbeck and Buehlmann 1995).

Likewise, Bumgardner et al. (2001a) evaluated consumer preferences for oak furniture containing three classes of character marks. Preference scores were found to be inversely related to knot size. However, this study found that knot size accounted for only 35 percent of the importance in buying decisions, and that there are opportunities for manufacturers to increase their use of lumber containing small character marks.

Jahn et al. (2001) evaluated consumer preferences for character-marked hardwood cabinet doors. This study found that the presence of character features was unimportant to 73 percent of those sampled. For the remaining 27 percent, character marks were the most important attribute influencing their choice of cabinet door. This character-sensitive segment of the sample had a higher proportion of

female and younger respondents, suggesting that these groups would be less receptive to the presence of character marks. In addition, it was found that light levels of character were generally preferred to heavy levels.

Bumgardner et al. (2001b) found that large furniture manufacturers could successfully market character-marked products at upper and middle price points. However, gaps in product knowledge among manufacturers, retailers, and consumers made it difficult for producers of character-marked products to accurately gauge consumer preferences. A potentially useful strategy for using character-marked wood is to include character-marked products in the earliest stages of product development, especially when formulating new product ideas.

Bumgardner et al. (2000) found that character marks can be effectively incorporated into furniture production if the “fit” of the character marks matches other product attributes such as finish, hardware, and design. Character-marked wood was marketed effectively when sales staff educated the consumers. However, one obstacle hindering the marketing of character-marked wood was the lack of consistency between product displays and the actual product purchased.

An implicit assumption common to most studies of character-marked lumber is that character marks are a negative, or at best neutral, attribute of hardwood lumber. Consequently, researchers have concentrated on ways of mitigating the impact of character marks. In contrast, this synthesis examines whether consumers may regard character marks as a positive feature of hardwood lumber.

This synthesis examines whether consumers may regard character marks as a positive feature of hardwood lumber.

Species Acceptance

In addition to character-marked wood studies, this synthesis evaluates consumer preference for shades of cabinets and species name recognition. In a related paper, Bumgardner and Bowe (2002) investigated the differences between word-based and specimen-based evaluations of commercially important wood species. They found that in appearance-based evaluations, respondents tended to rate woods based on general color. Darker woods tended to be rated as expensive, whereas lighter colored woods were generally viewed as inexpensive. Another factor evaluated in this study was style, with respondents rating woods as either casual or formal. Some gender differences were observed between male and female perspectives. For example, oak was perceived as more formal and expensive by men, whereas pine (*Pinus* spp.) was generally perceived as more formal by women.

Fell (2002) evaluated consumer acceptance of 11 lesser used Canadian species, including 4 hardwoods and 7 softwoods. Wood color and grain were the attributes that most affected consumer acceptance. Demographics were important in species

preferences, including differences between Canadian provinces, gender of respondents, and urban versus suburban residents. Fell found that for cabinets, respondents generally preferred lighter colors with distinct grain patterns.

Nicholls and Roos (2006a) evaluated lumber attributes for commercially important species among secondary wood products firms. Most appearance-related attributes were generally considered important, and included lumber straightness, dimensional stability, absence of checks and splits, and overall appearance. Most price-related attributes were rated only moderately important.

Data Collection Methods

Home Show Setting

Data came primarily from three WUC consumer preference studies evaluating the appeal of kitchen cabinets made from Alaska hardwoods. The WUC researchers displayed cabinets at home shows where consumers could compare different cabinets side-by-side and indicate their preferences (fig. 3). Respondents were asked to rank the doors under the assumption that they would be remodeling their kitchen using the displayed cabinets. Several of the studies also included a willingness-to-pay component in which respondents were asked to indicate whether their favorite cabinet would remain so even if it cost \$X more than their second favorite (i.e., dichotomous choice contingent valuation) (Donovan and Nicholls 2003).

Cabinet Labels

A key feature of the cabinet displays was the level of information provided. In all three studies, the cabinet labeling method was periodically varied so that a given respondent might be influenced by either appearance features only, species identification labels, labels indicating type of commercial stain, or a marketing logo. An important part of this process was to note anecdotal comments offered by respondents (independent of the structured data collection). Often, these comments provided useful feedback in designing future studies.

Demographics

These three consumer preference studies occurred in the following markets: Anchorage, Fairbanks, and Sitka, Alaska; Seattle, Washington; and Portland, Oregon. Respondents were not screened (other than being at least 18 years old), and often an incentive, such as a key chain or tree seedling, was provided. In each study, respondents provided their demographic information on age, income level,



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Figure 3—Alaska birch cabinets on display at home show in Anchorage, Alaska.

gender, home ownership, and whether they were the primary decisionmaker in cabinet purchases. On average, respondents were older and wealthier than the normal population. For example, in the first study, the median age was 50.0 years compared to a median age for Alaska of 32.4 years (USDC Bureau of the Census 2000). In all three studies, the median household income of respondents was over \$70,000. Respondents in the second study in Anchorage declared an average household income of \$77,729 and in Seattle they declared \$86,628 (compared to the median household incomes of \$55,546 and \$45,736, respectively) (USDC Bureau of the Census 2000). The ratio of males to females was relatively even in the first two studies, but in the third study twice as many females participated.

Individual Study Procedures

Study 1—

The first study evaluated the consumer appeal of kitchen cabinets made from Alaska birch. The research questions compared consumer preferences for birch cabinets to other commercial hardwoods, based on visual criteria and how much consumers were willing to pay for the various cabinet styles (see footnote 1; Donovan and Nicholls 2003; Donovan et al. 2003; Nicholls 2001, 2005a; Nicholls



Figure 4—Different types of character marks in Alaska birch cabinets (study 1). Source: Donovan and Nicholls 2003.

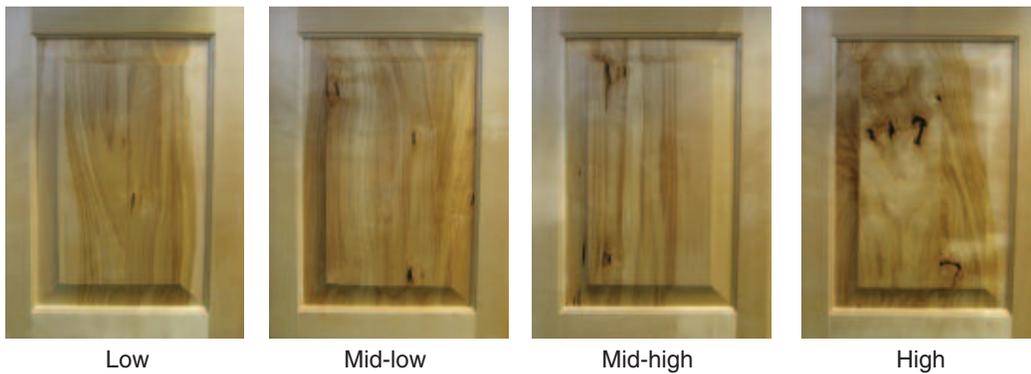


Figure 5—Different levels of character in Alaska birch cabinets (study 1). Source: Donovan and Nicholls 2003.

and Donovan 2002). Data were collected from 630 respondents at home shows in Anchorage, Fairbanks, and Sitka, Alaska, in spring 2002. All cabinets were rectangular, raised-panel style made from kiln-dried Alaska birch lumber with dimensions appropriate for a residential kitchen. Two sets of cabinets were produced: the first group had doors with different types of character marks (fig. 4) and the second group had doors with different levels of the same character type (fig. 5).

Study 2—

The second study compared consumer preference for kitchen cabinets made from red alder versus other commercial hardwoods. Research questions included: How do consumer preferences for red alder kitchen cabinets compare to other commercial hardwoods, based on visual criteria? How important is level of staining as a product attribute for red alder cabinets? What potential does red alder have to substitute for commercially established species, in particular eastern hardwoods? (Donovan et al. 2003, 2004; Nicholls 2005b; Nicholls et al. 2003, 2004a; Roos et

Research questions included: How do consumer preferences for red alder compare to other hardwoods? How important is level of stain? Can red alder substitute for other species?

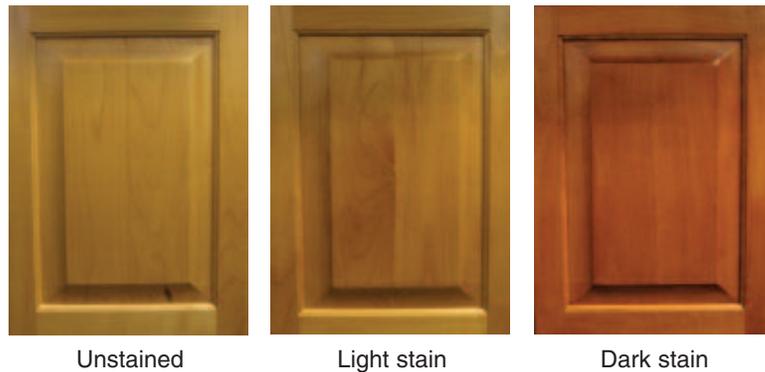


Figure 6—Different levels of stain in red alder cabinets (study 2).
Source: Donovan and Nicholls 2003.

al. 2005). Data were collected from 1,460 respondents at home shows in Anchorage, Alaska, and Seattle, Washington, in fall 2002. Cabinets were constructed from red alder, maple, red oak (*Quercus rubra* L.), hickory (*Carya* Nutt.), and cherry (*Prunus* spp.). The three red alder cabinets each had a different level of stain (fig. 6). Three labeling regimes were used: no information provided, species name provided, or species name and logo displayed (logo for red alder only; fig. 7).

Study 3—

The third consumer preference study evaluated red alder kitchen cabinets with various commercial stains. Research objectives were to study the popularity of red alder cabinets with different stains and evaluate the effect of product labeling on consumer preferences (Nicholls and Roos 2006b). Data were collected from about 600 respondents at home shows in Anchorage, Alaska, and Portland, Oregon, in 2005. All cabinets were rectangular, raised-panel style made from defect-free red alder. One cabinet was unstained and the other six were stained to resemble the following hardwoods: oak, maple, pine, chestnut (*Castanea* P. Mill.), mahogany (*Azalia* Smith), and walnut (*Juglans* L.). Each respondent saw one of three labeling methods. The first method displayed “alder” plus the name of the species being simulated through staining (fig. 8). The second method provided only the name of the species being simulated, and did not mention “alder.” The third labeling method provided no information, so choices were made based only on visual appearance.

Statistical Evaluations

Various statistical tests were used to compare relative popularity and willingness to pay in these studies. A discrete choice logit regression model was used to analyze

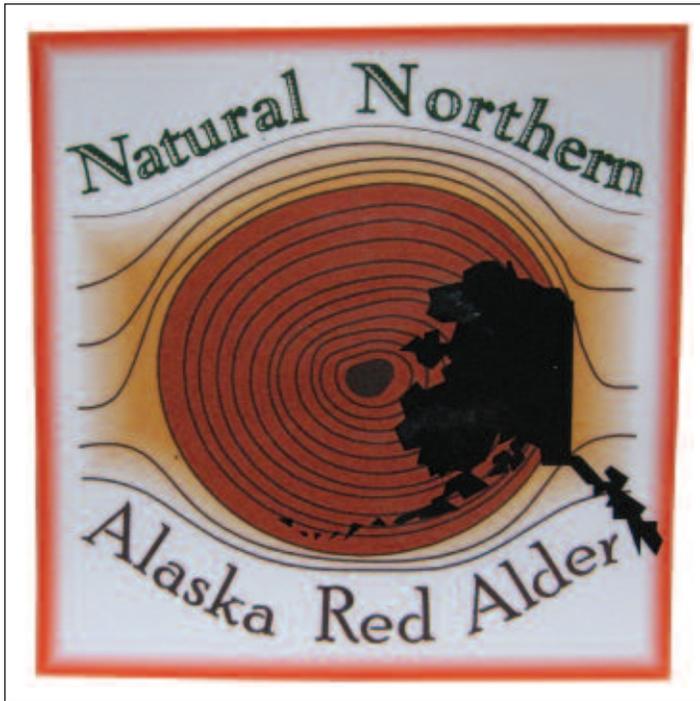


Figure 7—Red alder logo used for consumer preference evaluations in study 2. (Designed by Amy Sweeney)



Figure 8—Red alder kitchen cabinet doors commercially stained to different levels (study 3).
Source: Nicholls and Roos 2006b.

survey data and calculate willingness-to-pay estimates. The Chi-square test was used to compare labeling regimes (Nicholls et al. 2004a). Independent sample t-tests were also used to measure significant differences in selections. An analysis of variance (ANOVA) with a Tukey post hoc test was used to compare variance.

Certain species, wood characteristics, and labeling regimes were inherently more popular than others.

Logistic regression was used to measure the significance, sign, and magnitude of demographic factors (Roos et al. 2005). To determine willingness-to-pay estimates, Donovan and Nicholls (2003) used contingent valuation methodology.

Results

These studies offer insights into consumer preferences for Alaska hardwoods and how producers can effectively market kitchen cabinets. Certain species, wood characteristics, and labeling regimes were inherently more popular than others. The main lesson was that there could be successful markets for Alaska hardwood kitchen cabinets if they are tailored correctly to target appropriate consumers. Further, select demographic segments were willing to pay a price premium for their favorite cabinet(s). These studies also provided information on whether marketing efforts should emphasize a cabinet's visual appearance, species name, or other visual cues (e.g., a logo).

Overall Consumer Preferences

When considering red alder versus competing hardwoods, the results showed that cherry and maple were overall the most popular cabinet species, with red oak being the least popular (study 2). Red alder cabinets generally had intermediate popularity; however, this was influenced by level of commercial staining, with darker stain levels being considerably more popular than no stain. Red alder light stain was somewhat more popular than no stain at all.

When considering Alaska birch, the popularity of character marks was found to be very strong, especially at high levels of character (study 1). However, cabinets constructed from clear wood were also popular. Those who preferred doors with prominent defects were willing to pay more for them, in some cases more than double the original price, as was the case with the cabinet having distinctive grain variation.

Consumer preference by age—

Older respondents preferred birch doors constructed from clear wood, whereas younger respondents generally preferred character-marked doors (study 1). The name “hickory” appealed to older respondents, but without the name, hickory was not as popular among this age group (study 2). The red alder dark stain appearance appealed to the youngest market segment. The name “red oak” was popular among younger respondents, but red alder appearance was more popular among older

Table 1—Gender distribution for respondents selecting Alaska birch cabinet door as favorite, by character type and degree (study 1)

Door style	Cabinet door selected as favorite		
	Male	Female	All
		<i>Percent</i>	
Clear	44.2	55.8	100.0
Ray fleck	58.3	41.7	100.0
Spalted	63.5	36.5	100.0
Grain variation/knotted	52.6	47.4	100.0
Low character	48.1	51.9	100.0
Mid-low character	46.2	53.8	100.0
Mid-high character	48.3	51.7	100.0
High character	62.2	37.8	100.0

Source: Nicholls and Donovan 2004 (see footnote 1).

respondents. Unstained red alder was selected as the favorite most often or second most often in all age categories except those 61 to 70 years of age, who preferred red alder stained as maple or pine (study 3). The youngest age class (18 to 30 years old) was the only group to select mahogany as their favorite door.

Consumer preference by gender—

There were demographic differences in character preferences between male and female consumers, especially with high levels of character marks in birch cabinets (study 1). When considering birch cabinets, men generally preferred higher levels of character than women (table 1). In this study, gender was the only demographic factor that showed statistically significant differences in a respondent’s choice of door, with men preferring spalted and ray fleck doors, and women preferring clear doors (table 2). Men and women showed little differences in preferences among commercially stained red alder cabinet doors (study 3). Both genders chose the alder stained as walnut the least, whereas the unstained and alder stained as pine were selected most often as favorite doors (study 3).

Consumer preference by income—

There was no significant difference in mean income among respondents choosing their favorite type of character marks in the birch cabinets (study 1). However, there was a positive relationship between choosing unstained red alder and income when respondents did not know the species name (study 2). This relationship disappeared when the doors were labeled. The name “red alder” coupled with a darker stain appealed to higher income respondents (fig. 9) (study 2).

Table 2—Gender distribution for respondents selecting given cabinet door as favorite (combined results for Anchorage and Fairbanks) (study 1)

Door description	Males	Lower 95-	Upper 95-	t-group ^a
		percent confidence limit	percent confidence limit	
		<i>Percent</i>		
Clear	44.2	37.1	51.3	B
Ray fleck	58.3	43.9	72.8	AB
Spalted	63.5	54.5	72.4	C
Grain variation	52.6	46.4	58.8	AB

p-value = 0.0093.

^a Treatment means having the same letter are not significantly different based on Tukey's multiple comparison procedure (at the 0.05 level of significance). Source: Nicholls and Donovan 2004 (see footnote 1).

Within Alaska, different birch cabinet preferences were apparent, even between Anchorage and Fairbanks markets.

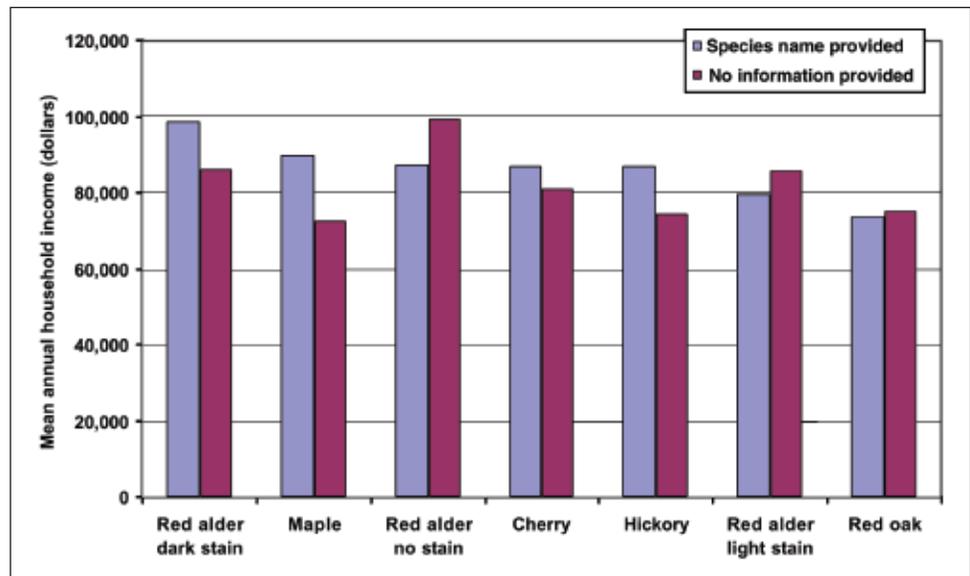


Figure 9—Mean annual household income by favorite kitchen cabinet door (species name provided versus no information provided) (study 2). Providing species name was significant at the 0.10 level for red alder dark stain and cherry, and at the 0.05 level for maple. Source: Roos et al. 2005.

Consumer preference by location—

Within Alaska, different birch cabinet preferences were apparent, even between Anchorage and Fairbanks markets (study 1). In Anchorage, low levels of character were favored (45 percent of the time). However, in Fairbanks, high levels of character were favored (41 percent of the time). Preferences among types of character marks were also significantly different between these two locations. Spalted birch cabinets were more popular in Fairbanks, whereas clear cabinets were preferred in Anchorage (table 3).

Table 3—Influence of location on consumer preferences (Anchorage versus Fairbanks markets) (study 1)

Door description	Fairbanks index ^a	Standard deviation	Lower 95-percent confidence limit	Upper 95-percent confidence limit	t-group ^b
Clear	0.344	0.476	0.275	0.414	B
Ray fleck	0.455	0.504	0.301	0.608	AB
Spalted	0.544	0.500	0.451	0.637	A
Grain variation	0.522	0.501	0.460	0.585	AB

p-value = 0.0007.

^a Proportion of respondents from Fairbanks (remaining respondents from Anchorage).

^b Treatment means having the same letter are not significantly different based on Tukey’s multiple comparison procedure (at the 0.05 level of significance).

Source: Nicholls and Donovan 2004 (see footnote 1).

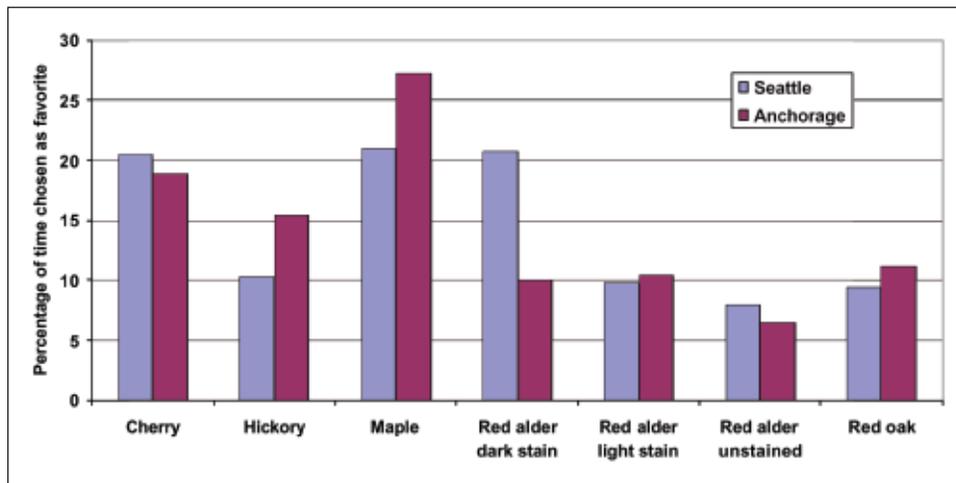


Figure 10—Regional differences for red alder versus other hardwood cabinet doors (study 2). Source: Roos et al. 2005.

In comparison to Seattle consumers, Anchorage consumers generally preferred maple cabinets, and had less interest in red alder cabinets (fig. 10) (study 2). However, Anchorage consumers showed little interest in maple-stained red alder cabinets as opposed to a high preference for them in Portland (study 3). Further, the unstained red alder cabinet received high preference in Anchorage but lower ratings in Portland (fig. 11).

Character Markings

In study 1, grain variation in birch cabinets was selected as favorite most often (42 percent), followed by clear (31 percent) (fig. 12). Respondents tended to prefer

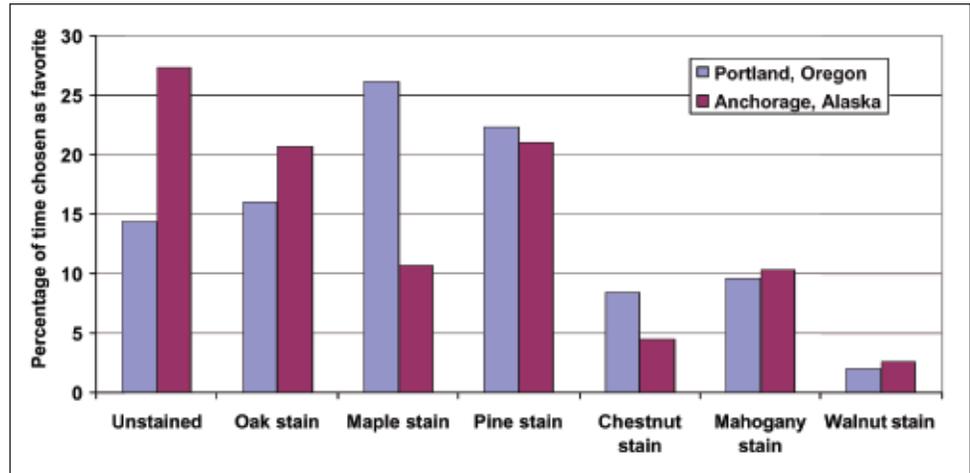


Figure 11—Regional differences for commercially stained red alder kitchen cabinets (study 3). Source: Nicholls and Roos 2006b.

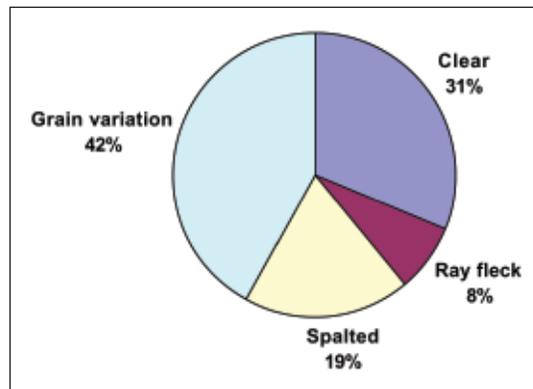


Figure 12—Consumer preferences for kitchen cabinets from Alaska birch, by character types (study 1). Source: Donovan and Nicholls 2003.

either distinct markings or none at all. Low character was selected as the favorite 40 percent of the time, followed by high character (32 percent of the time) (fig. 13).

In addition, home show attendees offered the following comments regarding character markings in Alaska birch cabinets:

- Match the frame material with the same level of character found in the face material.
- Character marks were generally desirable (including heavy character markings) as long as there was minimal surface roughness associated with them.
- Spalted lumber would be good for small items such as kitchen end tables but could be too bold for a complete set of kitchen cabinets.

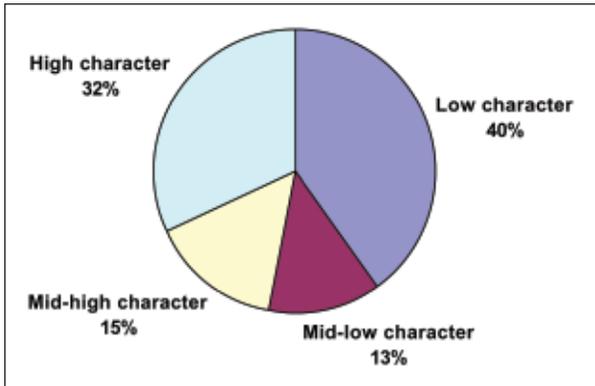


Figure 13—Consumer preferences for kitchen cabinets from Alaska birch, by levels of character (study 1). Source: Donovan and Nicholls 2003.

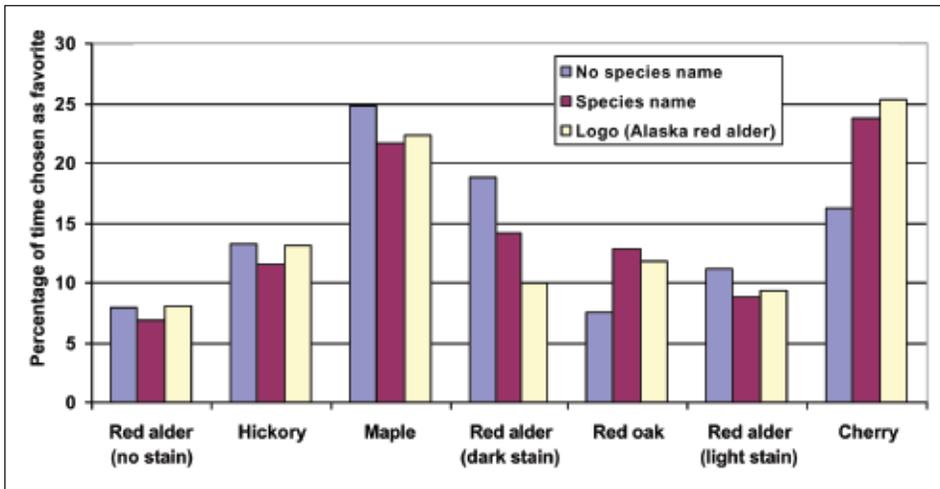


Figure 14—Consumer preferences for kitchen cabinets, red alder versus other hardwoods (study 2). Source: Nicholls et al. 2003.

- Distinct preferences for different types of character; therefore, not advisable to market all types of character under the generic term “character marking.”

The Effect of Species Name

Depending on the species, the presence of species name had either a positive or negative effect on cabinet door popularity. In general, the alder species name had a negative effect on consumer preferences for red alder even when stained to different levels (fig. 14) (study 2). The most notable exception to this trend was chestnut stain (fig. 15). Here, cabinets were most popular when the alder species name was included. Another exception was the higher income market segment, which

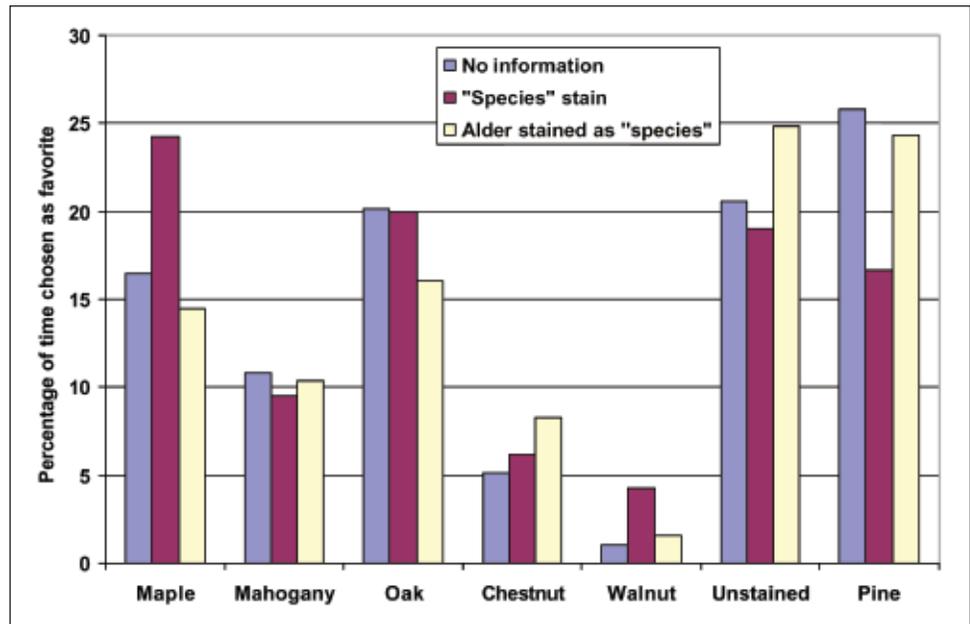


Figure 15—Comparison of the three labeling methods in red alder commercial stain study. Source: Nicholls and Roos 2006b (study 3).

Dark-stained red alder cabinets were generally preferred by younger, higher income consumers.

preferred dark-stained red alder cabinets with the name exposed more often than without (see fig. 9). In study 2, the number of respondents who selected dark-stained red alder as their favorite door decreased by 24.5 percent once the name was present, whereas when the name “red oak” was displayed, the number choosing that door increased by 72.0 percent.

The Effect of Commercial Stains

The effect of commercial stain on popularity of red alder cabinets produced contradictory results. The stains used in this research were all commercial, penetrating stains and were selected to include a range of colorations (from a total of 22 available stains). Generally, there was a positive correlation between stain level and popularity, with dark stain being most popular (see fig. 14) (study 2). However, red alder cabinets stained to very dark levels (e.g., commercial walnut stain) were least popular (see fig. 15) (study 3). Dark-stained red alder cabinets were preferred by younger, higher income respondents and unstained cabinets were preferred by older respondents (study 2).

Table 4—Respondents’ mean willingness to pay (WTP) for a favorite birch cabinet door (study 1)

Door	Mean WTP	Mean WTP ranking
	<i>Dollars</i>	
Clear	36.70	2
Spalted	32.10	3
Grain variation	43.00	1
Low character	14.80	4

Source: Donovan and Nicholls 2003.

Table 5—Respondent’s mean willingness to pay (WTP) for a favorite red alder cabinet door (study 2)

Door	Mean WTP	Mean WTP ranking
	<i>Dollars</i>	
Cherry	29.20	5
Hickory	32.50	4
Maple	39.30	1
Red alder (dark stain)	33.60	3
Red alder (light stain)	20.50	6
Red alder (unstained)	15.70	7
Red oak	35.40	2

Source: Nicholls et al. 2004a.

Willingness to Pay

Birch cabinets—

Willingness to pay is the price premium consumers are willing to pay for their favorite versus second favorite door, and contingent valuation methodology (CVM) was used to estimate this amount (study 1). Key findings were that high levels of grain variation and character markings in birch cabinets were generally most appealing; however, clear wood was also popular (table 4). Fleck patterns, spalted material, and intermediate levels of character were generally less well received. Differences in consumer preferences were found between Alaska’s two largest markets (Anchorage versus Fairbanks). An important finding regarding Alaska birch cabinets was that there was a positive correlation between popularity and willingness to pay, with consumers willing to pay a price premium of between about \$15 and \$43 for their favorite door (above a base price of \$40) (table 4).

Red alder cabinets—

In the red alder study, respondents were most willing to pay a price premium for maple cabinets, but the mean willingness to pay for dark-stained red alder was

Table 6—Percentage of respondents who selected hardwood kitchen cabinet door as favorite when logo was absent versus present (study 2)

Door	Logo not present	Logo present	Percentage of change from adding logo
			<i>Percent</i>
Cherry	23.80	25.30	6.30
Hickory	11.50	13.10	13.90
Maple	21.70	22.30	2.76
Red alder (dark stain)	14.20	10.00	-29.60
Red alder (light stain)	8.77	9.39	7.07
Red alder (unstained)	6.89	8.01	16.30
Red oak	12.90	11.80	-8.53

Source: Nicholls et al. 2004a.

Table 7—Primary information source when purchasing hardwood cabinets, by demographics (study 2)

Information source	Overall responses	Percentage of those choosing source that were female	Mean age	Mean family income
		<i>----- Percent -----</i>	<i>Years</i>	<i>Dollars per year</i>
Home show	16	47.9	49.6	82,600
Internet	6	49.4	40.0	88,000
Magazine	16	60.4	46.2	87,000
Sales staff	48	60.1	47.4	82,500
Word of mouth	14	57.4	46.5	79,700

Source: Donovan et al. 2004.

nearly as great (table 5) (study 2). Generally, mean willingness to pay was greater for birch than for red alder cabinets (see table 4). Although this observation is based on different samples, table 4 shows that respondents were willing to pay more for the birch cabinet with grain variation than for any other type of hardwood displayed (the second highest mean willingness to pay was for the maple cabinet).

Use of Logo

The presence of the red alder logo (see fig. 7) on the cabinet doors did not increase their popularity. In fact, the percentage of respondents who selected the dark-stained red alder door as favorite dropped by almost 30 percent when the logo was displayed versus no logo (table 6) (study 2). It is possible that a different logo design would have a more positive effect on popularity.

Sources of Product Information

In the second study, respondents were asked “What information sources do you find most important when purchasing kitchen cabinets?” By a wide margin, the

most common information source was retail sales staff (listed 48 percent of the time) (Donovan et al. 2004). Magazines and home shows were the next most common responses (both listed 16 percent of the time), as seen in table 7 (study 2). Not surprising, younger respondents described using the Internet more often as an information source. An ANOVA analysis indicated that choice of information source differed by age, gender, and market location, but not by income.

Discussion

Consumer preference studies on kitchen cabinets conducted by WUC researchers offer insights into the potential markets for products from Alaska hardwoods, including red alder and paper birch. Alaska species have unique visual properties that may help differentiate them from competing species of other regions. Central to this research was determining the types of cabinet styles and appearances that were preferred by specific consumer segments in selected markets (including Alaska and the Pacific Northwest).

The Kitchen Cabinet Manufacturers Association recognizes the need for ongoing research and development to stay current with consumer demands and changing preferences (Jenkins 2006). Because kitchens are becoming the “focal point of many U.S. households” (Frank 2006), consumers are trying to find ways to distinguish their kitchens. Shifting preferences and increasing demand in kitchen cabinets may create new opportunities for wood species that were not previously popular, specifically rustic appearances that could contain character markings and other lumber defects. Alaska birch and red alder may meet some of these demands for diverse cabinet styles.

This research synthesis indicates that a high occurrence of character markings in Alaska birch (including knots, grain variation, and bark pockets) may represent an opportunity for manufacturing distinctive cabinets having strong consumer appeal. Further, consumer willingness to pay a price premium for their favorite cabinet was in some cases substantial, at least twice the base price of cabinets. Consumer demographics were found to be important for birch cabinet preferences. For example, women were more likely to prefer clear wood, whereas men preferred spalted cabinets. Regional differences were also apparent with spalted birch cabinets being more popular in Fairbanks, Alaska, whereas clear cabinets were preferred in Anchorage, Alaska. This indicates the importance of proper market research even when considering same-state markets.

These findings are significant when considering the extent of Alaska’s birch resource, and the fact that much of the lumber from Alaska birch is of lower grades

(Nicholls et al. 2004b). These two factors, combined with an increased willingness to pay a price premium for certain appearances of birch when used in cabinet production, could help create business opportunities for Alaska's sawmills and secondary wood products firms.

However, production, marketing, and distribution channels would need to be developed and new skills learned. For example, birch lumber would need to be kiln dried to high quality standards with a minimum of drying checks, warping, or other drying defects (as was the case with lumber used in these studies). Producers would need to develop systems for characterizing and sorting birch lumber having the desired levels and types of defects. Proper planing, profiling, and edge gluing techniques would be needed to ensure satisfactory properties in service. Lastly, effective marketing strategies would need to be developed. A recent survey of birch producing firms in Alaska found that almost 94 percent of sales were within Alaska (Braden and Nicholls 2004). Producers who identify niche markets, and then successfully develop different products for target demographic segments within these markets, can achieve competitive advantages.

Red alder cabinets were found to compete well versus more popular hardwoods, particularly when commercially stained to various levels. However, established hardwoods, such as maple and cherry, were overall more popular than red alder. Red alder was less popular when doors were labeled with the species name (versus no information). In contrast, the species name of cherry positively influenced consumer responses. For red alder cabinets, preference for lighter stained doors had significant gender differences (with women favoring this door). The role that income played was demonstrated by the appeal to higher income consumers of dark-stained red alder with species name displayed.

Despite this market potential, and strong national interest in red alder, there is no red alder lumber industry in Alaska at this time to support a companion cabinet manufacturing industry. Many of the same challenges facing birch cabinet production (including quality kiln drying and production) would also be relevant for red alder. Perhaps red alder's biggest asset is its ability to accept a wide range of commercial stain colorations, allowing it to emulate other popular species. This further highlights the importance of market research, because wood characteristics such as texture (Broman 1995), as well as wood color and grain (Fell 2002), influence consumer's attitudes toward wood products.

Wide-ranging information sources available to consumers (including electronic and print media) create an array of marketing options, and give even small producers the ability to reach specific demographic segments. However, in-store

Perhaps red alder's biggest asset is its ability to accept a wide range of commercial stain colorations.

sales staffs were found to be an important information source among consumers purchasing cabinets. Niche marketing is an effective way to reach small groups of segmented customers and can be used successfully by smaller firms with limited resources, including many Alaska companies. Key issues for secondary wood products firms to consider could include the choice of raw materials to use (i.e., spalted, ray fleck, or grain variation wood).

Summary Points

Birch cabinets—

- Several local Alaska manufacturers are already producing birch cabinets, but overall birch utilization in Alaska remains low.
- With Alaska's two largest markets (Anchorage and Fairbanks) located within birch-producing regions, local sawmills and cabinet makers have ample opportunity to market custom cabinets locally.
- Alaska birch contains a wide variety of character marks that cabinet manufacturers can include in their products marketed to different demographic segments.
- Older respondents generally preferred cabinets constructed from clear wood.
- Younger respondents generally preferred the three types of birch character markings (i.e., ray fleck, spalted, grain variation).
- Spalted cabinet doors were generally preferred by men (whereas women generally preferred clear doors).
- High levels of character were generally preferred in Fairbanks (versus lower levels of character in Anchorage).
- High willingness to pay was evident for cabinet doors having a high level of grain variation.
- Consumers exhibited different preferences for different types of character marks in birch cabinets. Thus, marketing efforts should consider specialized preferences between demographic segments.

Red alder cabinets—

- Because only softwood lumber is currently being dried in southeast Alaska, kiln owners will need to “learn” hardwood drying schedules and other lumber drying skills when producing red alder lumber.
- Increasing trends for red alder log and lumber prices could place added market demand on red alder resources in southeast Alaska, despite its smaller diameter and greater distance from most markets.

- Although this red alder research considered only clear wood, “knotty” red alder represents another use of lumber.
- Red alder’s ability to accept a uniform commercial stain over a wide range of colors could be a key to successful utilization. In this way, red alder could emulate more popular species.
- Certain demographic segments show strong preferences for red alder (e.g., younger respondents prefer dark stain), whereas preferences by other demographic segments are less well defined. Therefore, it will be important to accurately market cabinets to specific target groups.
- WUC research on red alder reinforces the idea that consumer preferences for wood products are influenced by the visual characteristics of the wood (i.e., warmth, color, grain texture, richness) as well as species preconceptions.
- Based on species name only, red alder is not as popular as other well-established hardwoods such as cherry and red oak. To maximize red alder potential, marketers should emphasize visual characteristics rather than species name.
- Use of a logo was not effective in increasing popularity of red alder cabinets. However, this research considered only one logo design; others could be explored.
- Over a broad spectrum of commercial stains, very dark stains (such as mahogany and walnut) were very unpopular, being preferred by only a small percentage of respondents.
- When considering the effect of species name on consumer preferences for red alder cabinets, both income and age are significant considerations.
- When considering unstained, light-stained, and dark-stained red alder cabinets, willingness to pay a price premium was greatest for dark-stained red alder, and least for unstained red alder.
- Retail sales staffs are an information source to consumers, and this should be recognized when developing marketing strategies.

Acknowledgments

The authors wish to thank Geoffrey H. Donovan and Joseph Roos for their significant contributions to the research studies described in this paper and for their insights, enthusiasm, and energy during these collaborations.

Metric Equivalentents

When you know:	Multiply by:	To find:
Board feet, log scale	0.0045	Cubic meters, logs
Board feet, lumber scale	.0024	Cubic meters, lumber
Cubic feet	.028	Cubic meters
Inches	2.5	Centimeters

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