

Factors Affecting the Use of Western Juniper (*Juniperus occidentalis* Hook.) as Moulded Picture Frame Stock

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Edwin J. Burke
Missoula, Montana

Introduction

Lumber cut from western juniper, *Juniperus occidentalis* Hook., generally contain defects such as knots, bark inclusions and decay pockets that make large recoveries of moulding stock, select-grade boards, higher common-grade boards and fingerjoint cutstock unlikely. These defects, however, provide material with the appropriate character sought after by artists and galleries for use in frames and display bases for western art and artifacts (Swan, 1995¹). Preliminary investigation of the use of rustic frames and bases for artwork on display in Park City, Utah galleries, showed that the lower quality juniper would be an acceptable, if not highly desirable, addition to the short list of wood species (primarily pine) currently used for these items. The contrast between the pale white sapwood and the reddish-brown heartwood, dark bark inclusions and the undulating wood grain near large knots all combine to produce a dramatic effect suitable for many framing situations.

The artists using this "lower" grade of material for frames and bases have, in addition to aesthetic and artistic considerations, the more technical requirements for finish, miter-joint strength and in-service wood stability. The frames and bases must be able to withstand the structural stresses imposed in many different applications and must also be resistant to warping in service.

Based on this information, an informal survey of artists, gallery proprietors, custom frame and base makers and a moulded frame-stock producer was conducted in order to determine manufacturing and marketing requirements that must be met in order to utilize western juniper for frames and bases. Results are particularly important to potential manufacturers interested in manufacturing Picture frame stock as well as the producer of relatively small numbers of frames built to customers specifications.

Methods and Materials

Two western-style artists, proprietors of three western-Montana art galleries specializing in western art were asked to examine samples of western juniper lumber containing a variety of defects (knots, bark inclusions, decay, warp) and express their impression of the marketability of this material as rustic frames

¹ Swan, L. 1995. Personal communication, 3 September, 1995. Notes on file, USDA Forest Service, Winema National Forest, Klamath Falls, OR.

and bases **for western art**. These **individuals were also** asked which stock profiles would **be** the most **appropriate** for this type of frame, **and which miter joint techniques** were **acceptable, and which** was the **most-desirable**. Specific information concerning the desired size of defects, width, thickness, profile and finish of the frames **and bases was also gathered**.

In addition, a **Missoula, Montana-** based **frame-stock** manufacturer **and** distributor was **queried** about their manufacturing process's raw material requirements **in terms of** knot size **and** location, required moulding stock thickness and width tolerances, minimum stock length, **overall** manufacturing suitability.

Results and Conclusions

Results of the interviews of **2 artists, 4 gallery principals, 3 framing shop** proprietors and **a frame stock** producer provided **the** following insight into **the requirements that** western juniper frame stock **must meet if it is to enter this market**.

- 1.** Frame shops either buy moulded frame **stock** in 8 to 10-foot lengths, cutting the frame pieces and assembling them in the shop, or they special order the pieces already cut to length at the factory ("chops"), assembling the pieces at the frame shop. Generally, chops are **provided as a** service in only the less popular, or difficult-to-cut overlaid stock.
- 2.** The market for use of clear and nearly-clear western juniper in **non-rustic frames is limited**. Based on the sale of frame **stock and** frames made **from** other softwoods, such as lodgepole **pine**, both simple and intricately-moulded, **most** consumers are not **seeking a rustic appearance** and are choosing oak and ash.
- 3.** Due to the framed contents **exerting** large forces on the lower horizontal member. the strength of the lower miter joints is especially critical in the frames of mirrors **and** large, glass-covered art prints.
- 4.** **Regardless** of whether the shop utilized in-house cut pieces or **chops, the joint of choice is the** "Casease", which utilizes **thin steel chevrons, pressed into the reverse side of** the miter joint, joining **both pieces** together. The machine **that** inserts the chevrons is **pneumatically-operated**, and costs approximately \$3,500.
- 5.** **Frames** using 1 1/2 **inch-wide** stock **generally** will have 2 chevrons in each corner joint, while **stock 2 inches and greater** in width use up to 4 chevrons. Very wide frames can **use even** more.
- 6.** The artists generally seek out custom makers for **rustic** frames. These makers can **be difficult to locate**, and quality and timeliness of work can often be less than **required**.
- 7.** **Custom** makers rarely **have** the industry-standard "Casease" joint equipment, and generally use the older method of "pinning" the joint with finishing nails **from** the outside edges.

Implications for Industry

1. Kiln **drying and grading** 4/4 and 6/4 inch-thick **western** juniper lumber using pine shop **grading** criteria would **allow limited use** of western juniper by large moulding producers **supplying** the **picture framing industry**. Thickness and width tolerances of dried lumber are **+0.063"**, **-0.030"**, and lengths **as short as 18"** are recommended, with occasional pieces of 12" thought to be usable in most **moulders**. This market, however, is quite small, as these manufacturer's principal customers are not engaged in the **rustic** segment of **the frame market**.
2. While the size of the established **market for rustic frames** is still **limited**, a manufacturer of quality frames using the lower grades of western juniper should be able to enter this market if they can provide artists and galleries with frame stock and frames from **kiln-dried** lumber of relatively low (#3 common) **quality**.
3. "Casease" joints, wood **plate** joints using the **special** picture frame plates (**Lamello®** brand #4) and double-pinning with finishing nails **are** all options for rustic frames.
4. Clear and slightly-colored polyurethane varnish, applied by high-volume, low pressure sprayer, are standard industry finishes, generally applied to the face **and** sides of the frames. Occasionally, all four sides **are finished**. **Rustic frames** can also be used without finish.
5. Lumber dried to 10% moisture content following schedules **used** for shop (factory) lumber is **generally specified** by the moulding manufacturers. The relatively low moisture content and more stringent **drying regime** of shop lumber is chosen due to the minor amounts of residual drying stresses (**casehardening**) and a **final** moisture content close to **the** in-service moisture content. Complaints of movement and warping in service **are infrequent** when properly-dried lumber is used. It is quite likely that western juniper will be able to **perform** at a **level** that approaches these standards, especially considering that most use will be in rustic frames where minor **checking**, slight **warp** and other such **defects** can be **viewed** as enhancements.
6. **Based** on retail prices in one western U.S. urban area, retail frame prices for medium-cost **profiles** of pine, *oak* and ash average from \$8 to \$12/lineal foot, with wholesale prices averaging about 50% of retail. It is conceivable that custom rustic frames made to artist or gallery **specifications** would command **even higher** prices.